Conservation Plan
Cass County Solar Project
Beardstown and Hagener Townships, Cass County, Illinois

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ECT No. 190596-0700

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AC	Alternating Current
Applicant	Cass County Solar Project, LLC
BMPs	Best Management Practices
CSES	Commercial/Large Scale Solar Energy System
DC	Direct Current
ECT	Environmental Consulting and Technology, Inc.
EO	Element Occurrence
ESA	Endangered Species Act
Ha	Hectare
ICF	Illinois Chorus Frog
IDNR	Illinois Department of Natural Resources
IEPA	Illinois Environmental Protection Agency
ITA	Incidental Take Authorization
km	kilometer
kV	kilovolt
MISO	Midcontinent Independent System Operator
MW	Megawatt
NRCS	Natural Resources Conservation Service
O&M	Operation and Maintenance
OBT	Ornate Box Turtle
PEM	Palustrine Emergent
PHNS	Plains Hog-nosed Snake
Permanent Loss	Impacts that will last behind the life of the Project.
POI	Point of Interconnection
PSS	Palustrine Scrub-shrub
Project	Cass County Solar Project
Project Facilities	All infrastructure constructed as part of the Project.
Project-lifetime	Impacts that last until the Project is decommissioned.
PV	Photovoltaic
RFB	Regal Fritillary Butterfly
SCADA	Supervisory control and data acquisition
SESC	Soil Erosion and Sedimentation Control
T&E	Threatened and Endangered Species
Temporary Impacts	Short-term impacts to habitat areas during Project construction.
USACE	U.S. Army Corps of Engineers

1.0 Introduction

Cass County Solar Project, LLC ("Applicant") is proposing to develop a Commercial/Large Scale Solar Energy System ("CSES") in Cass County, Illinois. On behalf of the Applicant, Environmental Consulting and Technology, Inc. ("ECT") has prepared this Conservation Plan for the Illinois chorus frog ("ICF"; *Pseudacris illinoensis*), ornate box turtle ("OBT"; *Terrapene ornata*), plains hog-nosed snake ("PHNS"; *Heterodon nasicus*), and regal fritillary butterfly ("RFB"; *Speyeria idalia*) in support of the Applicant's efforts to develop the Cass County Solar Project ("Project") in Beardstown and Hagener Townships, Cass County, Illinois (Appendix A: Figure 1. Project Location Map). This Cass County Solar 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 Conservation Plan.

2.0 Conservation Plan

2.1 Purpose and Need

Consultation with IDNR was requested through the EcoCAT program on both September 24, 2019, and due to Project boundary changes again on February 10, 2020 (Appendix B: IDNR Correspondence) for the Cass County Solar Project area. Several species listed pursuant to the Illinois Endangered Species Act ("ESA") of 1973 (as amended) and the Illinois ESA (420 ILCS 10/7) were identified as potentially occurring in or in the vicinity of the Project area. Consultation with IDNR indicated the potential need for Incidental Take Authorization ("ITA") for four (4) species. These species include ICF, OBT, PHNS, and RFB, all of which are State Threatened. A review of the Illinois Natural Heritage Database indicates Element Occurrences ("EOs") for the ICF are adjacent to the Project area. A preapplication meeting for the ITA was held on February 3, 2021. Additional correspondence with IDNR occurred to discuss plan requirements and expectations (Appendix B: IDNR Correspondence).

Habitat surveys were conducted in August and October of 2019, and May of 2020 in order to assess potential habitat for Threatened and Endangered ("T&E") species in the Project area (Appendix C: Habitat Surveys). The habitat surveys determined that potential habitat for the ICF, FR, OBT, and the PHNS may exist within the Project area. However, the Project area is largely composed of regularly disturbed agricultural land, which provides poor and mostly unsuitable habitats for these species.

This Conservation Plan addresses the Project's potential effects to the ICF, OBT, PHNS, and RFB due to the construction of a 150-megawatt alternating current ("MW AC") CSES. The Project will connect to the Midcontinent Independent System Operator ("MISO") transmission system at the 138-kilovolt ("kV") transmission line that runs through the Project. This will require a main power transformer and a circuit breaker. The Project has been developed and designed to optimize the solar resource while minimizing impacts to natural resources and suitable habitat. This Project is part of the effort to develop clean renewable energy sources within the state of Illinois and get the state closer to its statutory requirements, established recently through SB2408, to reach 100% by 2050. Subject to the requirements of §1-75, the state is required to procure up to 45,000,000 Renewable Energy Credits annually from utility-scale solar projects by 2030 – 55% of which must come from photovoltaics projects, which this Project intends to contribute towards.

2.2 Project Location and Description

The Project is located within Beardstown Township and Hagener Township, southwest of the City of Beardstown, in Cass County, Illinois along southbound U.S. Highway 67 and Berger Lane in Sections 28, 29, 30, and 31 of Township 18N, Range 12W, and Section 5 and 6 of Township 17N, Range 12W (Appendix A: Figure 1. Site Location Map). The Project area consists of 2,382 acres situated on agricultural land, located east of the Illinois River. The Project is bordered to the west and north by Beardstown Drainage Road, to the south by Berger Lane, and to the east by U.S. Highway 67. The Project area includes a future parcel to be developed as the Point of Interconnection ("POI"). The POI property is approximately 9 acres, located in the east-central portion of the Project area south of Edgewood Drive and west adjacent to the existing 138 kV transmission line. The POI property will be transferred to the Transmission Owner following preliminary construction activities. The Applicant's interest in the POI property will cease upon transfer to Transmission Owner

The Project is a 150-MW AC ground-mounted utility solar energy facility capable of providing clean, renewable electricity to approximately 40,600 Illinois homes. The Project components will include photovoltaic ("PV") solar panels that will be mounted on a single-axis tracking system with a 60+/- degree tilt, along with the associated infrastructure of above-ground low voltage cable management system, electric inverters, and transformers, underground electrical collection system, electrical collector substation, overhead transmission line, point of interconnection switchyard, an operations and maintenance ("O&M") building, battery storage, solar met stations, supervisory control and data acquisition ("SCADA") hardware, control house for protective relay panels and site controllers, private access roads with gated ingress/egress points, security fencing and any associated facilities. Temporary facilities associated with construction will include construction laydown yards. Collectively, the facilities listed in this paragraph comprise the "Project Facilities". Project Facilities are concentrated primarily on the open, undeveloped fields (see Table 1: Land Cover).

Table 1. Land Cover

Land Classification	Acres	Percent
Cultivated Crops	2,212.17	92.85%
Developed, Medium Intensity	61.15	2.57%
Woody Wetlands	57.91	2.43%
Developed, Open Space	23.01	0.97%
Emergent Herbaceous Wetlands	15.34	0.64%
Deciduous Forest	6.2	0.26%
Developed, Low Intensity	5.67	0.24%
Open Water	0.81	0.03%
Barren Land	0.14	0.01%

Construction of the Project Facilities will involve minimal site preparation such as clearing of vegetation or grading due to the Project site being primarily an open cultivated, flat agricultural field. The Project construction will include the following, (see Appendix D: Construction Details):

- Installation of security fence
- Installation of graveled access roads
- Installation of the foundation piles for the solar panel arrays (via driven or screwed piers) into the ground
- Placement of the racking and motors for the solar panel arrays on the foundation piles
- Placement of PV panels on the racking system
- Installation of inverters and medium voltage transformers on foundation piles or concrete pads
- Installation of electric collection lines via open-cut trenching, plowing, or boring methods
- Grading, base installation for the Project substation site, O&M site, POI, and battery storage site
- Installation and construction of substation equipment and O&M building (security fencing, lighting, and related equipment)
- Installation of drilled concrete piers and mat foundations for substation area
- Installation of solar met stations and control house for protective relay panels and site controllers and other monitoring equipment
- Temporarily disturbed construction and access areas will be restored, revegetated, and returned to pre-construction conditions

As mapped by the Natural Resources Conservation Service ("NRCS"), Project soils are comprised of 997.6 acres (41.9%) Ambraw clay loam, 255.4 acres (10.7%) Plainfield sand at 1-7 percent slopes, 255 acres (10.7%) Darwin silty clay, 0 to 2 percent slopes, occasionally flooded, 113.9 acres (4.8%) Beardstown loam, 0 to 2 percent slopes, 111.9 acres (4.7%) Sawmill silty clay loam, 0-2 percent slopes, occasionally flooded; with remaining soil types at 3.2% or less of the Project area acreage (Appendix A: Figure 2. Soils; USDA-NRCS 2021).

Based on field review, the Project area is comprised primarily (>90percent) of cropland. Additional land cover types present include upland forest; tributaries, streams, and drains; developed land; structures, roadways, and parking areas; idle-introduced non-native grassland; dominated by the invasive cheatgrass (Bromus japonicus); and finally, wetlands, each comprising less than 2 percent of the Project area (Appendix C: Habitat Surveys). Habitat Surveys were coordinated with USFWS and agency recommendations were received on July 1, 2021. The Project provided a written response on September 21, 2021. (Appendix E: USFWS and USACE Correspondence)

A wetland and waterbody delineation field survey was conducted within the Project area from August 21 to 23, 2018, on October 30, 2019, and from May 13 to 14, 2020. Five (5) wetlands, eleven (11) streams, two (2) drainage features, and one waterbody (pond) were delineated within the Project area. Wetlands were found to comprise approximately 17.7 acres of the total Project area, and wetland habitat quality was noted to be variable. All delineated non-isolated water features within the Project area drain to the Illinois River and are assumed to be federal and state jurisdictional waters regulated by the U.S. Army Corps of Engineers ("USACE") and Illinois Environmental Protection Agency ("IEPA"). A request for an Approved Jurisdictional Determination was submitted to USACE on September 1, 2020, and remains pending at this time.

The five delineated wetlands totaled approximately 17.7 acres within the Project area and were identified as palustrine emergent ("PEM") and palustrine scrub-shrub ("PSS") types, as described by Cowardin et al. ([1979]; Table 2).

Table 2. Delineated Wetlands in the Project Area

Wetland ID	Wetland Type[1]	Total Acreage
W-T01-001	PSS	11.0
W-T01-002	PEM	6.2
W-T01-003	PSS	0.2
W-T03-001	PEM	0.2
W-T03-002	PEM	<0.1
	Total	**17.7**

Source: Ecology and Environment. Inc. (August 31, 2020: Wetland and Waterbody Delineation Report)
[1] PSS = Palustrine scrub/shrub, PEM = Palustrine emergent

The Project area is located on privately owned properties. The Applicant has entered into solar energy land rights agreements on the properties on which the Project will be developed. These agreements will be in place for the life of the Project, which is anticipated to be approximately thirty (30) years.

The Project has entered into a Land Purchase Option Agreement for more than 9 acres for the Transmission Owner's Switchyard (Appendix F: Land Control Documentation). The Project Interconnection Agreement requires that the POI property be transferred to the Transmission Owner following the completion of the POI construction activities required to be completed by the Project.

2.3 Protected Species

Consultation with IDNR was requested through the EcoCAT program on both September 24, 2019, and due to Project boundary changes again on February 10, 2020 (Appendix B: IDNR Correspondence) for the Project area. Several species listed pursuant to the Illinois ESA of 1973 (as amended) and the Illinois ESA (420 ILCS 10/7) were identified as potentially occurring within the vicinity of the Project area. IDNR indicated the potential need for incidental take authorization for four (4) species. These species include ICF, OBT, PHNS, and RFB, all of which are State Threatened. A review of the Illinois Natural Heritage Database indicates elemental occurrences of ICF adjacent to the Project area. There are no EOs for the other species.

Habitat surveys were conducted in August and October of 2019, and May of 2020 in order to assess potential habitat for T&E species in the Project area (Appendix C: Habitat Surveys). The habitat surveys determined that potential habitat for the ICF, FR, OBT, and the PHNS may exist within the Project area. However, the Project area is largely composed of regularly disturbed agricultural land, which provides poor and mostly unsuitable habitats for these species.

2.3.1 Illinois Chorus Frog

The ICF is found in remnant populations in floodplains along the Illinois and Mississippi Rivers in Illinois, Missouri, and Arkansas. Its current range in Illinois is limited to the central part of the Illinois River and along the Mississippi River from Madison to Alexander Counties (J. K. Tucker 2005). In Cass County, the ICF has been recorded in several locations along the Illinois River, including as recently as 2017 (Henning and Hinz Jr 2016).

This fossorial species is limited to areas of sandy soils, such as dry-mesic sand prairies (Brown and Rose 1988). They rarely utilize forests but may utilize savanna habitat (Henning and Hinz Jr 2016). They prefer loose, bare, or sparsely vegetated soil, as plant roots in the soil can impede burrowing. The ICF spends the majority (approximately 85 percent) of its life underground (J. K. Tucker 2008).

ICFs emerge from their sandy burrows for the breeding season following early spring rains where they travel to nearby shallow, isolated waters lacking predators, such as ephemeral ponds, flooded fields, and ditches, for reproduction. Larger bodies of water or streams with flowing water are not suitable for breeding (Brown and Rose 1988). The breeding season for this species in central Illinois is February through April, possibly extending through late May (Brown and Rose 1988; Hulin, Golden, and Bluett 2015). Tadpoles mature into their terrestrial form about two months following hatching and leave their natal wetlands to burrow in late May or early June (J. K. Tucker 2000).

The largest threat to this species includes habitat loss and severe fragmentation from the draining of ephemeral wetlands and flooded fields for agricultural use or development (Henning and Hinz Jr 2016; J. K. Tucker 2008; Trauth, Trauth, and Johnson 2006). Chemical runoff from agricultural practices into adjacent wetlands is also detrimental to the ICF (Henning and Hinz Jr 2016; IDNR 2009). Nonetheless, agricultural practices can be compatible with the wetland habitat requirements of the ICF if natural vegetation in and around wetland habitats is left unmowed and harmful runoff is minimized through a limitation of chemical use and/or maintaining a vegetated buffer around wetlands (IDNR 2009).

A review of the Illinois Natural Heritage Database identified three ICF breeding locations within one one kilometer ("km") of the Project. According to the literature ICF typically do not travel more than one km between their aestivation and breeding sites (Tucker and Phillips 1995). ICFs require sandy soils for which to burrow, and while agricultural lands are typically avoided by frogs, they are believed to travel through them, if necessary, to reach breeding sites (Tucker and Phillips 1995). Incidental observations have identified metamorphosed frogs within shallow burrows (two cm in depth) directly

adjacent to breeding ponds (Tucker et al. 1995). As a result, within the Project boundary there is approximately 71.77 acres of agricultural fields comprised of sandy soils within 1 km these locations have the potential to be utilized by the ICF. Within this area (71.77 acres) the Project anticipates Project-lifetime impacts of approximately 0.35 acres (Appendix A: Figure 3. Potential Species Impact Areas).

2.3.2 Regal Fritillary Butterfly

The RFB was once found across eastern and central North America from Maine to North Carolina in the east to eastern Montana, Wyoming, and Colorado. This species has experienced significant declines, particularly in eastern states, with populations within these states going extinct throughout the last several decades (Selby 2007). Today, it continues to decline, including in Midwest and Western states, and is present as fragmented populations within remnant habitat (Selby 2007; S. R. Swengel and Swengel 2016). The RFB is associated with tall and midgrass prairie and grassland habitats, and in Illinois, it occurs in sand prairies (Caven et al. 2017; Mason 2001; Selby 2007). They have previously been reported in 33 counties in scattered populations across the northern third of the state, including sandy and floodplain habitats in Cass County (Selby 2007). The decline of the RFB is largely associated with the extensive loss and fragmentation of prairie habitats across North America due to the conversion to cropland (Mason 2001; Sheperd and Debinski 2005).

The RFB is a large butterfly, reaching an adult wingspan of 7.9 to 10.5 cm in the eastern portion of its range. They exhibit sexual dimorphism, with females that are slightly larger than males (Selby 2007). The dorsal side of the forewing is orange with black borders and black "v" or "u" (i.e., chevron) shaped markings. The dorsal side of the hindwings is black or blue-black with two bands of spots, both white in females, while in males the outer band is orange. The ventral side of the forewings is orange with black chevron-shaped markings and a row of white spots on the outer edge. The ventral hindwings are black with large white spots throughout.

RFBs have a single flight each year. Adult males emerge around mid-June, approximately two weeks before females. Mating occurs soon after emergence and females lay their eggs in mid-August or September after a period of diapause in which they become less active, and rest in shady areas (Sheperd and Debinski 2005; Wagner et al. 1997; Selby 2007). The RFB depends on the presence of *Viola* genus (Violets), which is the host plant of larvae of this species (A. B. Swengel 1997). Specific violet species known to serve as hosts for the RFB include *V. lanceolata*, *V. papilionacea*, *V. pedata*, *V. pedatifida*, *V. pratincola*, *V. sororia*, and *V. tricolor*, among others (A. B. Swengel 1997; Wagner et al.

1997). The females lay eggs in shaded sites with leaf and live plant cover, but do not lay them solely on *Viola* plants (Caven et al. 2017). This indiscriminate laying strategy is linked to high fecundity, with some individual females known to lay over 2,000 eggs. Eggs hatch in two to three weeks and immediately enter diapause, delaying feeding until spring. Larvae development commences in spring, coinciding with the emergence of *Viola* leaves, and is completed by Late May or June (Wagner et al. 1997). Adults forage on a variety of nectaring plants, including milkweeds (*Asclepias*), thistles (Cirsium), coneflowers (*Echinacea*), blazing-stars (*Liatris*), bergamots (*Monarda*), goldenrods (*Solidago*), clovers (*Trifolium*), and ironweeds ([*Vernonia*], Selby 2007; Ferster and Vulinec 2009).

RFBs are strong fliers, are relatively mobile, and have been documented wandering throughout their habitat fragments, as well as traveling between closely located fragments (Selby 2007). However, they are not migratory and tend not to travel long distances between prairie habitat patches (Selby 2007). They have also shown an aversion for habitat edges and prefer to reenter prairie habitat if they do exit. This behavior is even more pronounced in individuals in more densely populated patches (Reis and Debinski 2001). This tendency has important conservation implications, suggesting that habitat restoration or the protection of remnant habitat should focus on maintaining closely distributed habitat patches to promote population recovery (Selby 2007). Conservation efforts should also focus on maintaining sufficient densities of larval host *Viola* plants and nectar plants, although the data are unclear on the relationship between larval/host plant abundance and regal fritillary populations (Wagner et al. 1197; Mason 2001).

RFB is a prairie-dependent species that do not migrate and survive poorly in altered and fragmented habitats (Bliss, P. and D.F. Schweitzer 1987, Selby 2007). Prairie fragments that become extirpated by RFB are unlikely to naturally repopulate (Selby 2007). The Project area contains highly disturbed vegetation (annual crops), plowed and drained soils, and straightened drainage ditches. These modified habitats do not contain suitable prairie, pasture, or meadow habitat for this species.

2.3.3 Ornate Box Turtle

The range of the OBT extends from Indiana and southern Wisconsin and across the central Great Plains to southeastern Wyoming, eastern Colorado, New Mexico, and throughout Texas (Redder, Dodd Jr., and Keinath 2006; Mankowski 2010). In Illinois, it is found in several counties primarily in the northern and central portions of the state (Mankowski 2010). The remaining populations are small and isolated, with limited gene flow, and some populations no longer experience recruitment (Edmonds 2020; Refsnider, Strickland, and Janzen 2012).

This species prefers sand prairies, in which they burrow, nest, and overwinter (Redder, Dodd Jr., and Keinath 2006; Refsnider, Strickland, and Janzen 2012). The presence of a nearby water source may be important for OBT nesting, rehydrating following spring emergence, and in thermoregulation following overwintering emergence (Legler 1960; Redder, Dodd Jr., and Keinath 2006; Refsnider, Strickland, and Janzen 2012).

Adult turtle size ranges from approximately 94 to 154 mm in length. The carapace can be black, dark gray, or reddish-brown in color, with yellow lines throughout. Their skin is brown with yellow spots. The carapace is oval and dorsally flattened, giving it a box-like shape. The plastron (bottom of the shell) is hinged, and, like other box turtles, their shells can be closed completely. This feature helps to protect them against predators.

OBTs are omnivorous and opportunistic feeders, consuming a variety of foods depending on what is locally and temporally available. These foods include a wide range of grasses and other plants, invertebrates (notably, dung beetles), and carrion, among others (Legler 1960; Redder, Dodd Jr., and Keinath 2006). Refsnider, Strickland, and Janzen (2012) documented a population of OBTs in Northwestern Illinois feeding extensively on raspberry fruits (*Rubus* spp.).

OBT activity and movement appears to be strongly associated with air temperatures. This species overwinters by burying in sandy soils in response to lowering temperatures and emerges in the spring for breeding. Overwintering submergence occurs typically in September or October, while emergence occurs in April or May and breeding takes place primarily in June (Legler 1960; Redder, Dodd Jr., and Keinath 2006). In Illinois, nesting activity has been observed from June 8 through June 20 (C. R. Tucker et al. 2014). Females excavate nesting cavities in loose, sandy soil and prefer open areas lacking tree or shrub cover (Redder, Dodd Jr., and Keinath 2006). Female clutch size ranges from one (1) to eight (8), with this size variation being attributed in part to female body size and latitude (Edmonds 2020; Edmonds et al. 2020). Eggs hatch in the fall or overwinter in the nest and hatch the following spring, depending primarily on climactic factors. Fall hatchlings usually overwinter by burrowing deeper into their nests. Therefore, suitable nesting sites should have loose, sandy soil to a sufficient depth to allow for burrowing (Redder, Dodd Jr., and Keinath 2006).

The two biggest threats to this species are habitat loss and over-collecting for the pet trade. Agricultural practices, development, roads, other anthropogenic activities have resulted in the destruction and fragmentation of native prairie habitat across its historical range.

Home ranges for the OBT average 7.54 ha (18.63 acres) thus based on known occurrences the Project is unlikely to be within the regular home range of any OBTs (Habeck, C.W. et al., n.d.). However single OBT individuals may be capable of traveling more than two or three km (NatureServe 2021). Even though the Project area does not contain suitable habitat for a population of the OBT and there are no known populations of this species within close proximity, the Project does contain farm fields with predominantly sandy soil, and there is a potential to take 1 individual OBT that could disperse, migrate, or wander into the Project area from a more distant population, and attempt to forage or shelter within the Project area.

2.3.4 Plains Hog-nosed Snake

The PHNS was formerly a subspecies (*Heterodon nasicus nasicus)* of the western hog-nosed snake but has since been elevated to species status (Committee on Standard English and Scientific Names 2012). The PHNS is distributed throughout the Great Plains from Mexico to Canada, as far west as Arizona. Illinois is the eastern bounds of its range (Platt 1969; Averill-Murray 2006). In Illinois, this species is limited to only a few remnant populations along the Illinois River in the center of the state and scattered populations to the north along the Mississippi River (Smith 1961).

In eastern portions of its range, including Illinois, the PHNS is associated exclusively with sandy areas including sand prairies and adjacent open to semi-open woodlands and brushland (Averill-Murray 2006; Platt 1969; Wright and Didiuk 1998). This species, which shelters and overwinters in burrows, requires loose, sandy soils.

The PHNS has a medium-sized, stout body. It ranges from 50-70 cm in length, but it can reach lengths greater than 90 cm (Averill-Murray 2006; Smith 1961). This snake is tan, gray, or brown in color, with dark brown splotches on its back and sides. Its belly and the underside of the tail are black with yellow to orange markings (Averill-Murray 2006; Smith 1961; Platt 1969). Its prominently upturned rostral scale (snout) with its shovel-like shape is the trait that gives the hog-nosed snake its name.

This species is known for its defensive behaviors. When threatened, it first exhibits a bluffing behavior in which it spreads its head and neck while hissing. If this behavior fails to ward off threats, snakes may feign death by rolling onto their back, often with their tongue hanging out of its mouth (Averill-Murray 2006; Andrew Michael Durso 2011; Andrew M. Durso and Mullin 2014). This slow-moving snake feeds on toads, frogs, birds, rodents, or other snakes (Smith 1961; Platt 1969). The consumption of toads is notable in that, unlike other snakes, PHNSs have developed resistance to the toxic

secretions of toads, attributable to their enlarged adrenal glands. This species has enlarged rear fangs that facilitate the injection of venom into their prey to help subdue them (Averill-Murray 2006; Platt 1969).

Instead of seeking shelter under objects such as boulders or woody debris, the PHNS shelters underground, typically in the burrows of mammals (Smith 1961; Platt 1969). Its upturned rostrum functions as a spade to loosen soil during burrowing, and is used in foraging for prey. PHNSs are diurnal or crepuscular and are most active in the morning and at dusk. At night and mid-day, they shelter in burrows (Averill-Murray 2006; Platt 1969). These snakes are generally active at body temperatures ranging from 27℃ to 35℃ (Platt 1969). They remain dormant underground until late April or May. Breeding occurs in the spring or the fall prior to ingress for dormancy, which occurs typically in October or November (Hoaglund and Smith 2012; Platt 1969). Beginning in June females lay on average, nine (9) to 10 eggs approximately 7.62-10.16 cm below the surface of sandy or loamy soil. Hatching occurs approximately 50-60 days after eggs are laid (Averill-Murray 2006; Platt 1969).

The primary threat to the PHNSs is habitat loss. The sand prairie habitat in Illinois has undergone a severe decline in area and fragmentation as a result of the conversion of prairie to agricultural and developed land uses. Sand prairies in Illinois remain only as fragmented remnants. Additional, threats include over-collecting for the pet trade and road mortality.

According to one study the mean movement distance for PHNSs ranged from 277 feet to 785 feet (0.05 miles to 0.15 miles), and the maximum distance traveled was less than 1600 m (1 mile) (Platt 1969). Home ranges for individual snakes are thought to be less than 100 hectares ("ha" (approximately 247.1 acres)) (NatureServe 2021). Thus, based on known occurrences the Project is unlikely to be within the regular home range or wandering distance of any PHNSs. Even though the Project area does not contain suitable habitat for a population of the PHNS and there are no known populations of this species within close proximity, the Project does contain farm fields with predominantly sandy soil, and there is a potential to take 1 individual PHNS that could disperse, migrate, or wander into the Project area from a more distant population, and attempt to forage or shelter within the Project area.

2.4 Incidental Take Authorization (ITA) Request

In consideration of the Project location and the proposed design's anticipated impact, as described in the following section it has been determined that there is potential for incidental take of the ICF, OBT,

and PHNS which is covered by this Conservation Plan. An ITA is requested to cover the duration of construction and the anticipated 30-year life of the Project. The Project does not contain habitat for RFB.

2.5 Project Effects

2.5.1 Construction Sequence and Schedule

Construction activities and infrastructure may have the potential to alter the habitat for the ICF and to affect individuals of this species. Construction and infrastructure may also affect individual OBTs and PHNSs—any of which may be present in very low numbers. Changes in habitat can result from both construction activity as well as seasonal timing. Construction activities will generally take place within the array footprint, with the majority of the work taking place from May through December 2023 (Table 3).

Table 3. General Construction and Installation Sequence Schedule

Construction/Installation Action	Schedule*
Point of Interconnection Grading	11/1/22 - 4/1/23
Clearing and Grading	11/1/22 - 3/16/23
Road Installation	12/7/22 - 3/8/23
Stormwater BMP installation	11/1/22 – 12/6/22
Racking Installation	3/6/23 - 9/7/23
Seeding/Permanent Stabilization	7/18/23 - 12/14/23

*Current representation of Project schedule, plans subject to change.

2.5.2 Decommissioning

Commercial-scale solar facilities are designed to operate for approximately 30 years. For the purpose of this Conservation Plan, upon expiration of the operational life of the Project, the Project Facilities will be removed, and the Project property will be restored pursuant to the Cass County approved Conditional Use Permit, including any conditions of approval, additional applicable requirements in the Cass County Zoning Ordinance, and the executed Agricultural Impact Mitigation Agreement ("AIMA") with the Illinois Department of Agriculture.

The Project acknowledges that all solar components including Project Facilities as defined, constructed above ground, and any structures at a minimum of four (4) feet below-grade will be removed offsite

for disposal, except for (i) access roads or driveways on private property if the property owner requests in writing to the Project for such to remain and (ii) switchyard, interconnection facilities and other similar utility facilities not owned by the Project at the time of decommissioning.

The Project anticipates decommissioning will occur over a six (6) month period and will coordinate with the County and others pursuant to the AIMA prior to the start of any decommissioning activities. Once decommissioning is completed the restoration process will begin on site. The restoration will occur over a maximum of a six (6) month period with all decommissioning and restoration completed within a one (1) year period.

The anticipated sequence of decommissioning and removal is described below; however, an overlap of activities is expected.

- Reinforce access roads, if needed, and prepare the site for component removal
- Install temporary fencing and Best Management Practices ("BMPs") to protect sensitive resources
- De-energize solar arrays, if not already de-energized
- Dismantle panels and racking
- Remove the frame and internal components
- Remove and preserve topsoil on-site for reuse once all subsoil disruption is complete, per the AIMA
- Remove portions of structural foundations to a minimum of four (4) feet below the surface and backfill sites
- Remove inverters and transformers
- Remove electrical cables and conduits to a minimum of four (4) feet below the surface
- Repair all tile lines, per the AIMA
- Remove access and internal roads and grade site
- De-compact subsoils from equipment usage, soils will be ripped to a depth of 18 inches, to the extent practicable, per the AIMA
- Remove rocks from the surface which emerged during deconstruction, per the AIMA

Replace topsoil (if required), restore, and revegetate (if desired by the landowner at the time of decommissioning) disturbed land to pre-construction conditions to the extent practicable.

2.5.3 Project Elements

The Project elements include those Project Facilities previously described; PV solar panels that will be mounted on a single-axis tracking system with a 60+/- degree tilt, along with the associated infrastructure of electric inverters and transformers, underground electrical collection system, electrical collector substation, overhead transmission line, point of interconnection switchyard, an O&M building, battery storage, solar met stations, SCADA hardware, control house for protective relay panels and site controllers, private access roads with gated ingress/egress points, security fencing and any associated facilities. Temporary facilities associated with construction will include construction laydown yards. The Project Facilities and estimates provided are based on preliminary design and may change with final design. In all instances, Project Facilities will be carefully sited as to avoid sandy soils to the greatest extent practicable.

Temporary laydown areas will be established off Edgewood Drive to ease offloading of supplies transported to the Project, store construction materials, reduce construction traffic by large transport vehicles, and stage Project tasks. The laydown areas will be constructed from a layer of gravel placed on top of existing site soils (see Appendix D: Construction Details). The laydown areas will accommodate the storage of construction materials, employee parking, and temporary office space. Once construction of the Project is completed, facilities and the gravel will be removed, and the preconstruction soil conditions will be restored. The impacts to habitat from the laydown areas are temporary.

The Project will require internal access roads. These access roads will typically be designed to be 20 feet wide with a 20-foot-wide hammerhead turnaround at any dead ends. The road will be constructed of nominal diameter stone and crushed stone placed approximately 12 inches thick. Typical construction detail of the access roads is shown in Appendix D: Construction Details. The access roads are required to afford access to the site for ongoing monitoring, maintenance, and emergency vehicular access and are intended to remain for the duration of the solar farm's useful life. As such, the access roads are considered permanent impacts to the habitat.

Approximately 850 acres of PV solar panels mounted in single-axis tracking systems will be installed. The tracking system is designed to adjust PV module angles throughout the day to track the sunlight from sunrise to sunset. As a result, the height of the panels above grade can vary from three (3) to nine (9) feet. The spacing between module rows is anticipated to be between 20 to 25 feet on average. The seed mix to be planted beneath the panels will be selected to include native and non-native short

grass prairie species and short forb species requiring minimal disturbance from maintenance. The same seed mix will be planted between the rows to reduce the impact from shading of the panels from vegetation.

The approximately 370,000 PV panels themselves, which will be elevated above the ground and supported by the tracking system, are considered to have neither permanent nor temporary impacts on the habitat. In comparison to active row crop agriculture, solar farming will allow for the establishment of a more favorable plant community for the ICF, OBT, PHNS, and RFB.

The racking systems are supported by support piles that range from six (6) inches by nine (9) inches to six (6) inches by 15 inches of galvanized steel "W" section beams, installed up to 10 feet below ground level. The piles are installed by either a pile-driven method or a screw-driven method.

Other Project associated infrastructure includes approximately 46, 3.6 MW electric inverters and transformers. These components are used for the conversion of the PV-generated direct current ("DC") to AC compatible with the utility grid. The inverters and transformers utilized for the Project will be placed on concrete pads as shown in Appendix D: Construction Details. The concrete equipment pads that are placed within the sandy soils will be minimized to the greatest extent practicable as they are permanent structures for the duration of the solar farm's useful life. As such, the concrete pads are considered permanent impacts to the habitat.

A combination of an aboveground and an underground electrical collection system will connect the PV modules to the inverters and transformers. The electrical wiring is buried more than four (4) feet below ground and installed in an approved conduit. The final conduit sizing will be determined with the final construction plans set. During installation, the electrical conduit/ direct-buried cables will be placed underground via plowing, directional boring, or trenching. If open trenching of the conduit is needed in sandy soils, topsoil will be removed from the area and set aside for replacement upon completion of the underground electrical installation. Multiple soil layers below the topsoil will be removed separately to the best of the Project's ability and replaced in the same layered system as it was removed. As with any construction, perfect separation of soil layers cannot be guaranteed. Sandy soil disturbance from conduit installations are temporary impacts to potential habitat.

A Project collector substation, short overhead transmission line, and a POI switchyard will be constructed to connect the power generated from the Project to the electric grid for distribution. The collector substation will be placed on a gravel base with concrete equipment pads that are permanent

structures for the duration of the solar farm's useful life. As such, the concrete pads are considered permanent impacts to the habitat. The POI switchyard would be constructed similarly on a graded gravel base with concrete drilled piers and mat foundations that are considered permanent structures beyond the duration of the solar farm's useful life.

Security fences will be constructed around the perimeter of the solar farm with gated ingress and egress at each access road (Appendix D: Construction Details). The fence will be 8 feet tall maximum height made of a minimum 6-foot-tall chain link fabric and tree strand barbed wire. Fencing will be configured to allow small animal passage; thus, the fence wire will have minimal impact on habitat. The fence posts would be considered a permanent structure for the duration of the solar farm's useful life. Potential additional Project Facilities could include an O&M building, battery storage, solar met stations, SCADA hardware, and control house for protective relay panels and site controllers. These facilities could have similar impacts to those listed above with site grading, gravel, or concrete pads and be considered potential impacts to habitat for the duration of the solar farm's useful life. In all instances, Project Facilities will be carefully sited as to avoid sandy soils to the greatest extent practicable.

Decommissioning is the approximate mirror image of the construction process. Details of the process are outlined in the Project Decommissioning Plan.

2.6 Potential Adverse Impacts

The purpose and need for the Project is to develop clean renewable energy sources within the state of Illinois and get the state closer to its statutory requirements, established recently through SB2408, to reach 100% by 2050. The no-action alternative for the Project would be to not construct the 150-MW AC CSES at the Project site. A decision not to construct the Project reduces the availability of clean, renewable power in Illinois for the state to reach its renewable portfolio standard.

For the purposes of this report the term *temporary impacts* will be used to identify short-term impacts to habitat areas during Project construction; *Project-lifetime loss* will identify impacts that last until the Project is decommissioned, and *permanent loss* will identify impacts that will last behind the life of the Project.

In Cass County, ICF, OBT, and PHNS can and do utilize areas of sandy soil. The Project will require temporary activities and temporary impacts to some sandy soils that could harbor ICF, and based on

existing information, though unlikely the Project site could also be utilized by migrating, dispersing, or wandering individuals of the latter two species. Temporary activities include vehicle travel, construction of temporary roads, temporary trenches, fence post installation, solar panel support beam installation, and vegetation maintenance. Temporary impact activities could result in direct mortality via crushing or burying individual ICF, OBT, or PHNS. There may also be temporary adverse impacts to the habitat that these species utilize due to grading.

After construction is complete, Project-lifetime loss activities, such as occasional vehicle entries and vegetation management will be necessary until the Project reaches its end of useful life and is decommissioned in approximately 30 years. The long-term Project-lifetime loss activities could result in direct mortality via crushing individual ICF, OBT, or PHNS. Additionally, the position of infrastructure will prevent the usage of certain areas by wildlife. Areas that will become inaccessible and/or will be converted to non-supportive habitat for the Project-lifetime include cement or stone inverter pads, fence posts, and panel support beams. 4.88 acres of sandy soil will be impacted during the Project-lifetime, including 0.35 acres within 1.0 km of a documented ICF breeding location. This habitat could be used infrequently by migrating, dispersing OBT or PHNS.

The proposed Project plans avoid permanent loss impacts in sandy soil areas within 1.0 km of documented ICF breeding locations, eliminating permanent impacts to ICF habitat. The proposed Project plans avoid permanent loss impacts to sandy soil habitat that could be infrequently used by migrating or dispersing OBT or PHNS.

Temporary, Project-lifetime loss, and permanent loss impacts from the proposed Project are summarized in Table 4 below.

Table 4. Summary of Project Impacts

Species Name	Estimated Project Lifetime Loss (acres)*	Estimated Take of Individuals
Illinois chorus frog (*Pseudacris illinoensis*)	0.35	0.00
Ornate box turtle (*Terrapene ornata*)	4.88	0.00
Hog-nosed snake (*Heterodon nasicus*)		

*The 0.35-acre ICF area is included in the 4.88-acre OBT/PHNS total.

2.7 Efforts to Avoid Minimize, and Mitigate Impacts to Listed Species

Project impacts pertain to the potential for direct mortality and habitat alteration during construction activities. The following practices will be implemented to avoid, minimize, and mitigate temporary impacts to the ICF, OBT, and PHNS:

- The Project is avoiding wetland impacts. Wetlands play a critical role in the lifecycles of many species, such as ICF. There will be no reduction in acres of wetland due to the Project.
- The laydown yards will be sited to avoid areas of sandy soil to the extent practicable.
- Construction personnel will receive environmental training prior to Project construction and will focus on the identification, lifecycles, vulnerabilities, and reporting procedures with respect to the subject protected species.
- Exclusion fencing will be built around the Project substation.
- Project construction and BMPs will adhere to Soil Erosion and Sedimentation Control ("SESC") permit requirements.
- To reduce risk to ICF, daily construction work hours in February, March, and April will stop prior to sunset.
- Trenches will be refilled within 12 hours of excavation. Trenches that are open for more than 12 hours, or that have been left open overnight, will be inspected for animal presence before refilling. Animals found will be released prior to trench filling.
- If applicable, areas of grading and excavation in sandy soils, topsoil will be removed from the area and set aside for replacement upon completion of disturbance.
- A biological inspector/monitor will be present daily during ICF breeding time (February to April), and weekly throughout the remainder of construction. If large congregations of ICF are observed the IDNR will be notified.
- Areas impacted by construction will be reseeded both inside and outside the fenced area. Areas beneath and around the solar arrays will be seeded with a low-growing, shade-tolerant, perennial seed mix specifically compiled for use under the arrays as the permanent ground cover. This mix may be comprised of warm and cool-season grasses that do not typically exceed a height of one (1) foot, thus eliminating concerns for panel shading and reducing mowing frequency.

Long-term impacts pertain mainly to habitat loss resulting from the Project design, and to a lesser degree the limited potential for direct mortality during Project operations and maintenance. The

following practices will be implemented to avoid, minimize, and mitigate long term impacts to the three subject species:

- Fencing will contain a minimum of one six-inch wide wildlife passage gap every 100 feet. This may be accomplished via openings, or via a raised fence bottom.
- Lighting density, intensity, coloration, and direction will be carefully reviewed to avoid interference with wildlife.
- Approximately 26.83 acres of sandy soil within Project fencing will be planted with a sparse native seed mix containing three native grasses and three native wildflowers.
- Three (3) acres, pollinator-friendly native plantings will be included within Project fencing. The seeding will include fifteen native wildflower species, four native grasses, and two native sedges.
- Once vegetation is established (anticipated to occur within three years following construction), there will be no more than two annual mowings between the dates of April 15 to October 20. Mower blades will be set no lower than 6 inches if such mowings do occur. Any mowing between April 15 and October 20 will occur after sunrise and before sunset.
- There will be no broadcast herbicide spray. However, herbicides may be utilized in a targeted manner in order to reduce invasive species or kill vegetation that threatens the Project infrastructure (e.g., woody plants growing within the solar arrays).
- State and/or federal T&E species observations made at the Project site or during visits to the Project site will be reported to IDNR within 48 hours.
- Annual monitoring will be conducted for the first 3 years after construction is complete. Monitoring will document vegetation and habitat condition, and wildlife usage. Three monitoring visits will be conducted between July 1 to September 1 of each year.
- ICF night call monitoring will be conducted 3 and 6 years after construction is complete. Monitoring will be conducted 4 and 7 years after constriction is complete if weather is not ideal. Night call monitoring will follow the National Amphibian Monitoring Network Protocols.

Project-lifetime loss will occur in limited sandy soils areas, with impacts lasting only until the Project is decommissioned. To offset impacts from the Project-lifetime alteration of 4.88 acres of sandy soil, the Project will restore 26.83 acres of sand prairie within 1 km of ICF locations and commit to 3,850 dollars of monetary mitigation (see Table 5).

Table 5. Summary of Proposed Mitigation

Species Name	Array Plantings	Sandy Soil Sparse Plantings	Pollinator Friendly Native Plantings	Monetary Mitigation
Illinois chorus frog (*Pseudacris illinoensis*)	Approx. 850 acres	26.83 acres	3 acres	3,850 dollars
Ornate box turtle (*Terrapene ornata*)				
Hog-nosed snake (*Heterodon nasicus*)				

2.8 Adaptive Management

A primary objective of this Conservation Plan is to minimize adverse impacts to the ICF, OBT, PHNS, and provide net benefits to these species. Adaptive management is a willingness to observe Project results and modify behaviors and activities to improve outcomes. The following practices will be implemented to ensure that the Project utilizes adaptive management:

- The construction and the environmental team will routinely monitor the implementation and effectiveness of the avoidance, minimization, and mitigation measures within this document in protecting listed species. Should these measures become ineffective or unanticipated events occur this plan may be adapted in coordination with IDNR.

2.9 Cascading Effects

Currently, nearly the entire Project site grows annual crops such as corn, soybeans, and sorghum. These agricultural environments are typically subject to frequent tillage and require high inputs of fertilizer, herbicides, and pesticides that diminish water quality, and provide poor habitat for wildlife.

An unintended benefit of the location of the solar facility is its proximity to Illinois chorus frog populations. These populations are likely stressed, and fitness is reduced by the intensive agriculture currently within the Project area. Returning this area to a low disturbance regime while restoring critical habitats, such as the sand prairie adjacent to breeding ponds, will provide a net benefit to the species.

The targeted site vegetation is designed to provide ground cover, structural diversity, a range of blooming dates and pollinator resources, and perennial root/soil structure. Given that this will become a habitat patch occupying more than 850 acres, the restoration of the Project area to a more

natural state should benefit a variety of non-target species, such as birds, reptiles and amphibians, small mammal species, and insects. While short-term, some adverse effects as a result of Project construction may occur, but the removal of these acres from agricultural production to a more natural state should result benefits to the overall biodiversity of the area.

2.10 Conservation Plan Funding

The Project 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.

2.11 Assessment of Take

2.11.1 Illinois Chorus Frog

This Project includes approximately 255.4 acres of sandy soils, approximately eleven percent (10.7 %) of the Project's total area. Of those 255.4 acres, 71.8 acres occur within 1 km of known ICF populations. The Project proposes to impact a total of 4.88 acres of sandy soil Project-wide (0.019 %), and 0.35 acres of the proposed impacts occur within 1 km of a known population, which is less than one-hundredth of a percent (0.004 %) of the suitable habitat within that area. In addition to the conservation measures in Section 2.7, the Project also proposes to restore 26.83 acres of sand prairie within 1 km of known ICF populations at the site. As a result, the Project's potential impacts resulting from take of 0.35 acres of suitable ICF habitat are unlikely to reduce the survival and recovery of the Illinois Chorus Frog. Restoration activities over the life of the Project are likely to aid in the conservation of the species.

2.11.2 Ornate Box Turtle

This Project includes approximately 255.4 acres of sandy soils, approximately eleven percent (10.7 %) of the Project's total area. Of those 255.4 acres, the Project proposes to impact a total of 4.88 acres of sandy soil project-wide (0.019 %). In addition to the conservation measures in Section 2.7, the Project also proposes to restore 26.83 acres of sand prairie. As a result, the Project's potential impacts resulting from take of 1 individual is unlikely to reduce the survival and recovery of the OBT, and restoration activities over the life of the Project are likely to aid in the conservation of the species.

2.11.3 Plains Hog-nosed Snake

This Project includes approximately 255.4 acres of sandy soils, approximately eleven percent (10.7 %) of the Project's total area. Of those 255.4 acres, the Project proposes to impact a total of 4.88 acres of sandy soil project-wide (0.019 %). In addition to the conservation measures in Section 2.7, the Project also proposes to restore 26.83 acres of sand prairie. As a result, the Project's potential impacts resulting from take of 1 individual is unlikely to reduce the survival and recovery of the PHNS, and restoration activities over the life of the Project are likely to aid in the conservation of the species.

3.0 Project Alternatives

3.1 No-Action Alternative

The purpose and need for the Project are to develop clean renewable energy sources within the state of Illinois and get the state closer to its statutory requirements, established recently through SB2408, to reach 100% by 2050. The no-action alternative for the Project would be to not construct the 150-MW AC CSES at the Project site. A decision not to construct the Project reduces the availability of clean, renewable power in the state to reach the statewide renewable portfolio standard.

In addition, a no-action alternative would result in no change in habitat conditions for ICF, OBT, or PHNS. Existing agricultural conditions at the Project site provides poor habitat for these species.

3.2 Relocate Within the Project

The Project site and surrounding properties are dominated by a monoculture of crop fields. Shifting the Project in any direction would place the Project impacts on similar monoculture crop fields and would not result in a significantly different Project outcome than the design being proposed. The current Project design has been developed to minimize impacts to natural resources. Relocation of Project facilities within the Project boundary is unlikely to minimize Project impacts.

3.3 Current Project Design

The current Project design provides a source of renewable energy to comply with the state's Future Energy Jobs Act, while improving local prospects for ICF, OBT, and PHNS. While the Project design is subject to change within the selected Project site, the proposed configuration has been sited to avoid (see Appendix A: Figure 4. Constraints Map):

- Wetlands and waterways
- Documented ICF breeding areas
- A documented Patterson's bindweed (*Stylisma pickeringii*) population
- Forested areas, located in the southern portion of the Project area
- An area of sand prairie, located in the eastern portion of the Project area (see Appendix C: Habitat Surveys)

4.0 Implementing Agreement

The Applicant agrees to implement this Conservation Plan upon approval by IDNR and issuance of the requested ITA. The Applicant, successor, or an assign of the Applicant 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. The Applicant would be responsible for planning, contract execution, and construction supervision for the entire Project.

IDNR acknowledges that prior to operation of the Project, Applicant will transfer fee title of the POI property to Transmission Owner. Upon such transfer, the obligations of this Conservation Plan and specifically Section 4.0 shall terminate with respect to Applicant and the POI property.

4.1 Responsibilities and Schedules

Cass County Solar Project, LLC is the developer and will be the long-term owner/operator of the Project, except with respect to the transfer of the POI property as described above. The Applicant, successor, or an assign of the Applicant has the responsibility to acquire all necessary permits for construction and operation of the Project, including the ITA. The Applicant will have the responsibility of complying with the terms of the ITA during both construction and operation of the solar facility.

The Applicant will serve as the Conservation Plan Coordinator and will be responsible for the implementation of the BMPs, mitigation measures, and restoration activities as described in this Conservation Plan. Emma Tajchman 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:

Emma Tajchman
Cass County Solar Project, LLC
422 Admiral Boulevard
Kansas City, Missouri 64106
etajchman@savionenergy.com
816-421-9613

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 November 2022 and be completed by March 2024.

4.2 Certification

I hereby certify that all the participants listed in Section 4.1 have the legal authority to carry out their respective obligations and responsibilities under the Conservation Plan.

By: 

Name: Emily Truebner

Title: Authorized Person

Date 5/9/2022

4.3 Compliance with Federal, State, and Local Regulations

The Applicant will comply with all pertinent Federal, State, and local regulations that govern the proposed Project and will provide copies of authorizations that could affect the terms and conditions of any ITA issued by the IDNR for this Project.

5.0 References

Averill-Murray, Roy C. 2006. "Natural History of the Western Hog-Nosed Snake (Heterodon Nasicus) with Notes on Envenomation." *Sonran Herpetologist* 19 (98–101).

Brown, Lauren E, and George B. Rose. 1988. "Distribution, Habitat, and Calling Season of the Illinois Chorus Frog (Pseudacris Streckeri Illinoensis) along the Lower Illinois River." Illinois Natural History Survey (INHS).

Caven, Andrew J., Kelsey C. King, Joshua D. Wiese, and Emma M. Brinley Buckley. 2017. "A Descriptive Analysis of Regal Fritillary (Speyeria Idalia) Habitat Utilizing Biological Monitoring Data along the Big Bend of the Platte River, NE." *Journal of Insect Conservation* 21: 183–205.

Committee on Standard English and Scientific Names. 2012. "Scientific and Standard English Names of Amphibians and Reptiles of North America North of Mexico, with Comments Regarding Confidence in Our Understanding." 7th Edition.

Cowardin, L.M., V. Carter, F.C. Golet, and E.T. LaRoe. 1979. "Classification of Wetlands and Deepwater Habitats of the United States." FWS/OBS-79/31. Washington, DC: U.S. Department of Interior, U.S., Fish and Wildlife Service. https://www.fws.gov/wetlands/Documents/Classification-of-Wetlands-and-Deepwater-Habitats-of-the-United-States.pdf.

Durso, Andrew M., and Stephen J. Mullin. 2014. "Intrinsic and Extrinsic Factors Influence Expression of Defensive Behavior in Plains Hog-Nosed Snakes (Heterodon Nasicus)." *Ethology* 120: 104–48.

Durso, Andrew Michael. 2011. "Interactions of Diet and Behavior in a Death-Feigning Snake (Heterodon Nasicus)." Master of Science, Eastern Illinois University.

Edmonds, Devin. 2020. "Ornate Box Turtle (Terrapene Ornata) Demography in Northern Illinois." Master of Science, Urbana, Illinois: University of Illinois at Urbana-Champaign.

Edmonds, Devin, Laura Adamovicz, Matthew C. Allender, and Michael Dreslik. 2020. "Reproductive Output of the Ornate Bod Turtles (Terrapene Ornata) in Illinois, USA." *Herpetological Conservation and Biology* 15 (2): 467–75.

Ferster, Betty, and Kevina Vulinec. 2009. "Population Size and Conservation of the Last Eastern Remnants of the Regal Fritillary, Speyeria Idalia (Drury)[Lepidoptera, Nymphalidae], Implications for Temperate Grassland Restoration." *Journal of Insect Conservation*.

Habeck, C.W., Figueras, M.P., Deo, J.E., and Burke, R.L. n.d. "A Surfeit of Studies: Wat Have We Learned from All the Box Turtle (Terrapene Carolina and T. Ornata) Home Range Studies?," 12.

Henning, Bridget M., and Leon C. Hinz Jr. 2016. "Conservation Guidance for Illinois Chorus Frog (Pseudacris Illinoensis)." Illinois Department of Natural Resources.

Hoaglund, Erica P., and Christopher E. Smith. 2012. "Lessons Learned: Notes on the Natural History of the Plains Hognose Snake (Heterodon Nasicus) in Minnesota." *IRCF Reptiles & Amphibians Journal* 19 (3): 163–69.

Hulin, Andrew C, Eric P. Golden, and Robert D. Bluett. 2015. "Monitoring Occupancy of the Illinois Chrous Frog (Pseudacris Streckeri Illinoensis): Are Plots or Ponds the Best Fine-Scaled Sampling Unit for Call Surveys?" *Transactions of the Illinois State Academy of Science* 108: 53–58.

IDNR. 2009. "Habitat Conservation Initiative for the Illinois Chorus Frog (Pseudacris Streckeri Illinoensis): Phase 1 [Grant Proposal]." Illinois Department of Natural Resources.

Legler, John M. 1960. *Natural History of the Ornate Box Turtle, Terrapene Ornata Ornata Agassiz*. Vol. 11. 10 vols. University of Kansas Publications Museum of Natural History.

Mankowski, A. 2010. "Endangered and Threatened Species of Illinois: Status and Distribution, Volume 4 - 2009 and 2010 Changes to the Illinois List of Endangered and Threatened Species." Illinois Endangered Species Protection Board.

Mason, Kim R. 2001. "Comparison of Prairie Sites and Classification of Their Habitat Attributes in Relation to Abundance of the Regal Fritillary Butterfly (Speyeria Idalia)." Minnesota Department of Natural Resources.

NatureServe. 2021. "NatureServe Explorer - An Online Encyclopedia of Life [Web Application]. Version 7.1." Arlington, VA: NatureServe. http://explorer.natureserve.org/.

Platt, Dwight R. 1969. *Natural History of the Hognose Snakes Heterodon Platyrhinos and Heterodon Nasicus*. Vol. 18. 4 vols. University of Kansas Publications Museum of Natural History.

Redder, A.J., C.K. Dodd Jr., and D. Keinath. 2006. "Ornate Box Turtle (Terrapene Ornata Ornata): A Technical Conservation Assessment." *USDA Forest Service, Rocky Mountain Region*.

Refsnider, Jeanine S, Jeramie Strickland, and Frederic J. Janzen. 2012. "Home Range and Site Fidelity of Imperiled Ornate Box Turtles (Terrapene Ornata) in Northwestern Illinois." *Chelonian Research Foundation* 11 (1): 78–83.

Reis, Leslie, and Diane M. Debinski. 2001. "Butterfly Responses to Habitat Edges in the Highly Fragmented Prairies of Central Iowa." *Journal of Animal Ecology* 70. https://besjournals.onlinelibrary.wiley.com/doi/10.1046/j.0021-8790.2001.00546.x.

Selby, Gerald. 2007. "Regal Fritillary (Speyeria Idalia Drury): A Technical Conservation Assessment." USDA Forest Service, Rocky Mountain Region.

Sheperd, Stephanie, and Diane M. Debinski. 2005. "Reintroduction of Regal Fritillary (Speyeria Idalia) to a Restored Prairie." *Ecological Restoration* 23 (4): 244–50.

Smith, Philip W. 1961. *The Amphibians and Reptiles of Illinois*. Vol. 28. Illinois Natural History Survey Bulletin.

Swengel, Ann B. 1997. "Habitat Assessments of Sympatric Violet-Feeding Fritillaries (Euptoieta, Speyeria, Boloria)(Lepidoptera, Nymphalidae) in Tallgrass Prairie." *Great Lakes Entomologist*.

Swengel, Scott R., and Ann B. Swengel. 2016. "Status and Trend of Regal Fritillary (Speyeria Idalia) (Lepidoptera: Nymphalidae) in the 4th of July Butterfly Count Program in 1977-2014." *Scientifica* 2016: 1–10.

Trauth, Joy B, Stanley E Trauth, and Ronald L. Johnson. 2006. "Best Management Practices and Drought Combine to Silence the Illinois Chorus Frog in Arkansas." *Wildlife Society Bulletin* 34 (2): 514–18.

Tucker, Charles R., Thomas A. Radzio, Jeramie T. Strickland, Ed Britton, David K. Delaney, and Day B. Lignon. 2014. "Use of Automated Radio Telemetry to Detect Nesting Activity in Ornate Box Turtles, Terrapene Ornata." *The American Midland Naturalist* 171 (1): 78–89.

Tucker, John K. 2000. "Growth and Survivorship in the Illinois Chorus Frog (Pseudacris Streckeri Illinoensis)." *Transactions of the Illinois State Academy of Science* 93 (1): 63–68.

———. 2005. "Population Status of the Illinois Chorus Frog (Pseudacris Streckeri Illinoensis)." Illinois Natural History Survey (INHS).

———. 2008. "The Illinois Chorus Frog (Pseudacris Illinoensis) and Wetland Mitigation: What Has Worked?" Illinois Natural History Survey (INHS).

USDA-NRCS. 2021. "Web Soil Survey - Web Application." 2021. https://websoilsurvey.sc.egov.usda.gov/App/HomePage.htm.

Wagner, David L, Matthew S. Wallace, George H. Boettner, and Joseph S. Elkinton. 1197. "Status Update and Life History Studies on the Regal Fritillary (Lepidoptera: Nymphalidae)." In *Grasslands of Northeastern North America: Ecology of Native and Agricultural Landscapes*, 261–75. https://www.researchgate.net/profile/George-Boettner/publication/266271745_Status_Update_and_Life_History_Studies_on_the_Regal_Fritillary_Lepidoptera_Nymphalidae/links/54b3df590cf2318f0f969409/Status-Update-and-Life-History-Studies-on-the-Regal-Fritillary-Lepidoptera-Nymphalidae.pdf.

Wright, Jonathan, and Andrew Didiuk. 1998. "Status of the Plains Hognose Snake (Heterodon Nasicus Nasicus) in Alberta." 15. Alberta Conservation Association.

Appendix A Figures

Schuyler County
BAINBRIDGE TOWNSHIP
FREDERICK TOWNSHIP
Beardstown
BEARDSTOWN TOWNSHIP
BLUFF SPRINGS TOWNSHIP
Bluff Springs
Cass County
COOPERSTOWN TOWNSHIP
Brown County
HAGENER TOWNSHIP
ARENZVILLE TOWNSHIP
VERSAILLES TOWNSHIP
Crane Creek
Bluff Ditch
Crane Creek Ditch
Cool Creek Ditch
Hagers Ditch
Caufs Ditch
Lost Creek
Logan Creek
La Moine River
South Beardstown Ditch
Mill Creek
North Lake Ditch
Valley Ditch
Clear Creek
Baehr Branch
Indian Creek
Little Creek
Camp Creek
1
103
67
100
7
5
125
8

Legend:

- Project Boundary (2,397 acres)
- Point of Interconnection Boundary (8.83 acres)
- Township Boundary

N

0 0.5 1

Miles

Sources: Maxar Imagery, 2017; ESRI Steet Map, 2021; ECT, 2021.

Figure 1
Project Location

Cass County Solar Project
Cass County Solar Project, LLC
Cass County, Illinois

Date: 10/28/2021

ECT

Symbol	Description
1776A	Comfrey loam, undrained, 0 to 2 percent slopes, frequently flooded
188A	Beardstown loam, 0 to 2 percent slopes
200A	Orio loam, 0 to 2 percent slopes
201A	Gilford fine sandy loam, 0 to 2 percent slopes
3107L	Sawmill silty clay loam, 0 to 2 percent slopes, frequently flooded, long duration
3302L	Ambraw clay loam, 0 to 2 percent slopes, frequently flooded, long duration
3776L	Comfrey clay loam, 0 to 2 percent slopes, frequently flooded, long duration
49A	Watseka loamy fine sand, 0 to 2 percent slopes
54B	Plainfield loamy sand, 1 to 6 percent slopes
54D	Plainfield sand, 7 to 15 percent slopes
7049A	Watseka loamy fine sand, 0 to 2 percent slopes, rarely flooded
7054B	Plainfield sand, 1 to 7 percent slopes, rarely flooded
7088B	Sparta loamy sand, 1 to 6 percent slopes, rarely flooded
7172A	Hoopeston sandy loam, 0 to 2 percent slopes, rarely flooded
7188A	Beardstown loam, 0 to 2 percent slopes, rarely flooded
7200A	Orio loam, 0 to 2 percent slopes, rarely flooded
7201A	Gilford fine sandy loam, 0 to 2 percent slopes, rarely flooded
8070A	Beaucoup silty clay loam, 0 to 2 percent slopes, occasionally flooded
8071A	Darwin silty clay, 0 to 2 percent slopes, occasionally flooded
8107A	Sawmill silty clay loam, 0 to 2 percent slopes, occasionally flooded
8302A	Ambraw loam, 0 to 2 percent slopes, occasionally flooded
8682A	Medway loam, 0 to 2 percent slopes, occasionally flooded
88B	Sparta loamy sand, 1 to 6 percent slopes
M-W	Miscellaneous water

Legend:

- Project Boundary (2,397 acres)
- Point of Interconnection Boundary (8.83 acres)
- Soil

N

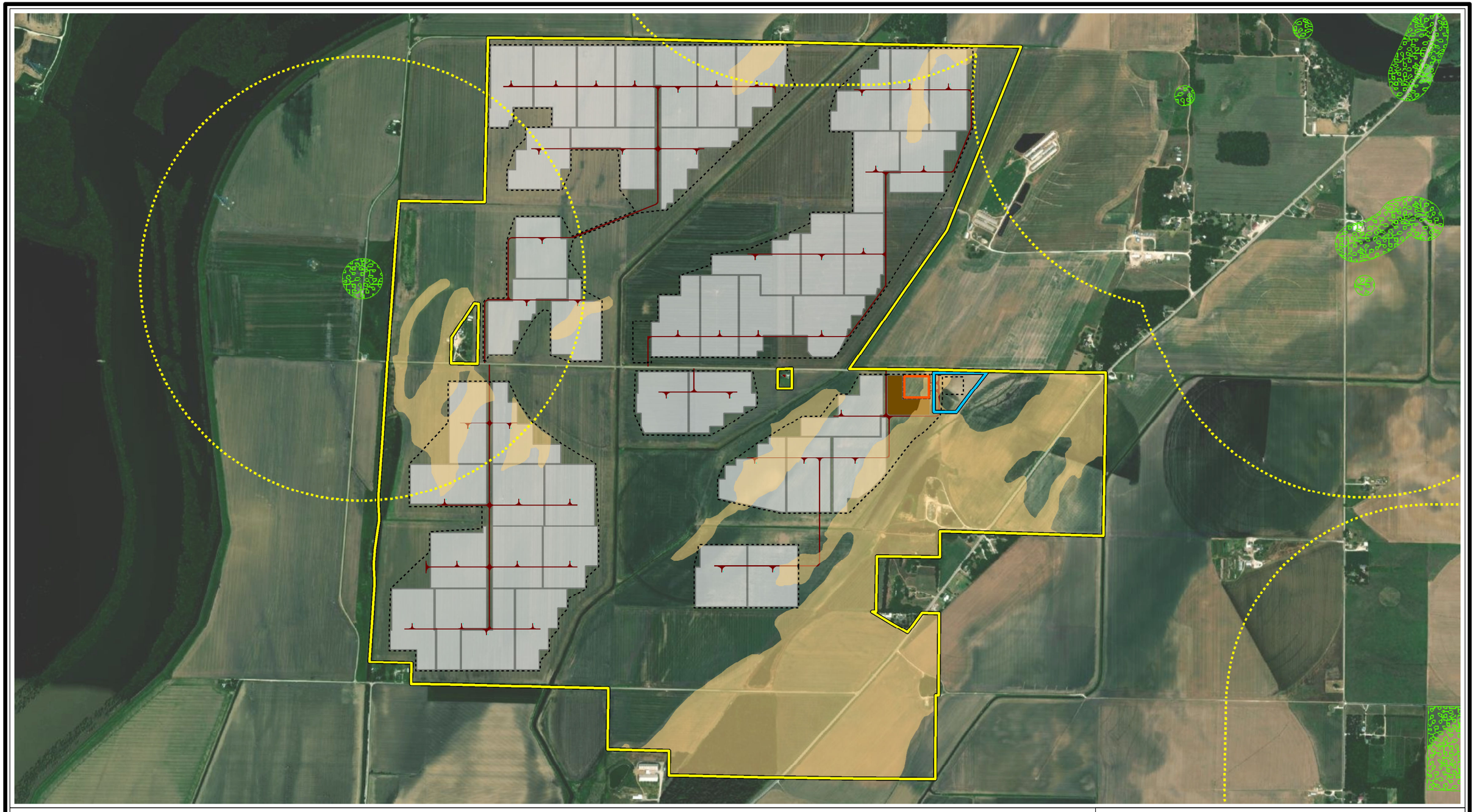
0 750 1,500

Feet

Sources: Maxar Imagery, 2018; NRCS, 2019; ECT, 2021.

Figure 2
Soils
Cass County Solar Project
Cass County Solar Project, LLC
Cass County, Illinois
Date: 10/28/2021

ECT



Legend

- Project Boundary (2,382. acres)
- Inverter
- Point of Interconnection Boundary (8.83 acres)
- Project Substation
- Fence
- ICF Breeding Area 1 km Buffer
- Documented Illinois Chorus Frog Breeding Area
- Sandy Soil
- Laydown Yard
- Access Road
- Solar Panel

N

0 750 1,500

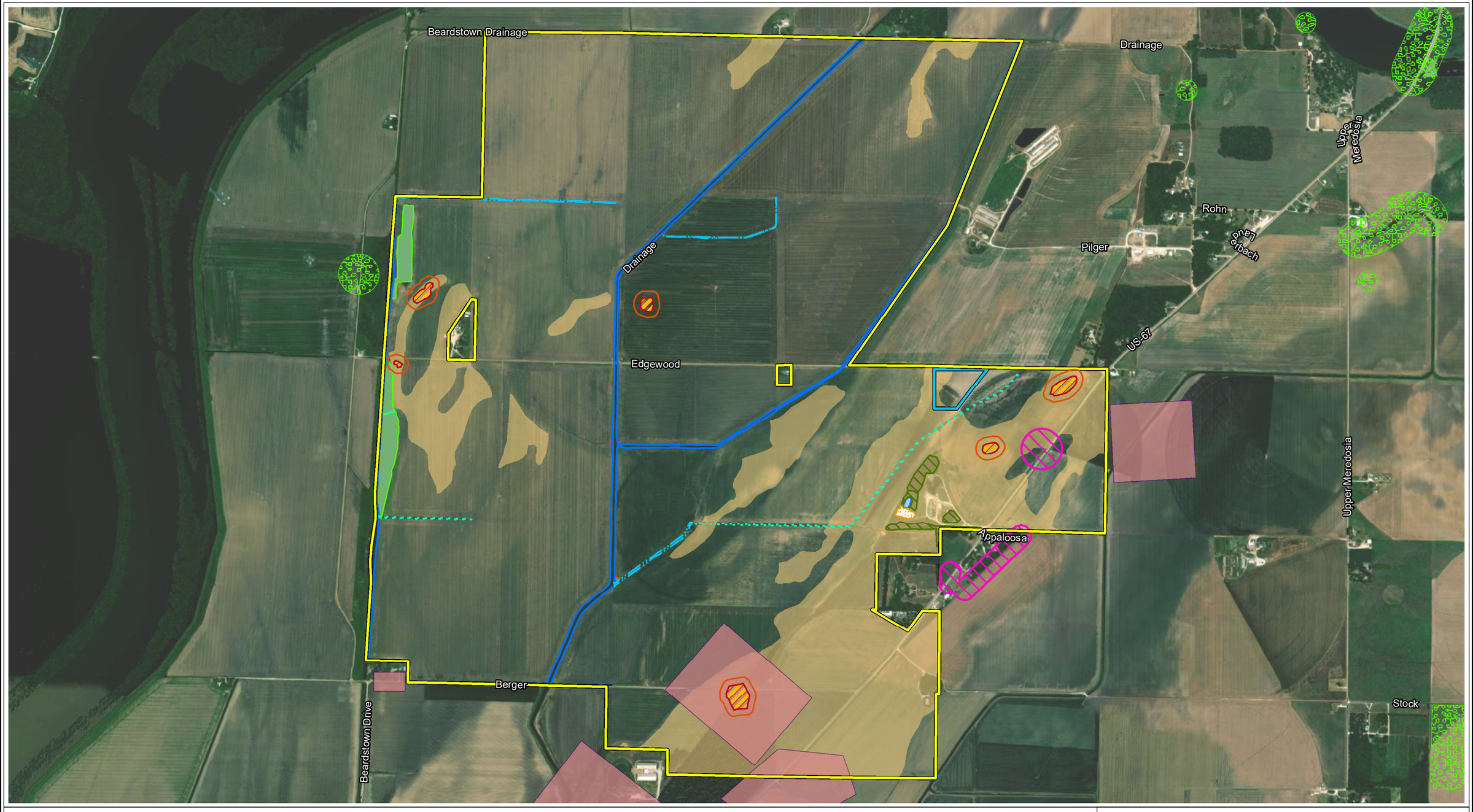
Feet

Sources: Maxar Imagery, 2018; NRCS, 2019; ECT, 2021.

Figure 3
Potential Species Impact Areas

Cass County Solar Project
Cass County Solar Project, LLC
Cass County, Illinois
Date: 11/12/2021

ECT



Legend

- Project Boundary (2,382. acres)
- Point of Interconnection Boundary (8.83 acres)
- Documented Illinois Chorus Frog Breeding Area
- SHPO Archaeological Sites for Avoidance
- Archaeological Site 100 ft Buffer
- Ephemeral Stream
- Intermittent Stream
- Perennial Stream
- Ditch
- Forested Area
- Sand Prairie
- Waterbody
- Wetland
- Environmentally Sensitive Area
- Documented Patterson's Bindweed Habitat
- Sandy Soil

N

0 750 1,500

Feet

Sources: Maxar Imagery, 2018; NRCS, 2019; ECT, 2022.

Figure 4
Constraints Map

Cass County Solar Project
Cass County Solar Project, LLC
Cass County, Illinois

Date: 3/2/2022

ECT

Appendix B IDNR Correspondence

EcoCAT
Ecological Compliance Assessment Tool

ILLINOIS DEPARTMENT OF NATURAL RESOURCES

Applicant: Cass County Solar Project, LLC
Contact: Katie Baker
Address: 16105 West 113th Street
Suite 108
Lenexa, KS 66219

IDNR Project Number: 2003097
Date: 09/24/2019

Project: Cass County Solar Project
Address: 5748 Edgewood Drive, Beardstown

Description: Construction of a solar energy facility consisting of photovoltaic solar panels and associated
infrastructure (e.g., electric collection lines, perimeter access roads, etc.)

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:

Lower Lamoine Confluence Floodplain Forest INAI Site
Hall's Bulrush *(Schoenoplectus hallii)*
Northern Harrier *(Circus cyaneus)*
Northern Long-Eared Myotis *(Myotis septentrionalis)*
Patterson's Bindweed *(Stylisma pickeringii)*
River Redhorse *(Moxostoma carinatum)*
Short-Eared Owl *(Asio flammeus)*

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: Cass

Township, Range, Section:
17N, 12W, 5
17N, 12W, 6
18N, 12W, 29
18N, 12W, 30
18N, 12W, 31
18N, 12W, 32
18N, 12W, 33

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

Government Jurisdiction
Cass County Planning and Zoning Department
Mr. Denny Lorton
100 East Springfield Street
Virginia, Illinois 62691

Disclaimer

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

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

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

EcoCAT
Ecological Compliance Assessment Tool

ILLINOIS DEPARTMENT OF NATURAL RESOURCES

EcoCAT Receipt

Project Code 2003097

APPLICANT	DATE
Cass County Solar Project, LLC Katie Baker 16105 West 113th Street Suite 108 Lenexa, KS 66219	9/24/2019

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

Illinois Department of
Natural Resources
One Natural Resources Way Springfield, Illinois 62702-1271
www.dnr.illinois.gov

JB Pritzker, Governor
Colleen Callahan, Director

November 5, 2019

Ms. Katie Baker
16105 West 113th Street
Lenexa, KS 66219

RE: Cass County Solar Project
Consultation Program
EcoCAT Review #2003097
Cass County

Dear Ms. Baker:

The Department has received your submission for this project 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 covered 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 constructing a ground-mounted solar array. Construction of the proposed Cass County solar energy facility will involve site preparation (minimal clearing of vegetation and grading of the project site), preparing and constructing minimal graveled access roads from existing roads and to access project facilities, installation of foundation piles (via driven piers) and racking for the solar arrays and inverters, installing electric collection lines via open-cut trenching or boring methods, grading the project substation site, installation and construction of substation equipment, constructing, installing security fencing, lighting, and related equipment, and installing PCS and other monitoring equipment. Temporarily disturbed construction and access areas will be restored, revegetated and returned to pre-construction conditions and applicable elevations.

According to the Natural Heritage Database, records for numerous state-listed animal and plant species are known to occur within the vicinity of the proposed solar array. Animal species include the Illinois chorus frog **(*Pseudacris illinoensis*)**, northern harrier (***Circus hudsonius***), northern long-eared bat **(*Myotis septentrionalis*)**, ornate box turtle **(*Terrapene ornata*)**, plains hog-nosed snake **(*Heterodon nasicus*)**, regal fritillary butterfly **(*Speyeria idalia*)**, river redhorse (***Moxostoma carinatum***), and short eared owl (***Asio flammeus***). Plant species include Hall's

bulrush (***Schoenoplectus hallii***), and Patterson's bindweed (***Stylisma pickeringii***). The Department has determined the project is not likely to adversely impact the following species; northern harrier, river redhorse and short-eared owl and that adverse impacts to the Lower LaMoine Confluence Floodplain Forest INAI Site are unlikely.

The Natural Heritage Database indicated records for the state-listed threatened **Illinois chorus frog** are adjacent to the project area. The Illinois chorus frog is a habitat specialist requiring sandy soils for aestivation (summer time hibernation or dormancy). 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) ponds lacking fish. 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 adjacent to 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 recommends Cass County Solar pursue Incidental Take Authorization (ITA) for the Illinois chorus frog for construction, installation, and operation.

Records of the state-threatened **regal fritillary** are known to occur in 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. To ensure no impacts to the regal fritillary, the Department recommends all construction work be conducted between October 15 and March 15 to avoid encountering foraging regal fritillary.

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 Cass County Solar pursue ITA for the regal fritillary for the solar project construction, installation, and operation.

Records also exist in the vicinity for two state listed reptiles, the state-threatened **ornate box turtle** and state-threatened **plains hog-nosed snake.** Habitat for both species includes mesic and dry-mesic prairies, oak savannas, open to semi-open woodlands, and open fields in former prairie. Both species show an affinity for sandy soils to facilitate burrowing and provide microhabitat for nesting and overwintering. Overwintering sites include upland and sand prairies, sand dunes, and shrubland that are open and lack shade. These habitat and soil preferences are consistent with the habitats and soil type found within the project area.

Given records and appropriate habitat for the ornate box turtle and plains hog-nosed snake occurs in the project area and records exist in the project vicinity, the Department recommends Cass

County Solar consider an ITA for both species. Avoidance measures to prevent taking of ornate box turtles and plains hog-nosed snakes were also considered, such as the use of exclusionary fencing and seasonal construction restrictions; however, the Department determined these measures are not likely adequate given the complexity and size of the project. If Cass County Solar does not pursue an ITA, they may conduct a survey to determine the presence/absence of both species in the project area. However, these surveys can be difficult to conduct, and depending on the methodology, may not be adequate to conclude the absence of the species from the project area. If Cass County Solar decides to conduct a survey for the ornate box turtle and plains hog-nosed snake, the principal investigator should obtain a Scientific Collectors Permit and T&E Permit from the Department to conduct such work. A survey proposal should be sent to this office for concurrence on methods, along with the results for final comment. Subsequently, if the turtle or snake is identified during the survey, the Department would recommend the applicant seek an ITA.

Northern long-eared bats are known to occur near the project area. The applicant has voluntarily implemented the seasonal date restriction of no tree clearing between April 1st and October 14th to avoid impacts to this state and federally-threatened species. Strict adherence to this date restriction greatly reduces the potential for adverse impacts. However, if the date restriction cannot be accommodated, a bat habitat assessment should be conducted in the project area by a qualified biologist to determine if habitat trees are present. Suitable habitat trees are defined as trees greater than 3 inches diameter breast height (DBH), with exfoliating bark, holes, cracks and/or crevices. Suitable habitat tree species include but are not limited to: shagbark and shellbark hickory; bitternut hickory; green ash; American elm; slippery elm; eastern cottonwood; silver maple; sugar maple; white oak; red oak; post oak; and shingle oak. This includes tress that are dead, dying, broken, or damaged, with slabs or plates of loose or peeling bark on the trunks or limbs. If suitable habitat trees are found within the project area, these trees should be clearly flagged and/or marked and not be cut between April 1st and October 14th. All non-suitable trees may be cut at any time.

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. More information on obtaining an ITA can be found here: https://www.dnr.illinois.gov/conservation/NaturalHeritage/Pages/ApplyingforanIncidentalTakeAuthorization.aspx

Records for the state-threatened **Hall's bulrush** and state-endangered **Patterson's bindweed** occur within the project boundary. Pursuant to the *Illinois Endangered Species Protection Act* [520 ILCS 10/], state-listed plants belong to the landowner and their fate resides with the landowner's conservation decisions. However, express written permission from the landowner should be obtained from construction companies/crews to "take" listed plants to comply with the *Illinois Endangered Species Protection Act*. Regardless, the Department recommends the area be surveyed by a qualified biologist for these species and conservation measures be employed to mitigate impacts. Such measures may include seed collection and/or translocation to appropriate habitat, as well as surface soil conservation, which may contain the seed bank.

In accordance with 17 Ill. Adm. Code 1075.40(h), please notify the Department of your decision regarding these recommendations.

Consultation on the part of the Department is closed, unless the applicant desires additional information or advice related to this proposal. 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 with any questions about this review.

Sincerely,

Adam Rawe
Resource Planner
Office of Realty & Capital Planning
Illinois Dept. of Natural Resources
One Natural Resources Way
Springfield, IL 62702-1271
adam.rawe@illinois.gov
Phone: (217) 785-4991

cc. Jenny Skufca – IDNR, ORC - Incidental Take Authorization Coordinator
Joe Kath – IDNR, ORC
Stuart Fraser – IDNR, OLE

EcoCAT
Ecological Compliance Assessment Tool

ILLINOIS DEPARTMENT OF NATURAL RESOURCES

Applicant: Cass County Solar Project, LLC
Contact: Katie Baker
Address: 422 Admiral Boulevard
Kansas City, MO 64106

Project: Cass County Solar Project
Address: 5748 Edgewood Drive, Beardstown

IDNR Project Number: 2006506
Date: 02/10/2020
Alternate Number: 2003097

Description: Construction of a solar energy facility consisting of photovoltaic solar panels and associated infrastructure (e.g., electric collection lines, perimeter access roads, etc.)

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:

Lower Lamoine Confluence Floodplain Forest INAI Site
Hall's Bulrush *(Schoenoplectus hallii)*
Illinois Chorus Frog *(Pseudacris illinoensis)*
Northern Harrier *(Circus cyaneus)*
Northern Long-Eared Myotis *(Myotis septentrionalis)*
Patterson's Bindweed *(Stylisma pickeringii)*
River Redhorse *(Moxostoma carinatum)*
Short-Eared Owl *(Asio flammeus)*

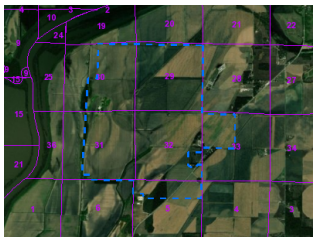
An IDNR staff member will evaluate this information and contact you to request additional information or to terminate consultation if adverse effects are unlikely.

Location

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

County: Cass

Township, Range, Section:
17N, 12W, 5
17N, 12W, 6
18N, 12W, 28
18N, 12W, 29
18N, 12W, 30
18N, 12W, 31
18N, 12W, 32
18N, 12W, 33



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

Government Jurisdiction
Cass County Zoning
Mr. Denny Lorton
100 East Springfield Street
Springfield, Illinois 62691

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EcoCAT
Ecological Compliance Assessment Tool

ILLINOIS DEPARTMENT OF NATURAL RESOURCES

EcoCAT Receipt

Project Code 2006506

APPLICANT	DATE
Cass County Solar Project, LLC Katie Baker 422 Admiral Boulevard Kansas City, MO 64106	2/10/2020

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

Illinois Department of
Natural Resources
One Natural Resources Way Springfield, Illinois 62702-1271
www.dnr.illinois.gov

JB Pritzker, Governor
Colleen Callahan, Director

October 21, 2020
Mr. Taylor Guest
422 Admiral Boulevard
Kansas City, MO 64106

RE: Cass County Solar Project
Consultation Program
EcoCAT Review #2106617 (2006506)
Cass County

Dear Mr. Guest,

The Department has received your submission of this project 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 covered 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 EcoCAT project description states this review is for "construction of a solar energy facility consisting of photovoltaic solar panels and associated infrastructure (e.g., electric collection lines, perimeter access roads, etc.)". This is a resubmittal of EcoCAT Consultation 2006506 due to minor changes to the project area.

According to the Natural Heritage Database, records for numerous state-listed animal and plant species are known to occur within the vicinity of the proposed solar array. Animal species include the Illinois chorus frog **(*Pseudacris illinoensis*)**, northern harrier (***Circus hudsonius***), northern long-eared bat **(*Myotis septentrionalis*)**, ornate box turtle **(*Terrapene ornata*)**, plains hog-nosed snake **(*Heterodon nasicus*)**, regal fritillary butterfly **(*Speyeria idalia*)**, river redhorse (***Moxostoma carinatum***), and short eared owl (***Asio flammeus***). Plant species include Hall's bulrush (***Schoenoplectus hallii***), and Patterson's bindweed (***Stylisma pickeringii***). The Department has determined the project is not likely to adversely impact the following species: northern harrier, river redhorse and short-eared owl and that adverse impacts to the Lower LaMoine Confluence Floodplain Forest and Beardstown Marsh INAI Sites are unlikely.

The Natural Heritage Database indicated records for the state-listed threatened **Illinois chorus frog** are adjacent to the project area. The Illinois chorus frog is a habitat specialist requiring sandy soils for aestivation (summer season hibernation or dormancy). 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) ponds lacking fish. 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 adjacent to 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 recommends Cass County Solar pursue Incidental Take Authorization (ITA) for the Illinois chorus frog for construction, installation, and operation of the solar project.

Records of the state-threatened **regal fritillary** butterfly are known to occur in the vicinity of the proposed project footprint. The regal fritillary requires *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. To ensure no impacts to the regal fritillary, the Department recommends all construction work be conducted between October 15 and March 15 to avoid encountering foraging regal fritillary.

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 Cass County Solar pursue ITA for the regal fritillary for the solar project construction, installation, and operation.

Records also exist in the vicinity for two state listed reptiles, the state-threatened **ornate box turtle,** and state-threatened **plains hog-nosed snake.** Habitat for both species includes mesic and dry-mesic prairies, oak savannas, open to semi-open woodlands, and open fields in former prairie. Both species show an affinity for sandy soils to facilitate burrowing and provide microhabitat for nesting and overwintering. Overwintering sites include upland and sand prairies, sand dunes, and shrubland that are open and lack shade. These habitat and soil preferences are consistent with the habitats and soil type found within the project area.

Given the appropriate habitat for the ornate box turtle and plains hog-nosed snake occurs in the project area and records for both species exist in the project vicinity, the Department recommends Cass County Solar consider an ITA for both species. Avoidance measures to prevent taking of ornate box turtles and plains hog-nosed snakes were also considered, such as the use of exclusionary fencing and seasonal construction restrictions; however, the Department determined these measures are not adequate given the complexity and size of the project. If Cass County Solar does not pursue an ITA, they may conduct a survey to determine the

presence/absence of both species in the project area. However, these surveys can be difficult to conduct, and depending on the methodology, may not be adequate to conclude the absence of the species from the project area. If Cass County Solar decides to conduct a survey for the ornate box turtle and plains hog-nosed snake, the principal investigator should obtain a Scientific Collectors Permit and T&E Permit from the Department to conduct such work. A survey proposal should be sent to this office for concurrence on methods, along with the results for final comment. Subsequently, if the turtle or snake is identified during the survey, the Department would recommend the applicant seek an ITA.

Northern long-eared bats are known to occur near the project area. The applicant has voluntarily implemented the seasonal date restriction of no tree clearing between April 1st and October 31st to avoid impacts to this state and federally threatened species. Strict adherence to this date restriction greatly reduces the potential for adverse impacts. However, if the date restriction cannot be accommodated, a bat habitat assessment should be conducted in the project area by a qualified biologist to determine if habitat trees are present. Suitable habitat trees are defined as trees greater than 3 inches diameter breast height (DBH), with exfoliating bark, holes, cracks and/or crevices. Suitable habitat tree species include but are not limited to: shagbark and shellbark hickory; bitternut hickory; green ash; American elm; slippery elm; eastern cottonwood; silver maple; sugar maple; white oak; red oak; post oak; and shingle oak. This includes tress that are dead, dying, broken, or damaged, with slabs or plates of loose or peeling bark on the trunks or limbs. If suitable habitat trees are found within the project area, these trees should be clearly flagged and/or marked and not be cut between April 1st and October 14th. All non-suitable trees may be cut at any time

Please note, all correspondences pertaining to an application for ITA should be sent to the ITA coordinator, Heather Osborn (heather.osborn@illinois.gov) with the Department's Office of Resource Conservation. More information on obtaining an ITA can be found here: https://www.dnr.illinois.gov/conservation/NaturalHeritage/Pages/ApplyingforanIncidentalTakeAuthorization.aspx

Records for the state-threatened **Hall's bulrush** and state-endangered **Patterson's bindweed** occur within the project boundary. Pursuant to the *Illinois Endangered Species Protection Act* [520 ILCS 10/], state-listed plants belong to the landowner and their fate resides with the landowner's conservation decisions. However, express written permission from the landowner should be obtained for construction companies/crews to "take" listed plants to comply with the *Illinois Endangered Species Protection Act*. Regardless, the Department recommends the area be surveyed by a qualified biologist for these species and conservation measures be implemented to mitigate impacts. Such measures may include seed collection and/or translocation to appropriate habitat, as well as surface soil conservation, which may contain the seed bank.

In accordance with 17 Ill. Adm. Code 1075.40(h), please notify the Department of your decision regarding these recommendations.

Consultation on the part of the Department is closed unless the applicant desires additional information or advice related to this proposal. 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 with any questions about this review.

Sincerely,

Adam Rawe

Adam Rawe
Resource Planner
Office of Realty & Capital Planning
Illinois Dept. of Natural Resources
One Natural Resources Way
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Phone: (217) 785-4991

cc. Heather Osborn – IDNR, ORC - Incidental Take Authorization Coordinator
Jenny Skufca -IDNR, ORC
Joe Kath – IDNR, ORC
Stuart Fraser – IDNR, OLE

Cass County Solar Project - IDNR Correspondence Log					
Date	**Communication Method**	**To**	**From**	**Purpose**	**Notes**
9/24/2019	EcoCAT	IDNR	CCSP	EcoCAT Submission for Project #2003097	
11/5/2019	Letter	CCSP	IDNR, Adam Rawe	Project Recommendations #2003097	ITA recommended
2/10/2020	EcoCAT	IDNR	CCSP	EcoCAT Submission for Project #2006506 (Alt. #2003097)	
10/21/2020	Letter	CCSP	IDNR, Adam Rawe	Project Recommendations #2106617 (Alt # 2006506)	Resubmittal due to change in boundary. ITA recommended.
2/3/2021	Teams Meeting	IDNR, Heather Osborn	CCSP, Courtney Timmons, Emma Tajchman, Emily Truebner, Matt Inkhen, Christina Martens	Pre-application Meeting	General discussion regarding expectations and timing.
2/11/2021	Teams Meeting	IDNR, Heather Osborn	CCSP, Emma Tajchman, Courtney Timmons, Matt Inkhen, Christina Martens	POI Discussion	Explain the POI construction schedule and property interest. IDNR recommended a separate EcoCAT be submitted for the POI.
2/15/2021	EcoCAT	IDNR	CCSP	EcoCAT Submission for POI #2110514	Per above IDNR recommendation.
2/17/2021	Email	CCSP, Christina Martens, Matt Inkhen, Emma Tajchman Courtney Timmons	IDNR, Heather Osborn	Clarification regarding POI ownership	EcoCat submittal made by CCSP. Requesting information on who owns the project.
2/19/2021	Email	IDNR, Heather Osborn	CCSP/ECT, Matt Inkhen	Clarification regarding POI ownership	Two phases of construction and ownership, starting with CCSP and transferring to Ameren.
2/19/2021	Email	CCSP, Christina Martens, Matt Inkhen, Emma Tajchman Courtney Timmons	IDNR, Heather Osborn	Clarification regarding POI ownership	Two separate ITAs may be required for POI to cover both CCSP and Ameren's work and interest in the POI property. IDNR to investigate internally to provide a recommended approach.
3/19/2021	Teams Meeting	IDNR, Heather Osborn, Nathan Grider	CCSP, Emma Tajchman, Matt Inkhen, Christina Martens	EcoCAT Review #2110514 (2106617 & 2006506)	Meeting requested on 3/09/21 by ECT on behalf of CCSP to follow up on IDNR recommendations and next steps. Compare POI and project EcoCAT results and request an update on recommendation for POI only. Formal response letter for POI will not be issued.
4/6/2021	Email	IDNR, Heather Osborn, Nathan Grider	CCSP, Emma Tajchman, Matt Inkhen, Christina Martens	POI Recommendations	CCSP suggested partial transfer of the ITA for the POI with proposed language.
4/8/2021	Email	CCSP, Emma Tajchman, Matt Inkhen, Christina Martens	IDNR, Heather Osborn, Nathan Grider	POI Recommendations	Recommended Ameren obtain separate ITA.

Date	Communication Method	To	From	Purpose	Notes
6/3/2021	Email	CCSP, Emma Tajchman, Matt Inkhen, Christina Martens	IDNR, Heather Osborn, Nathan Grider	POI Land Control	Ameren contacted IDNR independently following discussions between CCSP and Ameren teams. Challenge with separate ITAs is timing for permitting/approval and construction schedule alignment. IDNR requested land control and/or land transfer documentation for clarification.
6/4/2021	Email	IDNR, Heather Osborn, Nathan Grider	CCSP, Emma Tajchman, Matt Inkhen, Christina Martens	POI Land Control	CCSP requested clarification regarding the documentation request. Land transfer will not occur until construction has commenced so that title cannot be provided prior to ITA issuance. Suggested direct discussion with legal teams. IDNR forwarded email request to IDNR legal.
6/15/2021	Email	CCSP	IDNR	POI Land Control	IDNR legal still questioning land control documentation, but project may move forward with submittal. Ameren should continue to hold.
7/22/2021	Teams Meeting	IDNR, Heather Osborn	CCSP, Emma Tajchman, Matt Inkhen, Christina Martens Ameren, Kenny Lynn, Nancy Morgan	POI Discussion for a path forward	CCSP/Ameren explained land control documents and proposed paths forward. Heather requested IDNR legal review documentation and would follow up via email.
8/4/2021	Letter	CCSP	IDNR, Bradley Hayes	POI Recommendations (#2110514)	Submitted for POI only. ITA recommended
8/18/2021	Email	IDNR	CCSP	Land Control Documentation	Requested update regarding IDNR legal review. Laid out the perceived options for moving forward.
8/26/2021	Email	CCSP	IDNR	Land Control Documentation	IDNR still not satisfied with land control documentation for POI. CCSP can move forward, but recommendations for Ameren are unknown.
9/9/2021	Email	IDNR	CCSP	Land Control Documentation	Requested clarification on land control concerns. Explained that CCSP cannot move forward until Ameren also has clarity.
9/23/2021	Email	CCSP	IDNR	Land Control Documentation	Call with all legal counsel for all parties proposed to determine next steps.
10/7/2021	Teams Meetings	CCSP, Courtney Timmons, Christina Martens, Matt Inkhen, Melissa Vancrum, Neal Woodworth, Emma Tajchman Ameren, Kenny Lynn, Eric Dearmont	IDNR, Heather Osborn, Nicole Thomas	Land Control Documentation	Call with legal counsel for all parties to discuss land control documentation required for ITA submittal for both CCSP and Ameren.
10/8/2021	Email	IDNR	CCSP	Land Control Documentation	CCSP provided additional information as requested by IDNR. Additional information included full lease (not lease memo) for the POI property and specific provisions within the GIA requiring CCSP to transfer the POI property to Ameren.

Date	Communication Method	To	From	Purpose	Notes
10/13/2021	Email	CCSP	IDNR	Approval to Proceed	Both parties, Ameren and CCSP, may proceed with individual ITAs based on the documentation provided. CCSP must sign the implementing agreement and conservation plan for Ameren's ITA.
11/1/2021	Email	IDNR	CCSP	CCSP ITA Submittal Notice	Notice to IDNR that CCSP will submit a conservation plan in the coming weeks. CCSP confirmed submittal and notice requirements.

Appendix C Habitat Surveys

ecology and environment, inc.
Global Environmental Specialists
33 West Monroe Street, Suite 1410
Chicago, Illinois 60603
Tel: (312) 578-9243, Fax: (312) 578-9345

September 25, 2020

Ms. Emma Tajchman
Cass County Solar Project, LLC
422 Admiral Boulevard
Kansas City, Missouri 64106

Re: Threatened and Endangered Species Habitat Survey Report for the Cass County Solar Project, Cass County, Illinois

Dear Ms. Tajchman:

Ecology and Environment, Inc. (E & E) is pleased to provide this letter report to Cass County Solar Project, LLC (Cass County Solar) summarizing the results of our threatened and endangered (T/E) species habitat survey at the Cass County Solar Project, located in Cass County, Illinois (Project).

INTRODUCTION AND GENERAL SITE DESCRIPTION

Cass County Solar is proposing to develop a solar energy project on approximately 2,382 acres of private land in a rural, agricultural region of western Illinois (see Figure 1 in Attachment A). As requested by Cass County Solar, E & E conducted a field-based habitat survey August 21-23, 2018, on October 30, 2019, and from May 13-14, 2020, in order to assess potential habitat availability for federally and/or state-listed T/E species in the Project area. Three visits were necessary as a result of modifications to the Project area. The purpose of the survey was to document current land uses within the Project area, as well as to detail the types of vegetative cover, amount, and quality of habitat present. The land use and vegetation information can then be compared to the habitat requirements for T/E species that are known or have the potential to occur in the Project area or within Cass County.

The Project is located in the U.S. Environmental Protection Agency's Level IV Upper Mississippi Alluvial Plain Ecoregion within the larger Level III Interior River Valleys and Hills Ecoregion (USEPA 2010). In the past, the Upper Mississippi Alluvial Plain Ecoregion contained poorly drained soils, mostly derived from thick, silty and clayey alluvium sandy loams. The area was characterized by broad floodplains and low river terraces. Today, agricultural activities have replaced native vegetation, and long stretches of the Mississippi River have been channelized and altered by dam construction (USEPA 2006).

METHODOLOGY

Desktop Review

Prior to the field survey, E & E conducted a desktop review of federally and state-listed T/E species for Cass County to assess their potential occurrence within the Project area. The U.S. Fish and Wildlife Service Information for Planning and Construction (IPaC) screening tool was used to evaluate federal T/E species that might potentially be present within the Project area, while the Ecological Compliance Assessment Tool (EcoCAT), maintained by the Illinois Department of

Natural Resources (IDNR) was used to evaluate potential presence of state-listed T/E species within the Project area. Additionally, the IDNR was consulted in February 2020 regarding potential impacts to T/E species within the Project area. The results of the IPaC, EcoCAT, and the IDNR consultation letter are included in Attachment B.

Field Survey Effort

During field surveys, E & E biologists delineated habitat types and land uses within the Project area as defined in Table 5 of *The Illinois Comprehensive Wildlife Conservation Plan & Strategy* (IDNR 2005). A species list for dominant vegetation found in each habitat type within the Project area was recorded and the boundaries of these habitats were field-delineated using a handheld Global Positioning System unit with sub-meter accuracy. The habitat categories in Table 5 of the *Illinois Comprehensive Wildlife Conservation Plan & Strategy* were broadly categorized into six main habitat types, and then further divided into sub-categories. The habitat types and sub-categories that are represented in the Project area are described below.

1. Cultural
    - Cropland
    - Developed Land
2. Forest (more than 80% wooded canopy cover)
    - Sand Forest
    - Upland Forest
3. Grassland (less than 10% wooded canopy cover)
    - Sand Prairie
    - Early Successional
    - Idle-Introduced
4. Lake and Pond
    - Pond
5. Tributaries
6. Wetland

Cultural: Cropland
Cropland includes active fields that are used in producing row crops. These fields are regularly disturbed by activities such as planting, tilling, and harvesting.

Cultural: Developed Land
Developed Land is dominated by man-made structures. Structures may include residences, farmsteads, roads, equipment storage areas, silos, and other structures used to support agricultural operations.

Forest: Sand Forest
An area with more than 80% wooded canopy characterized by sandy soils.

Forest: Upland Forest
An area with more than 80% wooded canopy that does not regularly flood.

Grassland: Sand Prairie
An area with less than 10% wooded canopy that contains native grasses, forbs, well-drained sandy soils, and lacks canopy cover.

Grassland: Early Successional
An area with less than 10% wooded canopy that exists on previously disturbed land, often by agriculture. Habitat type ranges from bare soils to fallow agricultural fields.

Grassland: Idle-Introduced (First categorized during the May 2020 surveys)
Grassland area dominated by introduced grasses not hayed or grazed.

Lake and Pond: Pond
A small standing water habitat with water depths less than 5 feet and lacking emergent vegetation. This category includes all waterbodies delineated by E & E within the Project area during the wetland delineation survey conducted in conjunction with the T/E habitat surveys.

Tributaries
A habitat with a defined bed and bank containing flowing water for at least a portion of the year. This category includes all streams and drains delineated by E & E within the Project area during the wetland delineation survey conducted in conjunction with the T/E habitat surveys.

Wetland
A habitat containing hydric soils and vegetation with water depths less than 5 feet. This category includes all wetlands delineated by E & E within the Project area during the wetland delineation surveys conducted in conjunction with the T/E habitat surveys.

RESULTS

Desktop Review

One federally listed endangered species (also state-listed endangered) and four federally listed threatened species (two are also state-listed endangered and two are state-listed threatened) were identified during the IPaC review as being potentially present in the Project area (see Table 1). There is no designated critical habitat for any of these federally listed T/E species within the Project area.

The EcoCAT reports three state-listed endangered species and three state-listed threatened species (one is also federally listed threatened) that occur within the Project area. The IDNR consultation letter response from February 2020 reported four additional state-listed threatened species (three of which are under review for protection under the Endangered Species Act [ESA]) known to occur within the vicinity of the Project area (see Table 1). Based on species habitat requirements and a desktop analysis of the habitat in the Project area, Table 1 also includes a determination on the likelihood that the federal and state-listed T/E species will be present in the Project area.

The EcoCAT also reported one Illinois Natural Areas Inventory (INAI) sites, the Lower LaMoine Confluence Floodplain Forest INAI site, within the vicinity of the Project. GIS data or maps of INAI sites are not publicly available; therefore, proximity of these sites to the Project area could not be discerned as part of this desktop review. The IDNR determined that adverse impacts to the Lower LaMoine Confluence Floodplain Forest INAI site from construction and operation of the Project are unlikely (IDNR 2020b).

Table 1 List of Potential Threatened and Endangered Species Within or Near the Cass County Solar Project, Cass County, Illinois

Common Name	Scientific Name	Status	Habitat	Presence Determination Based on Desktop Review
Birds				
Northern Harrier	*Circus hudsonius*	SE	Open habitats, including herbaceous wetlands, grasslands, croplands, and marshes.	**Potential suitable habitat present.**
Short-eared Owl	*Asio flammeus*	SE	Open habitats, including prairie and marshes. Utilizes ground nests in wet prairie vegetation.	**Potential suitable habitat present.**
Fish				
River Redhorse	*Moxostoma carinatum*	ST	Generally confined to clear, swift moving, large creeks and rivers; occasionally in natural lakes and reservoirs.	Potential suitable habitat not present.
Insects				
Regal Fritillary	*Speyeria idalia*	ST, UR	Grassland areas with tallgrass prairie vegetation, including violet species.	**Potential suitable habitat present.**
Mammals				
Indiana Bat	*Myotis sodalis*	FE, SE	Forests, riparian corridors, wetlands for summer roosting and foraging.	**Potential suitable habitat present.**
Northern Long-eared Bat	*Myotis septentrionalis*	FT, ST	Forests, riparian corridors, wetlands for summer roosting and foraging.	**Potential suitable habitat present.**
Plants				
Decurrent False Aster	*Boltonia decurrens*	FT, ST	Areas with moist, sandy soil with periodic flooding most commonly associated with shores of lakes and banks of streams.	Potential suitable habitat not present.
Eastern Prairie Fringed Orchid	*Plantanthera leucophaea*	FT, SE	Moist to wet tallgrass prairie, sedge meadows, fens, and old fields with little woody species.	**Potential suitable habitat present**.
Prairie Bush-clover	*Lespedeza leptostachya*	FT, SE	Dry, steep, and well-drained gravel prairies and dry-mesic prairies.	**Potential suitable habitat present**.
Hall's Bulrush	*Schoenoplectus hallii*	ST, UR	Shores and bottoms of shallow ephemeral ponds, sinkhole ponds, coastal plain marshes, and similar habitats where widely fluctuating water levels keep the sands free of other vegetation.	Potential suitable habitat not present.

Table 1 List of Potential Threatened and Endangered Species Within or Near the Cass County Solar Project, Cass County, Illinois

Common Name	Scientific Name	Status	Habitat	Presence Determination Based on Desktop Review
Patterson's Bindweed	*Stylisma pickeringii*	SE	Dry pine barrens, pine/scrub oak sandhill, xeric sandhill scrub, and sand-prairies.	**Potential suitable habitat present.**
Reptiles				
Illinois Chorus Frog	*Pseudacris illinoensis*	ST, UR	Sandy soils near fish-less ponds or ephemeral waterbodies.	**Potential suitable habitat present.**
Ornate Box Turtle	*Terrapene ornate*	ST	Prairie grassland, pasture, fields, sandhills, and open woodland. Mainly a terrestrial species.	**Potential suitable habitat present.**
Plains Hog-nosed Snake	*Heterodon nasicus*	ST	Sandy soil habitats including prairies, sandhills, river floodplains, semi-agricultural areas, and irrigation ditches.	**Potential suitable habitat present.**

Sources: IDNR 2020a; IDNR 2020b; USFWS 2020.

Key:
FE – Federal Endangered
FT – Federal Threatened
SE – State-listed Endangered
ST – State-listed Threatened
UR – Under Review for Protection under the Endangered Species Act

Based on this desktop review, 11 of the federally or state-listed T/E species shown in Table 1 have the potential to occur in the Project area. These species include: the northern harrier (*Circus cyaneus*; state-listed endangered [SE]); short-eared owl (*Asio flammeus*; SE); Indiana bat (*Myotis sodalis*; federally listed endangered [FE] and SE); northern long-eared bat (*Myotis septentrionalis*; federally-listed threatened [FT] and state-listed threatened [ST]); Patterson's bindweed (*Stylisma pickeringii*; SE); regal fritillary (*Speyeria idalia*; ST, under review for protection under the ESA [UR]); eastern prairie fringed orchid (*Plantanthera leucophaea*; FT and SE); prairie bush-clover (*Lespedeza leptostachya*; FT and SE); Illinois chorus frog (*Pseudacris illinoensis*; ST, UR); ornate box turtle (*Terrapene ornata*; ST); and plains hog-nosed snake (*Heterodon nasicus*; ST) Due to the lack of potentially suitable habitat and limited species occurrences within Cass County, the remaining three T/E species identified in Table 1 are unlikely to occur within the Project area based on habitat identified during the desktop analysis.

Project Area Habitat

The T/E species habitat survey was conducted by E & E during three site visits conducted in August 2019, October 2019, and May 2020. Table 2 presents the total acreage and percentage of the overall Project area for each habitat category, based on the habitat categories identified and delineated during the survey. Figure 2, in Attachment A, depicts the geographic locations of the delineated habitats within the Project area, while Attachment C presents representative photographs of the identified habitats.

Table 2 Habitat Types Identified within the Cass County Solar Project Area

Habitat Category	Acres	Land Use (%)
Cultural: Cropland	2,212	92.9%
Forest: Upland Forest	46	1.9%
Tributaries	36	1.5%
Cultural: Developed Land	31	1.3%
Grassland: Idle-Introduced	29	1.2%
Wetland	18	0.8%
Grassland: Early Successional	8	0.3%
Forest: Sand Forest	1	< 0.1%
Grassland: Sand Prairie	0.9	< 0.1%
Lake and Pond: Pond	0.3	< 0.1%
Total	**2,382**	**100.0%**

For the ten habitat types identified with the Project area, a more detailed description of each habitat type and the vegetation present at the Project is provided below.

Cultural: Cropland

Cropland comprises the vast majority of the Project area, representing 92.9% of the habitat in the Project area (2,212 acres [as of May 2020 survey]). These areas are situated in the interior of the Project area and exist as large, contiguous areas planted with corn (*Zea mays*), soybeans (*Glycine max*), and sorghum (*Sorghum bicolor*), which are regularly farmed/disturbed. There are relatively few areas of undisturbed land within these large agricultural fields that could offer semi-permanent cover for wildlife. A

representative photograph of Cropland habitat within the Project area is provided in Attachment C, Photo Location HAB-01.

Forest: Upland Forest
Upland Forest comprises 1.9% of the Project area (46 acres [as of May 2020 survey]) and is primarily located in the southern portion of the Project area. Small segments of Upland Forest are also located in the eastern and southeastern portion of the Project area. Dominant overstory vegetation in these areas includes hackberry (*Celtis occidentalis*), eastern black hickory (*Juglans nigra*), mulberry (*Morus alba*), red oak (*Quercus rubra*), American elm (*Ulmus americana*), and red elm (*Ulmus rubra*). Dominant understory vegetation includes poison ivy (*Toxicodendron radicans*), Virgina creeper (*Parthenocissus quinquefolia*), thicket creeper (*Parthenocissus vitacea*), and garlic mustard (*Alliaria petiolate*). The invasive amur honeysuckle (*Lonicera Maackii*) dominates the sapling/shrub layer of the majority of Upland Forest habitat within the Project Area. A representative photograph of Upland Forest habitat within the Project area is provided in Attachment C, Photo Location HAB-02.

Tributaries
Tributaries, including streams and drains, comprise approximately 1.5% of the total Project area (36 acres [as of May 2020 survey]). All streams present with the Project area are man-made or man-altered and used to facilitate drainage from the surrounding agricultural fields. Perennial streams SS-T01-001, SS-T01-003, SS-T01-008, and SS-T02-001 drain to the Illinois River, located approximately 0.6 miles west of the Project area. During the T/E species habitat survey, multiple river otters (*Lontra canadensis*) were seen swimming in delineated streams SS-T01-003 and SS-T01-008. Stream SS-T01-003 also has a largely forested riparian corridor providing terrestrial habitat, overhanging roots, and woody debris; and shading the instream habitat along the eastern stream bank. However, these streams have little to no flow and receive large amounts of agricultural runoff. The remaining streams in the Project area have intermittent or ephemeral flow; show varying degrees of hydrologic modification such as ditching, diverting, and culverting; are relatively shallow; and have significant hydrologic inputs from agricultural runoff. Representative photographs showing Tributary habitat at streams SS-T01-001 and SS-T01-006 are provided in Attachment C, Photo Locations HAB-03 and HAB-04, respectively.

Cultural: Developed Land
Developed Land (31 acres [as of May 2020 survey]) comprises roughly 1.3% of the total Project area. These areas are cleared of almost all vegetation, graded, and include structures, roadways, and parking areas that generally do not offer habitat for flora and fauna. A representative photograph of Developed Land use within the Project area is provided in Attachment C, Photo Location HAB-05.

Grassland: Idle-Introduced
Idle-Introduced Grassland comprises roughly 1.2% of the Project area (29 acres) and was first categorized during the May 2020 survey. It is found in the southern portion of the Project area within a utility corridor and around Upland Forest habitat. Areas of Idle-Introduced Grassland are entirely herbaceous, irregularly disturbed, and are dominated by the invasive cheatgrass (*Bromus japonicus*), a grass known for inhibiting growth of other species. A representative photograph of Idle-Introduced Grassland habitat within the Project area is provided in Attachment C, Photo Location HAB-06.

Wetland
Wetlands comprise approximately 0.8% of the total Project area (18 acres [as of May 2020 survey]). Wetland habitat quality within the Project area is variable. The palustrine scrub-shrub (PSS) Wetland W-T01-001 is an 11.0-acre wetland located in the floodplain of a ditched perennial stream (that contains both scrub-shrub and hardwood species throughout. Wetland W-T01-002 is a palustrine emergent (PEM) wetland located in a depression along the riparian area of stream SS-T01-003. Wetland W-T01-002 is a

6.3-acre wetland complex dominated by mostly herbaceous, invasive vegetation. Wetland W-T01-003 is a 0.2-acre wetland, with sandy soils, that surrounds a pond (WB-T01-001) that may be a result of past excavation activities. Wetland W-T03-001 and wetland W-T03-002 are PEM wetlands located in roadside ditches. Representative photographs showing Wetland habitat at wetlands W-T01-001 (PSS) and W-T01-002 (PEM) are provided in Attachment C, Photo Locations HAB-07 and HAB-08, respectively.

Grassland: Early Successional
Early Successional Grassland comprises roughly 0.3% of the Project area (8 acres [as of May 2020 survey]) and is found in relatively small locations in the eastern portion of the Project area. Areas of Early Successional Grassland are the result of previously farmed land that has been recently left fallow. These areas are entirely herbaceous, irregularly disturbed, and largely consist of horseweed (*Erigeron canadensis*), with some hairy crabgrass (*Digitaria sanguinalis*); common witchgrass (*Panicum capillare*); and broadleaf plantain (*Plantago major*). A representative photograph of Early Successional Grassland habitat within the Project area is provided in Attachment C, Photo Location HAB-09.

Forest: Sand Forest
Sand Forest comprises less than 0.1% of the Project area (1 acre [as of May 2020 survey]), occurring in only one location in the southeastern portion of the Project area. The area appears to be a former borrow pit. However, once the borrow pit was abandoned, it was kept void of development and cultivation and, therefore, resulting in an undisturbed area with exposed sandy soils. Dominant understory vegetation is consistent with species found in the adjacent Sand Prairie habitat and the canopy is a monoculture of young slippery elm (*Ulmus pumila*). A representative photograph of Sand Forest habitat within the Project area is provided in Attachment C, Photo Location HAB-10.

Grassland: Sand Prairie
Sand Prairie comprises less than 0.1% of the total Project area (0.9 acre [as of May 2020 survey]). Like the Sand Forest habitat type, the area appears to be the result of former excavation activities resulting in an uncultivated and undeveloped area. Although originally caused by a disturbance, the area resembles native prairie habitat. Dominant species include hairy prairie golden aster (*Chrysopsis villosa*), rough dropseed (*Sporobolus compositus*), false redtop (*Tridens flavus*), partridge pea (*Chamaecrista fasciculata*), showy tick trefoil (*Desmodium canadense*), Great Plains flat sedge (*Cyperus lupulinus*), and slender crown grass (*Paspalum setaceum*). A representative photograph of Sand Prairie habitat within the Project area is provided in Attachment C, Photo Location HAB-11.

Lake and Pond: Pond
One pond, WB-T01-001, comprises less than 0.1% of the total Project area (0.3 acres [as of May 2020 survey]) and is located in the southeastern portion of the Project area. Pond WB-T01-001 is a perennial pond likely formed as a result of excavation of the area as a borrow pit. The pond is surrounded by wetland W-T01-003. A representative photograph showing the habitat at pond WB-T01-001 is provided in Attachment C, Photo Location HAB-12.

Project Area T/E Species Assessment

As determined through the desktop review, the Northern Harrier (SE), Short-eared Owl (SE), Indiana bat (FE, SE), northern long-eared bat (FT, ST), regal fritillary (ST, UR), Patterson's bindweed (SE), eastern prairie fringed orchid (FT and SE), prairie bush-clover (FT,SE), Illinois chorus frog (ST, UR), ornate box turtle (ST), and plains hog-nosed snake (ST) have the potential to occur in the Project area. The T/E species field habitat survey conducted in August 2018, October 2019, and May 2020 allowed E & E to make a more accurate assessment of the potential presence of the 11 federally and/or state-listed T/E species identified during the desktop assessment. The results are discussed for each species below, and

effects determinations are provided for federally listed species.

- **Northern Harrier (SE).** The northern harrier prefers open expansive fields and marshes for hunting and breeding. Nests are built on the ground in dense field grass or wetland vegetation (Audubon 2020). The Cropland and Wetlands habitat found within the Project area have the potential to provide suitable hunting for the species, but the limited Wetland, Sand Prairie, and Early Successional Grassland habitat within the Project area provides only marginal breeding/nesting areas for the species. The Northern Harrier has also been documented within the vicinity of the Project area (IDNR 2020a). Therefore, this species has the potential to occur within the Project area while hunting and may be adversely affected by development of the Project. However, as the Project area is composed largely of Cropland habitat (2,212 acres; 92.9% of the Project area), it is unlikely that Norther Harrier nesting habitat would be affected as Wetland, Sand Prairie Grassland, and Early Successional Grassland habitat is very limited within the Project area, representing only 1.1% of the total Project area, collectively (26.9 acres). Additionally, the IDNR review in 2019 determined the Project is not likely to adversely impact the Northern Harrier (IDNR 2020b).

- **Short-eared Owl (SE).** The short-eared owl prefers open habitat to hunt, such as agricultural fields, and nests in a variety of habitat, including wet prairies, grassy fields, marshes, and pine forest. In Illinois, the Short-eared Owl is a rare inhabitant during winter months, and an even rarer breeder during the summer months (Audubon 2020). The Cropland and Wetlands habitat found within the Project area could provide potential habitat for the species. Therefore, the Short-eared Owl has the potential to occur within the Project area. The Project may adversely affect the species, if the species is present and grassland or wetland habitat is disturbed during the spring nesting season. The IDNR review in 2020 determined the Project is not likely to adversely impact the Short-eared Owl (IDNR 2020b).

- **Indiana (FE) and Northern Long-eared (FT) Bats.** Indiana and northern long-eared bats hibernate during the winter in mines or caves, and otherwise roost in tree crevices, cracks, or under exfoliating bark during the summer. Man-made structures, such as barns, are also occasionally used as summer roosts. Summer foraging habitat includes forested stream corridors and wetlands, upland forest, and field edges (USFWS 2019a). Mines, caves, or other suitable winter hibernacula are not present within the Project area. The USFWS defines "potentially suitable summer habitat" as forested areas that contain trees that have suitable features and are more than or equal to 3 inches diameter at breast height (dbh) for the northern long-eared bat and more than or equal to 5 inches dbh for the Indiana bat (USFWS 2019a). Given this definition, all forested portions of the Project area may offer suitable summer habitat for the Indiana and northern long-eared bat. Therefore, the Indiana and northern long-eared bat has the potential to occur within the Project area, although potential habitat is limited (46 acres; 1.9% of the Project area). Based on habitat avoidance, the Project may affect, but is not likely to adversely affect Indiana and northern long-eared bats.

- **Regal Fritillary (UR)**. The regal fritillary butterfly occurs in open grassland and remnant prairie habitats. The butterfly depends on violet species as a food source, to overwinter, and reproduce (IDNR 2020). Sand Prairie (0.9 acres; <0.1% total acreage) and Early Successional Grassland (8 acres; 0.3% total acreage) habitats found within the Project area, although limited, have potential to support the regal fritillary, and therefore the species has potential to occur. The Project may affect, but is not likely to adversely affect the regal fritillary.

- **Patterson's Bindweed (SE)**. Patterson's bindweed is a climbing vine found in sand prairies similar to the Sand Prairie and Sand Forest habitat located within the Project area (NatureServe 2019). While species occurrence is unlikely due to the small size of potentially suitable Sand Prairie and Sand Forest habitat available in the Project area (1.9 acres; less than 0.1% of the Project area), the Patterson's bindweed has the potential to occur.

- **Eastern Prairie Fringed Orchid (FT).** The eastern prairie fringed orchid is found in a variety of mesic habitats including mesic prairies, bogs, wetlands, and sedge meadows (USFWS 2019b). Wetland habitat suitable for the species within the Project area is limited, accounting for only 0.8% of the total Project acreage. Project infrastructure will be sited to avoid this habitat to the maximum extent practical. As such, the Project may affect, but is not likely to adversely affect the eastern prairie fringed orchid.

- **Prairie Bush-clover (FT).** The prairie bush-clover is found in sunny prairies with moist to dry soils similar to that found in the Sand Prairie and Sand Forest habitat within the Project area. (USFWS 2019b). While species occurrence is unlikely due to the small size of potentially suitable Sand Prairie and Sand Forest habitat in the Project area (1.9 acres; less than 0.1% of the Project area), the prairie bush-clover has the potential to occur. As such, the Project may affect, but is not likely to adversely affect the prairie bush-clover.

- **Illinois Chorus Frog (UR).** The Illinois chorus frog spends the majority of its life underground and inhabits sparsely vegetated areas with sandy soils near ephemeral ponds or waters without predators (IDNR 2020b). Pond WB-T01-001, located in the eastern portion of the Project area near the Sand Prairie habitat, may provide habitat for this species. In addition, multiple known populations of this species have been identified within Cass County along the Illinois River, including four occurrences documented in 2017 (Henning and Hinz, Jr. 2016). Therefore, the Illinois chorus frog has the potential to occur within the Project area. Project infrastructure will be sited to avoid Pond WB-T01-001, and any likely low-lying agricultural areas for ephemeral spring ponding to the maximum extent practical, so that the Project may affect, but is not likely to adversely affect the Illinois chorus frog.

- **Ornate Box Turtle (ST) and Plains Hog-nosed Snake (ST).** Habitat for both species includes mesic and dry-mesic prairies, oak savannas, open to semi-open woodlands and open fields in former prairie. Both species prefer sandy soils to burrow, nest, and overwinter (IDNR 2020b). The Sand Forest and Sand Prairie habitat provide suitable habitat for both reptiles. The Project may adversely affect the species, if the species is present, and Sand Forest or Sand Prairie habitat is disturbed.

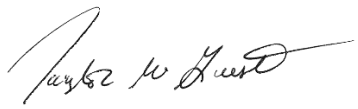
CONCLUSIONS

The vast majority of the Project area is composed of regularly disturbed agricultural land (92.9%), which provides either poor or unsuitable habitat for any T/E species that may occur in the area. However, the Indiana bat and northern long-eared bat may inhabit or utilize portions of the Upland or Sand Forest, while the northern harrier and short-eared owl may utilize Cropland and Wetland habitat. The regal fritillary, Patterson's bindweed, eastern prairie fringed orchid, prairie bush-clover, ornate box turtle, and plains hog-nosed snake could inhabit the limited but unique Early Successional Grassland, Sand Prairie, and Sand Forest habitat types present within the Project area. Pond WB-T01-001 may support the Illinois chorus frog.

If potential T/E species habitat cannot be avoided, additional coordination with the USFWS and IDNR is recommended to determine with greater certainty whether there are known occurrences and appropriate habitat within the Project area for any of the federal and state-listed T/E species with the potential to be present. Depending on the feedback and recommendations received during agency consultation, species-specific biological surveys may be necessary to determine presence or probable absence of the species and the potential impacts to the species from Project development.

If you have any questions about the contents of this report, please contact me at (903) 738-0318 or TGuest@ene.com.

Sincerely,
ECOLOGY AND ENVIRONMENT, INC.



Taylor Guest
Project Manager

Attachment:
A – Figures
B – Agency Consultation
C – Site Photographs

REFERENCES

Henning, B.M. and L.C. Hinz, Jr. 2016. Conservation guidance for the Illinois Chorus Frog (*Pseudacris illinoensis*), INHS Technical Report 2016 (56). Prepared for the Illinois Department of Natural Resources, State Wildlife Initiative Grants Program. Accessed October 27, 2019 at: https://www.ideals.illinois.edu/bitstream/handle/2142/95126/INHS2016_56.pdf?sequence=2.

Illinois Department of Natural Resources (IDNR). 2020a. Ecological Compliance Assessment Tool (EcoCAT). IDNR Project Number 2003097. Review request submitted online on February 10, 2020 at: https://www.dnr.illinois.gov/programs/EcoCAT/Pages/default.aspx.

_____. 2020b. Re: Cass County Solar Project, Consultation Program, EcoCat Review #2003097, Cass County. Response letter from Adam Rawe, IDNR Office of Realty & Capital Planning. Received February 18, 2020.

_____. 2005. *The Illinois Comprehensive Wildlife Conservation Plan & Strategy*, Version 1.0. Accessed online October 27, 2019 at: https://www.dnr.illinois.gov/conservation/IWAP/Documents/WildlifeActionPlanFinal.pdf.

NatureServe Explorer (NatureServe). 2019. Version 7.1, February 2009. Data last updated March 2019. Accessed October 27, 2019 at: http://explorer.natureserve.org/servlet/NatureServe.

The National Audubon Society (Audubon). 2020. Audubon Guide to North American Birds. Accessed June 2, 2020 at: https://www.audubon.org/bird-guide.

U.S. Environmental Protection Agency (USEPA). 2006. Level III and IV Ecoregions of Illinois. Accessed online October 27, 2019 at: ftp://newftp.epa.gov/EPADataCommons/ORD/Ecoregions/il/il_eco_desc.pdf

_____. 2010. Level III and IV Ecoregions of Illinois, June 2010. Accessed online October 27, 2019 at: ftp://newftp.epa.gov/EPADataCommons/ORD/Ecoregions/il/il_map.pdf

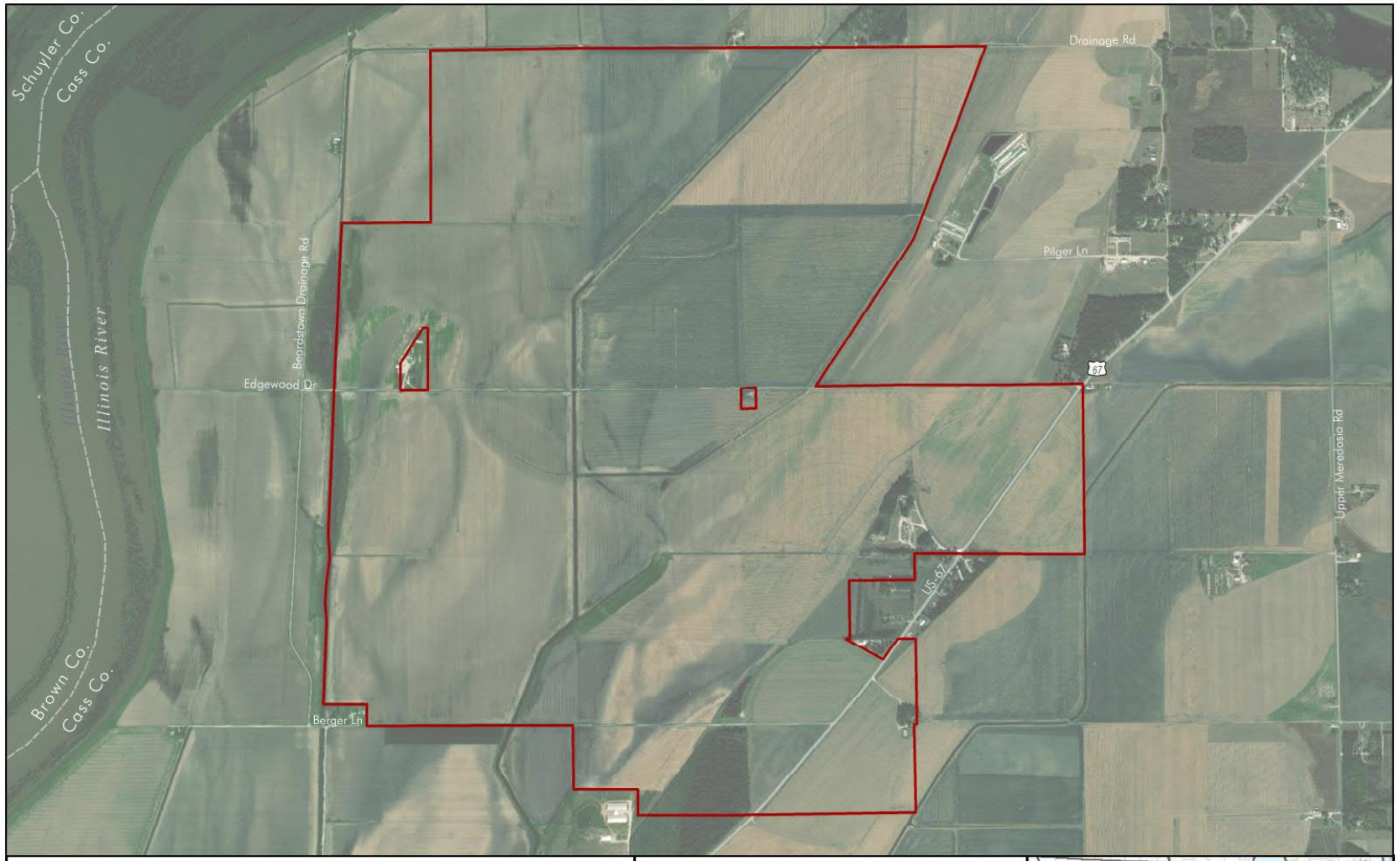
U.S. Fish and Wildlife Service (USFWS). 2020. Information for Planning and Conservation (IPaC). IPaC Resource List. Accessed online May 10, 2020 at: https://ecos.fws.gov/ipac/.

_____. 2019a. Range-wide Indiana Bat Survey Guidelines, April 2019. Accessed online on October 27, 2019 at: https://www.fws.gov/midwest/endangered/mammals/inba/surveys/pdf/2019_Rangewide_IBat_Survey_Guidelines.pdf.

_____. 2019b. Endangered Species Resource Materials Fact Sheets, Brochures, and Pamphlets. Last updated May 29, 2019. Accessed online October 27, 2019at: https://www.fws.gov/midwest/endangered/saving/outreach.html.

Attachment A

Figures



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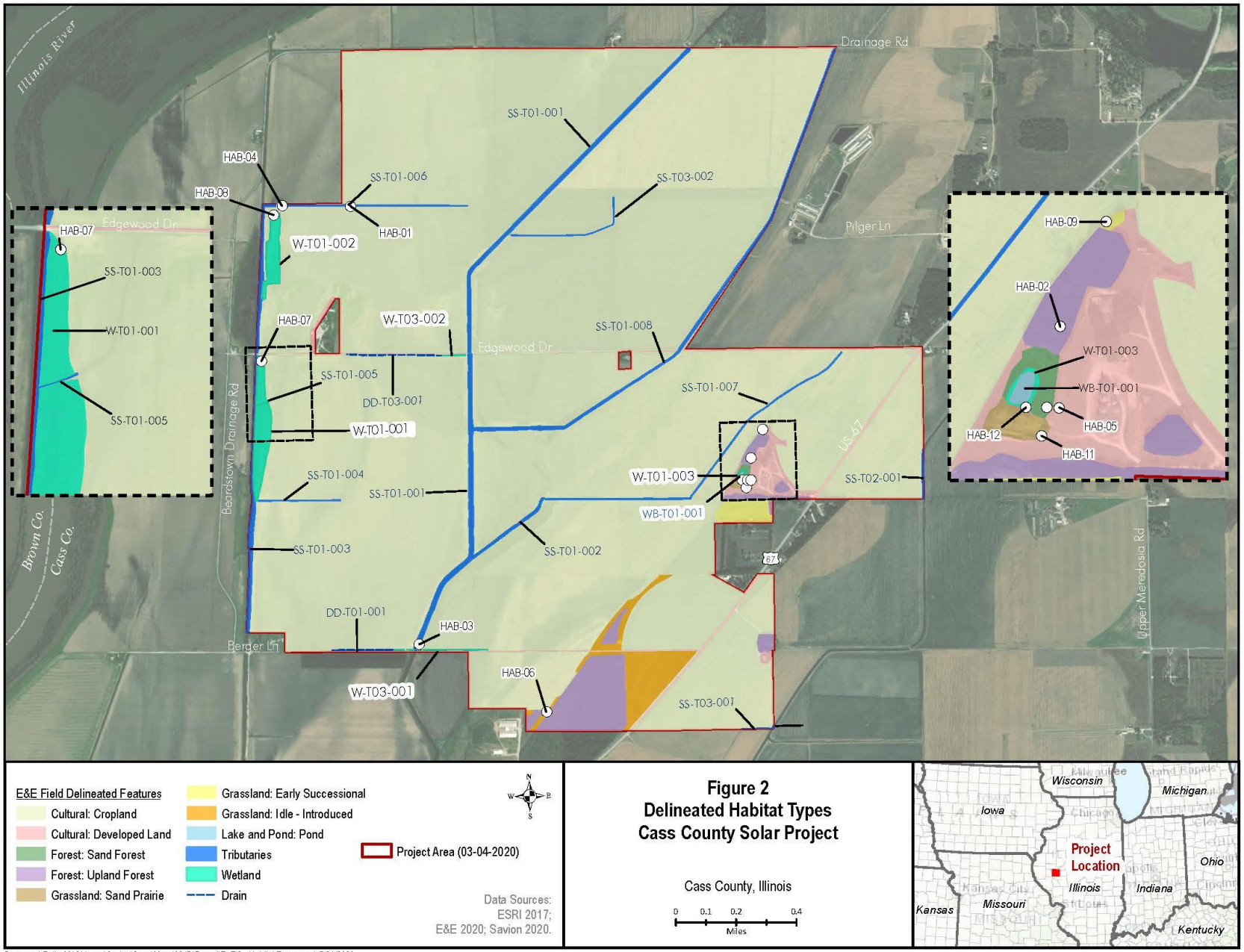

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Attachment B

Agency Consultation

IPaC **U.S. Fish & Wildlife Service**

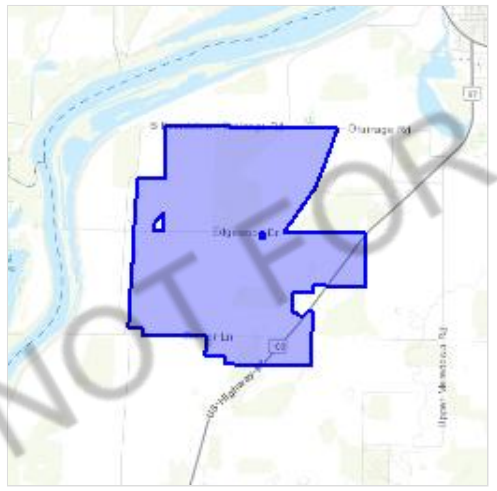
IPaC resource list

This report is an automatically generated list of species and other resources such as critical habitat (collectively referred to as *trust resources*) under the U.S. Fish and Wildlife Service's (USFWS) jurisdiction that are known or expected to be on or near the project area referenced below. The list may also include trust resources that occur outside of the project area, but that could potentially be directly or indirectly affected by activities in the project area. However, determining the likelihood and extent of effects a project may have on trust resources typically requires gathering additional site-specific (e.g., vegetation/species surveys) and project-specific (e.g., magnitude and timing of proposed activities) information.

Below is a summary of the project information you provided and contact information for the USFWS office(s) with jurisdiction in the defined project area. Please read the introduction to each section that follows (Endangered Species, Migratory Birds, USFWS Facilities, and NWI Wetlands) for additional information applicable to the trust resources addressed in that section.

Location

Cass County, Illinois



Local office

Illinois-Iowa Ecological Services Field Office

(309) 757-5800
(309) 757-5807

Illinois & Iowa Ecological Services Field Office
1511 47th Ave
Moline, IL 61265-7022

Endangered species

This resource list is for informational purposes only and does not constitute an analysis of project level impacts.

The primary information used to generate this list is the known or expected range of each species. Additional areas of influence (AOI) for species are also considered. An AOI includes areas outside of the species range if the species could be indirectly affected by activities in that area (e.g., placing a dam upstream of a fish population, even if that fish does not occur at the dam site, may indirectly impact the species by reducing or eliminating water flow downstream). Because species can move, and site conditions can change, the species on this list are not guaranteed to be found on or near the project area. To fully determine any potential effects to species, additional site-specific and project-specific information is often required.

Section 7 of the Endangered Species Act **requires** Federal agencies to "request of the Secretary information whether any species which is listed or proposed to be listed may be present in the area of such proposed action" for any project that is conducted, permitted, funded, or licensed by any Federal agency. A letter from the local office and a species list which fulfills this requirement can **only** be obtained by requesting an official species list from either the Regulatory Review section in IPaC (see directions below) or from the local field office directly.

For project evaluations that require USFWS concurrence/review, please return to the IPaC website and request an official species list by doing the following:

1. Draw the project location and click CONTINUE.
2. Click DEFINE PROJECT.
3. Log in (if directed to do so).
4. Provide a name and description for your project.
5. Click REQUEST SPECIES LIST.

Listed species[1] and their critical habitats are managed by the Ecological Services Program of the U.S. Fish and Wildlife Service (USFWS) and the fisheries division of the National Oceanic and Atmospheric Administration (NOAA Fisheries[2]).

Species and critical habitats under the sole responsibility of NOAA Fisheries are **not** shown on this list. Please contact NOAA Fisheries for species under their jurisdiction.

1. Species listed under the Endangered Species Act are threatened or endangered; IPaC also shows species that are candidates, or proposed, for listing. See the listing status page for more information.
2. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

The following species are potentially affected by activities in this location:

Mammals

NAME	STATUS

Indiana Bat Myotis sodalis — Endangered
There is **final** critical habitat for this species. Your location is outside the critical habitat.
https://ecos.fws.gov/ecp/species/5949

Northern Long-eared Bat Myotis septentrionalis — Threatened
No critical habitat has been designated for this species.
https://ecos.fws.gov/ecp/species/9045

Flowering Plants

NAME	STATUS
Decurrent False Aster Boltonia decurrens No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/7705	Threatened
Eastern Prairie Fringed Orchid Platanthera leucophaea No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/601	Threatened
Prairie Bush-clover Lespedeza leptostachya No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/4458	Threatened

Critical habitats

Potential effects to critical habitat(s) in this location must be analyzed along with the endangered species themselves.

THERE ARE NO CRITICAL HABITATS AT THIS LOCATION.

Migratory birds

Certain birds are protected under the Migratory Bird Treaty Act[1] and the Bald and Golden Eagle Protection Act[2].

Any person or organization who plans or conducts activities that may result in impacts to migratory birds, eagles, and their habitats should follow appropriate regulations and consider implementing appropriate conservation measures, as described below.

1. The Migratory Birds Treaty Act of 1918.
2. The Bald and Golden Eagle Protection Act of 1940.

Additional information can be found using the following links:

- Birds of Conservation Concern http://www.fws.gov/birds/management/managed-species/birds-of-conservation-concern.php
- Measures for avoiding and minimizing impacts to birds http://www.fws.gov/birds/management/project-assessment-tools-and-guidance/conservation-measures.php
- Nationwide conservation measures for birds http://www.fws.gov/migratorybirds/pdf/management/nationwidestandardconservationmeasures.pdf

The birds listed below are birds of particular concern either because they occur on the USFWS Birds of Conservation Concern (BCC) list or warrant special attention in your project location. To learn more about the levels of concern for birds on your list and how this list is generated, see the FAQ below. This is not a list of every bird you may find in this location, nor a guarantee that every bird on this list will be found in your project area. To see exact locations of where birders and the general public have sighted birds in and around your project area, visit the E-bird data mapping tool (Tip: enter your location, desired date range and a species on your list). For projects that occur off the Atlantic Coast, additional maps and models detailing the relative occurrence and abundance of bird species on your list are available. Links to additional information about Atlantic Coast birds, and other important information about your migratory bird list, including how to properly interpret and use your migratory bird report, can be found below.

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to migratory birds on your list, click on the PROBABILITY OF PRESENCE SUMMARY at the top of your list to see when these birds are most likely to be present and breeding in your project area.

NAME	BREEDING SEASON (IF A BREEDING SEASON IS INDICATED FOR A BIRD ON YOUR LIST, THE BIRD MAY BREED IN YOUR PROJECT AREA SOMETIME WITHIN THE TIMEFRAME SPECIFIED, WHICH IS A VERY LIBERAL ESTIMATE OF THE DATES INSIDE WHICH THE BIRD BREEDS ACROSS ITS ENTIRE RANGE. "BREEDS ELSEWHERE" INDICATES THAT THE BIRD DOES NOT LIKELY BREED IN YOUR PROJECT AREA.)
American Golden-plover Pluvialis dominica This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds elsewhere
Bald Eagle Haliaeetus leucocephalus This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/1626	Breeds Oct 15 to Aug 31

Bobolink Dolichonyx oryzivorus This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds May 20 to Jul 31
Buff-breasted Sandpiper Calidris subruficollis This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9488	Breeds elsewhere
Dunlin Calidris alpina arcticola This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA	Breeds elsewhere
Eastern Whip-poor-will Antrostomus vociferus This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds May 1 to Aug 20
Lesser Yellowlegs Tringa flavipes This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9679	Breeds elsewhere
Prothonotary Warbler Protonotaria citrea This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds Apr 1 to Jul 31
Red-headed Woodpecker Melanerpes erythrocephalus This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds May 10 to Sep 10
Ruddy Turnstone Arenaria interpres morinella This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA	Breeds elsewhere
Semipalmated Sandpiper Calidris pusilla This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds elsewhere
Short-billed Dowitcher Limnodromus griseus This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9480	Breeds elsewhere
Wood Thrush Hylocichla mustelina This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds May 10 to Aug 31

Probability of Presence Summary

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read and understand the FAQ "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

Probability of Presence (■)

Each green bar represents the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during a particular week of the year. (A year is represented as 12 4-week months.) A taller bar indicates a higher probability of species presence. The survey effort (see below) can be used to establish a level of confidence in the presence score. One can have higher confidence in the presence score if the corresponding survey effort is also high.

How is the probability of presence score calculated? The calculation is done in three steps:

1. The probability of presence for each week is calculated as the number of survey events in the week where the species was detected divided by the total number of survey events for that week. For example, if in week 12 there were 20 survey events and the Spotted Towhee was found in 5 of them, the probability of presence of the Spotted Towhee in week 12 is 0.25.
2. To properly present the pattern of presence across the year, the relative probability of presence is calculated. This is the probability of presence divided by the maximum probability of presence across all weeks. For example, imagine the probability of presence in week 20 for the Spotted Towhee is 0.05, and that the probability of presence at week 12 (0.25) is the maximum of any week of the year. The relative probability of presence on week 12 is 0.25/0.25 = 1; at week 20 it is 0.05/0.25 = 0.2.
3. The relative probability of presence calculated in the previous step undergoes a statistical conversion so that all possible values fall between 0 and 10, inclusive. This is the probability of presence score.

To see a bar's probability of presence score, simply hover your mouse cursor over the bar.

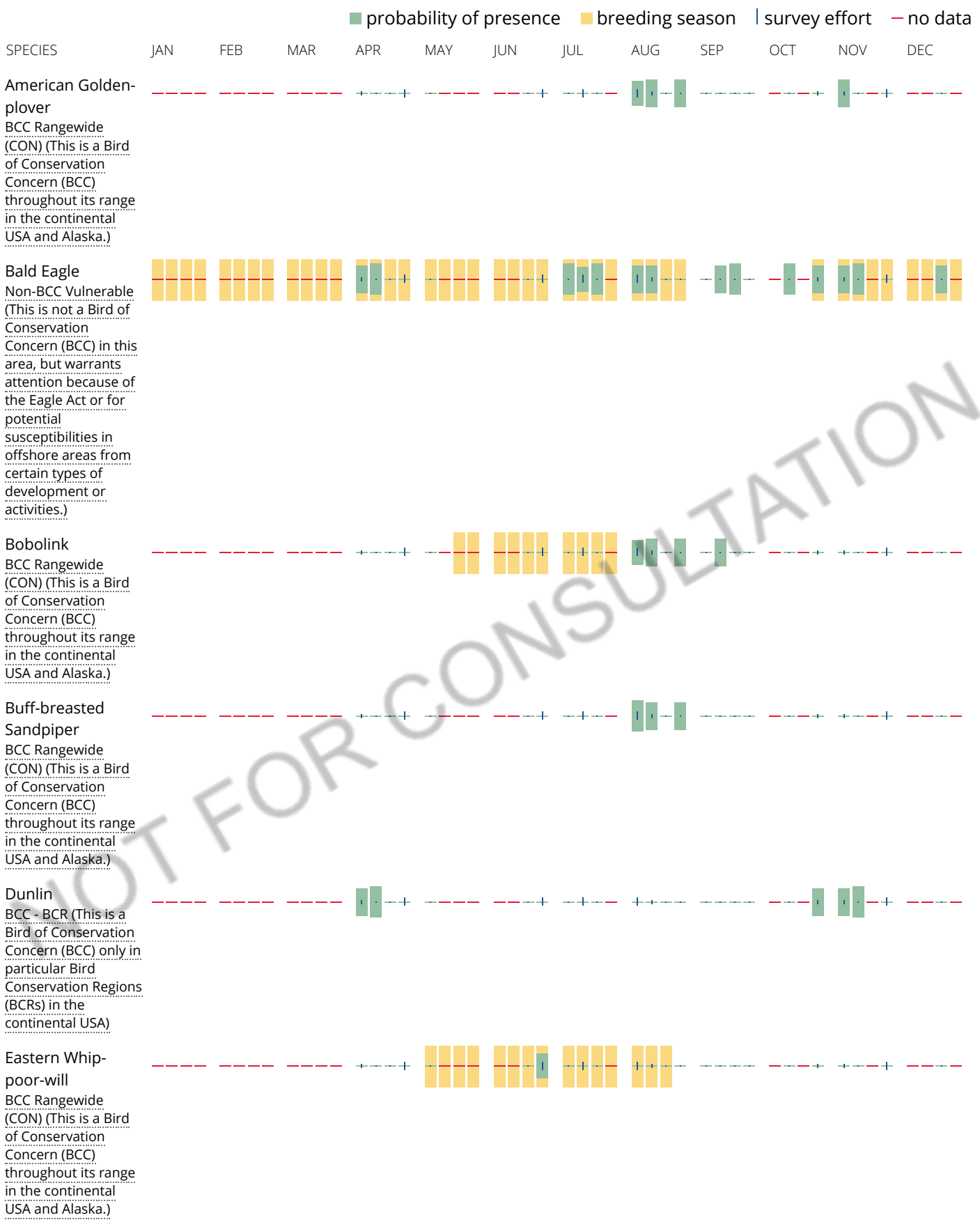
Breeding Season (■)
Yellow bars denote a very liberal estimate of the time-frame inside which the bird breeds across its entire range. If there are no yellow bars shown for a bird, it does not breed in your project area.

Survey Effort (|)
Vertical black lines superimposed on probability of presence bars indicate the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps. The number of surveys is expressed as a range, for example, 33 to 64 surveys.

To see a bar's survey effort range, simply hover your mouse cursor over the bar.

No Data (–)
A week is marked as having no data if there were no survey events for that week.

Survey Timeframe
Surveys from only the last 10 years are used in order to ensure delivery of currently relevant information. The exception to this is areas off the Atlantic coast, where bird returns are based on all years of available data, since data in these areas is currently much more sparse.



Lesser Yellowlegs
BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)

Prothonotary Warbler
BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)

Red-headed Woodpecker
BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)

Ruddy Turnstone
BCC - BCR (This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA)

Semipalmated Sandpiper
BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)

Short-billed Dowitcher
BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)

Wood Thrush
BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)

Tell me more about conservation measures I can implement to avoid or minimize impacts to migratory birds.

Nationwide Conservation Measures describes measures that can help avoid and minimize impacts to all birds at any location year round. Implementation of these measures is particularly important when birds are most likely to occur in the project area. When birds may be breeding in the area, identifying the locations of any active nests and avoiding their destruction is a very helpful impact minimization measure. To see when birds are most likely to occur and be breeding in your project area, view the Probability of Presence Summary. Additional measures and/or permits may be advisable depending on the type of activity you are conducting and the type of infrastructure or bird species present on your project site.

What does IPaC use to generate the migratory birds potentially occurring in my specified location?

The Migratory Bird Resource List is comprised of USFWS Birds of Conservation Concern (BCC) and other species that may warrant special attention in your project location.

The migratory bird list generated for your project is derived from data provided by the Avian Knowledge Network (AKN). The AKN data is based on a growing collection of survey, banding, and citizen science datasets and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) which your project intersects, and that have been identified as warranting special attention because they are a BCC species in that area, an eagle (Eagle Act requirements may apply), or a species that has a particular vulnerability to offshore activities or development.

Again, the Migratory Bird Resource list includes only a subset of birds that may occur in your project area. It is not representative of all birds that may occur in your project area. To get a list of all birds potentially present in your project area, please visit the AKN Phenology Tool.

What does IPaC use to generate the probability of presence graphs for the migratory birds potentially occurring in my specified location?

The probability of presence graphs associated with your migratory bird list are based on data provided by the Avian Knowledge Network (AKN). This data is derived from a growing collection of survey, banding, and citizen science datasets .

Probability of presence data is continuously being updated as new and better information becomes available. To learn more about how the probability of presence graphs are produced and how to interpret them, go the Probability of Presence Summary and then click on the "Tell me about these graphs" link.

How do I know if a bird is breeding, wintering, migrating or present year-round in my project area?

To see what part of a particular bird's range your project area falls within (i.e. breeding, wintering, migrating or year-round), you may refer to the following resources: The Cornell Lab of Ornithology All About Birds Bird Guide, or (if you are unsuccessful in locating the bird of interest there), the Cornell Lab of Ornithology Neotropical Birds guide. If a bird on your migratory bird species list has a breeding season associated with it, if that bird does occur in your project area, there may be nests present at some point within the timeframe specified. If "Breeds elsewhere" is indicated, then the bird likely does not breed in your project area.

What are the levels of concern for migratory birds?

Migratory birds delivered through IPaC fall into the following distinct categories of concern:

1. "BCC Rangewide" birds are Birds of Conservation Concern (BCC) that are of concern throughout their range anywhere within the USA (including Hawaii, the Pacific Islands, Puerto Rico, and the Virgin Islands);
2. "BCC - BCR" birds are BCCs that are of concern only in particular Bird Conservation Regions (BCRs) in the continental USA; and
3. "Non-BCC - Vulnerable" birds are not BCC species in your project area, but appear on your list either because of the Eagle Act requirements (for eagles) or (for non-eagles) potential susceptibilities in offshore areas from certain types of development or activities (e.g. offshore energy development or longline fishing).

Although it is important to try to avoid and minimize impacts to all birds, efforts should be made, in particular, to avoid and minimize impacts to the birds on this list, especially eagles and BCC species of rangewide concern. For more information on conservation measures you can implement to help avoid and minimize migratory bird impacts and requirements for eagles, please see the FAQs for these topics.

Details about birds that are potentially affected by offshore projects

For additional details about the relative occurrence and abundance of both individual bird species and groups of bird species within your project area off the Atlantic Coast, please visit the Northeast Ocean Data Portal. The Portal also offers data and information about other taxa besides birds that may be helpful to you in your project review. Alternately, you may download the bird model results files underlying the portal maps through the NOAA NCCOS Integrative Statistical Modeling and Predictive Mapping of Marine Bird Distributions and Abundance on the Atlantic Outer Continental Shelf project webpage.

Bird tracking data can also provide additional details about occurrence and habitat use throughout the year, including migration. Models relying on survey data may not include this information. For additional information on marine bird tracking data, see the Diving Bird Study and the nanotag studies or contact Caleb Spiegel or Pam Loring.

What if I have eagles on my list?

If your project has the potential to disturb or kill eagles, you may need to obtain a permit to avoid violating the Eagle Act should such impacts occur.

Proper Interpretation and Use of Your Migratory Bird Report

The migratory bird list generated is not a list of all birds in your project area, only a subset of birds of priority concern. To learn more about how your list is generated, and see options for identifying what other birds may be in your project area, please see the FAQ “What does IPaC use to generate the migratory birds potentially occurring in my specified location”. Please be aware this report provides the “probability of presence” of birds within the 10 km grid cell(s) that overlap your project; not your exact project footprint. On the graphs provided, please also look carefully at the survey effort (indicated by the black vertical bar) and for the existence of the “no data” indicator (a red horizontal bar). A high survey effort is the key component. If the survey effort is high, then the probability of presence score can be viewed as more dependable. In contrast, a low survey effort bar or no data bar means a lack of data and, therefore, a lack of certainty about presence of the species. This list is not perfect; it is simply a starting point for identifying what birds of concern have the potential to be in your project area, when they might be there, and if they might be breeding (which means nests might be present). The list helps you know what to look for to confirm presence, and helps guide you in knowing when to implement conservation measures to avoid or minimize potential impacts from your project activities, should presence be confirmed. To learn more about conservation measures, visit the FAQ “Tell me about conservation measures I can implement to avoid or minimize impacts to migratory birds” at the bottom of your migratory bird trust resources page.

Facilities

National Wildlife Refuge lands

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

THERE ARE NO REFUGE LANDS AT THIS LOCATION.

Fish hatcheries

THERE ARE NO FISH HATCHERIES AT THIS LOCATION.

Wetlands in the National Wetlands Inventory

Impacts to NWI wetlands and other aquatic habitats may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal statutes.

For more information please contact the Regulatory Program of the local U.S. Army Corps of Engineers District.

WETLAND INFORMATION IS NOT AVAILABLE AT THIS TIME

This can happen when the National Wetlands Inventory (NWI) map service is unavailable, or for very large projects that intersect many wetland areas. Try again, or visit the NWI map to view wetlands at this location.

Data limitations

The Service's objective of mapping wetlands and deepwater habitats is to produce reconnaissance level information on the location, type and size of these resources. The maps are prepared from the analysis of high altitude imagery. Wetlands are identified based on vegetation, visible hydrology and geography. A margin of error is inherent in the use of imagery; thus, detailed on-the-ground inspection of any particular site may result in revision of the wetland boundaries or classification established through image analysis.

The accuracy of image interpretation depends on the quality of the imagery, the experience of the image analysts, the amount and quality of the collateral data and the amount of ground truth verification work conducted. Metadata should be consulted to determine the date of the source imagery used and any mapping problems.

Wetlands or other mapped features may have changed since the date of the imagery or field work. There may be occasional differences in polygon boundaries or classifications between the information depicted on the map and the actual conditions on site.

Data exclusions

Certain wetland habitats are excluded from the National mapping program because of the limitations of aerial imagery as the primary data source used to detect wetlands. These habitats include seagrasses or submerged aquatic vegetation that are found in the intertidal and subtidal zones of estuaries and nearshore coastal waters. Some deepwater reef communities (coral or tuberficid worm reefs) have also been excluded from the inventory. These habitats, because of their depth, go undetected by aerial imagery.

Data precautions

Federal, state, and local regulatory agencies with jurisdiction over wetlands may define and describe wetlands in a different manner than that used in this inventory. There is no attempt, in either the design or products of this

inventory, to define the limits of proprietary jurisdiction of any Federal, state, or local government or to establish the geographical scope of the regulatory programs of government agencies. Persons intending to engage in activities involving modifications within or adjacent to wetland areas should seek the advice of appropriate federal, state, or local agencies concerning specified agency regulatory programs and proprietary jurisdictions that may affect such activities.

EcoCAT
Ecological Compliance Assessment Tool

ILLINOIS DEPARTMENT OF NATURAL RESOURCES

Applicant: Cass County Solar Project, LLC
Contact: Katie Baker
Address: 422 Admiral Boulevard
Kansas City, MO 64106

Project: Cass County Solar Project
Address: 5748 Edgewood Drive, Beardstown

IDNR Project Number: 2006506
Date: 02/10/2020
Alternate Number: 2003097

Description: Construction of a solar energy facility consisting of photovoltaic solar panels and associated infrastructure (e.g., electric collection lines, perimeter access roads, etc.)

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:

Lower Lamoine Confluence Floodplain Forest INAI Site
Hall's Bulrush *(Schoenoplectus hallii)*
Illinois Chorus Frog *(Pseudacris illinoensis)*
Northern Harrier *(Circus cyaneus)*
Northern Long-Eared Myotis *(Myotis septentrionalis)*
Patterson's Bindweed *(Stylisma pickeringii)*
River Redhorse *(Moxostoma carinatum)*
Short-Eared Owl *(Asio flammeus)*

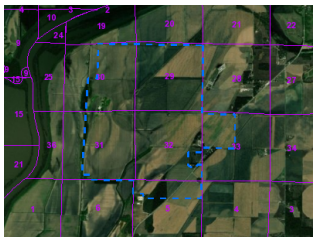
An IDNR staff member will evaluate this information and contact you to request additional information or to terminate consultation if adverse effects are unlikely.

Location

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

County: Cass

Township, Range, Section:
17N, 12W, 5
17N, 12W, 6
18N, 12W, 28
18N, 12W, 29
18N, 12W, 30
18N, 12W, 31
18N, 12W, 32
18N, 12W, 33



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

Government Jurisdiction
Cass County Zoning
Mr. Denny Lorton
100 East Springfield Street
Springfield, Illinois 62691

Disclaimer

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

Terms of Use

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

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

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

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

Security

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

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

Privacy

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

EcoCAT
Ecological Compliance Assessment Tool

ILLINOIS DEPARTMENT OF NATURAL RESOURCES

EcoCAT Receipt

Project Code 2006506

APPLICANT	DATE
Cass County Solar Project, LLC Katie Baker 422 Admiral Boulevard Kansas City, MO 64106	2/10/2020

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

Illinois Department of
Natural Resources
One Natural Resources Way Springfield, Illinois 62702-1271
www.dnr.illinois.gov

JB Pritzker, Governor
Colleen Callahan, Director

February 18, 2020

Ms. Katie Baker
422 Admiral Boulevard
Kansas City, MO 64106

RE: Cass County Solar Project
Consultation Program
EcoCAT Review #2006506 (2003097)
Cass County

Dear Ms. Baker:

The Department has received your submission for this project 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 covered 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 constructing a ground-mounted solar array consisting of photovoltaic solar panels and associated infrastructure consisting of electric collection lines, perimeter access roads, etc.

According to the Natural Heritage Database, records for numerous state-listed animal and plant species are known to occur within the vicinity of the proposed solar array. Animal species include the Illinois chorus frog **(*Pseudacris illinoensis*)**, northern harrier (***Circus hudsonius***), northern long-eared bat **(*Myotis septentrionalis*)**, ornate box turtle **(*Terrapene ornata*)**, plains hog-nosed snake **(*Heterodon nasicus*)**, regal fritillary butterfly **(*Speyeria idalia*)**, river redhorse (***Moxostoma carinatum***), and short eared owl (***Asio flammeus***). Plant species include Hall's bulrush (***Schoenoplectus hallii***), and Patterson's bindweed (***Stylisma pickeringii***). The Department has determined the project is not likely to adversely impact the following species; northern harrier, river redhorse and short-eared owl and that adverse impacts to the Lower LaMoine Confluence Floodplain Forest INAI Site are unlikely.

The Natural Heritage Database indicated records for the state-listed threatened **Illinois chorus frog** are adjacent to the project area. The Illinois chorus frog is a habitat specialist requiring

sandy soils for aestivation (summer time hibernation or dormancy). 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) ponds lacking fish. 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 adjacent to 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 recommends Cass County Solar pursue Incidental Take Authorization (ITA) for the Illinois chorus frog for construction, installation, and operation.

Records of the state-threatened **regal fritillary** are known to occur in 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. To ensure no impacts to the regal fritillary, the Department recommends all construction work be conducted between October 15 and March 15 to avoid encountering foraging regal fritillary.

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 Cass County Solar pursue ITA for the regal fritillary for the solar project construction, installation, and operation.

Records also exist in the vicinity for two state listed reptiles, the state-threatened **ornate box turtle** and state-threatened **plains hog-nosed snake.** Habitat for both species includes mesic and dry-mesic prairies, oak savannas, open to semi-open woodlands, and open fields in former prairie. Both species show an affinity for sandy soils to facilitate burrowing and provide microhabitat for nesting and overwintering. Overwintering sites include upland and sand prairies, sand dunes, and shrubland that are open and lack shade. These habitat and soil preferences are consistent with the habitats and soil type found within the project area.

Given records and appropriate habitat for the ornate box turtle and plains hog-nosed snake occurs in the project area and records exist in the project vicinity, the Department recommends Cass County Solar consider an ITA for both species. Avoidance measures to prevent taking of ornate box turtles and plains hog-nosed snakes were also considered, such as the use of exclusionary fencing and seasonal construction restrictions; however, the Department determined these measures are not likely adequate given the complexity and size of the project. If Cass County Solar does not pursue an ITA, they may conduct a survey to determine the presence/absence of both species in the project area. However, these surveys can be difficult to conduct, and depending on the methodology, may not be adequate to conclude the absence of the species from

the project area. If Cass County Solar decides to conduct a survey for the ornate box turtle and plains hog-nosed snake, the principal investigator should obtain a Scientific Collectors Permit and T&E Permit from the Department to conduct such work. A survey proposal should be sent to this office for concurrence on methods, along with the results for final comment. Subsequently, if the turtle or snake is identified during the survey, the Department would recommend the applicant seek an ITA.

Northern long-eared bats are known to occur near the project area. The applicant has voluntarily implemented the seasonal date restriction of no tree clearing between April 1st and October 14th to avoid impacts to this state and federally-threatened species. Strict adherence to this date restriction greatly reduces the potential for adverse impacts. However, if the date restriction cannot be accommodated, a bat habitat assessment should be conducted in the project area by a qualified biologist to determine if habitat trees are present. Suitable habitat trees are defined as trees greater than 3 inches diameter breast height (DBH), with exfoliating bark, holes, cracks and/or crevices. Suitable habitat tree species include but are not limited to: shagbark and shellbark hickory; bitternut hickory; green ash; American elm; slippery elm; eastern cottonwood; silver maple; sugar maple; white oak; red oak; post oak; and shingle oak. This includes tress that are dead, dying, broken, or damaged, with slabs or plates of loose or peeling bark on the trunks or limbs. If suitable habitat trees are found within the project area, these trees should be clearly flagged and/or marked and not be cut between April 1st and October 14th. All non-suitable trees may be cut at any time.

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. More information on obtaining an ITA can be found here: https://www.dnr.illinois.gov/conservation/NaturalHeritage/Pages/ApplyingforanIncidentalTakeAuthorization.aspx

Records for the state-threatened **Hall's bulrush** and state-endangered **Patterson's bindweed** occur within the project boundary. Pursuant to the *Illinois Endangered Species Protection Act* [520 ILCS 10/], state-listed plants belong to the landowner and their fate resides with the landowner's conservation decisions. However, express written permission from the landowner should be obtained for construction companies/crews to "take" listed plants to comply with the *Illinois Endangered Species Protection Act*. Regardless, the Department recommends the area be surveyed by a qualified biologist for these species and conservation measures be implemented to mitigate impacts. Such measures may include seed collection and/or translocation to appropriate habitat, as well as surface soil conservation, which may contain the seed bank.

In accordance with 17 Ill. Adm. Code 1075.40(h), please notify the Department of your decision regarding these recommendations.

Consultation on the part of the Department is closed, unless the applicant desires additional information or advice related to this proposal. 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 with any questions about this review.

Sincerely,

Adam Rawe
Resource Planner
Office of Realty & Capital Planning
Illinois Dept. of Natural Resources
One Natural Resources Way
Springfield, IL 62702-1271
adam.rawe@illinois.gov
Phone: (217) 785-4991

cc. Jenny Skufca – IDNR, ORC - Incidental Take Authorization Coordinator
Joe Kath – IDNR, ORC
Stuart Fraser – IDNR, OLE

Attachment C

Site Photographs

Photo Location: HAB-01
Date: 8/22/2018
Direction: South
Feature: Cropland habitat within the Project area.

Photo Location: HAB-02
Date: 8/22/2018
Direction: North
Feature: Upland Forest habitat within the Project area.

Photo Location: HAB-03
Date: 8/21/2018
Direction: Northeast
Feature: Stream, SS-T01-001. Stream habitat within the Project area.

Photo Location: HAB-04
Date: 8/22/2018
Direction: East
Feature: Stream, SS-T01-006. Stream habitat within the Project area

Photo Location: HAB-05
Date: 8/22/2018
Direction: East
Feature: Developed Land habitat within the Project area.

Photo Location: HAB-06
Date: 5/13/2020
Direction: Southwest
Feature: Idle-Introduced Grassland Habitat within the Project area.

Photo Location: HAB-07
Date: 8/22/2018
Direction: South
Feature: PSS wetland, W-T01-001. Wetland habitat within the Project area.

Photo Location: HAB-08
Date: 8/22/2018
Direction: South
Feature: PEM wetland, W-T01-002. Wetland habitat within the Project area.

Photo Location: HAB-09
Date: 8/22/2018
Direction: Northeast
Feature: Early Successional Grassland habitat within the Project area.

Photo Location: HAB-10
Date: 8/22/2018
Direction: North
Feature: Sand Forest habitat within the Project area.

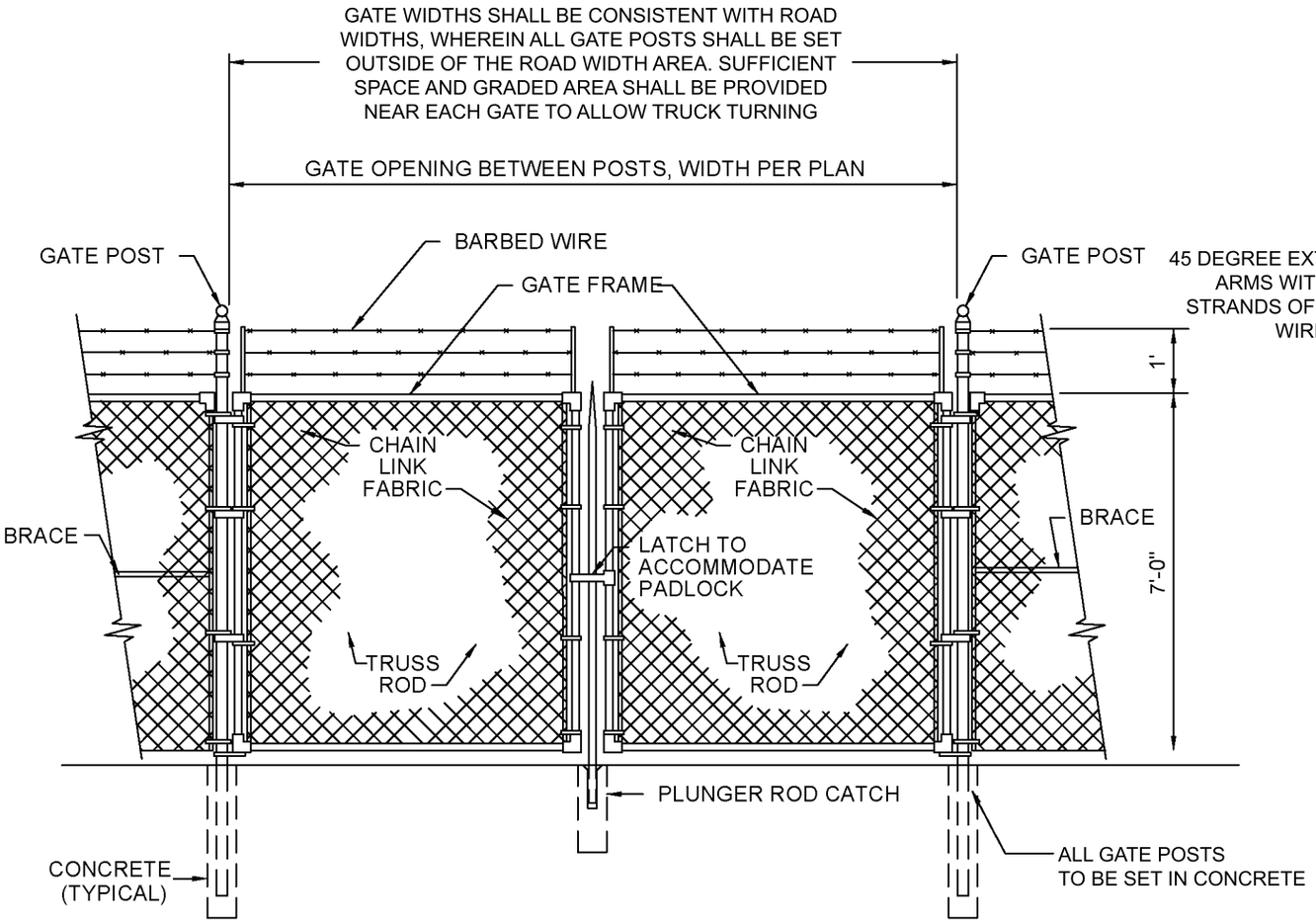
Photo Location: HAB-11
Date: 8/22/2018
Direction: Northwest
Feature: Sand Prairie habitat within the Project area.

Photo Location: HAB-12
Date: 8/22/2018
Direction: North
Feature: Pond, WB-T01-001. Pond habitat within the Project area.

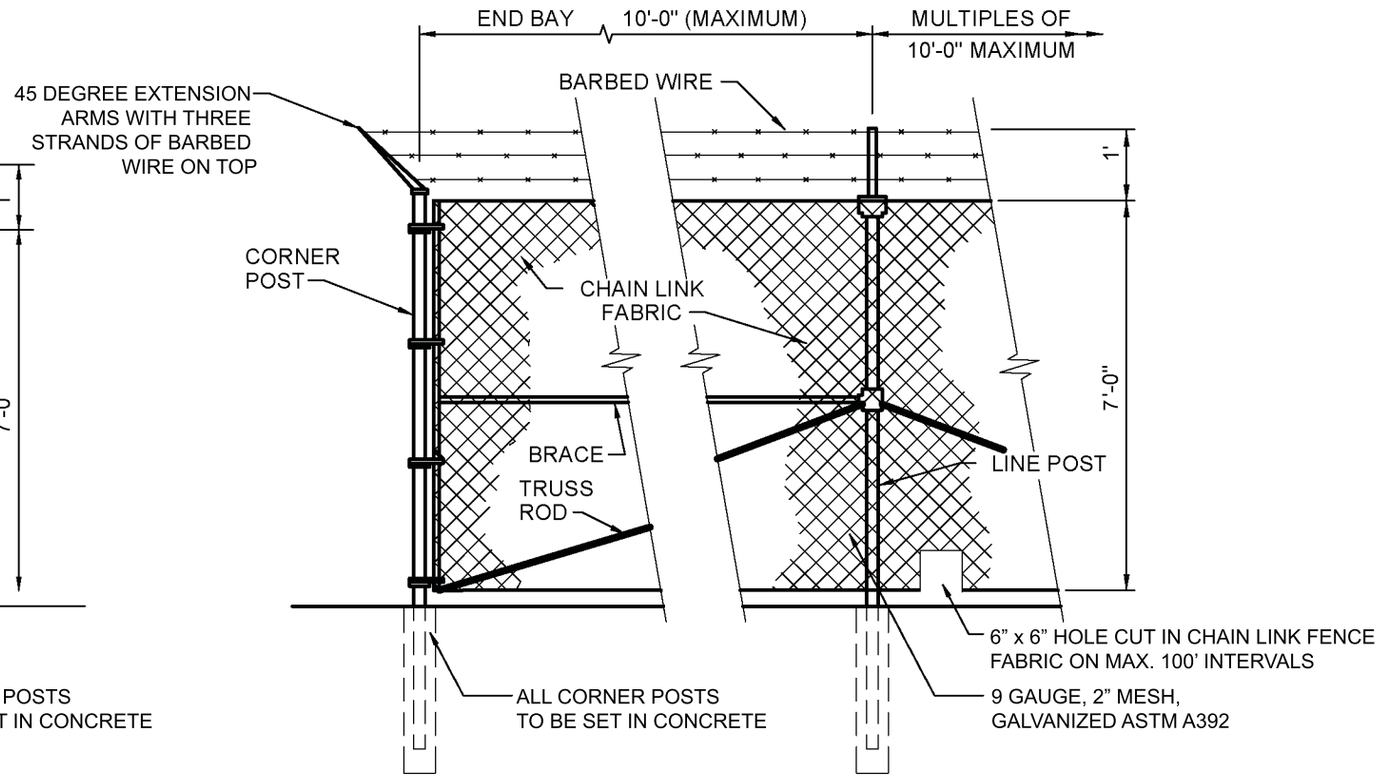
Appendix D Construction Details

NOTE:

1. DETAILS ON THIS DRAWING ARE CONCEPTUAL ONLY.
2. FOUNDATION AND EQUIPMENT CONFIGURATION SUBJECT TO CHANGE DURING DETAILED DESIGN.
3. PILE EMBEDMENT DEPTH VARIES ON GEOTECHNICAL STUDY RESULTS AND STRUCTURAL DESIGN.
4. ACTUAL OPTIMAL DIMENSIONS MAY DEPEND ON SPECIFIC CONDITIONS OF THE SITE.



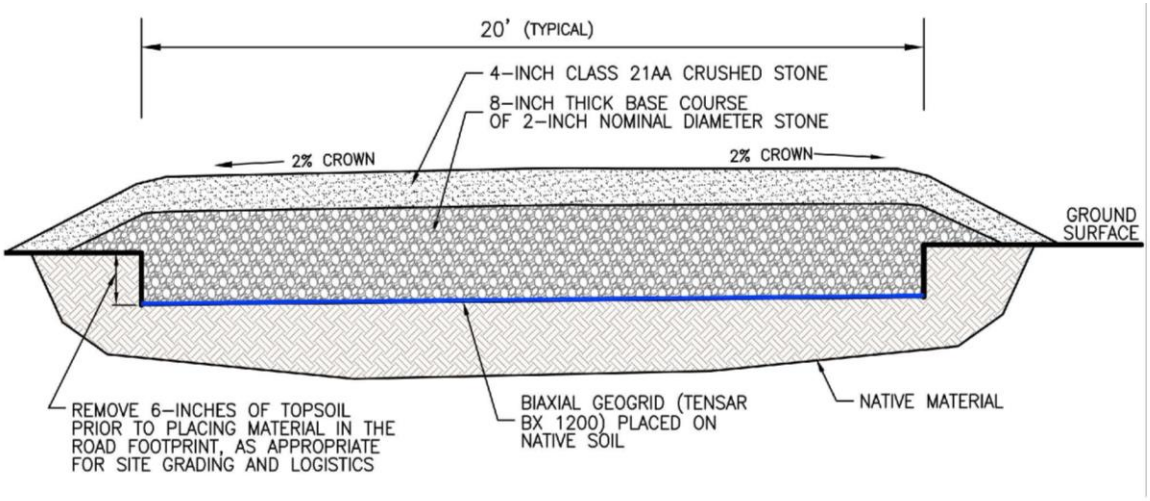
DOUBLE SWING GATE DETAIL
NOT TO SCALE



SECURITY FENCE DETAIL
NOT TO SCALE

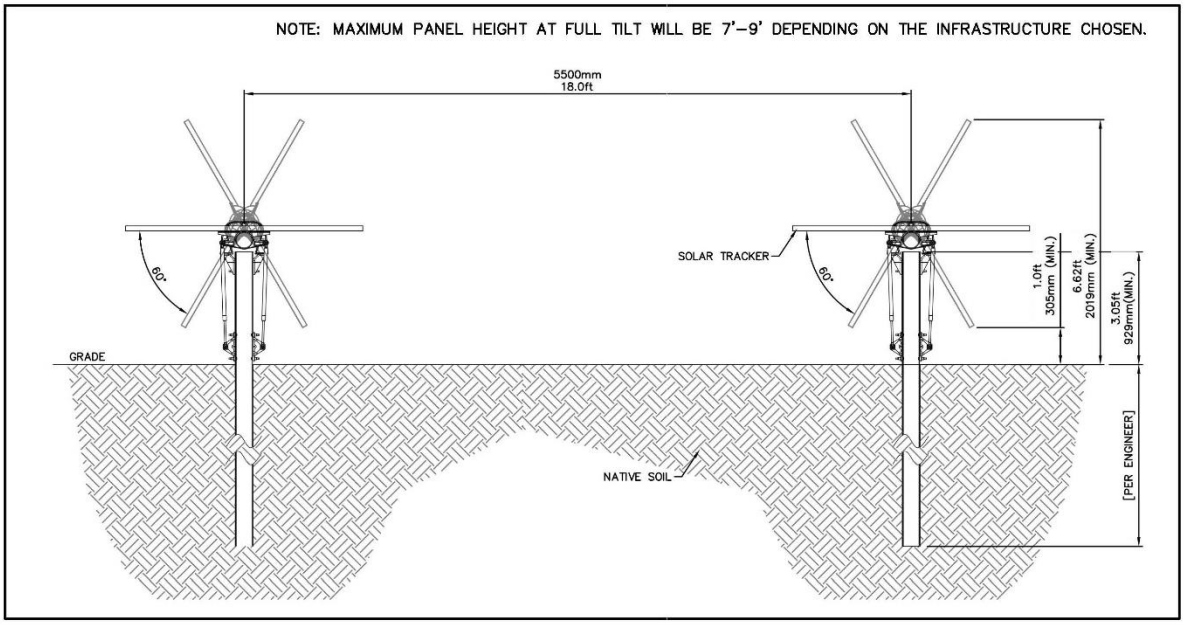
PRELIMINARY
NOT FOR CONSTRUCTION

Project Details



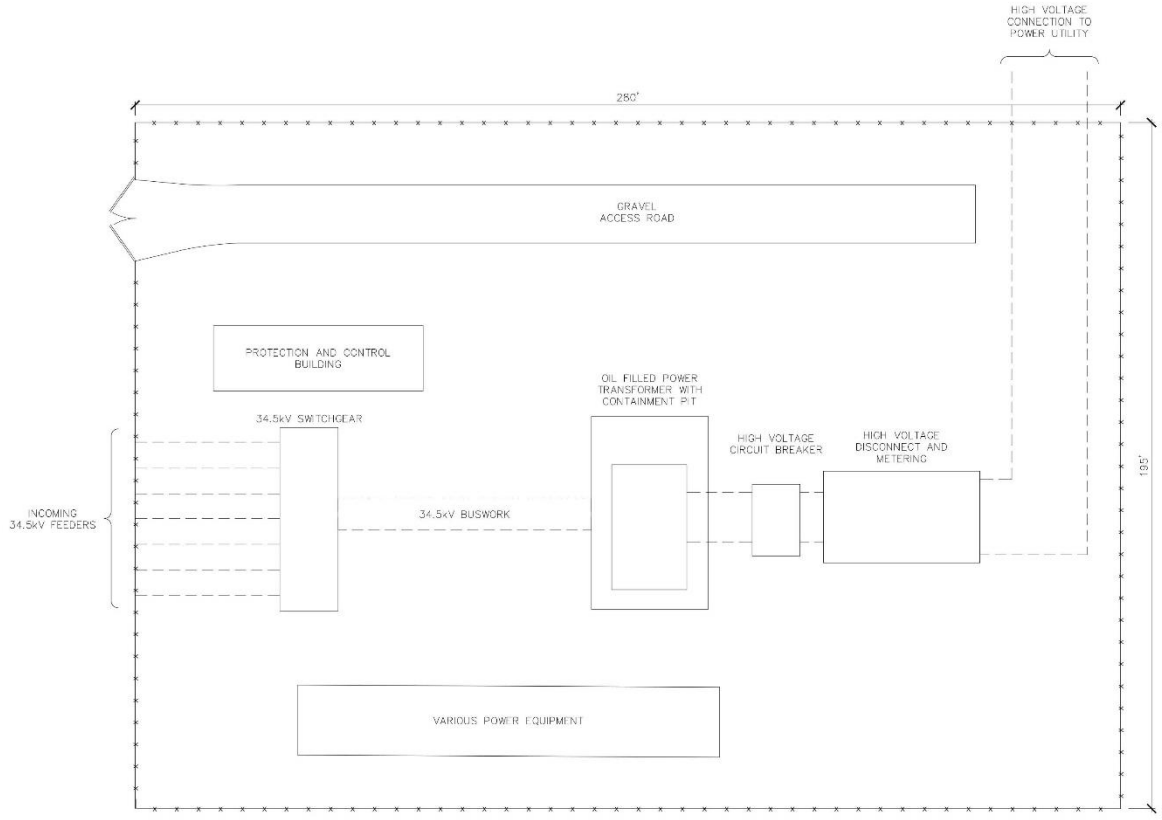
TYPICAL ACCESS ROAD DETAIL

NO SCALE



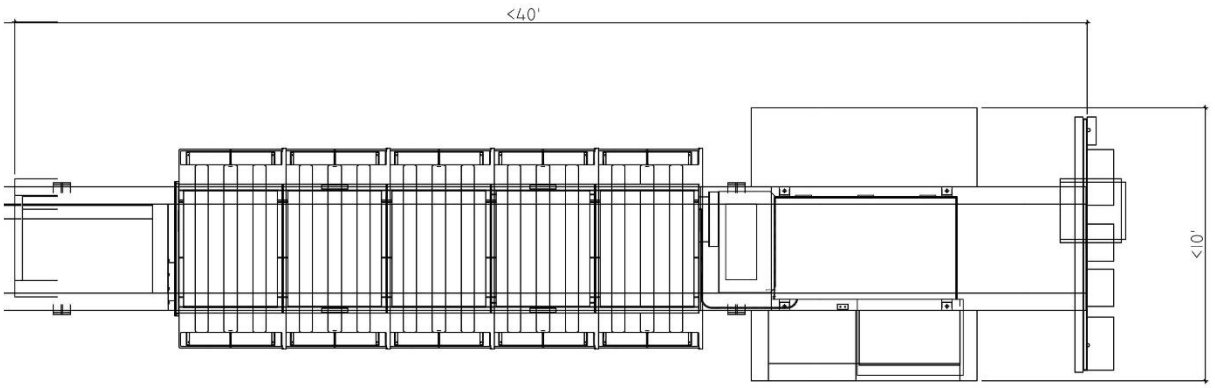
EAST-WEST SINGLE AXIS SELF-POWERED TRACKER ROW TO ROW SPACING

NO SCALE

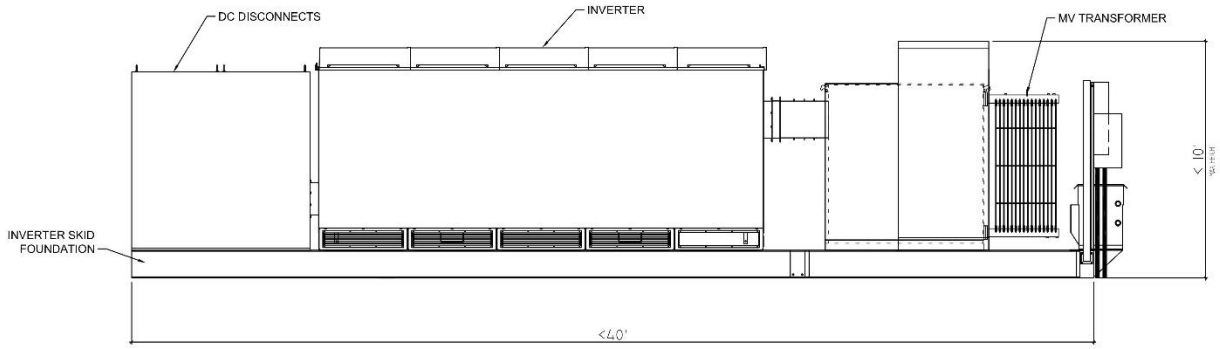


SCHEMATIC SUBSTATION AREA

NO SCALE



TOP VIEW

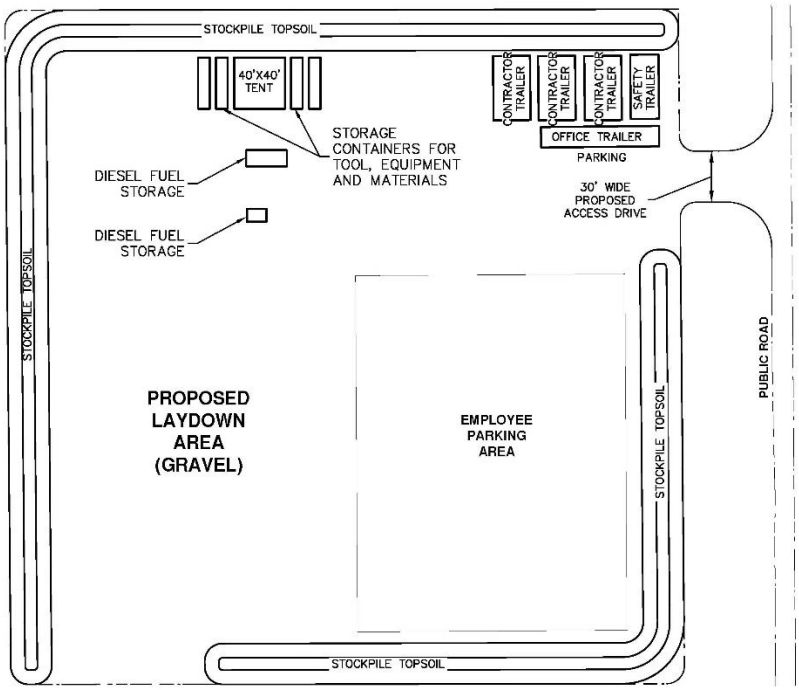


SIDE VIEW

PRELIMINARY NOT FOR CONSTRUCTION

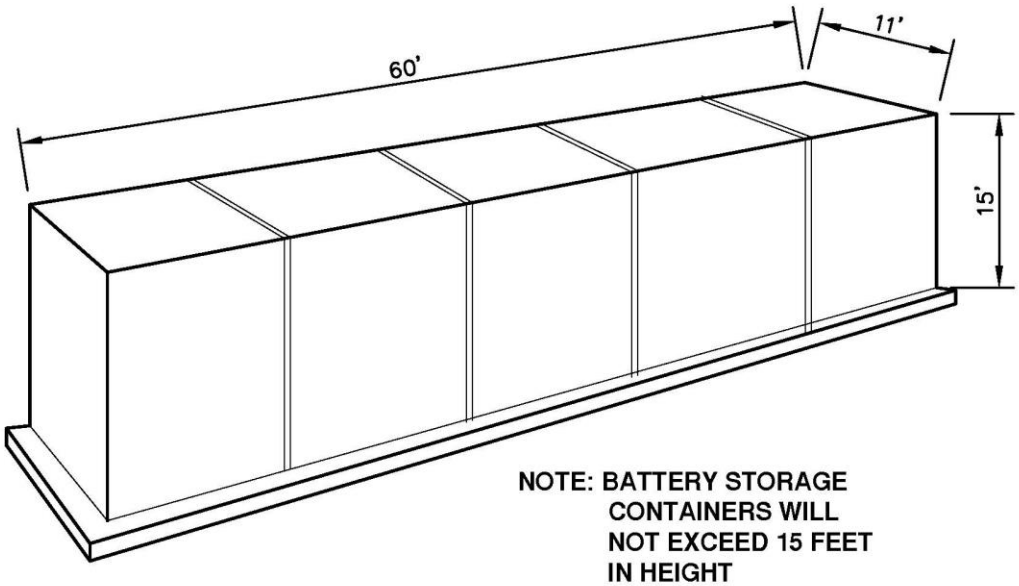
TYPICAL INVERTER SKID DETAIL

NO SCALE



SCHEMATIC LAYDOWN AREA

NO SCALE



NOTE: BATTERY STORAGE CONTAINERS WILL NOT EXCEED 15 FEET IN HEIGHT

BATTERY STORAGE SCHEMATIC

NO SCALE

Potential Solar Panel Component Images to Show Construction

Potential Battery Storage Component Images for Visual

Appendix E USFWS and USACE Correspondence

From:	Porter, Tyler J
To:	Guest, Taylor
Cc:	Emma Tajchman; Alyson Wahaus
Subject:	Re: [EXTERNAL] [WARNING: UNSCANNABLE EXTRACTION FAILED]RE: Cass County Solar Project
Date:	Thursday, July 1, 2021 9:39:06 AM
Attachments:	image001.png

Taylor,

It is our understanding that you wish to obtain general information regarding federal trust resources and sensitive environmental areas/other sensitive wildlife in the vicinity of the Cass County Solar Project, LLC (Project), located in Cass County, Illinois, that should be considered during the development and construction process. After completing a review of our records for listed species and local habitat, we provide the following information.

Bald Eagles
Our office does not contain any records of bald eagles or bald eagle nests found within the project area. However, we do contain records of two eagle nests within two miles of the Project's boundary. Both nests are located west of the Project along the Illinois River corridor. Please contact the Illinois Department of Natural Resources for up-to-date eagle nest records. Please utilize the Eagle Conservation Plan Guidelines for more information.

(https://www.fws.gov/migratorybirds/pdf/management/eagleconservationplanguidance.pdf)

Indiana Bat
The project area falls within the geographic range of the federally endangered Indiana bat. Our office does not contain records of Indiana bats within the Project area or its immediate buffer. The closest record of Indiana bats that we contain is approximately 14 miles southwest of the project area, near Naples, Illinois. Suitable summer habitat may be found in riparian corridors and/or large forest stands within or around the Project area. We recommend that any clearing of trees >3in DBH that pertains to construction or maintenance of the Project should be completed outside of that bat active season, between the dates of October 1 – March 31. There are no critical habitat areas found for this species in Cass County, Illinois.

Northern Long-Eared Bat
The project area falls within the geographic range of the federally threatened northern long-eared bat. Our office does not contain records of northern long-eared bats within the Project area or its immediate buffer. The closest record of northern long-eared bats we contain is approximately 20 miles west of the Project, near Buckhorn, Illinois. Suitable summer habitat may be found in riparian corridors and/or large forest stands within or around the Project area. We recommend that any clearing of trees >3in DBH that pertains to construction or maintenance of the Project should be completed outside of that bat active season, between the dates of October 1 – March 31. Currently, there is no designated critical habitat for this species due to the its status as "threatened" and the 4(d) rule associated with its status.

Flowering Plants
The proposed project area falls within the geographic ranges of the federally threatened eastern prairie fringed orchid, decurrent false aster, and prairie bush clover. We do not contain any records of eastern prairie fringed orchid or prairie bush clover within the Project area or its

buffer area. However, we do contain multiple records of decurrent false aster within two miles of the Project area. We recommend any areas that are currently vegetated with moist soil/ non-woody species be avoided or assessed for the presence of decurrent false aster due to known populations within the vicinity. Ideal decurrent false aster habitat includes moist, sandy floodplains and prairie wetlands along the Illinois River. If it is determined that there is a potential for decurrent false aster to occur and be affected as a result of the proposed project, please initiate further consultation. If it is determined that decurrent false aster is not within the project area due to its agricultural landscape, further consultation is not needed. Currently, there are no critical habitat for these species due to its status as "threatened." We recommend reviewing the Environmental Conservation Online System (https://ecos.fws.gov/ecp/) for more information.

State-Listed Species

Please visit (http://www.fws.gov/midwest/endangered/section7/s7process/index.html) for more information on species listed in Cass County and the State of Illinois. In addition, we recommend that you maintain consultation with the Illinois Department of Natural Resources regarding state-protected species and sensitive natural communities and habitats near the project area.

Further Consultation

We recommend reviewing the Environmental Conservation Online System (https://ecos.fws.gov/ecp/) regarding other information on listed, proposed, or candidate species, and sensitive environmental areas/other sensitive wildlife in the vicinity of the proposed project.

Thank you for the opportunity to provide comments. If you have any questions regarding these comments, please contact me by email or by phone at (309) 757-5800, extension 221.

-TP

Tyler Porter
Fish and Wildlife Biologist
U.S. Fish and Wildlife Service
Illinois - Iowa Ecological Services Field Office
(309) 757-5800 ext. 221

From: Guest, Taylor <Taylor.Guest@wsp.com>
Sent: Thursday, July 1, 2021 8:25 AM
To: Porter, Tyler J <tyler_porter@fws.gov>
Cc: Emma Tajchman <etajchman@savionenergy.com>; Alyson Wahaus <awahaus@savionenergy.com>
Subject: [EXTERNAL] [WARNING: UNSCANNABLE EXTRACTION FAILED]RE: Cass County Solar Project

Tyler,

Please see the attached project boundary KMZ of the Cass County Solar Project. Please let me know if you have any questions or require more information. Thank you for your time and help.

Taylor, Guest
Project Manager/Environmental Scientist

WSP USA

Email: taylor.guest@wsp.com
Phone: +1 903 738 0318

wsp.com

From: Porter, Tyler J <tyler_porter@fws.gov>
Sent: Tuesday, June 29, 2021 11:36 AM
To: Guest, Taylor <Taylor.Guest@wsp.com>
Subject: Cass County Solar Project

Hi Taylor,

Apologies for the delay on this one. I am currently reviewing the Cass County Solar Project in Cass County, Illinois. Before responding with some additional data and resources to be aware of, I was wondering if you would be able to send me a shapefile or KML of the project's boundary. This will help me get a better sense of the project, where it falls on the landscape, and the resources within its vicinity, which helps tailor my response.

If you could pass that along, as well as any other pertinent information, that would be great!

Thank you,

-TP

Tyler Porter
Fish and Wildlife Biologist
U.S. Fish and Wildlife Service
Illinois - Iowa Ecological Services Field Office
(309) 757-5800 ext. 221

-LAEmHhHzdJzBITWfa4Hgs7pbKI

33 West Monroe Street, Suite 1410
Chicago, Illinois 60603

September 21, 2021

Mr. Tyler Porter
U.S. Fish and Wildlife Service
Illinois-Iowa Ecological Services Field Office
1511 47th Ave.
Moline, IL 61265

Submitted via e-mail: tyler_porter@fws.gov

Re: Cass County Solar Project, Cass County, Illinois, Threatened and Endangered Species Concurrence Request

Dear Mr. Porter,

Per your previous consultation email regarding threatened and endangered species prevalence within the Project boundary, on behalf of Cass County Solar Project, WSP would like to respond to each species recommendation in the concurrence email. Your original recommendations are found in black with our responses found in red.

Bald Eagles
Our office does not contain any records of bald eagles or bald eagle nests found within the Project area. However, we do contain records of two eagle nests within two miles of the Project's boundary. Both nests are located west of the Project along the Illinois River corridor. Please contact the Illinois Department of Natural Resources for up-to-date eagle nest records. Please utilize the Eagle Conservation Plan Guidelines for more information.

We have reviewed and considered the Eagle Conservation Plan Guidance in the siting and development or the Cass County Solar Project. Due to the lack of suitable habitat and large proportion of agricultural activity within the Project area, it is unlikely that Bald Eagles would occur within the Project area. Therefore, we believe negative affects to Bald Eagles from the construction and operation of the project are unlikely.

Indiana Bat
The Project area falls within the geographic range of the federally endangered Indiana bat. Our office does not contain records of Indiana bats within the Project area or its immediate buffer. The closest record of Indiana bats that we contain is approximately 14 miles southwest of the Project area, near Naples, Illinois. Suitable summer habitat may be found in riparian corridors and/or large forest stands within or around the Project area. We recommend that any clearing of trees >3 in. DBH that pertains to construction or maintenance of the Project should be completed outside of that bat active season, between the dates of October 1 – March 31. There are no critical habitat areas found for this species in Cass County, Illinois.

Minimal tree clearing is anticipated onsite. Wooded areas will be avoided to the extent practicable. Any required clearing of trees >3 in. DBH will be completed as recommended, between October 1– March 31.

Northern Long-Eared Bat
The Project area falls within the geographic range of the federally threatened northern long-eared bat. Our office does not contain records of northern long-eared bats within the Project area or its immediate buffer. The closest record of northern long-eared bats is approximately 20 miles west of the Project, near Buckhorn, Illinois. Suitable summer habitat may be found in riparian corridors and/or large forest stands within or around the Project area. We recommend that any

clearing of trees >3 in. DBH that pertains to construction or maintenance of the Project should be completed outside of that bat active season, between the dates of October 1 – March 31. Currently, there is no designated critical habitat for this species due to the its status as "threatened" and the 4(d) rule associated with its status.

Minimal tree clearing is anticipated onsite. Wooded areas will be avoided to the extent practicable. Any required clearing of trees >3 in. DBH will be completed as recommended, between October 1– March 31.

Flowering Plants

The proposed Project area falls within the geographic ranges of the federally threatened eastern prairie fringed orchid, decurrent false aster, and prairie bush clover. We do not contain any records of eastern prairie fringed orchid or prairie bush clover within the Project area or its buffer area. However, we do contain multiple records of decurrent false aster within two miles of the Project area. We recommend any areas that are currently vegetated with moist soil/ non-woody species be avoided or assessed for the presence of decurrent false aster due to known populations within the vicinity. Ideal decurrent false aster habitat includes moist, sandy floodplains and prairie wetlands along the Illinois River. If it is determined that there is a potential for decurrent false aster to occur and be affected as a result of the proposed Project, please initiate further consultation. If it is determined that decurrent false aster is not within the Project area due to its agricultural landscape, further consultation is not needed. Currently, there are no critical habitat for these species due to its status as "threatened." We recommend reviewing the Environmental Conservation Online System (https://ecos.fws.gov/ecp/) for more information.

The Project area consists primarily of cultivated agricultural fields. Wetland delineations and threatened and endangered species surveys were conducted within the Project area. No decurrent false aster individuals or suitable habitat were identified during these survey efforts. Wetlands and floodplains are anticipated to be avoided through Project design. Therefore, impacts to potential suitable habitat through Project construction and operation is unlikely.

State-Listed Species

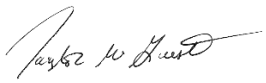
Please visit (http://www.fws.gov/midwest/endangered/section7/s7process/index.html) for more information on species listed in Cass County and the State of Illinois. In addition, we recommend that you maintain consultation with the Illinois Department of Natural Resources regarding state-protected species and sensitive natural communities and habitats near the Project area.

IDNR has been consulted and recommendations have been provided. Coordination with IDNR is ongoing.

On behalf of Cass County Solar Project, I would like to thank you for your time. If you have any comments, please feel free to contact me at (903) 738-0318 or by email at taylor.guest@wsp.com.

Sincerely,

WSP



Taylor Guest
Project Manager

From: Guest, Taylor
Sent: Tuesday, September 1, 2020 1:57 PM
To: illinoismoregulatory@usace.army.mil
Cc: Emma Tajchman; Alyson Wahaus
Subject: Cass County Solar Project Jurisdictional Determination Request
Attachments: Cass County Solar Project JD Request Package.pdf

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To whom it may concern,

Cass County Solar Project, LLC (Cass County Solar), a wholly owned subsidiary of Savion, LLC, is in the process of siting and developing the Cass County Solar Project (Project) in Cass County, Illinois. Cass County Solar contracted Ecology and Environment, Inc., to conduct a wetland and waterbody survey within the Project area to provide information to the Project design team that would allow them to avoid impacts to water resources to the maximum extent practicable. On behalf of Cass County Solar, I would appreciate your feedback on the jurisdictionality of the documented features. Please see attached Cass County Solar Project JD Request Package for additional information.

If you have any questions, please feel free to contact me at (903) 738-0318.

TAYLOR GUEST
Environmental Specialist
t: 713-344-3000 m: 903-738-0318

Ecology and Environment, Inc.
Member of WSP
2 Riverway Dr., Houston, Texas 77056

www.ene.com

ecology and environment, inc.
Global Environmental Specialists
33 West Monroe Street, Suite 1410
Chicago, Illinois 60603
Tel: (312) 578-9243, Fax: (312) 578-9345

September 1, 2020

U.S. Army Corps of Engineers, Rock Island District
1500 Rock Island Drive
Rock Island, Illinois 61201

Re: Request for Approved Jurisdictional Determination for the Cass County Solar Project, Cass County, Illinois

To whom it may concern,

Cass County Solar Project, LLC (Cass County Solar) is in the process of siting and developing the Cass County Solar Project (Project). The Project area is located on approximately 2,382 acres of private land in Cass County, Illinois (see Figure 1 in Exhibit A). The Project will consist of photovoltaic (PV) solar panels, collection and transmission lines, substation, and perimeter access roads.

Cass County Solar contracted Ecology and Environment, Inc., (E & E) to conduct a wetland and waterbody survey within the Project area to provide information to the Project design team that would allow them to avoid impacts to water resources to the maximum extent practicable. The included *Wetland and Waterbody Delineation Report for the Cass County Solar Project, Cass County, Illinois* provides the results of those surveys (see Exhibit A). Project infrastructure will be located such that all impacts to water resources within the Project boundary will be avoided. Cass County Solar is requesting an Approved Jurisdictional Determination for wetlands and waterbodies identified within the Project area (see Exhibit B).

On behalf of Cass County Solar, I would appreciate your feedback on the jurisdictionality of the documented features. If you have any questions, please feel free to contact me at (903) 738-0318 or by email at tguest@ene.com.

Sincerely,

ECOLOGY AND ENVIRONMENT, INC.

Taylor Guest
Project Manager

Exhibits:
A – Wetland and Waterbody Delineation Report for the Cass County Solar Project
B – Request for USACE Approved Jurisdictional Determination Form

EXHIBIT A

Wetland and Waterbody Delineation Report for the Cass County Solar Project

ecology and environment, inc.
Global Environmental Specialists
33 West Monroe Street, Suite 1410
Chicago, Illinois 60603
Tel: (312) 578-9243, Fax: (312) 578-9345

August 31, 2020

Ms. Emma Tajchman
Cass County Solar Project, LLC
422 Admiral Boulevard
Kansas City, Missouri 64106

Re: Wetland and Waterbody Delineation Report for the Cass County Solar Project, Cass County, Illinois

Dear Ms. Tajchman:

Ecology and Environment, Inc. (E & E) is pleased to provide this letter report to Cass County Solar Project, LLC (Cass County Solar) summarizing the results of our wetland and waterbody delineation at the Cass County Solar Project, located in Cass County, Illinois (Project).

PROJECT INTRODUCTION AND SURVEY OBJECTIVES

Cass County Solar proposes to develop the solar energy Project on private agricultural land encompassing approximately 2,382 acres in Cass County, Illinois. As requested by Cass County Solar, E & E conducted field surveys to delineate wetlands and waterbodies in the Project area from August 21 to 23, 2018, on October 30, 2019, and from May 13-14, 2020. Three visits were necessary as a result of modifications to the Project area. The purpose of this survey was to delineate and characterize wetland and surface water resources in the Project area in order to inform project design and limit the potential impacts to these resources.

The Project area is situated on flat floodplains located approximately 3,000 feet west of the Illinois River. The Illinois River is a principal tributary of the Mississippi River, converging near Grafton, Illinois. The vast majority of the site is agricultural land used for row crops. The Project area is located within the Little Creek-Illinois watershed (USGS 2018).

POTENTIALLY APPLICABLE PERMITS

The Clean Water Act (CWA) was implemented to restore and maintain the chemical, physical, and biological integrity of the nation's waters. Under Sections 401 and 404 of the CWA, and Section 10 of the Rivers and Harbors Act of 1899, permits must be obtained for certain construction and maintenance activities that may impact wetlands and waterways. Section 401 of the CWA requires state approval for any federally permitted action impacting waters of the U.S. (WOTUS) to ensure that the permitted action will not violate the state's water quality standards or impair designated uses. The Illinois Environmental Protection Agency (IEPA) is the entity responsible for administering the Section 401 program in Illinois.

Section 404 of the CWA and Section 10 of the Rivers and Harbors Act of 1899 require that a permit be obtained for the discharge of dredged or fill material into WOTUS or Section 10 navigable waters, including wetlands and surface waters. WOTUS are defined under 33 Code of Federal Regulations (CFR), and wetlands are specifically defined under 33 CFR Part 328.3(b). The U.S. Army Corps of

Engineers (USACE) is the permitting agency responsible for administering the Section 404 and Section 10 programs, with this Project located within the jurisdictions of the USACE Rock Island and St. Louis Districts.

The Illinois Department of Natural Resources (IDNR), Office of Water Resources, is the regulatory authority for the Rivers, Lakes, and Streams Act (RLSA). Under this authority, a RLSA permit is required for dams and construction within an Illinois public body of water (e.g., lake or river) and construction within floodways. The RLSA is focused on preserving the hydrological integrity of the state's public waters. Outside of the Chicago region, permits are required for construction in the floodway of any stream serving a tributary area of 640 acres in urban areas or 6,400 acres in rural areas. Based on previous conversations with Cass County administrators in October 2017, Cass County has a separate floodplain ordinance to that of IDNR and should be consulted regarding local floodplain and floodway permitting requirements.

SURVEY METHODOLOGY

A desktop review of the Project area for wetlands and waterbodies was completed prior to commencing the field survey. This review helped streamline field survey efforts by utilizing publicly available mapping and databases showing potential hydrologic resources within the Project area, informing the E & E wetland scientists of potential site conditions in advance of arrival. The desktop review included current, high-resolution aerial photographs of the Project area, topographic maps, U.S. Fish and Wildlife Service's National Wetland Inventory (NWI) data, and U.S. Geological Survey's National Hydrography Dataset (NHD) data (USFWS 1985; USGS 2018). Figure 1, in Attachment A, depicts NHD surface water and NWI wetland features.

The wetland and waterbody delineation field survey was conducted within the Project area from August 21 to 23, 2018, on October 30, 2019, and from May 13 to 14, 2020. In order to identify potential wetlands and waterbodies that could be WOTUS, E & E wetland biologists followed methodologies established by the USACE, including the following manuals and guidance documents:

- USACE *Wetland Delineation Manual* (Environmental Laboratory 1987);
- *Regional Supplement to the USACE Wetland Delineation Manual: Midwest* (Version 2.0; USACE 2012);
- USACE 2018 National Wetland Plant List (USACE 2018);
- USDA NRCS *Field Indicators of Hydric Soils in the United States, Version 7.0* (USDA NRCS 2010); and
- USACE Regulatory Guidance Letter No. 05-05 (Ordinary High Water Mark [OHWM] Identification; USACE 2005).

Potential wetlands found within the Project area were assessed to determine if they met the three components of a wetland established by the USACE, including hydric soils, wetland hydrology, and hydrophytic vegetation. Features meeting the definition of a wetland were photographed and mapped using a Global Positioning System (GPS) device with sub-meter accuracy. For wetlands that extended outside of the Project boundary, the full extent of the wetland boundary could not be delineated due to restricted property access. In those instances, GPS points were taken at the Project boundary and the wetland polygon was noted as continuing beyond the Project boundary. All wetland field indicators were recorded on approved USACE wetland data forms provided in the

USACE *Regional Supplement to the Corps of Engineers Wetlands Delineation Manual: Midwest* (Version 2.0; USACE Regional Supplement; USACE 2012). Delineated wetlands were classified as palustrine emergent (PEM), palustrine forested (PFO), or palustrine scrub-scrub (PSS), as described in Cowardin et al. (1979).

Soils were examined by digging a soil pit to a depth of 18 inches (when possible) and comparing soil characteristics to regionally specific hydric soil indicators detailed in the USACE Regional Supplement (USACE 2012). Soil colors were identified using a Munsell Soil Color Chart and other characteristics, such as the presence of redox features and soil texture, were recorded (Munsell 2009). Hydric characteristics such as organic soil layers, depleted matrices, mottling, and oxidized rhizospheres were noted where they occurred.

To determine the presence of hydrophytic vegetation, vegetation in each major stratum (tree, sapling/shrub, herbaceous, and woody vine) were identified and a percentage cover for each species was recorded. Each plant species was then assigned a wetland indicator status (obligate wetland [OBL], facultative wetland [FACW], facultative [FAC], facultative upland [FACU], or upland [UPL]), as defined by the USACE National Wetland Plant List (USACE 2017). A prevalence of dominant species that are OBL, FACW, or FAC indicates the presence of hydrophytic vegetation.

In general, the criteria for wetland hydrology are met if the area is inundated or saturated at the soil surface during the growing season for a time sufficient to develop hydric soils and support hydrophytic vegetation. In some instances, it is necessary to use other field characteristics to identify wetland hydrology. These characteristics may include water staining, sediment deposits, drainage patterns, or drift lines. Hydrologic characteristics, as well as the depth of surface water or depth to soil saturation, were recorded for each wetland area.

Surface waters within the Project area were assessed by their flow characteristics to determine if they meet USACE's definition of a stream. Streams are defined by the presence of physical indicators of flow – bed and banks and OHWM. Each stream was photographed, and its centerline was recorded with the GPS unit. Bank height, width, and slope; and OHWM width and depth were recorded. The flow type (ephemeral, intermittent, or perennial) was determined and each stream was classified according to the following USACE classes: traditional navigable waters (TNW), perennial relatively permanent waters (P-RPW), seasonally relatively permeant waters (S-RPW), or non-RPW.

WETLAND AND WATERBODY DELINEATION SURVEY RESULTS

A total of five wetlands, eleven streams, two drainage feature, and one waterbody (i.e., pond) were delineated within the Project area. The Illinois River flows south, adjacent to the Project area, draining all delineated waters within the Project area that are not hydrologically isolated. Delineated features draining to the Illinois River are assumed to be federal and state jurisdictional waters regulated by the USACE and IEPA.

Figure 2, in Attachment A, presents maps depicting the location of all delineated features within the Project area. A photo log showing all wetlands, streams, and ponds is included in Attachment B. Tables detailing the characteristics of each delineated wetland, pond, and stream are included in Attachment C. Wetland Determination and Stream Data Forms for each delineated wetland and stream are included in Attachment D.

Wetlands

Five delineated wetlands, totaling approximately 17.7 acres, were identified within the Project area and included PEM and PSS wetland types. Table 1 provides a summary of each wetland identified in the Project area.

Table 1 Delineated Wetlands in the Project Area

Wetland ID	Wetland Type	Total Acreage
W-T01-001	PSS	11.0
W-T01-002	PEM	6.2
W-T01-003	PSS	0.2
W-T03-001	PEM	0.2
W-T03-002	PEM	<0.1
	Total	**17.7**

Key:
PEM = Palustrine emergent
PSS = Palustrine scrub-shrub

PSS wetland W-T01-001, totaling approximately 11.0 acres, is located in the floodplain of a delineated perennial stream (SS-T01-003) and is hydrologically connected to multiple streams within the Project area. Wetland W-T01-001 is dominated by white mulberry (*Morus alba*), eastern cottonwood (*Populus deltoides*), gray dogwood (*Cornus racemosa*), sandbar willow (*Salix interior*), and reed canary grass (*Phalaris arundinacea*).

PEM wetland W-T01-002, totaling 6.2 acres, is a depression located in an active agricultural field. Wetland W-T01-002 is hydrologically connected to stream SS-T01-003 which is a P-RPW. Dominant vegetation species that comprise W-T01-002 include reed canary grass, late goldenrod (*Solidago altissima*), barnyard grass (*Echinochloa crus-galli*), and giant ragweed (*Ambrosia trifida*).

PSS wetland W-T01-003, totaling 0.2 acres, completely surrounds delineated pond WB-T01-001, located approximately 400 feet west of a residential property and grain storage facility. The area appears to be a former borrow pit and with no clear hydrological connection to the Illinois River. Dominant species include sandbar willow, barnyard grass, and yellow foxtail (*Setaria pumila*).

The following wetlands were identified and delineated during the May 2020 surveys:

PEM wetland W-T03-001, totaling 0.2 acres, is located in a roadside ditch hydrologically connected to stream SS-T01-001. Wetland W-T03-002 is dominated by fall panic grass (*Panicum dichotomiflorum*).

PEM wetland W-T03-002, totaling less than 0.1 acres, is located in a roadside ditch hydrologically connected to stream SS-T01-001. Wetland W-T03-001 is dominated by river bulrush (*Scirpus fluviatilis*).

Surface Waters

Eleven streams, totaling 46,794 linear feet, were delineated within the Project area. Four delineated streams (streams SS-T01-001, SS-T01-003, SS-T01-008, and SS-T02-001) are P-RPWs with

perennial flow; three streams (SS-T01-002, SS-T01-006, and SS-T03-002) are S-RPWs with intermittent flow; and four streams (SS-T01-004, SS-T01-005, SS-T01-007, and SS-T03-001) are non-RPWs with ephemeral flow. SS-T03-001 and SS-T03-002 were identified and delineated during the May 2020 surveys. All streams flow into the Illinois River. Table 2 presents a summary of the streams identified in the Project area.

Table 2 Delineated Streams in the Project Area

Stream ID	Stream Class	Flow Type	Stream Name	Total Length (linear feet)
SS-T01-001	P-RPW	Perennial	South Beardstown Ditch	12,408
SS-T01-002	S-RPW	Intermittent	UNT to Illinois River	1,616
SS-T01-003	P-RPW	Perennial	North Lake Ditch	7,481
SS-T01-004	Non-RPW	Ephemeral	UNT to Illinois River	1,487
SS-T01-005	Non-RPW	Ephemeral	UNT to Illinois River	230
SS-T01-006	S-RPW	Intermittent	UNT to Illinois River	3,573
SS-T01-007	Non-RPW	Ephemeral	UNT to Illinois River	6,318
SS-T01-008	P-RPW	Perennial	UNT to Illinois River	10,017
SS-T02-001	P-RPW	Perennial	Valley Ditch	832
SS-T03-001	Non-RPW	Ephemeral	UNT to Valley Ditch	541
SS-T03-002	S-RPW	Intermittent	UNT to South Beardstown Ditch	2,291
			Total	**46,794**

Key:
P-RPW = Perennial relatively permanent water
S-RPW = Seasonally relatively permanent water
Non- RPW = not a relatively permanent water
UNT = Unnamed Tributary

Two drainage features (DD-T01-001 and DD-T03-001), totaling 2,741 linear feet, were delineated within the Project area. DD-T03-001 was identified and delineated during the May 2020 surveys. These drains are roadside ditches that flow into stream SS-T01-001, resulting in an indirect connection to a TNW, the Illinois River. Therefore, drain DD-T01-001 and DD-T03-001 may be considered jurisdictional and regulated by the USACE (see depiction in Attachment A, Figure 2). Additional feature data associated with drainage feature DD-T01-001 and DD-T03-001 are included in Attachment C.

One pond, totaling 0.3 acres, was delineated within the Project area. Depicted in Attachment A, Figure 2, pond WB-T01-001 appears to be within a former borrow pit with no clear hydrological connection to the Illinois River. Additional feature data associated with pond WB-T01-001 are included in Attachment C.

CONCLUSION AND RECOMMENDATIONS

E & E delineated a total of five wetlands, eleven streams, two drainage features, and one pond within the Project area during the field survey conducted from August 21 to 23, 2018, on October 30, 2019, and May 13-14, 2020. All delineated streams, drainage features, and wetlands except wetland W-T01-003 are assumed to be federally jurisdictional and regulated by the USACE due to a clear hydrologic connection to the Illinois River. Pond WB-T01-001 and wetland W-T01-003 are man-

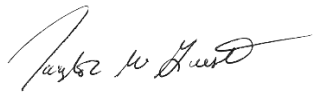
made features caused by past excavation activities with no clear hydrologic connection to the Illinois River. Therefore, these features may be considered non-jurisdictional by the USACE and IEPA.

Cass County Solar can utilize the information within this report and associated documentation to aid in Project design to avoid wetland, stream, and waterbody impacts to the maximum extent practical. If the Project cannot be designed to avoid all impacts to delineated wetlands, streams, and ponds within the Project area, coordination with the USACE and IEPA is recommended to confirm the jurisdictional status of the features, and determine if a permit would be needed for anticipated wetland or waterbody impacts prior to construction.

If you have any questions regarding the contents of this report, please contact me at (903) 738-0318 or TGuest@ene.com.

Sincerely,

ECOLOGY AND ENVIRONMENT, INC.



Taylor Guest
Project Manager

Attachment:
A – Figures
B – Site Photographs
C – Wetland, Waterbody, and Stream Summary Tables
D – USACE Wetland Determination and E & E Stream Data Forms

REFERENCES

Cowardin, L.M., V. Carter, F.C. Golet, and E.T. LaRoe. 1979. *Wetlands and Deepwater Habitats of the United States*. U.S. Fish and Wildlife Service, Biological Services Program, Washington, D.C. FWS/OBS-79/31.

Environmental Laboratory. 1987. *Corps of Engineers Wetlands Delineation Manual*. Technical Report Y-81-1. United States Army Engineer Waterways Experiment Station. Vicksburg, Mississippi.

Munsell Color. 2009. Munsell Soil Color Charts. Munsell Color Corporation, Grand Rapids Michigan.

U.S. Army Corps of Engineers (USACE). 2005. Regulatory Guidance Letter, 05-05 Ordinary High Water Mark (OHWM) Identification. Accessed August 2018 at: http://www.nap.usace.army.mil/Portals/39/docs/regulatory/rgls/rgl05-05.pdf

_____. 2012. *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Midwest Region (Version 2.0)*, ed. J. S. Wakeley, R. W. Lichvar, C. V. Noble, and J. F. Berkowitz. ERDC/EL TR-12-1. Vicksburg, MS: U.S. Army Engineer Research and Development Center.

_____. 2018. National Wetland Plant List v3.3. Accessed August 2018 at: http://wetland-plants.usace.army.mil/nwpl_static/v33/home/home.html

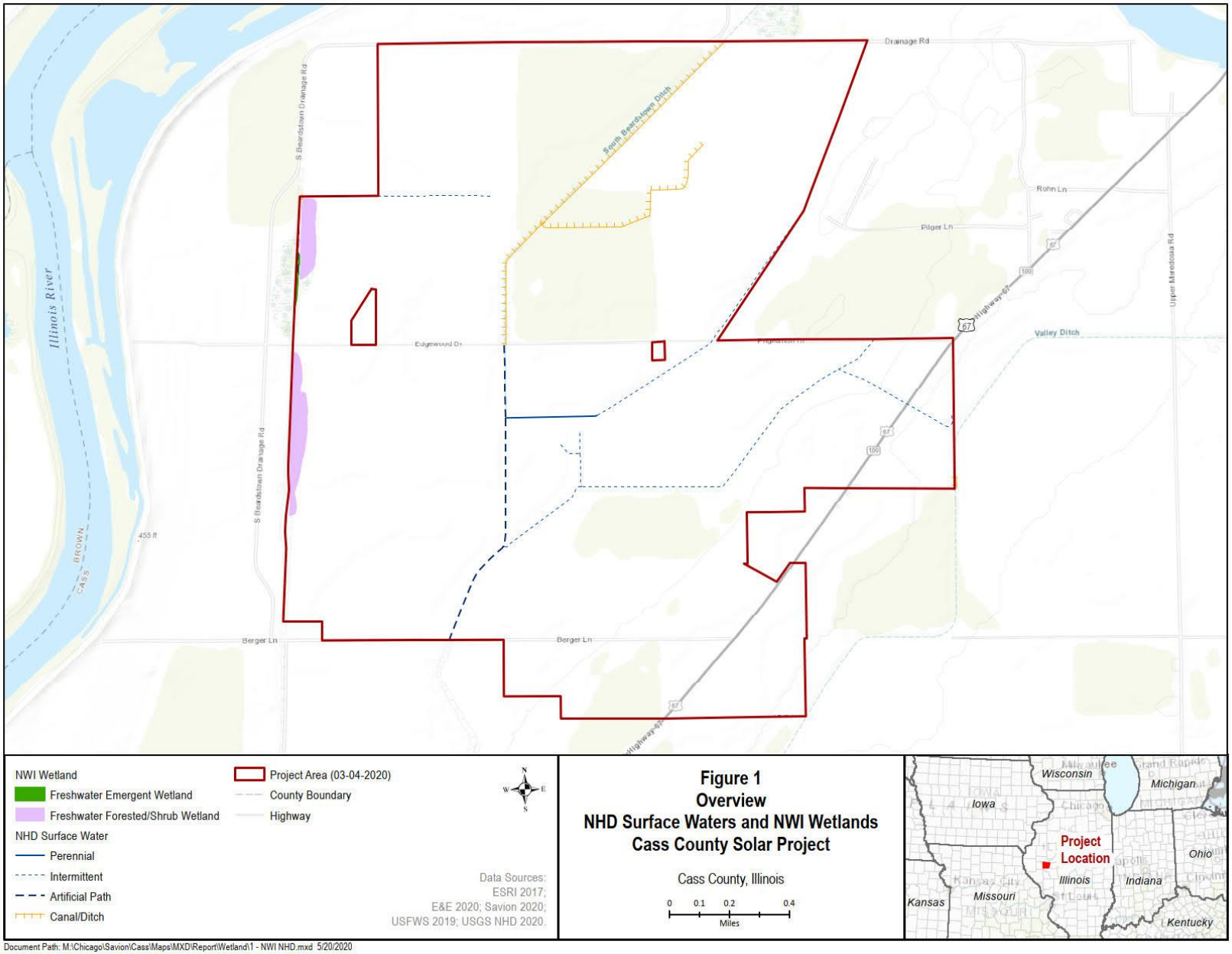
U.S. Department of Agriculture (USDA) Natural Resources Conservation Center (NRCS). 2010. *Field Indicators of Hydric Soils in the United States, Version 7.0.* L.M. Vasilas, G.W. Hurt, and C.V. Noble (eds.). USDA, NRCS, in cooperation with the National Technical Committee for Hydric Soils.

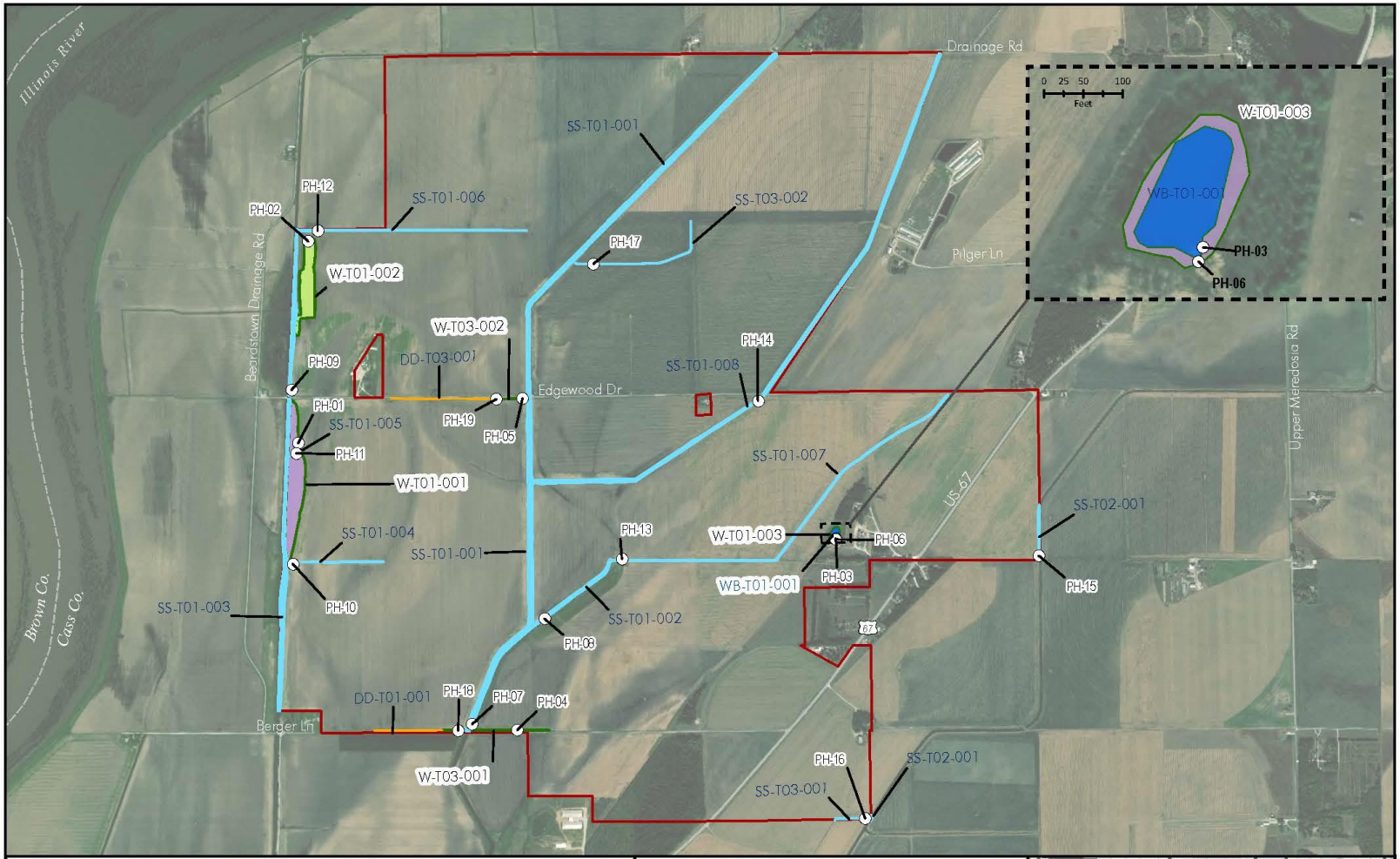
U.S. Fish and Wildlife Service (USFWS). 1985. National Wetlands Inventory (NWI) dataset, Download Seamless Wetlands Data by State. Accessed May 2020 at: https://www.fws.gov/wetlands/Data/State-Downloads.html

U.S. Geological Survey (USGS). 2019. National Hydrography Dataset (NHD), Direct Download Links, Download the NHD by State. Accessed May 2020 at: https://nhd.usgs.gov/data.html

ATTACHMENT A

FIGURES


Drainage Rd
South Beardstown Ditch
S Beardstown Drainage Rd
Illinois River
CASS
BROWN
455 ft
Rohn Ln
Pilger Ln
Upper Meredosia Rd
Highway 67
Valley Ditch
Edgewood Dr
Berger Ln
NWI Wetland
Freshwater Emergent Wetland
Freshwater Forested/Shrub Wetland
NHD Surface Water
Perennial
Intermittent
Artificial Path
Canal/Ditch
Project Area (03-04-2020)
County Boundary
Highway
N
W
E
S
Data Sources:
ESRI 2017;
E&E 2020; Savion 2020;
USFWS 2019; USGS NHD 2020.
Figure 1
Overview
NHD Surface Waters and NWI Wetlands
Cass County Solar Project
Cass County, Illinois
0 0.1 0.2 0.4
Miles
Wisconsin
Michigan
Iowa
Project Location
Illinois
Indiana
Ohio
Missouri
Kansas
Kentucky
Document Path: M:\Chicago\Savion\Cass\Maps\MXD\Report\Wetland\1 - NWI NHD.mxd 5/20/2020



Document Path: M:\Chicago\Savion\Cass\Maps\MXD\Report\Wetland\2 - Field Delineation.mxd 5/21/2020

ATTACHMENT B

SITE PHOTOGRAPHS

Photo Number: PH-01
Date: 8/22/2018
Direction: Southwest
Feature: PSS Wetland, W-T01-001

Photo Number: PH-02
Date: 8/22/2018
Direction: Northeast
Feature: PEM Wetland, W-T01-002

Photo Number: PH-03
Date: 8/22/2018
Direction: Southwest
Feature: PSS Wetland, W-T01-003, shown here surrounding Pond, WB-T01-001

Photo Number: PH-04
Date: 5/13/2020
Direction: East
Feature: PEM Wetland, W-T03-001

Photo Number: PH-05
Date: 5/13/2020
Direction: West
Feature: PEM Wetland, W-T03-002

Photo Number: PH-06
Date: 8/22/2018
Direction: South
Feature: Pond, WB-T01-001

Photo Number: PH-07
Date: 8/21/2018
Direction: Northeast
Feature: Unnamed Tributary to the Illinois River, Perennial Stream SS-T01-001

Photo Number: PH-08
Date: 8/21/2018
Direction: West
Feature: Unnamed Tributary to the Illinois River, Intermittent Stream SS-T01-002

Photo Number: PH-09
Date: 8/22/2018
Direction: North
Feature: Unnamed Tributary to the Illinois River, Perennial Stream SS-T01-003

Photo Number: PH-10
Date: 8/22/2018
Direction: East
Feature: Unnamed Tributary to the Illinois River, Ephemeral Stream SS-T01-004

Photo Number: PH-11
Date: 8/22/2018
Direction: West
Feature: Unnamed Tributary to the Illinois River, Ephemeral Stream SS-T01-005

Photo Number: PH-12
Date Collected: 8/22/2018
Direction: East
Feature: Unnamed Tributary to the Illinois River, Intermittent Stream SS-T01-006

Photo Number: PH-13
Date: 8/23/2018
Direction: West
Feature: Unnamed Tributary to the Illinois River, Ephemeral Stream SS-T01-007

Photo Number: PH-14
Date: 8/21/2018
Direction: Northeast
Feature: Unnamed Tributary to the Illinois River, Perennial Stream SS-T01-008

Photo Number: PH-15
Date: 10/30/2019
Direction: North
Feature: Valley Ditch, Perennial Stream SS-T02-001

Photo Number: PH-16
Date: 5/13/2020
Direction: West
Feature: Unnamed Tributary to Valley Ditch, Ephemeral Stream SS-T03-001

Photo Number: PH-17
Date: 5/13/2020
Direction: East
Feature: Unnamed Tributary to South Beardstown Ditch, Intermittent Stream SS-T03-002

Photo Number: PH-18
Date: 8/23/2018
Direction: West
Feature: Drain, DD-T01-001

Photo Number: PH-19
Date: 5/13/2020
Direction: West
Feature: Drain, DD-T03-001

ATTACHMENT C

WETLAND, WATERBODY, AND STREAM SUMMARY TABLES

Table C-1 Delineated Wetlands within the Cass County Solar Project Area

Wetland ID	Cowardin Class[1]		Acreage			Hydrologic Connection to TNW[2]	Comments
	Field Delineated	NWI	PFO	PSS	PEM		
W-T01-001	PSS	None	0.0	11.0	0.0	Abutting SS-T01-003 --> Illinois River	Large, unsaturated floodplain system abutting the east side of stream SS-T01-003. The wetland receives runoff from an agricultural field to the east and is intersected by streams SS-T01-004 and SS-T01-005, draining runoff into SS-T-01-003.
W-T01-002	PEM	PSS/PFO	0.0	0.0	6.2	Adjacent to SS-T01-003 --> Illinois River	Large, unsaturated depression within an agricultural field.
W-T01-003	PSS	None	0.0	0.2	0.0	Isolated	Small wetland encompassing a pond located within a large depression near commercial farming activities. Pond looks to be created by past man-made excavation activities.
W-T03-001	PEM	None	0.0	0.0	0.2	Abutting SS-T01-001 → Illinois River	Small wetland within roadside hydrologically connected to South Beardstown Ditch.
W-T03-002	PEM	None	0.0	0.0	<0.1	Abutting SS-T01-001 → Illinois River	Small wetland within roadside hydrologically connected to South Beardstown Ditch.
Total Acreage:			**0.0**	**11.2**	**6.5**		
			PFO	PSS	PEM		

Key:
[1] Cowardin et al. 1979 wetland classifications:
PEM = Palustrine Emergent Wetland
PFO = Palustrine Forested Wetland
PSS = Palustrine Scrub-Shrub Wetland

Table C-2 Delineated Streams within the Cass County Solar Project Area

Stream ID	Stream Name	Flow Type[1]	Stream Category[2]	Max OHWM[3] Width (ft)	Max TOB[4] Width (feet)	Length (feet)
SS-T01-001	South Beardstown Ditch	Perennial	P-RPW	60	65	12,408
SS-T01-002	UNT to Illinois River	Intermittent	S-RPW	20	30	1,616
SS-T01-003	North Lake Ditch	Perennial	P-RPW	145	160	7,481
SS-T01-004	UNT to Illinois River	Ephemeral	Non-RPW	10	14	1,487
SS-T01-005	UNT to Illinois River	Ephemeral	Non-RPW	20	30	230
SS-T01-006	UNT to Illinois River	Intermittent	S-RPW	10	14	3,573
SS-T01-007	UNT to Illinois River	Ephemeral	Non-RPW	10	12	6,318
SS-T01-008	UNT to Illinois River	Perennial	P-RPW	10	16	10,016
SS-T02-001	Valley Ditch	Perennial	P-RPW	25	40	832
SS-T03-001	UNT to Valley Ditch	Ephemeral	Non-RPW	3	5	541
SS-T03-002	UNT to South Beardstown Ditch	Intermittent	S-RPW	4	6	2,291

	Count	Total Length (feet)
Perennial	4	**30,737**
Intermittent	3	**7,480**
Ephemeral	4	**8,576**

Key and Notes:
UNT = Unnamed tributary
[1] Flow Type refers to the duration of flowing water within the stream:
Perennial= Year-round flow
Intermittent = Seasonal flow
Ephemeral = Flow occurring only as a direct response to precipitation
[2] Category refers to the USACE and EPA defined stream categories:
P-RPW = Perennial relatively permanent water
S-RPW = Seasonal relatively permanent water
Non- RPW = not a relatively permanent water
[3] OHWM= ordinary high water mark; the line on the shore established by fluctuations of water and indicated by physical characteristics.
[4] TOB = top of bank; the first major change in the slope of the incline from the mean high water line of a waterbody or watercourse. A major change is a change of 10 degrees or more.

Table C-3 Delineated Drainage Features within the Cass County Solar Project Area

Pond ID	Feature Type	Comments	Total Length (feet)
DD-T01-001	Drain	Drainage features is a roadside ditch that flows into stream SS-T01-001.	1,070
DD-T03-001	Drain	Drainage features is a roadside ditch that flows into stream SS-T01-001.	1,671
		Total	**2,741**

Table C-4 Delineated Waterbodies within the Cass County Solar Project Area

Pond ID	Feature Type	Comments	Total Acreage
WB-T01-001	Pond	Pond located in large depression surrounded by wetland W-T01-003. Appears to be created by past man-made excavation activities.	0.3
		Total	**0.3**

ATTACHMENT D

USACE WETLAND DETERMINATION AND E & E STREAM DATA FORMS

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: Cass County Solar Project | City/County: Cass County | Sampling Date: 8/22/18

Applicant/Owner: Cass County Solar Project, LLC | State: IL | Sampling Point: W-T01-001B-1

Investigator(s): Eric Bender, Paul Bollinger | Section, Township, Range: S31, T18N, R12W

Landform (hillside, terrace, etc.): Flood Plain/ Flat Topography | Local relief (concave, convex, none): None

Slope (%): 0-1 | Lat: 39.976194 | Long: -90.4969970 | Datum: NAD83

Soil Map Unit Name: Comfrey loams, undrained, 0-2% slopes, commonly flooded (1776A) | NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X	No ____	**Is the Sampled Area within a Wetland?** **Yes** X **No** ____
Hydric Soil Present?	Yes X	No ____	
Wetland Hydrology Present?	Yes X	No ____	

Remarks:
Large scrub-shrub/forested wetland located in the floodplain of a perernnial relatively permanent water-way (SS-T01-003). Data was collected on the eastern boundary.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: ____)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Morus alba*	20	Yes	FAC
2. *Populus deltoides*	20	Yes	FAC
3.			
4.			
5.			
	40	=Total Cover	
Sapling/Shrub Stratum (Plot size: ____)			
1. *Cornus racemosa*	50	Yes	FAC
2. *Salix interior*	10	No	FACW
3. *Lonicera tatarica*	5	No	FACU
4.			
5.			
	65	=Total Cover	
Herb Stratum (Plot size: ____)			
1. *Phalaris arundinacea*	100	Yes	FACW
2. *Vernonia fasciculata*	5	No	FACW
3. *Solidago altissima*	5	No	FACU
4. *Toxicodendron radicans*	5	No	FAC
5.			
6.			
7.			
8.			
9.			
10.			
	115	=Total Cover	
Woody Vine Stratum (Plot size: ____)			
1.			
2.			
		=Total Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	115	x 2 =	230
FAC species	95	x 3 =	285
FACU species	10	x 4 =	40
UPL species	0	x 5 =	0
Column Totals:	220 (A)		555 (B)
Prevalence Index = B/A =			2.52

Hydrophytic Vegetation Indicators:

____ 1 - Rapid Test for Hydrophytic Vegetation

X 2 - Dominance Test is >50%

X 3 - Prevalence Index is ≤3.0[1]

____ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

____ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** X **No** ____

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point: *N*-T01-001B-

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-7	10YR 2/1	93	2.5YR 3/4	7	C	PL	Loamy/Clayey	Prominent redox concentrations
7-12	10YR 5/2	45	2.5YR 3/4	15	C	PL	Sandy	Prominent redox concentrations
	10YR 2/1	40						
12-20	10YR 5/2	80	2.5YR 3/4	20	C	PL	Sandy	Prominent redox concentrations

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 5 cm Mucky Peat or Peat (S3)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- X Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ Coast Prairie Redox (A16)
- ___ Iron-Manganese Masses (F12)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (F22)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** X **No** ___

Remarks:

This data form is revised from Midwest Regional Supplement Version 2.0 to include the NRCS Field Indicators of Hydric Soils, Version 7.0, 2015 Errata. (http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs142p2_051293.docx)

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- X Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Gauge or Well Data (D9)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- X FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ___ No X Depth (inches): ___

Water Table Present? Yes ___ No X Depth (inches): ___

Saturation Present? Yes ___ No X Depth (inches): ___

(includes capillary fringe)

Wetland Hydrology Present? **Yes** X **No** ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

SOIL

Sampling Point: N-T01-001B-

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-7	10YR 2/1	93	2.5YR 3/4	7	C	PL	Loamy/Clayey	Prominent redox concentrations
7-12	10YR 5/2	45	2.5YR 3/4	15	C	PL	Sandy	Prominent redox concentrations
	10YR 2/1	40						
12-20	10YR 5/2	80	2.5YR 3/4	20	C	PL	Sandy	Prominent redox concentrations

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 5 cm Mucky Peat or Peat (S3)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- X Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ? Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ? Coast Prairie Redox (A16)
- ___ Iron-Manganese Masses (F12)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (F22)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** X **No** ___

Remarks:

This data form is revised from Midwest Regional Supplement Version 2.0 to include the NRCS Field Indicators of Hydric Soils, Version 7.0, 2015 Errata. (http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs142p2_051293.docx)

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- X Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Gauge or Well Data (D9)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- X FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ___	No X	Depth (inches): ___
Water Table Present?	Yes ___	No X	Depth (inches): ___
Saturation Present? (includes capillary fringe)	Yes ___	No X	Depth (inches): ___

Wetland Hydrology Present? **Yes** X **No** ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: Cass County Solar Project | City/County: Cass County | Sampling Date: 8/22/18

Applicant/Owner: Cass County Solar Project, LLC | State: IL | Sampling Point: U-T01-001-1

Investigator(s): Eric Bender, Paul Bollinger | Section, Township, Range: S31, T18N, R12W

Landform (hillside, terrace, etc.): Flat Topography | Local relief (concave, convex, none): None

Slope (%): 0-1 | Lat: 39.9761785 | Long: -90.4970536 | Datum: NAD83

Soil Map Unit Name: Gilford fine sandy loam, 0-2% slopes, rarely flooded (7201A) | NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ____	No X	**Is the Sampled Area within a Wetland?** Yes ____ No X
Hydric Soil Present?	Yes X	No ____	
Wetland Hydrology Present?	Yes X	No ____	

Remarks:
Upland data pit collected in agricultural field outside of wooded/scrub-shrub area.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: ____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
	____ =Total Cover		
Sapling/Shrub Stratum (Plot size: ____)			
1.			
2.			
3.			
4.			
5.			
	____ =Total Cover		
Herb Stratum (Plot size: ____)			
1. *Glycine max*	50	Yes	UPL
2. *Setaria faberi*	20	Yes	FACU
3. *Digitaria sanguinalis*	30	Yes	FACU
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	100 =Total Cover		
Woody Vine Stratum (Plot size: ____)			
1.			
2.			
	____ =Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	0	x 3 =	0
FACU species	50	x 4 =	200
UPL species	50	x 5 =	250
Column Totals:	100 (A)		450 (B)

Prevalence Index = B/A = 4.50

Hydrophytic Vegetation Indicators:

____ 1 - Rapid Test for Hydrophytic Vegetation

____ 2 - Dominance Test is >50%

____ 3 - Prevalence Index is ≤3.0[1]

____ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

____ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ____ No X

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point: U-T01-001-1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-7	10YR 2/1	80	2.5YR 3/4	20	C	PL	Loamy/Clayey	Prominent redox concentrations
7-20	10YR 5/2		2.5YR 3/4	20	C	PL	Sandy	Prominent redox concentrations

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 5 cm Mucky Peat or Peat (S3)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- X Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ? Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ Coast Prairie Redox (A16)
- ___ Iron-Manganese Masses (F12)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (F22)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** X **No** ___

Remarks:

This data form is revised from Midwest Regional Supplement Version 2.0 to include the NRCS Field Indicators of Hydric Soils, Version 7.0, 2015 Errata. (http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs142p2_051293.docx)

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- X Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Gauge or Well Data (D9)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ___ No X Depth (inches): ___

Water Table Present? Yes ___ No X Depth (inches): ___

Saturation Present? (includes capillary fringe) Yes ___ No X Depth (inches): ___

Wetland Hydrology Present? **Yes** X **No** ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: Cass County Solar Project | City/County: Cass County | Sampling Date: 8/22/18

Applicant/Owner: Cass County Solar Project, LLC | State: IL | Sampling Point: W-T01-002A-1

Investigator(s): Eric Bender, Paul Bollinger | Section, Township, Range: S30, T18N, R12W

Landform (hillside, terrace, etc.): Depression | Local relief (concave, convex, none): None

Slope (%): 0-1 | Lat: 39.9824594 | Long: -90.4969978 | Datum: NAD83

Soil Map Unit Name: Comfrey loams, undrained, 0-2% slopes, commonly flooded | NWI classification: PSS1/EM1C

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X	No ____	**Is the Sampled Area within a Wetland?** **Yes** X **No** ____
Hydric Soil Present?	Yes X	No ____	
Wetland Hydrology Present?	Yes X	No ____	

Remarks:
Emergent wetland located in a depressional area in a regulary farmed field. No standing water.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: ____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
	____ =Total Cover		
Sapling/Shrub Stratum (Plot size: ____)			
1. *Cornus amomum*	5	Yes	FACW
2.			
3.			
4.			
5.			
	5 =Total Cover		
Herb Stratum (Plot size: ____)			
1. *Phalaris arundinacea*	80	Yes	FACW
2. *Solidago altissima*	30	Yes	FACU
3. *Schoenoplectus fluviatilis*	5	No	OBL
4. *Apocynum cannabinum*	3	No	FAC
5.			
6.			
7.			
8.			
9.			
10.			
	118 =Total Cover		
Woody Vine Stratum (Plot size: ____)			
1.			
2.			
	____ =Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 66.7% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	5	x 1 =	5
FACW species	85	x 2 =	170
FAC species	3	x 3 =	9
FACU species	30	x 4 =	120
UPL species	0	x 5 =	0
Column Totals:	123 (A)		304 (B)
Prevalence Index = B/A =			2.47

Hydrophytic Vegetation Indicators:

____ 1 - Rapid Test for Hydrophytic Vegetation

X 2 - Dominance Test is >50%

X 3 - Prevalence Index is ≤3.0[1]

____ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

____ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** X **No** ____

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point: *W*-T01-002A-

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-14	10YR 3/1	80	7.5YR 3/4	20	C	PL	Loamy/Clayey	Prominent redox concentrations

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 5 cm Mucky Peat or Peat (S3)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- X Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ? Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ? Coast Prairie Redox (A16)
- ___ Iron-Manganese Masses (F12)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (F22)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** X **No** ___

Remarks:

This data form is revised from Midwest Regional Supplement Version 2.0 to include the NRCS Field Indicators of Hydric Soils, Version 7.0, 2015 Errata. (http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs142p2_051293.docx)

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- X Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Gauge or Well Data (D9)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- X FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ___ No X Depth (inches): ___

Water Table Present? Yes ___ No X Depth (inches): ___

Saturation Present? (includes capillary fringe) Yes ___ No X Depth (inches): ___

Wetland Hydrology Present? **Yes** X **No** ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: Cass County Solar Project | City/County: Cass County | Sampling Date: 8/22/18

Applicant/Owner: Cass County Solar Project, LLC | State: IL | Sampling Point: U-T01-002-1

Investigator(s): Eric Bender, Paul Bollinger | Section, Township, Range: S30, T18N, R12W

Landform (hillside, terrace, etc.): Flat Topography | Local relief (concave, convex, none): None

Slope (%): 0-1 | Lat: 39.9824436 | Long: -90.4968090 | Datum: NAD83

Soil Map Unit Name: Comfrey loams, undrained, 0-2% slpoes, commonly flooded (1776A) | NWI classification: PSS1/EM1C

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ____	No X	**Is the Sampled Area within a Wetland?** Yes ____ No X
Hydric Soil Present?	Yes X	No ____	
Wetland Hydrology Present?	Yes X	No ____	

Remarks:
Data collected in an agricultural field.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: ____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
	____ =Total Cover		
Sapling/Shrub Stratum (Plot size: ____)			
1.			
2.			
3.			
4.			
5.			
	____ =Total Cover		
Herb Stratum (Plot size: ____)			
1. *Glycine max*	100	Yes	UPL
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	100 =Total Cover		
Woody Vine Stratum (Plot size: ____)			
1.			
2.			
	____ =Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	0	x 3 =	0
FACU species	0	x 4 =	0
UPL species	100	x 5 =	500
Column Totals:	100 (A)		500 (B)

Prevalence Index = B/A = 5.00

Hydrophytic Vegetation Indicators:

____ 1 - Rapid Test for Hydrophytic Vegetation

____ 2 - Dominance Test is >50%

____ 3 - Prevalence Index is ≤3.0[1]

____ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

____ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ____ No X

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point: U-T01-002-1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-16	10YR 3/1	100	7.5YR 3/4	15	C	PL	Loamy/Clayey	Prominent redox concentrations

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 5 cm Mucky Peat or Peat (S3)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- X Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ? Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ Coast Prairie Redox (A16)
- ___ Iron-Manganese Masses (F12)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (F22)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** X **No** ___

Remarks:

This data form is revised from Midwest Regional Supplement Version 2.0 to include the NRCS Field Indicators of Hydric Soils, Version 7.0, 2015 Errata. (http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs142p2_051293.docx)

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- X Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Gauge or Well Data (D9)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ___	No X	Depth (inches): ___
Water Table Present?	Yes ___	No X	Depth (inches): ___
Saturation Present? (includes capillary fringe)	Yes ___	No X	Depth (inches): ___

Wetland Hydrology Present? **Yes** X **No** ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: Cass County Solar Project | City/County: Cass County | Sampling Date: 8/22/18

Applicant/Owner: Cass County Solar Project, LLC | State: IL | Sampling Point: W-T01-003B

Investigator(s): Eric Bender, Paul Bollinger | Section, Township, Range: S32, T18N, R12W

Landform (hillside, terrace, etc.): Hill Slope | Local relief (concave, convex, none): Concave

Slope (%): 45 | Lat: 39.9716124 | Long: -90.4673303 | Datum: NAD83

Soil Map Unit Name: Plainfield sand, 1-7% slopes (54D) | NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X	No ____	**Is the Sampled Area within a Wetland?** **Yes** X **No** ____
Hydric Soil Present?	Yes X	No ____	
Wetland Hydrology Present?	Yes X	No ____	

Remarks:
Data point collected adjacent to a pond (WB-T01-001). PSS wetland surrounds is located on the fringe of the pond, surrounding the pond. Area appears to be created by an old borrow pit.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: ____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
	____ =Total Cover		
Sapling/Shrub Stratum (Plot size: ____)			
1. *Salix interior*	70	Yes	FACW
2.			
3.			
4.			
5.			
	70 =Total Cover		
Herb Stratum (Plot size: ____)			
1. *Echinocloa crus-galli*	30	Yes	FACW
2. *Setaria pumila*	10	Yes	FAC
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	40 =Total Cover		
Woody Vine Stratum (Plot size: ____)			
1.			
2.			
	____ =Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	100	x 2 =	200
FAC species	10	x 3 =	30
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	110 (A)		230 (B)

Prevalence Index = B/A = 2.09

Hydrophytic Vegetation Indicators:

____ 1 - Rapid Test for Hydrophytic Vegetation

X 2 - Dominance Test is >50%

X 3 - Prevalence Index is ≤3.0[1]

____ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

____ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** X **No** ____

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point: W-T01-003B

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-2	10YR 3/3	100					Sandy	
2-5	10YR 5/2	60	5YR 5/8	40	C	M	Sandy	Prominent redox concentrations
5-14	10YR 6/1	60	10YR 5/6	40	C	M	Sandy	Prominent redox concentrations

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 5 cm Mucky Peat or Peat (S3)
- ___ Sandy Gleyed Matrix (S4)
- X Sandy Redox (S5)
- ? Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ? Coast Prairie Redox (A16)
- ___ Iron-Manganese Masses (F12)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (F22)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** X **No** ___

Remarks:

This data form is revised from Midwest Regional Supplement Version 2.0 to include the NRCS Field Indicators of Hydric Soils, Version 7.0, 2015 Errata. (http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs142p2_051293.docx)

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- X High Water Table (A2)
- X Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Gauge or Well Data (D9)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- X FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ___	No X	Depth (inches): ___
Water Table Present?	Yes X	No ___	Depth (inches): 4
Saturation Present? (includes capillary fringe)	Yes X	No ___	Depth (inches): 0

Wetland Hydrology Present? **Yes** X **No** ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: Cass County Solar Project | City/County: Cass County | Sampling Date: 8/22/18

Applicant/Owner: Cass County Solar Project, LLC | State: IL | Sampling Point: U-T01-003-1

Investigator(s): Eric Bender, Paul Bollinger | Section, Township, Range: S32, T18N, R12W

Landform (hillside, terrace, etc.): Hill slope | Local relief (concave, convex, none): Concave

Slope (%): 30 | Lat: 39.971630 | Long: -90.467298 | Datum: NAD83

Soil Map Unit Name: Plainfield sand, 1-7% slopes (54B) | NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ____	No X	**Is the Sampled Area within a Wetland?** Yes ____ No X
Hydric Soil Present?	Yes ____	No X	
Wetland Hydrology Present?	Yes ____	No X	

Remarks:
Data collected on hill slope higher in elevation than wetland data point.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: ____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
	____ =Total Cover		
Sapling/Shrub Stratum (Plot size: ____)			
1. *Salix interior*	80	Yes	FACW
2.			
3.			
4.			
5.			
	80 =Total Cover		
Herb Stratum (Plot size: ____)			
1. *Chamaecrista fasciculata*	30	Yes	FACU
2. *Coreopsis palmata*	30	Yes	UPL
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	60 =Total Cover		
Woody Vine Stratum (Plot size: ____)			
1. *Apios americana*	30	Yes	FACW
2.			
	30 =Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 50.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	110	x 2 =	220
FAC species	0	x 3 =	0
FACU species	30	x 4 =	120
UPL species	30	x 5 =	150
Column Totals:	170 (A)		490 (B)

Prevalence Index = B/A = 2.88

Hydrophytic Vegetation Indicators:

____ 1 - Rapid Test for Hydrophytic Vegetation

____ 2 - Dominance Test is >50%

____ 3 - Prevalence Index is ≤3.0[1]

____ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

____ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ____ No X

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point: U-T01-003-1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-1	10YR 2/2	100					Sandy	Organic material w/ sand
1-20	10YR 5/6	100					Sandy	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 5 cm Mucky Peat or Peat (S3)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ Coast Prairie Redox (A16)
- ___ Iron-Manganese Masses (F12)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (F22)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ___ **No** X

Remarks:

This data form is revised from Midwest Regional Supplement Version 2.0 to include the NRCS Field Indicators of Hydric Soils, Version 7.0, 2015 Errata. (http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs142p2_051293.docx)

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Gauge or Well Data (D9)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ___ No X Depth (inches): ___

Water Table Present? Yes ___ No X Depth (inches): ___

Saturation Present? (includes capillary fringe) Yes ___ No X Depth (inches): ___

Wetland Hydrology Present? **Yes** ___ **No** X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: Cass County Solar Project | City/County: Cass County | Sampling Date: 5/13/2020

Applicant/Owner: Cass County Solar Project, LLC | State: IL | Sampling Point: W-T03-001A-1

Investigator(s): Eric Bender, Paul Bollinger | Section, Township, Range: S31, T18N, R12W

Landform (hillside, terrace, etc.): None | Local relief (concave, convex, none): Flat

Slope (%): 0-1 | Lat: 39.963719 | Long: -90.485191 | Datum: NAD83

Soil Map Unit Name: Darwin silty clay, 0-2% slopes, occasionallly flooded (8071A) | NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X	No ____	**Is the Sampled Area within a Wetland?** **Yes** X **No** ____
Hydric Soil Present?	Yes X	No ____	
Wetland Hydrology Present?	Yes X	No ____	

Remarks:
Man-made roadside ditch. Appears to flow into tributary. Approx, 4' wide.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: ____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
	____ =Total Cover		
Sapling/Shrub Stratum (Plot size: ____)			
1.			
2.			
3.			
4.			
5.			
	____ =Total Cover		
Herb Stratum (Plot size: ____)			
1. *Panicum dichotomiflorum*	70	Yes	FACW
2. *Scirpus fluviatilis*	10	No	OBL
3. *Urtica procera*	3	No	FACW
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	83 =Total Cover		
Woody Vine Stratum (Plot size: ____)			
1.			
2.			
	____ =Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	73	x 2 =	146
FAC species	0	x 3 =	0
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	73 (A)		146 (B)

Prevalence Index = B/A = 2.00

Hydrophytic Vegetation Indicators:

____ 1 - Rapid Test for Hydrophytic Vegetation

X 2 - Dominance Test is >50%

X 3 - Prevalence Index is ≤3.0[1]

____ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

____ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** X **No** ____

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point: *W*-T03-001A-:

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-2	10YR 2/1	100					Loamy/Clayey	
2-14	10YR 2/1	90	5YR 3/3	10	C	M	Loamy/Clayey	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 5 cm Mucky Peat or Peat (S3)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- X Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ? Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ? Coast Prairie Redox (A16)
- ? Iron-Manganese Masses (F12)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (F22)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** X **No** ___

Remarks:

This data form is revised from Midwest Regional Supplement Version 2.0 to include the NRCS Field Indicators of Hydric Soils, Version 7.0, 2015 Errata. (http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs142p2_051293.docx)

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- X Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- X Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Gauge or Well Data (D9)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- X FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes X	No ___	Depth (inches): 0.5		
Water Table Present?	Yes ___	No X	Depth (inches): ___		
Saturation Present? (includes capillary fringe)	Yes X	No ___	Depth (inches): 0	**Wetland Hydrology Present?**	**Yes** X **No** ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: Cass County Solar Project | City/County: Cass County | Sampling Date: 5/13/2020

Applicant/Owner: Cass County Solar Project, LLC | State: IL | Sampling Point: U-T03-001-1

Investigator(s): Eric Bender, Paul Bollinger | Section, Township, Range: S31, T18N, R12W

Landform (hillside, terrace, etc.): Hillslope | Local relief (concave, convex, none): None

Slope (%): 60 | Lat: 39.963711 | Long: -90.485205 | Datum: NAD83

Soil Map Unit Name: Darwin silty clay, 0-2% slopes, occasionallly flooded (8071A) | NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ____	No X	**Is the Sampled Area within a Wetland?** **Yes** ____ **No** X
Hydric Soil Present?	Yes ____	No X	
Wetland Hydrology Present?	Yes X	No ____	

Remarks:
Hill Side of road side ditch

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: ____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
	____ =Total Cover		
Sapling/Shrub Stratum (Plot size: ____)			
1.			
2.			
3.			
4.			
5.			
	____ =Total Cover		
Herb Stratum (Plot size: ____)			
1. *Festuca arundinacea*	90	Yes	FACU
2. *Poa pratensis*	10	No	FAC
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	100 =Total Cover		
Woody Vine Stratum (Plot size: ____)			
1.			
2.			
	____ =Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	10	x 3 =	30
FACU species	90	x 4 =	360
UPL species	0	x 5 =	0
Column Totals:	100 (A)		390 (B)

Prevalence Index = B/A = 3.90

Hydrophytic Vegetation Indicators:

____ 1 - Rapid Test for Hydrophytic Vegetation

____ 2 - Dominance Test is >50%

____ 3 - Prevalence Index is ≤3.0[1]

____ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

____ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** ____ **No** X

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point: U-T03-001-1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-11	10YR 2/1	100					Loamy/Clayey	
11-20	10YR 4/1	100					Loamy/Clayey	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

[2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 5 cm Mucky Peat or Peat (S3)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ Coast Prairie Redox (A16)
- ___ Iron-Manganese Masses (F12)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (F22)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ___ **No** X

Remarks:

This data form is revised from Midwest Regional Supplement Version 2.0 to include the NRCS Field Indicators of Hydric Soils, Version 7.0, 2015 Errata. (http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs142p2_051293.docx)

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- X Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Gauge or Well Data (D9)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ___	No X	Depth (inches): ___
Water Table Present?	Yes ___	No X	Depth (inches): ___
Saturation Present? (includes capillary fringe)	Yes ___	No X	Depth (inches): ___

Wetland Hydrology Present? **Yes** X **No** ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: Cass County Solar Project | City/County: Cass County | Sampling Date: 5/13/2020

Applicant/Owner: Cass County Solar Project, LLC | State: IL | Sampling Point: W-T03-002A-1

Investigator(s): Eric Bender, Paul Bollinger | Section, Township, Range: S31, T18N, R12W

Landform (hillside, terrace, etc.): None | Local relief (concave, convex, none): Flat

Slope (%): 0-1 | Lat: 39.977879 | Long: -90.484579 | Datum: NAD83

Soil Map Unit Name: Sawmill silty clay load, 0-2% slopes, occasionally flooded (8107A) | NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X	No ____	**Is the Sampled Area within a Wetland?** **Yes** X **No** ____
Hydric Soil Present?	Yes X	No ____	
Wetland Hydrology Present?	Yes X	No ____	

Remarks:
Man-made roadside ditch. Appears to flows W to E into tributary.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: ____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
	____ =Total Cover		
Sapling/Shrub Stratum (Plot size: ____)			
1.			
2.			
3.			
4.			
5.			
	____ =Total Cover		
Herb Stratum (Plot size: ____)			
1. *Ambrosia trifida*	20	Yes	FAC
2. *Scirpus fluviatilis*	50	Yes	OBL
3. *Urtica procera*	3	No	FACW
4. *Rumex crispus*	3	No	FAC
5.			
6.			
7.			
8.			
9.			
10.			
	76 =Total Cover		
Woody Vine Stratum (Plot size: ____)			
1.			
2.			
	____ =Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 50.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	3	x 2 =	6
FAC species	23	x 3 =	69
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	26 (A)		75 (B)

Prevalence Index = B/A = 2.88

Hydrophytic Vegetation Indicators:

____ 1 - Rapid Test for Hydrophytic Vegetation

____ 2 - Dominance Test is >50%

X 3 - Prevalence Index is ≤3.0[1]

____ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

____ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** X **No** ____

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point: *N*-T03-002A-:

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-3	10YR 2/1	100					Loamy/Clayey	
3-16	10YR 2/1	85	5YR 3/3	15	C	M	Loamy/Clayey	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 5 cm Mucky Peat or Peat (S3)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- X Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ? Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ? Coast Prairie Redox (A16)
- ? Iron-Manganese Masses (F12)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (F22)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** X **No** ___

Remarks:

This data form is revised from Midwest Regional Supplement Version 2.0 to include the NRCS Field Indicators of Hydric Soils, Version 7.0, 2015 Errata. (http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs142p2_051293.docx)

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Gauge or Well Data (D9)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- X Geomorphic Position (D2)
- X FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ___ No X Depth (inches): ___

Water Table Present? Yes ___ No ___ Depth (inches): ___

Saturation Present? Yes X No ___ Depth (inches): 1

(includes capillary fringe)

Wetland Hydrology Present? **Yes** X **No** ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: Cass County Solar Project | City/County: Cass County | Sampling Date: 5/13/2020

Applicant/Owner: Cass County Solar Project, LLC | State: IL | Sampling Point: U-T03-002-1

Investigator(s): Eric Bender, Paul Bollinger | Section, Township, Range: S31, T18N, R12W

Landform (hillside, terrace, etc.): Hillslope | Local relief (concave, convex, none): Flat

Slope (%): 60 | Lat: 39.977893 | Long: -90.484598 | Datum: NAD83

Soil Map Unit Name: Sawmill silty clay load, 0-2% slopes, occasionally flooded (8107A) | NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ____	No X	**Is the Sampled Area within a Wetland?** **Yes** ____ **No** X
Hydric Soil Present?	Yes ____	No X	
Wetland Hydrology Present?	Yes ____	No X	

Remarks:
Hillslope of roadside ditch

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: ____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
	____ =Total Cover		
Sapling/Shrub Stratum (Plot size: ____)			
1.			
2.			
3.			
4.			
5.			
	____ =Total Cover		
Herb Stratum (Plot size: ____)			
1. *Festuca arundinacea*	80	Yes	FACU
2. *Poa pratensis*	10	No	FAC
3. *Melilotus altissimus*	3	No	UPL
4. *Lactuca serriola*	7	No	FACU
5. *Bromus japonicus*	3	No	FACU
6.			
7.			
8.			
9.			
10.			
	103 =Total Cover		
Woody Vine Stratum (Plot size: ____)			
1.			
2.			
	____ =Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	10	x 3 =	30
FACU species	90	x 4 =	360
UPL species	3	x 5 =	15
Column Totals:	103 (A)		405 (B)

Prevalence Index = B/A = 3.93

Hydrophytic Vegetation Indicators:

____ 1 - Rapid Test for Hydrophytic Vegetation

____ 2 - Dominance Test is >50%

____ 3 - Prevalence Index is ≤3.0[1]

____ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

____ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** ____ **No** X

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point: U-T03-002-1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-16	10YR 2/1	100					Loamy/Clayey	
16-20	10YR 4/1	100					Loamy/Clayey	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

[2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 5 cm Mucky Peat or Peat (S3)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ Coast Prairie Redox (A16)
- ___ Iron-Manganese Masses (F12)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (F22)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ___ **No** X

Remarks:

This data form is revised from Midwest Regional Supplement Version 2.0 to include the NRCS Field Indicators of Hydric Soils, Version 7.0, 2015 Errata. (http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs142p2_051293.docx)

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Gauge or Well Data (D9)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ___	No X	Depth (inches): ___
Water Table Present?	Yes ___	No X	Depth (inches): ___
Saturation Present? (includes capillary fringe)	Yes ___	No X	Depth (inches): ___

Wetland Hydrology Present? **Yes** ___ **No** X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

STREAM DATASHEET

Project: Cass County Solar Project	**Date:** 8/21/18	**Stream ID:** SS-T01-001
State: Illinois	**County:** Cass County	**Stream Name:** South Beardstown Ditch

Survey Area:
☐ROW ☐Access Road ☑Facility ☐ATWS/Staging area

Stream Type:
☐ **Natural Feature** ☑ **Ditch/Canal/Other**

Team No. 1

Observers: Eric Bender, Paul Bollinger

HUC: 12-071300110301

Current Hydrologic Conditions:

Water Quality
☐Clear ☐Discolored ☑Turbid ☐Oily Film ☐Odor ☐Other

Comments:

OHWM Width (ft)
☐1-5 ☐5-10 ☐10-15 ☐16-25 ☑26-50 ☐50-75 ☐76+

OHWM Depth (ft)
☐0-0.5 ☐0.5-1 ☐1-1.5 ☐1.5-2 ☐2-3 ☐3-5 ☑5-10 ☐10+

PHYSICAL CHARACTERISTICS

Flow Direction
☐N ☐NE ☐E ☐SE ☐S ☑SW ☐W ☐NW

Flow Type
☐TNW ☑P-RPW ☐S-RPW ☐non-RPW

Sinuosity (bends per 200' of stream reach)
☑0 ☐1 ☐1.5 ☐2 ☐2.5 ☐3 ☐3+

Gradient
☑Flat(0.5'/100') ☐Flat-Moderate ☐Moderate (2'/100') ☐Moderate-Severe ☐Severe (10'/100')

Stream Bank Height and Slope

Bankfull Width (ft): ☐0-5 ☐5-10 ☐10-15 ☐15-20 ☐20-25 ☐25-30 ☑30-40 ☐40-50 ☐50-75 ☐75-100 ☐100+

Left Bank
Height (ft):
☐1-3 ☐4-6 ☑7-9 ☐10-12 ☐13-15 ☐16-20 ☐21-30 ☐30+
Slope:
☐0-30° (4:1) ☐31-45° (3:1) ☐46-60° (2:1) ☑61-90° (1:1)

Right Bank
Height (ft):
☐1-3 ☐4-6 ☑7-9 ☐10-12 ☐13-15 ☐16-20 ☐21-30 ☐30+
Slope:
☐0-30° (4:1) ☐31-45° (3:1) ☐46-60° (2:1) ☑61-90° (1:1)

Bank and Channel Stability

Left Bank	Right Bank
Percentage of Bank With Evidence of Erosion: ☑0 ☐1-10 ☐11-25 ☐26-50 ☐51-75 ☐76-100	**Percentage of Bank With Evidence of Erosion:** ☑0 ☐1-10 ☐11-25 ☐26-50 ☐51-75 ☐76-100
Erosion Types ☐Undercutting ☐Sloughing ☐Livestock/Wildlife impacts	**Erosion Types** ☐Undercutting ☐Sloughing ☐Livestock/Wildlife impacts
Percentage of Bank With Stabilizing Vegetation: ☐0 ☐1-10 ☐11-25 ☐26-50 ☐51-75 ☑76-100	**Percentage of Bank With Stabilizing Vegetation:** ☐0 ☐1-10 ☐11-25 ☐26-50 ☐51-75 ☑76-100
Bank Vegetation Types: ☐None Present ☑Herbaceous ☐Sapling/Shrub ☐Tree	**Bank Vegetation Types:** ☐None Present ☑Herbaceous ☐Sapling/Shrub ☐Tree

OHWM Criteria

☐Clear, natural line impressed on bank	☐Changes in character of soil	☐Shelving
☐Vegetation matted down, bent, absent	☐Leaf litter disturbed or washed away	☐Sediment deposition
☐Water staining	☐Presence of litter and debris	☐Destruction of terrestrial vegetation
☐Presence of wrack Line	☐Sediment sorting	☐Scour
☑Abrupt change in plant community	☐Other (list)_____	Discontinuous OHWM? ☐Yes ☐No

HABITAT INFORMATION

Aquatic Habitat

Substrate

☐ Bedrock	Percent:_____
☐ Gravel	Percent:_____
☐ Sand	Percent:_____
☑ Silt	Percent: 100
☐ Cobbles	Percent:_____
☐ Clay	Percent:_____
☐ Concrete	Percent:_____
☐ Other_____	Percent:_____

Pools, Runs, Riffles

☐ Pools	Percent: 0	Max Depth (ft)_____
☐ Runs	Percent: 0	
☐ Riffles	Percent: 0	

Woody Debris and Root Masses

Number of Woody Debris >6" diameter within OHWM 0

Linear feet of overhanging root masses along L bank 0

Linear feet of overhanging root masses along R bank 0

Aquatic Vegetation

Type

☐ None	☐ Rooted Floating
☐ Rooted Emergent	☑ Floating Algae
☐ Rooted Submergent	☐ Attached Algae
☐ Free Floating	% of reach with aquatics 0

Species

Algae (Free floating)
Duckweed (Free floating)

Barriers To Fish Passage? ☑ No ☐ Yes

Explain:

Canopy Cover

☑ Open, full sun ☐ Partially shaded ☐ Mostly shaded ☐ Full shade

Terrestrial Habitat

Riparian Corridor

☐ None ☐ Sapling/shrub ☐ Forested

Corridor Width Left Bank

☑ 10-25 ☐ 25-50 ☐ 50-75 ☐ 75-100 ☐ 100-150 ☐ 150+

Corridor Width Right Bank

☑ 10-25 ☐ 25-50 ☐ 50-75 ☐ 75-100 ☐ 100-150 ☐ 150+

Species Herbaceous riparian corridor

Associated Features:	Feature ID:
Ponds:	
Wetlands:	
Other Streams:	SS-T01-002 & SS-T01-007
Seeps/Springs:	
Drainages:	Road Side ditches along roadway

Anthropogenic Effects

☑ Bridged ☑ Culverts ☐ Riparian Corridor Cleared

☑ Diverted ☐ Drive-through / OHV crossing ☐ Dammed

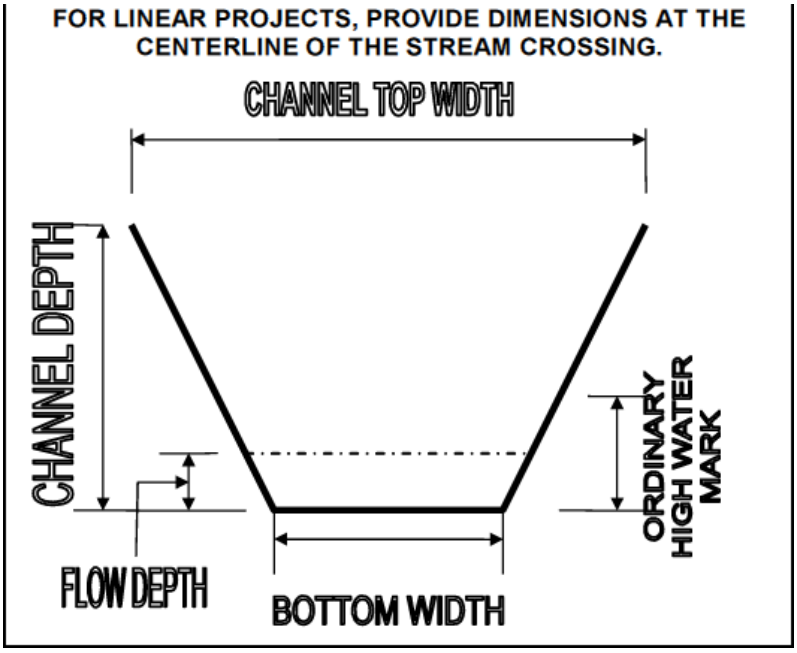
☐ Weir or Check-Dam ☐ Other_____

Observed Wildlife:

Riparian/Terrestrial/Aquatic Organisms:

Insects; pollinators
Turtles
Frogs

COMMENTS



Definitions:

Active Channel: The natural waterway that contains all stream flows at and below the bankfull discharge.
Bankfull Stage: The elevation of the water surface when rising water completely fills the active channel and first begins to spill onto the local floodplain.
Floodplain: The relatively flat valley-floor surface that has been constructed, during the present hydrologic regime, by the natural processes of point-bar deposition, lateral channel migration, and vertical accretion of sediments that have been transported beyond the active channel boundaries during periods of flooding.
Left bank vs. Right bank: By standard convention, left and right are always expressed from the perspective of an individual facing downstream.
Non-Relatively Permanent Waters (Non-RPW): A tributary that is not a TNW and does not flow year-round or seasonally. Non-RPWs are generally ephemeral streams.
Ordinary High Water Mark (OHWM): The line on the shore established by the fluctuations of water and indicated by physical characteristics such as a clear, natural line impressed on the bank, shelving, changes in the character of the soil, destruction of terrestrial vegetation, the presence of litter and debris, or other appropriate means that consider the characteristics of the surrounding areas. At any given site, the OHWM will vary over time and according to external factors.
Perennial-Relatively Permanent Waters (P-RPW): A tributary that is not a TNW and flows year-round.
Pool: A reach of stream that is characterized by deep low velocity water and a smooth surface
Riffle: A reach of stream that is characterized by shallow, fast moving water broken by the presence of rocks and boulders.
Run: A reach of stream characterized by fast flowing low turbulence water.
Seasonal-Relatively Permanent Waters (S-RPW): A tributary that is not a TNW and has continuous flow “seasonally” (typically 3 months). S-RPWs are generally considered to be intermittent.
Thalweg: An imaginary line, drawn in a flow-parallel orientation, which joins the deepest points of a stream channel.
Traditionally Navigable Waters (TNW): Any water body that is subject to the ebb and flow of the tide and/or the water body is presently used, or has been used in the past, or may be susceptible for use (with or without reasonable improvements) to transport interstate or foreign commerce. Generally TNW’s are perennial rivers which have flow in them year-round.

STREAM DATASHEET

Project: Cass County Solar Project	**Date:** 8/21/18	**Stream ID:** SS-T01-002
State: Illinois	**County:** Cass County	**Stream Name:** Unnamed Tributary to Illinois River

Survey Area:
☐ROW ☐Access Road ☑Facility ☐ATWS/Staging area

Stream Type:
☐ **Natural Feature** ☑ **Ditch/Canal/Other**

Team No. 1

Observers: Eric Bender, Paul Bollinger

HUC: 12-071300110301

Current Hydrologic Conditions:

Water Quality
☐Clear ☐Discolored ☑Turbid ☐Oily Film ☐Odor ☐Other

Comments:

OHWM Width (ft)
☐1-5 ☑5-10 ☐10-15 ☐16-25 ☑26-50 ☐50-75 ☐76+

OHWM Depth (ft)
☐0-0.5 ☐0.5-1 ☐1-1.5 ☑1.5-2 ☐2-3 ☐3-5 ☑5-10 ☐10+

PHYSICAL CHARACTERISTICS

Flow Direction
☐N ☐NE ☐E ☐SE ☐S ☑SW ☐W ☐NW

Flow Type
☐TNW ☐P-RPW ☑S-RPW ☐non-RPW

Sinuosity (bends per 200' of stream reach)
☑0 ☐1 ☐1.5 ☐2 ☐2.5 ☐3 ☐3+

Gradient
☑Flat(0.5'/100') ☐Flat-Moderate ☐Moderate (2'/100') ☐Moderate-Severe ☐Severe (10'/100')

Stream Bank Height and Slope

Bankfull Width (ft): ☐0-5 ☐5-10 ☐10-15 ☑15-20 ☐20-25 ☐25-30 ☐30-40 ☐40-50 ☐50-75 ☐75-100 ☐100+

Left Bank
Height (ft):
☐1-3 ☐4-6 ☑7-9 ☐10-12 ☐13-15 ☐16-20 ☐21-30 ☐30+
Slope:
☐0-30° (4:1) ☐31-45° (3:1) ☑46-60° (2:1) ☐61-90° (1:1)

Right Bank
Height (ft):
☐1-3 ☐4-6 ☑7-9 ☐10-12 ☐13-15 ☐16-20 ☐21-30 ☐30+
Slope:
☐0-30° (4:1) ☐31-45° (3:1) ☑46-60° (2:1) ☐61-90° (1:1)

Bank and Channel Stability

Left Bank	Right Bank
Percentage of Bank With Evidence of Erosion: ☐0 ☑1-10 ☐11-25 ☐26-50 ☐51-75 ☐76-100	**Percentage of Bank With Evidence of Erosion:** ☐0 ☑1-10 ☐11-25 ☐26-50 ☐51-75 ☐76-100
Erosion Types ☐Undercutting ☐Sloughing ☑Livestock/Wildlife impacts	**Erosion Types** ☐Undercutting ☑Sloughing ☑Livestock/Wildlife impacts
Percentage of Bank With Stabilizing Vegetation: ☐0 ☐1-10 ☐11-25 ☐26-50 ☐51-75 ☑76-100	**Percentage of Bank With Stabilizing Vegetation:** ☐0 ☐1-10 ☐11-25 ☐26-50 ☐51-75 ☑76-100
Bank Vegetation Types: ☐None Present ☑Herbaceous ☐Sapling/Shrub ☐Tree	**Bank Vegetation Types:** ☐None Present ☑Herbaceous ☐Sapling/Shrub ☐Tree

OHWM Criteria

☐Clear, natural line impressed on bank	☐Changes in character of soil	☐Shelving
☐Vegetation matted down, bent, absent	☐Leaf litter disturbed or washed away	☐Sediment deposition
☐Water staining	☐Presence of litter and debris	☐Destruction of terrestrial vegetation
☐Presence of wrack Line	☐Sediment sorting	☐Scour
☑Abrupt change in plant community	☐Other (list)_____	Discontinuous OHWM? ☐Yes ☐No

HABITAT INFORMATION

Aquatic Habitat

Substrate

☐ Bedrock	Percent:_____
☐ Gravel	Percent:_____
☐ Sand	Percent:_____
☑ Silt	Percent: 100
☐ Cobbles	Percent:_____
☐ Clay	Percent:_____
☐ Concrete	Percent:_____
☐ Other_____	Percent:_____

Pools, Runs, Riffles

☐ Pools	Percent: 0	Max Depth (ft)_____
☐ Runs	Percent: 0	
☐ Riffles	Percent: 0	

Woody Debris and Root Masses

Number of Woody Debris >6" diameter within OHWM 0

Linear feet of overhanging root masses along L bank 0

Linear feet of overhanging root masses along R bank 0

Aquatic Vegetation

Type

☐ None	☐ Rooted Floating
☐ Rooted Emergent	☐ Floating Algae
☐ Rooted Submergent	☐ Attached Algae
☑ Free Floating	% of reach with aquatics 0

Species

Duckweed (Free floating)

Barriers To Fish Passage? ☑ No ☐ Yes

Explain:

Canopy Cover

☑ Open, full sun ☐ Partially shaded ☐ Mostly shaded ☐ Full shade

Terrestrial Habitat

Riparian Corridor

☐ None ☐ Sapling/shrub ☐ Forested

Corridor Width Left Bank

☑ 10-25 ☐ 25-50 ☐ 50-75 ☐ 75-100 ☐ 100-150 ☐ 150+

Corridor Width Right Bank

☑ 10-25 ☐ 25-50 ☐ 50-75 ☐ 75-100 ☐ 100-150 ☐ 150+

Species Herbaceous riparian corridor
Ambrosia trifida and Phalaris arundinacea

Associated Features:	Feature ID:
Ponds:	
Wetlands:	
Other Streams:	SS-T01-001 & SS-T01-008
Seeps/Springs:	
Drainages:	

Observed Wildlife:

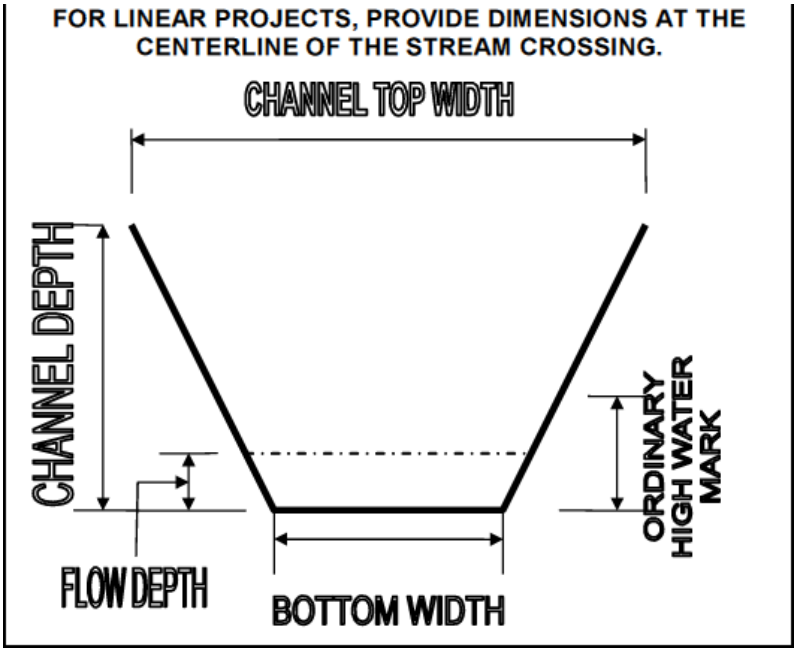
Riparian/Terrestrial/Aquatic Organisms:

Insects; pollinators
Turtles
Frogs
Ducks

Anthropogenic Effects

☐ Bridged ☐ Culverts ☐ Riparian Corridor Cleared
☐ Diverted ☐ Drive-through / OHV crossing ☐ Dammed
☐ Weir or Check-Dam ☐ Other_____

COMMENTS



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Thalweg: An imaginary line, drawn in a flow-parallel orientation, which joins the deepest points of a stream channel.
Traditionally Navigable Waters (TNW): Any water body that is subject to the ebb and flow of the tide and/or the water body is presently used, or has been used in the past, or may be susceptible for use (with or without reasonable improvements) to transport interstate or foreign commerce. Generally TNW’s are perennial rivers which have flow in them year-round.

STREAM DATASHEET

Project: Cass County Solar Project	**Date:** 8/22/18	**Stream ID:** SS-T01-003
State: Illinois	**County:** Cass County	**Stream Name:** North Lake Ditch

Survey Area:
☐ROW ☐Access Road ☑Facility ☐ATWS/Staging area

Stream Type:
☐ **Natural Feature** ☑ **Ditch/Canal/Other**

Team No. 1

Observers: Paul Bollinger, Eric Bender

HUC: 12-071300110301

Current Hydrologic Conditions:

Water Quality
☐Clear ☑Discolored ☐Turbid ☐Oily Film ☐Odor ☐Other

Comments: Silty mud, when disturbed discolors the water.

OHWM Width (ft)
☐1-5 ☐5-10 ☐10-15 ☐16-25 ☐26-50 ☐50-75 ☑76+

OHWM Depth (ft)
☐0-0.5 ☐0.5-1 ☐1-1.5 ☐1.5-2 ☐2-3 ☑3-5 ☐5-10 ☐10+

PHYSICAL CHARACTERISTICS

Flow Direction
☐N ☐NE ☐E ☐SE ☑S ☐SW ☐W ☐NW

Flow Type
☐TNW ☑P-RPW ☐S-RPW ☐non-RPW

Sinuosity (bends per 200' of stream reach)
☑0 ☐1 ☐1.5 ☐2 ☐2.5 ☐3 ☐3+

Gradient
☑Flat(0.5'/100') ☐Flat-Moderate ☐Moderate (2'/100') ☐Moderate-Severe ☐Severe (10'/100')

Stream Bank Height and Slope

Bankfull Width (ft): ☐0-5 ☐5-10 ☐10-15 ☐15-20 ☐20-25 ☐25-30 ☐30-40 ☐40-50 ☐50-75 ☐75-100 ☑100+

Left Bank
Height (ft):
☐1-3 ☐4-6 ☑7-9 ☐10-12 ☐13-15 ☐16-20 ☐21-30 ☐30+
Slope:
☐0-30° (4:1) ☐31-45° (3:1) ☐46-60° (2:1) ☑61-90° (1:1)

Right Bank
Height (ft):
☐1-3 ☐4-6 ☑7-9 ☐10-12 ☐13-15 ☐16-20 ☐21-30 ☐30+
Slope:
☐0-30° (4:1) ☐31-45° (3:1) ☐46-60° (2:1) ☑61-90° (1:1)

Bank and Channel Stability

Left Bank	Right Bank
Percentage of Bank With Evidence of Erosion: ☑0 ☐1-10 ☐11-25 ☐26-50 ☐51-75 ☐76-100	**Percentage of Bank With Evidence of Erosion:** ☑0 ☐1-10 ☐11-25 ☐26-50 ☐51-75 ☐76-100
Erosion Types ☐Undercutting ☐Sloughing ☐Livestock/Wildlife impacts	**Erosion Types** ☐Undercutting ☐Sloughing ☐Livestock/Wildlife impacts
Percentage of Bank With Stabilizing Vegetation: ☐0 ☐1-10 ☐11-25 ☐26-50 ☐51-75 ☑76-100	**Percentage of Bank With Stabilizing Vegetation:** ☐0 ☐1-10 ☐11-25 ☐26-50 ☐51-75 ☑76-100
Bank Vegetation Types: ☐None Present ☑Herbaceous ☑Sapling/Shrub ☑Tree	**Bank Vegetation Types:** ☐None Present ☑Herbaceous ☐Sapling/Shrub ☐Tree

OHWM Criteria

☐Clear, natural line impressed on bank	☐Changes in character of soil	☐Shelving
☐Vegetation matted down, bent, absent	☐Leaf litter disturbed or washed away	☐Sediment deposition
☐Water staining	☐Presence of litter and debris	☐Destruction of terrestrial vegetation
☐Presence of wrack Line	☐Sediment sorting	☐Scour
☑Abrupt change in plant community	☐Other (list)_____	Discontinuous OHWM? ☐Yes ☐No

HABITAT INFORMATION

Aquatic Habitat

Substrate		Pools, Runs, Riffles		
☐ Bedrock	Percent:_____	☐ Pools	Percent: 0	Max Depth (ft)_____
☐ Gravel	Percent:_____	☐ Runs	Percent: 0	
☐ Sand	Percent:_____	☐ Riffles	Percent: 0	
☑ Silt	Percent: Silt/Mud 100%			
☐ Cobbles	Percent:_____	**Woody Debris and Root Masses**		
☐ Clay	Percent:_____	Number of Woody Debris >6" diameter within OHWM 0		
☐ Concrete	Percent:_____	Linear feet of overhanging root masses along L bank 0		
☐ Other_____	Percent:_____	Linear feet of overhanging root masses along R bank 0		

Aquatic Vegetation

Type		Species
☐ None	☐ Rooted Floating	Lemnoideae (Duckweed)
☐ Rooted Emergent	☐ Floating Algae	
☐ Rooted Submergent	☐ Attached Algae	
☑ Free Floating	% of reach with aquatics 0	

Barriers To Fish Passage? ☐ No ☐ Yes
Explain:

Canopy Cover
☑ Open, full sun ☐ Partially shaded ☐ Mostly shaded ☐ Full shade

Terrestrial Habitat

Riparian Corridor

☐ None ☐ Sapling/shrub ☐ Forested

Corridor Width Left Bank
☑ 10-25 ☐ 25-50 ☐ 50-75 ☐ 75-100 ☐ 100-150 ☐ 150+

Corridor Width Right Bank
☑ 10-25 ☐ 25-50 ☐ 50-75 ☐ 75-100 ☐ 100-150 ☐ 150+

Species Herbaceous Riparian Corridor:
Toxicodendron radicans, Setaria faberi, Calystegia sepium, Phalaris arundinacea

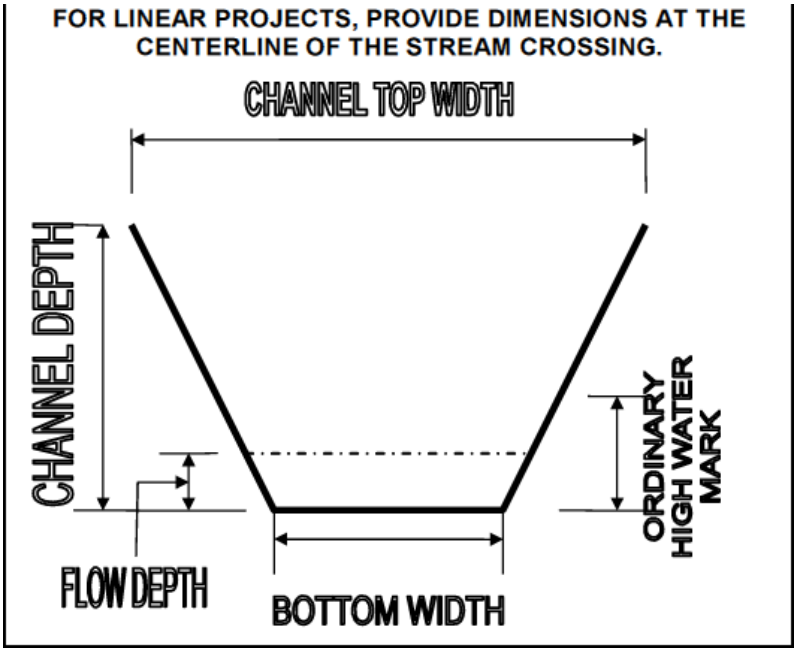
Associated Features:	Feature ID:
Ponds:	
Wetlands:	W-T01-001
Other Streams:	
Seeps/Springs:	
Drainages:	

Anthropogenic Effects
☐ Bridged ☑ Culverts ☐ Riparian Corridor Cleared
☐ Diverted ☐ Drive-through / OHV crossing ☐ Dammed
☐ Weir or Check-Dam ☐ Other_____

Observed Wildlife:

Riparian/Terrestrial/Aquatic Organisms:
Otter, Frogs, Ducks

COMMENTS



Definitions:

Active Channel: The natural waterway that contains all stream flows at and below the bankfull discharge.
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Floodplain: The relatively flat valley-floor surface that has been constructed, during the present hydrologic regime, by the natural processes of point-bar deposition, lateral channel migration, and vertical accretion of sediments that have been transported beyond the active channel boundaries during periods of flooding.
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Riffle: A reach of stream that is characterized by shallow, fast moving water broken by the presence of rocks and boulders.
Run: A reach of stream characterized by fast flowing low turbulence water.
Seasonal-Relatively Permanent Waters (S-RPW): A tributary that is not a TNW and has continuous flow “seasonally” (typically 3 months). S-RPWs are generally considered to be intermittent.
Thalweg: An imaginary line, drawn in a flow-parallel orientation, which joins the deepest points of a stream channel.
Traditionally Navigable Waters (TNW): Any water body that is subject to the ebb and flow of the tide and/or the water body is presently used, or has been used in the past, or may be susceptible for use (with or without reasonable improvements) to transport interstate or foreign commerce. Generally TNW’s are perennial rivers which have flow in them year-round.

STREAM DATASHEET

Project: Cass County Solar Project	**Date:** 8/22/18	**Stream ID:** SS-T01-004
State: Illinois	**County:** Cass County	**Stream Name:** Unnamed Tributary to Illinois River

Survey Area:
☐ROW ☐Access Road ☑Facility ☐ATWS/Staging area

Stream Type:
☐ **Natural Feature** ☑ **Ditch/Canal/Other**

Team No. 1

Observers: Paul Bollinger, Eric Bender

HUC: 12-071300110301

Current Hydrologic Conditions:

Water Quality
☑Clear ☐Discolored ☐Turbid ☐Oily Film ☐Odor ☐Other

Comments:

OHWM Width (ft)
☐1-5 ☑5-10 ☐10-15 ☐16-25 ☐26-50 ☐50-75 ☐76+

OHWM Depth (ft)
☐0-0.5 ☑0.5-1 ☐1-1.5 ☐1.5-2 ☐2-3 ☐3-5 ☐5-10 ☐10+

PHYSICAL CHARACTERISTICS

Flow Direction
☐N ☐NE ☐E ☐SE ☐S ☐SW ☑W ☐NW

Flow Type
☐TNW ☐P-RPW ☐S-RPW ☑non-RPW

Sinuosity (bends per 200' of stream reach)
☑0 ☐1 ☐1.5 ☐2 ☐2.5 ☐3 ☐3+

Gradient
☑Flat(0.5'/100') ☐Flat-Moderate ☐Moderate (2'/100') ☐Moderate-Severe ☐Severe (10'/100')

Stream Bank Height and Slope

Bankfull Width (ft): ☐0-5 ☑5-10 ☐10-15 ☐15-20 ☐20-25 ☐25-30 ☐30-40 ☐40-50 ☐50-75 ☐75-100 ☐100+

Left Bank
Height (ft):
☐1-3 ☐4-6 ☑7-9 ☐10-12 ☐13-15 ☐16-20 ☐21-30 ☐30+
Slope:
☐0-30° (4:1) ☐31-45° (3:1) ☐46-60° (2:1) ☑61-90° (1:1)

Right Bank
Height (ft):
☐1-3 ☐4-6 ☑7-9 ☐10-12 ☐13-15 ☐16-20 ☐21-30 ☐30+
Slope:
☐0-30° (4:1) ☐31-45° (3:1) ☐46-60° (2:1) ☑61-90° (1:1)

Bank and Channel Stability

Left Bank	**Right Bank**
Percentage of Bank With Evidence of Erosion: ☑0 ☐1-10 ☐11-25 ☐26-50 ☐51-75 ☐76-100	**Percentage of Bank With Evidence of Erosion:** ☑0 ☐1-10 ☐11-25 ☐26-50 ☐51-75 ☐76-100
Erosion Types ☐Undercutting ☐Sloughing ☐Livestock/Wildlife impacts	**Erosion Types** ☐Undercutting ☐Sloughing ☐Livestock/Wildlife impacts
Percentage of Bank With Stabilizing Vegetation: ☐0 ☐1-10 ☐11-25 ☐26-50 ☐51-75 ☑76-100	**Percentage of Bank With Stabilizing Vegetation:** ☐0 ☐1-10 ☐11-25 ☐26-50 ☐51-75 ☑76-100
Bank Vegetation Types: ☐None Present ☑Herbaceous ☑Sapling/Shrub ☐Tree	**Bank Vegetation Types:** ☐None Present ☑Herbaceous ☑Sapling/Shrub ☐Tree

OHWM Criteria

☐Clear, natural line impressed on bank	☐Changes in character of soil	☐Shelving
☐Vegetation matted down, bent, absent	☐Leaf litter disturbed or washed away	☐Sediment deposition
☐Water staining	☐Presence of litter and debris	☐Destruction of terrestrial vegetation
☐Presence of wrack Line	☐Sediment sorting	☐Scour
☑Abrupt change in plant community	☐Other (list)_____	Discontinuous OHWM? ☐Yes ☐No

HABITAT INFORMATION

Aquatic Habitat

Substrate

☐ Bedrock	Percent:_____
☐ Gravel	Percent:_____
☐ Sand	Percent:_____
☑ Silt	Percent: 100
☐ Cobbles	Percent:_____
☐ Clay	Percent:_____
☐ Concrete	Percent:_____
☐ Other_____	Percent:_____

Pools, Runs, Riffles

☐ Pools	Percent: 0	Max Depth (ft)_____
☐ Runs	Percent: 0	
☐ Riffles	Percent: 0	

Woody Debris and Root Masses

Number of Woody Debris >6" diameter within OHWM 0

Linear feet of overhanging root masses along L bank 0

Linear feet of overhanging root masses along R bank 0

Aquatic Vegetation

Type

☐ None	☐ Rooted Floating
☐ Rooted Emergent	☐ Floating Algae
☐ Rooted Submergent	☐ Attached Algae
☐ Free Floating	% of reach with aquatics 0

Species

Barriers To Fish Passage? ☐ No ☐ Yes

Explain:

Canopy Cover

☐ Open, full sun ☑ Partially shaded ☐ Mostly shaded ☐ Full shade

Terrestrial Habitat

Riparian Corridor

☑ None ☐ Sapling/shrub ☐ Forested

Corridor Width Left Bank

☐ 10-25 ☐ 25-50 ☐ 50-75 ☐ 75-100 ☐ 100-150 ☐ 150+

Corridor Width Right Bank

☐ 10-25 ☐ 25-50 ☐ 50-75 ☐ 75-100 ☐ 100-150 ☐ 150+

Species

Associated Features:	**Feature ID:**
Ponds:	
Wetlands:	W-T01-001
Other Streams:	SS-T01-003
Seeps/Springs:	
Drainages:	

Observed Wildlife:

Riparian/Terrestrial/Aquatic Organisms:

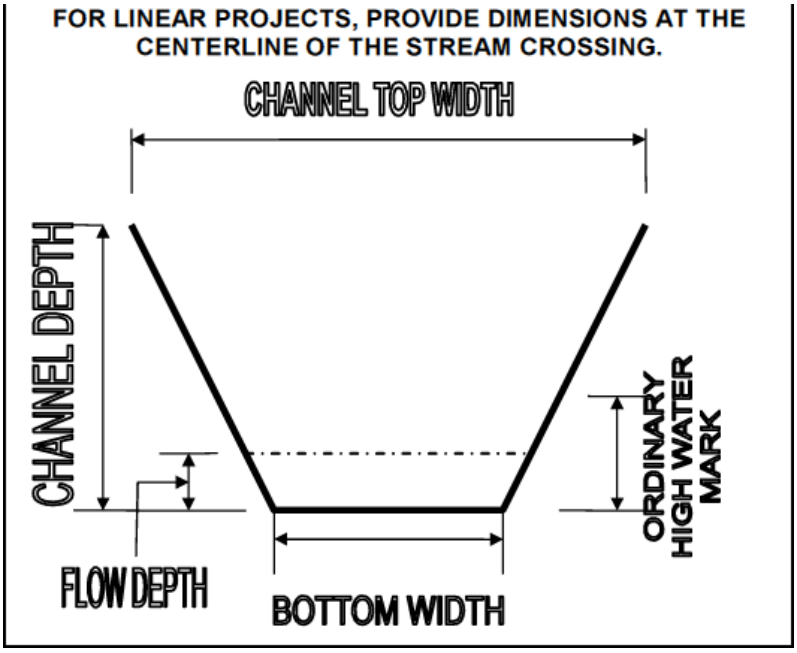
Anthropogenic Effects

☐ Bridged ☐ Culverts ☐ Riparian Corridor Cleared

☐ Diverted ☐ Drive-through / OHV crossing ☐ Dammed

☐ Weir or Check-Dam ☐ Other_____

COMMENTS



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STREAM DATASHEET

Project: Cass County Solar Project	**Date:** 8/22/18	**Stream ID:** SS-T01-005
State: Illinois	**County:** Cass County	**Stream Name:** Unnamed Tributary to Illinois River

Survey Area:
☐ROW ☐Access Road ☑Facility ☐ATWS/Staging area

Stream Type:
☐ **Natural Feature** ☑ **Ditch/Canal/Other**

Team No. 1

Observers: Paul Bollinger, Eric Bender

HUC: 12-071300110301

Current Hydrologic Conditions:

Water Quality
☑Clear ☐Discolored ☐Turbid ☐Oily Film ☐Odor ☐Other

Comments:

OHWM Width (ft)
☑1-5 ☐5-10 ☐10-15 ☐16-25 ☐26-50 ☐50-75 ☐76+

OHWM Depth (ft)
☑0-0.5 ☐0.5-1 ☐1-1.5 ☐1.5-2 ☐2-3 ☐3-5 ☐5-10 ☐10+

PHYSICAL CHARACTERISTICS

Flow Direction
☐N ☐NE ☐E ☐SE ☐S ☐SW ☑W ☐NW

Flow Type
☐TNW ☐P-RPW ☐S-RPW ☑non-RPW

Sinuosity (bends per 200' of stream reach)
☑0 ☐1 ☐1.5 ☐2 ☐2.5 ☐3 ☐3+

Gradient
☑Flat(0.5'/100') ☐Flat-Moderate ☐Moderate (2'/100') ☐Moderate-Severe ☐Severe (10'/100')

Stream Bank Height and Slope

Bankfull Width (ft): ☑0-5 ☐5-10 ☐10-15 ☐15-20 ☐20-25 ☐25-30 ☐30-40 ☐40-50 ☐50-75 ☐75-100 ☐100+

Left Bank
Height (ft):
☑1-3 ☐4-6 ☐7-9 ☐10-12 ☐13-15 ☐16-20 ☐21-30 ☐30+
Slope:
☐0-30° (4:1) ☐31-45° (3:1) ☑46-60° (2:1) ☐61-90° (1:1)

Right Bank
Height (ft):
☑1-3 ☐4-6 ☐7-9 ☐10-12 ☐13-15 ☐16-20 ☐21-30 ☐30+
Slope:
☐0-30° (4:1) ☐31-45° (3:1) ☑46-60° (2:1) ☐61-90° (1:1)

Bank and Channel Stability

Left Bank	Right Bank
Percentage of Bank With Evidence of Erosion: ☑0 ☐1-10 ☐11-25 ☐26-50 ☐51-75 ☐76-100	**Percentage of Bank With Evidence of Erosion:** ☑0 ☐1-10 ☐11-25 ☐26-50 ☐51-75 ☐76-100
Erosion Types ☐Undercutting ☐Sloughing ☐Livestock/Wildlife impacts	**Erosion Types** ☐Undercutting ☐Sloughing ☐Livestock/Wildlife impacts
Percentage of Bank With Stabilizing Vegetation: ☐0 ☐1-10 ☐11-25 ☐26-50 ☐51-75 ☑76-100	**Percentage of Bank With Stabilizing Vegetation:** ☐0 ☐1-10 ☐11-25 ☐26-50 ☐51-75 ☑76-100
Bank Vegetation Types: ☐None Present ☑Herbaceous ☐Sapling/Shrub ☐Tree	**Bank Vegetation Types:** ☐None Present ☑Herbaceous ☐Sapling/Shrub ☐Tree

OHWM Criteria

☐Clear, natural line impressed on bank	☐Changes in character of soil	☐Shelving
☑Vegetation matted down, bent, absent	☐Leaf litter disturbed or washed away	☐Sediment deposition
☐Water staining	☐Presence of litter and debris	☐Destruction of terrestrial vegetation
☐Presence of wrack Line	☐Sediment sorting	☐Scour
☑Abrupt change in plant community	☐Other (list)_____	Discontinuous OHWM? ☑Yes ☐No

HABITAT INFORMATION

Aquatic Habitat

Substrate

☐ Bedrock	Percent:_____
☐ Gravel	Percent:_____
☐ Sand	Percent:_____
☑ Silt	Percent: 100
☐ Cobbles	Percent:_____
☐ Clay	Percent:_____
☐ Concrete	Percent:_____
☐ Other_____	Percent:_____

Pools, Runs, Riffles

☐ Pools	Percent: 0	Max Depth (ft)_____
☐ Runs	Percent: 0	
☐ Riffles	Percent: 0	

Woody Debris and Root Masses

Number of Woody Debris >6" diameter within OHWM 0

Linear feet of overhanging root masses along L bank 0

Linear feet of overhanging root masses along R bank 0

Aquatic Vegetation

Type

☐ None	☐ Rooted Floating
☐ Rooted Emergent	☐ Floating Algae
☐ Rooted Submergent	☐ Attached Algae
☑ Free Floating	% of reach with aquatics 0

Species

Lemnoideae (Duckweed)

Barriers To Fish Passage? ☑ No ☐ Yes

Explain:

Canopy Cover

☑ Open, full sun ☐ Partially shaded ☐ Mostly shaded ☐ Full shade

Terrestrial Habitat

Riparian Corridor

☐ None ☐ Sapling/shrub ☐ Forested

Corridor Width Left Bank

☑ 10-25 ☐ 25-50 ☐ 50-75 ☐ 75-100 ☐ 100-150 ☐ 150+

Corridor Width Right Bank

☑ 10-25 ☐ 25-50 ☐ 50-75 ☐ 75-100 ☐ 100-150 ☐ 150+

Species Herbaceous: Phalaris arundinacea

Associated Features:	Feature ID:
Ponds:	
Wetlands:	W-T01-001
Other Streams:	SS-T01-003
Seeps/Springs:	
Drainages:	

Anthropogenic Effects

☐ Bridged ☐ Culverts ☐ Riparian Corridor Cleared

☐ Diverted ☐ Drive-through / OHV crossing ☐ Dammed

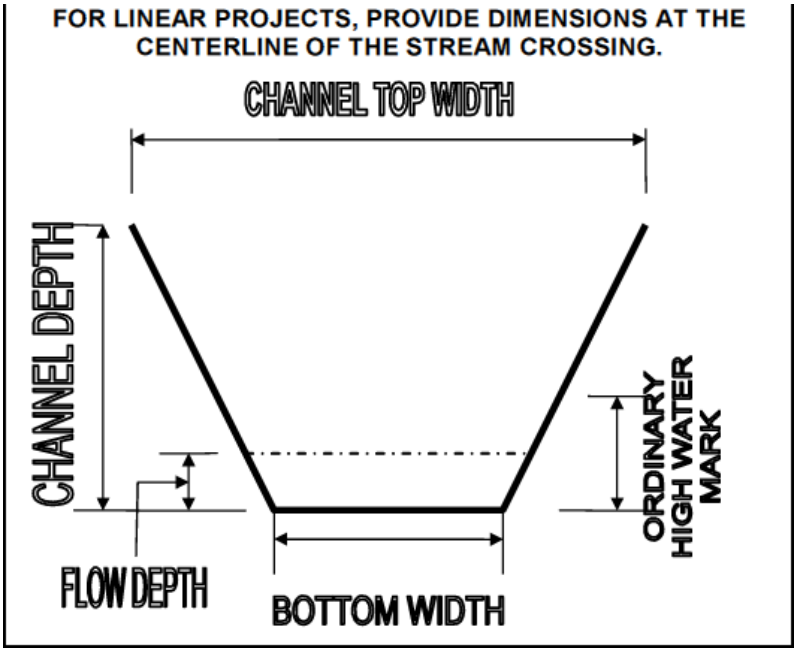
☐ Weir or Check-Dam ☐ Other_____

Observed Wildlife:

Riparian/Terrestrial/Aquatic Organisms:

None.

COMMENTS



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STREAM DATASHEET

Project: Cass County Solar Project	**Date:** 8/22/18	**Stream ID:** SS-T01-006
State: Illinois	**County:** Cass County	**Stream Name:** Unnamed Tributary to Illinois River

Survey Area:
☐ROW ☐Access Road ☑Facility ☐ATWS/Staging area

Stream Type:
☐ **Natural Feature** ☑ **Ditch/Canal/Other**

Team No. 1

Observers: Paul Bollinger, Eric Bender

HUC: 12-071300110301

Current Hydrologic Conditions:

Water Quality
☑Clear ☐Discolored ☐Turbid ☐Oily Film ☐Odor ☐Other

Comments:

OHWM Width (ft)
☐1-5 ☑5-10 ☐10-15 ☐16-25 ☐26-50 ☐50-75 ☐76+

OHWM Depth (ft)
☐0-0.5 ☐0.5-1 ☑1-1.5 ☐1.5-2 ☐2-3 ☐3-5 ☐5-10 ☐10+

PHYSICAL CHARACTERISTICS

Flow Direction
☐N ☐NE ☐E ☐SE ☐S ☐SW ☑W ☐NW

Flow Type
☐TNW ☐P-RPW ☑S-RPW ☐non-RPW

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☑0 ☐1 ☐1.5 ☐2 ☐2.5 ☐3 ☐3+

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☑Flat(0.5'/100') ☐Flat-Moderate ☐Moderate (2'/100') ☐Moderate-Severe ☐Severe (10'/100')

Stream Bank Height and Slope

Bankfull Width (ft): ☐0-5 ☐5-10 ☑10-15 ☐15-20 ☐20-25 ☐25-30 ☐30-40 ☐40-50 ☐50-75 ☐75-100 ☐100+

Left Bank
Height (ft):
☐1-3 ☐4-6 ☑7-9 ☐10-12 ☐13-15 ☐16-20 ☐21-30 ☐30+
Slope:
☐0-30° (4:1) ☐31-45° (3:1) ☐46-60° (2:1) ☑61-90° (1:1)

Right Bank
Height (ft):
☐1-3 ☐4-6 ☑7-9 ☐10-12 ☐13-15 ☐16-20 ☐21-30 ☐30+
Slope:
☐0-30° (4:1) ☐31-45° (3:1) ☐46-60° (2:1) ☑61-90° (1:1)

Bank and Channel Stability

Left Bank	**Right Bank**
Percentage of Bank With Evidence of Erosion: ☑0 ☐1-10 ☐11-25 ☐26-50 ☐51-75 ☐76-100	**Percentage of Bank With Evidence of Erosion:** ☑0 ☐1-10 ☐11-25 ☐26-50 ☐51-75 ☐76-100
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☐Vegetation matted down, bent, absent	☐Leaf litter disturbed or washed away	☐Sediment deposition
☐Water staining	☐Presence of litter and debris	☐Destruction of terrestrial vegetation
☐Presence of wrack Line	☐Sediment sorting	☐Scour
☑Abrupt change in plant community	☐Other (list)_____	Discontinuous OHWM? ☐Yes ☐No

HABITAT INFORMATION

Aquatic Habitat

Substrate

☐ Bedrock	Percent:_____
☐ Gravel	Percent:_____
☐ Sand	Percent:_____
☑ Silt	Percent: 100
☐ Cobbles	Percent:_____
☐ Clay	Percent:_____
☐ Concrete	Percent:_____
☐ Other_____	Percent:_____

Pools, Runs, Riffles

☐ Pools	Percent: 0	Max Depth (ft)_____
☐ Runs	Percent: 0	
☐ Riffles	Percent: 0	

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Number of Woody Debris >6" diameter within OHWM 0

Linear feet of overhanging root masses along L bank 0

Linear feet of overhanging root masses along R bank 0

Aquatic Vegetation

Type

☐ None	☐ Rooted Floating
☐ Rooted Emergent	☐ Floating Algae
☐ Rooted Submergent	☐ Attached Algae
☑ Free Floating	% of reach with aquatics 0

Species

Lemnoideae (Duckweed)

Barriers To Fish Passage? ☑ No ☐ Yes

Explain:

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☑ Open, full sun ☐ Partially shaded ☐ Mostly shaded ☐ Full shade

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Riparian Corridor

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☐ 10-25 ☐ 25-50 ☐ 50-75 ☐ 75-100 ☐ 100-150 ☐ 150+

Corridor Width Right Bank

☐ 10-25 ☐ 25-50 ☐ 50-75 ☐ 75-100 ☐ 100-150 ☐ 150+

Species

Associated Features:	Feature ID:
Ponds:	
Wetlands:	
Other Streams:	SS-T01-003
Seeps/Springs:	
Drainages:	

Observed Wildlife:

Riparian/Terrestrial/Aquatic Organisms:

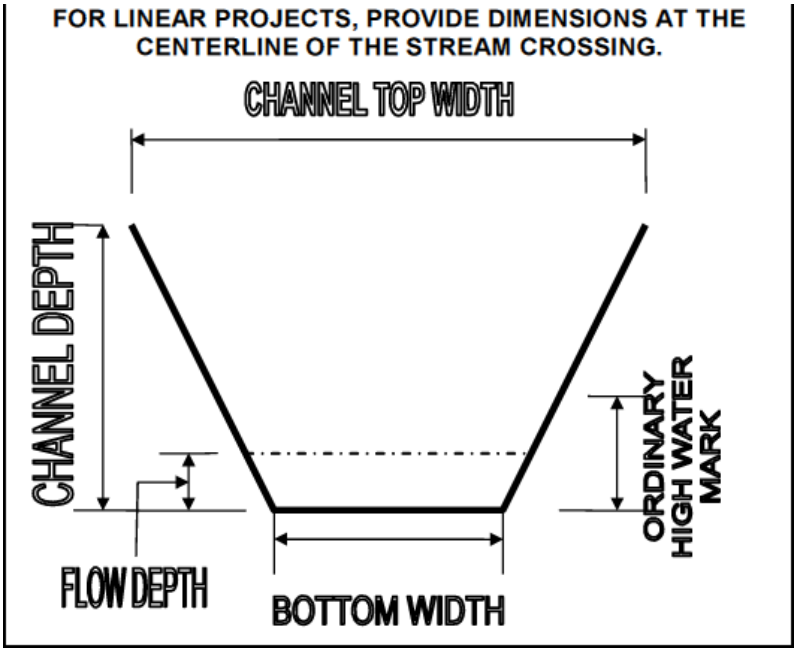
Anthropogenic Effects

☐ Bridged ☐ Culverts ☐ Riparian Corridor Cleared

☐ Diverted ☐ Drive-through / OHV crossing ☐ Dammed

☐ Weir or Check-Dam ☐ Other_____

COMMENTS



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STREAM DATASHEET

Project: Cass County Solar Project	**Date:** 8/23/18	**Stream ID:** SS-T01-007
State: Illinois	**County:** Cass County	**Stream Name:** Unnamed Tributary to Illinois River

Survey Area:
☐ROW ☐Access Road ☑Facility ☐ATWS/Staging area

Stream Type:
☐ **Natural Feature** ☑ **Ditch/Canal/Other**

Team No. 1

Observers: Paul Bollinger, Eric Bender

HUC: 12-071300110301

Current Hydrologic Conditions:

Water Quality
☐Clear ☐Discolored ☐Turbid ☐Oily Film ☐Odor ☐Other

Comments: Dry

OHWM Width (ft)
☐1-5 ☑5-10 ☐10-15 ☐16-25 ☐26-50 ☐50-75 ☐76+

OHWM Depth (ft)
☑0-0.5 ☐0.5-1 ☐1-1.5 ☐1.5-2 ☐2-3 ☐3-5 ☐5-10 ☐10+

PHYSICAL CHARACTERISTICS

Flow Direction
☐N ☐NE ☐E ☐SE ☐S ☐SW ☑W ☐NW

Flow Type
☐TNW ☐P-RPW ☐S-RPW ☑non-RPW

Sinuosity (bends per 200' of stream reach)
☑0 ☐1 ☐1.5 ☐2 ☐2.5 ☐3 ☐3+

Gradient
☑Flat(0.5'/100') ☐Flat-Moderate ☐Moderate (2'/100') ☐Moderate-Severe ☐Severe (10'/100')

Stream Bank Height and Slope

Bankfull Width (ft): ☐0-5 ☐5-10 ☑10-15 ☐15-20 ☐20-25 ☐25-30 ☐30-40 ☐40-50 ☐50-75 ☐75-100 ☐100+

Left Bank
Height (ft):
☐1-3 ☐4-6 ☑7-9 ☐10-12 ☐13-15 ☐16-20 ☐21-30 ☐30+
Slope:
☐0-30° (4:1) ☐31-45° (3:1) ☐46-60° (2:1) ☑61-90° (1:1)

Right Bank
Height (ft):
☐1-3 ☐4-6 ☑7-9 ☐10-12 ☐13-15 ☐16-20 ☐21-30 ☐30+
Slope:
☐0-30° (4:1) ☐31-45° (3:1) ☐46-60° (2:1) ☑61-90° (1:1)

Bank and Channel Stability

Left Bank	Right Bank
Percentage of Bank With Evidence of Erosion: ☑0 ☐1-10 ☐11-25 ☐26-50 ☐51-75 ☐76-100	**Percentage of Bank With Evidence of Erosion:** ☑0 ☐1-10 ☐11-25 ☐26-50 ☐51-75 ☐76-100
Erosion Types ☐Undercutting ☐Sloughing ☐Livestock/Wildlife impacts	**Erosion Types** ☐Undercutting ☐Sloughing ☐Livestock/Wildlife impacts
Percentage of Bank With Stabilizing Vegetation: ☐0 ☐1-10 ☐11-25 ☐26-50 ☐51-75 ☑76-100	**Percentage of Bank With Stabilizing Vegetation:** ☐0 ☐1-10 ☐11-25 ☐26-50 ☐51-75 ☑76-100
Bank Vegetation Types: ☐None Present ☑Herbaceous ☑Sapling/Shrub ☐Tree	**Bank Vegetation Types:** ☐None Present ☑Herbaceous ☑Sapling/Shrub ☐Tree

OHWM Criteria

☐Clear, natural line impressed on bank	☐Changes in character of soil	☐Shelving
☐Vegetation matted down, bent, absent	☐Leaf litter disturbed or washed away	☐Sediment deposition
☐Water staining	☐Presence of litter and debris	☐Destruction of terrestrial vegetation
☐Presence of wrack Line	☐Sediment sorting	☐Scour
☑Abrupt change in plant community	☐Other (list)_____	Discontinuous OHWM? ☐Yes ☐No

HABITAT INFORMATION

Aquatic Habitat

Substrate

☐ Bedrock	Percent:_____
☐ Gravel	Percent:_____
☐ Sand	Percent:_____
☑ Silt	Percent: 100
☐ Cobbles	Percent:_____
☐ Clay	Percent:_____
☐ Concrete	Percent:_____
☐ Other_____	Percent:_____

Pools, Runs, Riffles

☐ Pools	Percent: 0	Max Depth (ft)_____
☐ Runs	Percent: 0	
☐ Riffles	Percent: 0	

Woody Debris and Root Masses

Number of Woody Debris >6" diameter within OHWM 0

Linear feet of overhanging root masses along L bank 0

Linear feet of overhanging root masses along R bank 0

Aquatic Vegetation

Type

☐ None	☐ Rooted Floating
☑ Rooted Emergent	☐ Floating Algae
☐ Rooted Submergent	☐ Attached Algae
☐ Free Floating	% of reach with aquatics 0

Species

Leersia oryzoides

Barriers To Fish Passage? ☑ No ☐ Yes

Explain:

Canopy Cover

☑ Open, full sun ☐ Partially shaded ☐ Mostly shaded ☐ Full shade

Terrestrial Habitat

Riparian Corridor

☑ None ☐ Sapling/shrub ☐ Forested

Corridor Width Left Bank

☐ 10-25 ☐ 25-50 ☐ 50-75 ☐ 75-100 ☐ 100-150 ☐ 150+

Corridor Width Right Bank

☐ 10-25 ☐ 25-50 ☐ 50-75 ☐ 75-100 ☐ 100-150 ☐ 150+

Species

Associated Features:	Feature ID:
Ponds:	
Wetlands:	
Other Streams:	
Seeps/Springs:	SS-T01-002
Drainages:	

Observed Wildlife:

Riparian/Terrestrial/Aquatic Organisms:

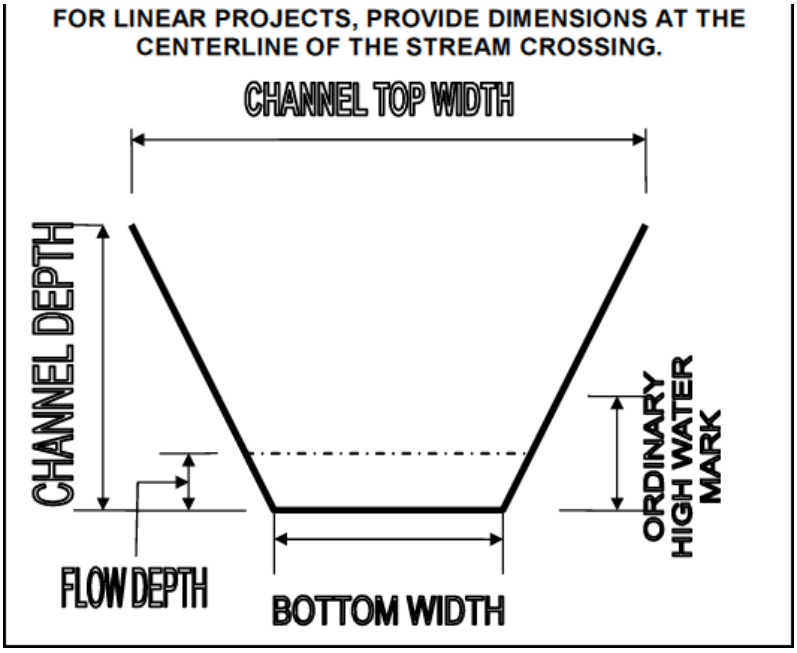
Anthropogenic Effects

☐ Bridged ☑ Culverts ☐ Riparian Corridor Cleared

☐ Diverted ☐ Drive-through / OHV crossing ☐ Dammed

☐ Weir or Check-Dam ☐ Other_____

COMMENTS



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STREAM DATASHEET

Project: Cass County Solar Project	**Date:** 8/21/18	**Stream ID:** SS-T01-008
State: Illinois	**County:** Cass County	**Stream Name:** Unnamed Tributary to Illinois River

Survey Area:
☐ROW ☐Access Road ☑Facility ☐ATWS/Staging area

Stream Type:
☐ **Natural Feature** ☑ **Ditch/Canal/Other**

Team No. 1

Observers: Eric Bender, Paul Bollinger

HUC: 12-071300110301

Current Hydrologic Conditions:

Water Quality
☑Clear ☐Discolored ☐Turbid ☐Oily Film ☐Odor ☐Other

Comments:

OHWM Width (ft)
☐1-5 ☑5-10 ☐10-15 ☐16-25 ☐26-50 ☐50-75 ☐76+

OHWM Depth (ft)
☐0-0.5 ☐0.5-1 ☐1-1.5 ☑1.5-2 ☐2-3 ☐3-5 ☑5-10 ☐10+

PHYSICAL CHARACTERISTICS

Flow Direction
☐N ☐NE ☐E ☐SE ☐S ☑SW ☐W ☐NW

Flow Type
☐TNW ☑P-RPW ☐S-RPW ☐non-RPW

Sinuosity (bends per 200' of stream reach)
☑0 ☐1 ☐1.5 ☐2 ☐2.5 ☐3 ☐3+

Gradient
☑Flat(0.5'/100') ☐Flat-Moderate ☐Moderate (2'/100') ☐Moderate-Severe ☐Severe (10'/100')

Stream Bank Height and Slope

Bankfull Width (ft): ☐0-5 ☐5-10 ☐10-15 ☑15-20 ☐20-25 ☐25-30 ☐30-40 ☐40-50 ☐50-75 ☐75-100 ☐100+

Left Bank
Height (ft):
☐1-3 ☑4-6 ☐7-9 ☐10-12 ☐13-15 ☐16-20 ☐21-30 ☐30+
Slope:
☐0-30° (4:1) ☐31-45° (3:1) ☑46-60° (2:1) ☐61-90° (1:1)

Right Bank
Height (ft):
☐1-3 ☑4-6 ☐7-9 ☐10-12 ☐13-15 ☐16-20 ☐21-30 ☐30+
Slope:
☐0-30° (4:1) ☐31-45° (3:1) ☑46-60° (2:1) ☐61-90° (1:1)

Bank and Channel Stability

Left Bank	Right Bank
Percentage of Bank With Evidence of Erosion: ☑0 ☐1-10 ☐11-25 ☐26-50 ☐51-75 ☐76-100	**Percentage of Bank With Evidence of Erosion:** ☑0 ☐1-10 ☐11-25 ☐26-50 ☐51-75 ☐76-100
Erosion Types ☐Undercutting ☐Sloughing ☐Livestock/Wildlife impacts	**Erosion Types** ☐Undercutting ☐Sloughing ☐Livestock/Wildlife impacts
Percentage of Bank With Stabilizing Vegetation: ☐0 ☐1-10 ☐11-25 ☐26-50 ☐51-75 ☑76-100	**Percentage of Bank With Stabilizing Vegetation:** ☐0 ☐1-10 ☐11-25 ☐26-50 ☐51-75 ☑76-100
Bank Vegetation Types: ☐None Present ☑Herbaceous ☐Sapling/Shrub ☐Tree	**Bank Vegetation Types:** ☐None Present ☑Herbaceous ☐Sapling/Shrub ☐Tree

OHWM Criteria

☐Clear, natural line impressed on bank	☐Changes in character of soil	☐Shelving
☐Vegetation matted down, bent, absent	☐Leaf litter disturbed or washed away	☐Sediment deposition
☐Water staining	☐Presence of litter and debris	☐Destruction of terrestrial vegetation
☐Presence of wrack Line	☐Sediment sorting	☐Scour
☑Abrupt change in plant community	☐Other (list)_____	Discontinuous OHWM? ☐Yes ☐No

HABITAT INFORMATION

Aquatic Habitat

Substrate

☐ Bedrock	Percent:_____
☐ Gravel	Percent:_____
☐ Sand	Percent:_____
☑ Silt	Percent: 100
☐ Cobbles	Percent:_____
☐ Clay	Percent:_____
☐ Concrete	Percent:_____
☐ Other_____	Percent:_____

Pools, Runs, Riffles

☐ Pools	Percent: 0	Max Depth (ft)_____
☐ Runs	Percent: 0	
☐ Riffles	Percent: 0	

Woody Debris and Root Masses

Number of Woody Debris >6" diameter within OHWM 0

Linear feet of overhanging root masses along L bank 0

Linear feet of overhanging root masses along R bank 0

Aquatic Vegetation

Type

☐ None	☐ Rooted Floating
☐ Rooted Emergent	☐ Floating Algae
☑ Rooted Submergent	☑ Attached Algae
☑ Free Floating	% of reach with aquatics_____

Species

Duckweed (Free floating) and other unknown aquatic plant species.

Barriers To Fish Passage? ☑ No ☐ Yes

Explain:

Canopy Cover

☑ Open, full sun ☐ Partially shaded ☐ Mostly shaded ☐ Full shade

Terrestrial Habitat

Riparian Corridor

☐ None ☐ Sapling/shrub ☐ Forested

Corridor Width Left Bank

☑ 10-25 ☐ 25-50 ☐ 50-75 ☐ 75-100 ☐ 100-150 ☐ 150+

Corridor Width Right Bank

☑ 10-25 ☐ 25-50 ☐ 50-75 ☐ 75-100 ☐ 100-150 ☐ 150+

Species Herbaceous riparian corridor
Ambrosia trifida and Stinging nettle

Associated Features:	Feature ID:
Ponds:	
Wetlands:	
Other Streams:	SS-T01-002 & SS-T01-003
Seeps/Springs:	
Drainages:	

Observed Wildlife:

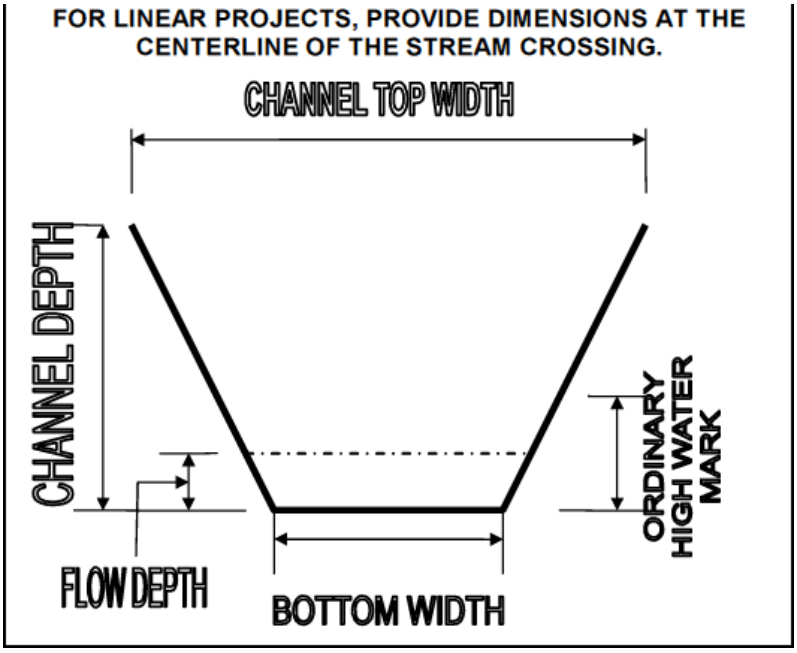
Riparian/Terrestrial/Aquatic Organisms:

Insects; pollinators
Turtles
Frogs
Ducks

Anthropogenic Effects

☑ Bridged ☑ Culverts ☐ Riparian Corridor Cleared
☐ Diverted ☐ Drive-through / OHV crossing ☐ Dammed
☐ Weir or Check-Dam ☐ Other_____

COMMENTS



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STREAM DATASHEET

Project: Cass County Solar Project	**Date:** 10/30/19	**Stream ID:** SS-T02-001
State: Illinois	**County:** Cass County	**Stream Name:** Valley Ditch

Survey Area:
☐ROW ☐Access Road ☑Facility ☐ATWS/Staging area

Stream Type:
☐ **Natural Feature** ☑ **Ditch/Canal/Other**

Team No. 2

Observers: Eric Bender, David Souther

HUC: 12-071300110106

Current Hydrologic Conditions:

Water Quality
☐Clear ☐Discolored ☑Turbid ☐Oily Film ☐Odor ☐Other

Comments: Recent Rainfall

OHWM Width (ft)
☐1-5 ☐5-10 ☐10-15 ☑16-25 ☐26-50 ☐50-75 ☐76+

OHWM Depth (ft)
☐0-0.5 ☐0.5-1 ☐1-1.5 ☐1.5-2 ☐2-3 ☑3-5 ☐5-10 ☐10+

PHYSICAL CHARACTERISTICS

Flow Direction
☐N ☐NE ☐E ☐SE ☑S ☐SW ☐W ☐NW

Flow Type
☐TNW ☑P-RPW ☐S-RPW ☐non-RPW

Sinuosity (bends per 200' of stream reach)
☐0 ☑1 ☐1.5 ☐2 ☐2.5 ☐3 ☐3+

Gradient
☑Flat(0.5'/100') ☐Flat-Moderate ☐Moderate (2'/100') ☐Moderate-Severe ☐Severe (10'/100')

Stream Bank Height and Slope

Bankfull Width (ft): ☐0-5 ☐5-10 ☐10-15 ☐15-20 ☐20-25 ☐25-30 ☑30-40 ☐40-50 ☐50-75 ☐75-100 ☐100+

Left Bank
Height (ft):
☐1-3 ☐4-6 ☑7-9 ☐10-12 ☐13-15 ☐16-20 ☐21-30 ☐30+
Slope:
☐0-30° (4:1) ☐31-45° (3:1) ☑46-60° (2:1) ☐61-90° (1:1)

Right Bank
Height (ft):
☐1-3 ☐4-6 ☑7-9 ☐10-12 ☐13-15 ☐16-20 ☐21-30 ☐30+
Slope:
☐0-30° (4:1) ☐31-45° (3:1) ☑46-60° (2:1) ☐61-90° (1:1)

Bank and Channel Stability

Left Bank	**Right Bank**
Percentage of Bank With Evidence of Erosion: ☑0 ☐1-10 ☐11-25 ☐26-50 ☐51-75 ☐76-100	**Percentage of Bank With Evidence of Erosion:** ☑0 ☐1-10 ☐11-25 ☐26-50 ☐51-75 ☐76-100
Erosion Types ☐Undercutting ☐Sloughing ☐Livestock/Wildlife impacts	**Erosion Types** ☐Undercutting ☐Sloughing ☐Livestock/Wildlife impacts
Percentage of Bank With Stabilizing Vegetation: ☐0 ☐1-10 ☐11-25 ☐26-50 ☐51-75 ☑76-100	**Percentage of Bank With Stabilizing Vegetation:** ☐0 ☐1-10 ☐11-25 ☐26-50 ☐51-75 ☑76-100
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☐Clear, natural line impressed on bank	☐Changes in character of soil	☐Shelving
☑Vegetation matted down, bent, absent	☐Leaf litter disturbed or washed away	☐Sediment deposition
☐Water staining	☐Presence of litter and debris	☐Destruction of terrestrial vegetation
☐Presence of wrack Line	☐Sediment sorting	☐Scour
☐Abrupt change in plant community	☐Other (list)_____	Discontinuous OHWM? ☐Yes ☑No

HABITAT INFORMATION

Aquatic Habitat

Substrate

☐ Bedrock	Percent:_____	☑ Pools	Percent: 100	Max Depth (ft) 5
☐ Gravel	Percent:_____	☐ Runs	Percent:_____	
☐ Sand	Percent:_____	☐ Riffles	Percent:_____	
☑ Silt	Percent: 100			
☐ Cobbles	Percent:_____			
☐ Clay	Percent:_____			
☐ Concrete	Percent:_____			
☐ Other_____	Percent:_____			

Pools, Runs, Riffles

Woody Debris and Root Masses

Number of Woody Debris >6" diameter within OHWM 0

Linear feet of overhanging root masses along L bank 0

Linear feet of overhanging root masses along R bank 0

Aquatic Vegetation

Type

☐ None	☐ Rooted Floating
☐ Rooted Emergent	☐ Floating Algae
☐ Rooted Submergent	☐ Attached Algae
☑ Free Floating	% of reach with aquatics 0

Species

Lemna minor

Barriers To Fish Passage? ☑ No ☐ Yes

Explain:

Canopy Cover

☑ Open, full sun ☐ Partially shaded ☐ Mostly shaded ☐ Full shade

Terrestrial Habitat

Riparian Corridor

☑ None ☐ Sapling/shrub ☐ Forested

Corridor Width Left Bank

☐ 10-25 ☐ 25-50 ☐ 50-75 ☐ 75-100 ☐ 100-150 ☐ 150+

Corridor Width Right Bank

☐ 10-25 ☐ 25-50 ☐ 50-75 ☐ 75-100 ☐ 100-150 ☐ 150+

Species

Associated Features:	**Feature ID:**
Ponds:	
Wetlands:	
Other Streams:	
Seeps/Springs:	
Drainages:	

Observed Wildlife:

Riparian/Terrestrial/Aquatic Organisms:

Anthropogenic Effects

☐ Bridged ☐ Culverts ☐ Riparian Corridor Cleared

☐ Diverted ☐ Drive-through / OHV crossing ☐ Dammed

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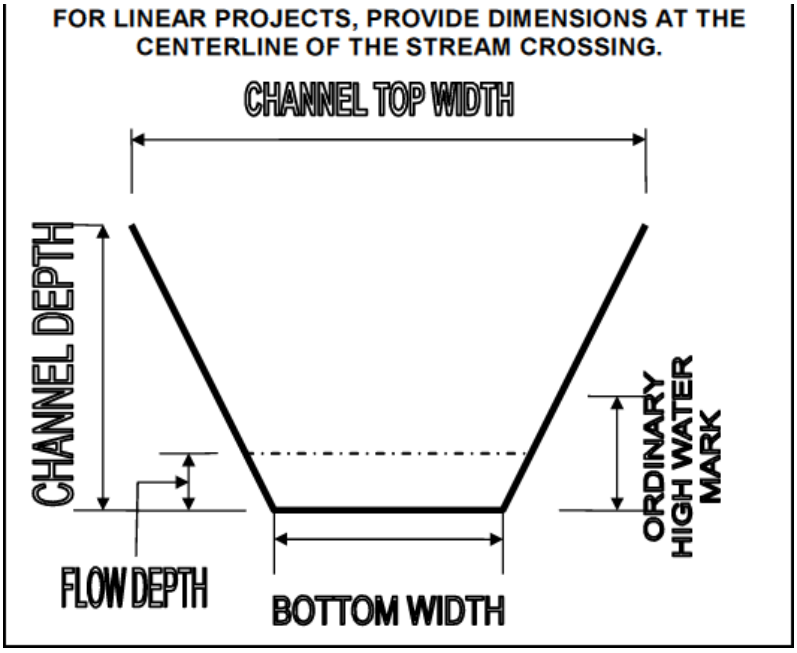
COMMENTS

Channelized Stream/Farm Ditch Canal



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Ordinary High Water Mark (OHWM): The line on the shore established by the fluctuations of water and indicated by physical characteristics such as a clear, natural line impressed on the bank, shelving, changes in the character of the soil, destruction of terrestrial vegetation, the presence of litter and debris, or other appropriate means that consider the characteristics of the surrounding areas. At any given site, the OHWM will vary over time and according to external factors.
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Riffle: A reach of stream that is characterized by shallow, fast moving water broken by the presence of rocks and boulders.
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Thalweg: An imaginary line, drawn in a flow-parallel orientation, which joins the deepest points of a stream channel.
Traditionally Navigable Waters (TNW): Any water body that is subject to the ebb and flow of the tide and/or the water body is presently used, or has been used in the past, or may be susceptible for use (with or without reasonable improvements) to transport interstate or foreign commerce. Generally TNW’s are perennial rivers which have flow in them year-round.

STREAM DATASHEET

Project: Cass County Solar Project	**Date:** 5/13/2020	**Stream ID:** SS-T03-001
State: Illinois	**County:** Cass County	**Stream Name:** Unnamed Farm Ditch
Survey Area: ☐ROW ☐Access Road ☑Facility ☐ATWS/Staging area		**Stream Type:** ☐ **Natural Feature** ☑ **Ditch/Canal/Other**
Team No. 3	**Observers:** Eric Bender, Paul Bollinger	**HUC:** 12-071300110106

Current Hydrologic Conditions:

Water Quality
☑Clear ☐Discolored ☐Turbid ☐Oily Film ☐Odor ☐Other

Comments:
Clear, with farm waste sheen (possibly herbicide) on top.

OHWM Width (ft)
☑1-5 ☐5-10 ☐10-15 ☑16-25 ☐26-50 ☐50-75 ☐76+

OHWM Depth (ft)
☑0-0.5 ☐0.5-1 ☐1-1.5 ☐1.5-2 ☐2-3 ☑3-5 ☐5-10 ☐10+

PHYSICAL CHARACTERISTICS

Flow Direction
☐N ☐NE ☑E ☐SE ☐S ☐SW ☐W ☐NW

Flow Type
☐TNW ☐P-RPW ☐S-RPW ☑non-RPW

Sinuosity (bends per 200' of stream reach)
☑0 ☐1 ☐1.5 ☐2 ☐2.5 ☐3 ☐3+

Gradient
☑Flat(0.5'/100') ☐Flat-Moderate ☐Moderate (2'/100') ☐Moderate-Severe ☐Severe (10'/100')

Stream Bank Height and Slope

Bankfull Width (ft): ☑0-5 ☐5-10 ☐10-15 ☐15-20 ☐20-25 ☐25-30 ☑30-40 ☐40-50 ☐50-75 ☐75-100 ☐100+

Left Bank	Right Bank
Height (ft): ☐1-3 ☑4-6 ☐7-9 ☐10-12 ☐13-15 ☐16-20 ☐21-30 ☐30+	**Height (ft):** ☐1-3 ☑4-6 ☐7-9 ☐10-12 ☐13-15 ☐16-20 ☐21-30 ☐30+
Slope: ☐0-30° (4:1) ☐31-45° (3:1) ☐46-60° (2:1) ☑61-90° (1:1)	**Slope:** ☐0-30° (4:1) ☐31-45° (3:1) ☐46-60° (2:1) ☑61-90° (1:1)

Bank and Channel Stability

Left Bank	Right Bank
Percentage of Bank With Evidence of Erosion: ☐0 ☑1-10 ☐11-25 ☐26-50 ☐51-75 ☐76-100	**Percentage of Bank With Evidence of Erosion:** ☐0 ☑1-10 ☐11-25 ☐26-50 ☐51-75 ☐76-100
Erosion Types ☑Undercutting ☐Sloughing ☐Livestock/Wildlife impacts	**Erosion Types** ☑Undercutting ☐Sloughing ☐Livestock/Wildlife impacts
Percentage of Bank With Stabilizing Vegetation: ☐0 ☐1-10 ☐11-25 ☐26-50 ☐51-75 ☑76-100	**Percentage of Bank With Stabilizing Vegetation:** ☐0 ☐1-10 ☐11-25 ☐26-50 ☐51-75 ☑76-100
Bank Vegetation Types: ☐None Present ☑Herbaceous ☐Sapling/Shrub ☐Tree	**Bank Vegetation Types:** ☐None Present ☑Herbaceous ☐Sapling/Shrub ☐Tree

OHWM Criteria

☑Clear, natural line impressed on bank	☐Changes in character of soil	☐Shelving
☐Vegetation matted down, bent, absent	☐Leaf litter disturbed or washed away	☐Sediment deposition
☑Water staining	☑Presence of litter and debris	☐Destruction of terrestrial vegetation
☐Presence of wrack Line	☐Sediment sorting	☐Scour
☑Abrupt change in plant community	☐Other (list)_____	Discontinuous OHWM? ☐Yes ☑No

HABITAT INFORMATION

Aquatic Habitat

Substrate		Pools, Runs, Riffles		
☐ Bedrock	Percent:	☐ Pools	Percent: 0	Max Depth (ft) 1
☐ Gravel	Percent:	☐ Runs	Percent: 0	
☐ Sand	Percent:	☐ Riffles	Percent: 0	
☑ Silt	Percent: 100			
☐ Cobbles	Percent:	**Woody Debris and Root Masses**		
☐ Clay	Percent:	Number of Woody Debris >6" diameter within OHWM 0		
☐ Concrete	Percent:	Linear feet of overhanging root masses along L bank 0		
☐ Other	Percent:	Linear feet of overhanging root masses along R bank 0		

Aquatic Vegetation

Type		Species
☐ None	☐ Rooted Floating	Phalaris Arunidinacea
☑ Rooted Emergent	☐ Floating Algae	
☐ Rooted Submergent	☐ Attached Algae	
☐ Free Floating	% of reach with aquatics 0	

Barriers To Fish Passage? ☑ No ☐ Yes
Explain:

Canopy Cover
☑ Open, full sun ☐ Partially shaded ☐ Mostly shaded ☐ Full shade

Terrestrial Habitat

Riparian Corridor

☑ None ☐ Sapling/shrub ☐ Forested

Corridor Width Left Bank
☐ 10-25 ☐ 25-50 ☐ 50-75 ☐ 75-100 ☐ 100-150 ☐ 150+

Corridor Width Right Bank
☐ 10-25 ☐ 25-50 ☐ 50-75 ☐ 75-100 ☐ 100-150 ☐ 150+

Species

Associated Features:	Feature ID:
Ponds:	
Wetlands:	
Other Streams:	SS-T02-001
Seeps/Springs:	
Drainages:	

Observed Wildlife:

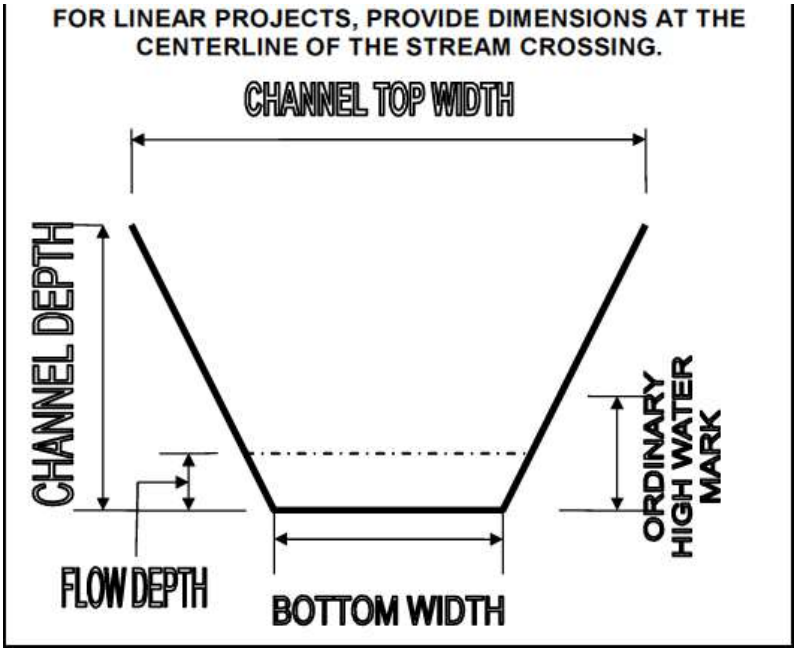
Riparian/Terrestrial/Aquatic Organisms:

Anthropogenic Effects

☐ Bridged ☐ Culverts ☐ Riparian Corridor Cleared
☐ Diverted ☐ Drive-through / OHV crossing ☐ Dammed
☐ Weir or Check-Dam ☐ Other

COMMENTS

Man-made ephemeral farm ditch flowing W to E into larger Farm ditch/WOTUS.



Definitions:

Active Channel: The natural waterway that contains all stream flows at and below the bankfull discharge.
Bankfull Stage: The elevation of the water surface when rising water completely fills the active channel and first begins to spill onto the local floodplain.
Floodplain: The relatively flat valley-floor surface that has been constructed, during the present hydrologic regime, by the natural processes of point-bar deposition, lateral channel migration, and vertical accretion of sediments that have been transported beyond the active channel boundaries during periods of flooding.
Left bank vs. Right bank: By standard convention, left and right are always expressed from the perspective of an individual facing downstream.
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Riffle: A reach of stream that is characterized by shallow, fast moving water broken by the presence of rocks and boulders.
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Seasonal-Relatively Permanent Waters (S-RPW): A tributary that is not a TNW and has continuous flow “seasonally” (typically 3 months). S-RPWs are generally considered to be intermittent.
Thalweg: An imaginary line, drawn in a flow-parallel orientation, which joins the deepest points of a stream channel.
Traditionally Navigable Waters (TNW): Any water body that is subject to the ebb and flow of the tide and/or the water body is presently used, or has been used in the past, or may be susceptible for use (with or without reasonable improvements) to transport interstate or foreign commerce. Generally TNW’s are perennial rivers which have flow in them year-round.

STREAM DATASHEET

Project: Cass County Solar Project	**Date:** 5-13-2020	**Stream ID:** SS-T03-002
State: Illinois	**County:** Cass County	**Stream Name:** Unnamed Farm Ditch
Survey Area: ☐ROW ☐Access Road ☑Facility ☐ATWS/Staging area		**Stream Type:** ☐ **Natural Feature** ☑ **Ditch/Canal/Other**
Team No. 3	**Observers:** Eric Bender, Paul Bollinger	**HUC:** 12-071300110106

Current Hydrologic Conditions:

Water Quality ☑Clear ☐Discolored ☐Turbid ☐Oily Film ☐Odor ☐Other	**OHWM Width (ft)** ☑1-5 ☐5-10 ☐10-15 ☐16-25 ☐26-50 ☐50-75 ☐76+
Comments:	**OHWM Depth (ft)** ☐0-0.5 ☑0.5-1 ☐1-1.5 ☐1.5-2 ☐2-3 ☐3-5 ☐5-10 ☐10+

PHYSICAL CHARACTERISTICS

Flow Direction	**Flow Type**
☐N ☐NE ☐E ☐SE ☐S ☐SW ☑W ☐NW	☐TNW ☐P-RPW ☑S-RPW ☐non-RPW
Sinuosity (bends per 200' of stream reach)	**Gradient**
☑0 ☐1 ☐1.5 ☐2 ☐2.5 ☐3 ☐3+	☑Flat(0.5'/100') ☐Flat-Moderate ☐Moderate (2'/100') ☐Moderate-Severe ☐Severe (10'/100')

Stream Bank Height and Slope

Bankfull Width (ft): ☑0-5 ☐5-10 ☐10-15 ☐15-20 ☐20-25 ☐25-30 ☑30-40 ☐40-50 ☐50-75 ☐75-100 ☐100+

Left Bank	**Right Bank**
Height (ft): ☐1-3 ☐4-6 ☑7-9 ☐10-12 ☐13-15 ☐16-20 ☐21-30 ☐30+	**Height (ft):** ☐1-3 ☐4-6 ☑7-9 ☐10-12 ☐13-15 ☐16-20 ☐21-30 ☐30+
Slope: ☐0-30° (4:1) ☐31-45° (3:1) ☐46-60° (2:1) ☑61-90° (1:1)	**Slope:** ☐0-30° (4:1) ☐31-45° (3:1) ☐46-60° (2:1) ☑61-90° (1:1)

Bank and Channel Stability

Left Bank	**Right Bank**
Percentage of Bank With Evidence of Erosion: ☐0 ☑1-10 ☐11-25 ☐26-50 ☐51-75 ☐76-100	**Percentage of Bank With Evidence of Erosion:** ☐0 ☑1-10 ☐11-25 ☐26-50 ☐51-75 ☐76-100
Erosion Types ☐Undercutting ☑Sloughing ☐Livestock/Wildlife impacts	**Erosion Types** ☐Undercutting ☑Sloughing ☐Livestock/Wildlife impacts
Percentage of Bank With Stabilizing Vegetation: ☐0 ☐1-10 ☐11-25 ☐26-50 ☐51-75 ☑76-100	**Percentage of Bank With Stabilizing Vegetation:** ☐0 ☐1-10 ☐11-25 ☐26-50 ☐51-75 ☑76-100
Bank Vegetation Types: ☐None Present ☑Herbaceous ☐Sapling/Shrub ☐Tree	**Bank Vegetation Types:** ☐None Present ☑Herbaceous ☐Sapling/Shrub ☐Tree

OHWM Criteria

☐Clear, natural line impressed on bank	☐Changes in character of soil	☐Shelving
☐Vegetation matted down, bent, absent	☐Leaf litter disturbed or washed away	☐Sediment deposition
☑Water staining	☐Presence of litter and debris	☐Destruction of terrestrial vegetation
☐Presence of wrack Line	☐Sediment sorting	☐Scour
☑Abrupt change in plant community	☐Other (list)_____	Discontinuous OHWM? ☐Yes ☑No

HABITAT INFORMATION

Aquatic Habitat

Substrate

☐ Bedrock	Percent:	
☐ Gravel	Percent:	
☐ Sand	Percent:	
☑ Silt	Percent: 100	
☐ Cobbles	Percent:	
☐ Clay	Percent:	
☐ Concrete	Percent:	
☐ Other	Percent:	

Pools, Runs, Riffles

☑ Pools	Percent: 100	Max Depth (ft) 5
☐ Runs	Percent:	
☐ Riffles	Percent:	

Woody Debris and Root Masses

Number of Woody Debris >6" diameter within OHWM	0
Linear feet of overhanging root masses along L bank	0
Linear feet of overhanging root masses along R bank	0

Aquatic Vegetation

Type

☐ None	☐ Rooted Floating
☑ Rooted Emergent	☑ Floating Algae
☐ Rooted Submergent	☐ Attached Algae
☑ Free Floating	% of reach with aquatics 0

Species

Lemna minor
Panicum dictomiflora

Barriers To Fish Passage? ☑ No ☐ Yes

Explain:

Canopy Cover

☑ Open, full sun ☐ Partially shaded ☐ Mostly shaded ☐ Full shade

Terrestrial Habitat

Riparian Corridor

☑ None ☐ Sapling/shrub ☐ Forested

Corridor Width Left Bank

☐ 10-25 ☐ 25-50 ☐ 50-75 ☐ 75-100 ☐ 100-150 ☐ 150+

Corridor Width Right Bank

☐ 10-25 ☐ 25-50 ☐ 50-75 ☐ 75-100 ☐ 100-150 ☐ 150+

Species

Associated Features:	Feature ID:
Ponds:	
Wetlands:	
Other Streams:	SS-T03-003/SS-T01-001
Seeps/Springs:	
Drainages:	

Observed Wildlife:

Riparian/Terrestrial/Aquatic Organisms:

Anthropogenic Effects

☐ Bridged ☑ Culverts ☐ Riparian Corridor Cleared
☐ Diverted ☐ Drive-through / OHV crossing ☐ Dammed
☐ Weir or Check-Dam ☑ Other Irrigation Bridges

COMMENTS

Man-made farm Ditch

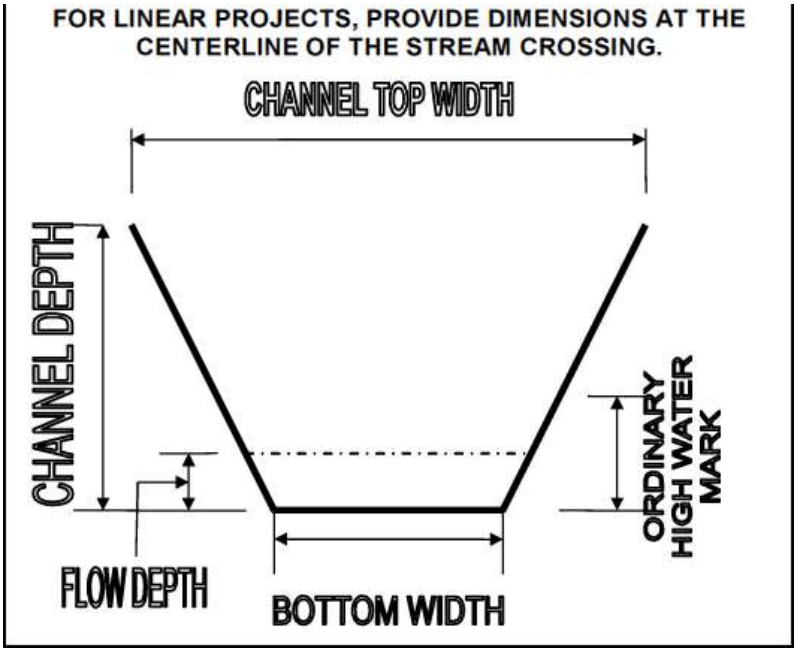

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EXHIBIT B

Request for USACE Approved Jurisdictional Determination Form

Appendix 1 - REQUEST FOR CORPS JURISDICTIONAL DETERMINATION (JD)

To: District Name Here

- I am requesting a JD on property located at: See Section/Township/Range
  (Street Address)
  City/Township/Parish: T18N County: Cass County State: Illinois
  Acreage of Parcel/Review Area for JD: 2,382
  Section: S32 Township: T18N Range: R12W
  Latitude (decimal degrees): 39.974422 Longitude (decimal degrees): -90.479966
  (For linear projects, please include the center point of the proposed alignment.)
- Please attach a survey/plat map and vicinity map identifying location and review area for the JD.
- ___ I currently own this property. ___ I plan to purchase this property.
  [✓] I am an agent/consultant acting on behalf of the requestor.
  ___ Other (please explain): _____.
- Reason for request: (check as many as applicable)
  ___ I intend to construct/develop a project or perform activities on this parcel which would be designed to avoid all aquatic resources.
  [✓] I intend to construct/develop a project or perform activities on this parcel which would be designed to avoid all jurisdictional aquatic resources under Corps authority.
  [✓] I intend to construct/develop a project or perform activities on this parcel which may require authorization from the Corps, and the JD would be used to avoid and minimize impacts to jurisdictional aquatic resources and as an initial step in a future permitting process.
  ___ I intend to construct/develop a project or perform activities on this parcel which may require authorization from the Corps; this request is accompanied by my permit application and the JD is to be used in the permitting process.
  ___ I intend to construct/develop a project or perform activities in a navigable water of the U.S. which is included on the district Section 10 list and/or is subject to the ebb and flow of the tide.
  ___ A Corps JD is required in order to obtain my local/state authorization.
  ___ I intend to contest jurisdiction over a particular aquatic resource and request the Corps confirm that jurisdiction does/does not exist over the aquatic resource on the parcel.
  ___ I believe that the site may be comprised entirely of dry land.
  ___ Other: _____
- Type of determination being requested:
  [✓] I am requesting an approved JD.
  ___ I am requesting a preliminary JD.
  ___ I am requesting a "no permit required" letter as I believe my proposed activity is not regulated.
  ___ I am unclear as to which JD I would like to request and require additional information to inform my decision.

By signing below, you are indicating that you have the authority, or are acting as the duly authorized agent of a person or entity with such authority, to and do hereby grant Corps personnel right of entry to legally access the site if needed to perform the JD. Your signature shall be an affirmation that you possess the requisite property rights to request a JD on the subject property.

*Signature: _____ Date: 9/1/2020

- Typed or printed name: Taylor Guest

Company name: Ecology and Environmental, Inc.

Address: 2 Riverway Drive, Houston, Texas 77056

Daytime phone no.: (903) 738-0318

Email address: tguest@ene.com

***Authorities:** Rivers and Harbors Act, Section 10, 33 USC 403; Clean Water Act, Section 404, 33 USC 1344; Marine Protection, Research, and Sanctuaries Act, Section 103, 33 USC 1413; Regulatory Program of the U.S. Army Corps of Engineers; Final Rule for 33 CFR Parts 320-332.
Principal Purpose: The information that you provide will be used in evaluating your request to determine whether there are any aquatic resources within the project area subject to federal jurisdiction under the regulatory authorities referenced above.
Routine Uses: This information may be shared with the Department of Justice and other federal, state, and local government agencies, and the public, and may be made available as part of a public notice as required by federal law. Your name and property location where federal jurisdiction is to be determined will be included in the approved jurisdictional determination (AJD), which will be made available to the public on the District's website and on the Headquarters USACE website.
Disclosure: Submission of requested information is voluntary; however, if information is not provided, the request for an AJD cannot be evaluated nor can an AJD be issued.

Appendix F Land Control Documentation

Executed J859 GIA Public Document

Landowner Agreements

GENERATOR INTERCONNECTION AGREEMENT (GIA)

THIS GENERATOR INTERCONNECTION AGREEMENT ("GIA") is made and entered into this 8th day of January 2020, by and among **Cass County Solar Project, LLC**, a limited liability company organized and existing under the laws of the State of Delaware ("Interconnection Customer" with a Generating Facility), **Ameren Services Company** as agent for **Ameren Illinois Company** d/b/a **Ameren Illinois**, a corporation organized and existing under the laws of the State of Illinois ("Transmission Owner"), and the **Midcontinent Independent System Operator, Inc**., a non-profit, non-stock corporation organized and existing under the laws of the State of Delaware ("Transmission Provider"). Interconnection Customer, Transmission Owner and Transmission Provider each may be referred to as a "Party," or collectively as the "Parties."

RECITALS

WHEREAS, Transmission Provider has functional control of the operations of the Transmission System, as defined herein, and is responsible for providing Transmission Service and Interconnection Service on the transmission facilities under its control; and

WHEREAS, Interconnection Customer intends to own, lease and/or control and operate the Generating Facility identified as a Generating Facility in Appendix A to this GIA; and

WHEREAS, Transmission Owner owns or operates the Transmission System, whose operations are subject to the functional control of Transmission Provider, to which Interconnection Customer desires to connect the Generating Facility, and may therefore be required to construct certain Interconnection Facilities and Network Upgrades, as set forth in this GIA; and

WHEREAS, Interconnection Customer, Transmission Owner and Transmission Provider have agreed to enter into this GIA, and where applicable subject to Appendix H for a provisional GIA, for the purpose of interconnecting the Generating Facility with the Transmission System;

NOW, THEREFORE, in consideration of and subject to the mutual covenants contained herein, it is agreed:

ARTICLE 1. DEFINITIONS

When used in this GIA, terms with initial capitalization that are not defined in Article 1 shall have the meanings specified in the Article in which they are used. Those capitalized terms used in this GIA that are not otherwise defined in this GIA have the meaning set forth in the Tariff.

Adverse System Impact shall mean the negative effects due to technical or operational limits on conductors or equipment being exceeded that may compromise the safety and reliability of the electric system.

Affected System shall mean an electric transmission or distribution system or the electric system associated with an existing generating facility or of a higher queued Generating Facility, which is an electric system other than the Transmission Owner's Transmission System that is affected by the Interconnection Request. An Affected System may or may not be subject to FERC jurisdiction.

Affected System Operator shall mean the entity that operates an Affected System.

Affiliate shall mean, with respect to a corporation, partnership or other entity, each such other corporation, partnership or other entity that directly or indirectly, through one or more intermediaries, controls, is controlled by, or is under common control with, such corporation, partnership or other entity.

Ancillary Services shall mean those services that are necessary to support the transmission of capacity and energy from resources to loads while maintaining reliable operation of the Transmission System in accordance with Good Utility Practice.

Applicable Laws and Regulations shall mean all duly promulgated applicable federal, state and local laws, regulations, rules, ordinances, codes, decrees, judgments, directives, or judicial or administrative orders, permits and other duly authorized actions of any Governmental Authority having jurisdiction over the Parties, their respective facilities and/or the respective services they provide.

Applicable Reliability Council shall mean the Regional Entity of NERC applicable to the Local Balancing Authority of the Transmission System to which the Generating Facility is directly interconnected.

Applicable Reliability Standards shall mean Reliability Standards approved by the Federal Energy Regulatory Commission (FERC) under section 215 of the Federal Power Act, as applicable.

Base Case shall mean the base case power flow, short circuit, and stability databases used for the Interconnection Studies by Transmission Provider or Interconnection Customer.

Breach shall mean the failure of a Party to perform or observe any material term or condition of this GIA.

Breaching Party shall mean a Party that is in Breach of this GIA.

Business Day shall mean Monday through Friday, excluding Federal Holidays.

Calendar Day shall mean any day including Saturday, Sunday or a Federal Holiday.

Commercial Operation shall mean the status of a Generating Facility that has commenced generating electricity for sale, excluding electricity generated during Trial Operation.

Commercial Operation Date (COD) of a unit shall mean the date on which the Generating Facility commences Commercial Operation as agreed to by the Parties pursuant to Appendix E to this GIA.

Common Use Upgrade (CUU) shall mean an Interconnection Facility, Network Upgrade, System Protection Facility, or any other classified addition, alteration, or improvement on the Transmission System or the transmission system of an Affected System, not classified under Attachment FF as a Baseline Reliability Project, Market Efficiency Project, or Multi-Value Project, that is needed for the interconnection of multiple Interconnection Customers' Generating Facilities and which is the shared responsibility of such Interconnection Customers.

Confidential Information shall mean any proprietary or commercially or competitively sensitive information, trade secret or information regarding a plan, specification, pattern, procedure, design, device, list, concept, policy or compilation relating to the present or planned business of a Party, or any other information as specified in Article 22, which is designated as confidential by the Party supplying the information, whether conveyed orally, electronically, in writing, through inspection, or otherwise, that is received by another Party.

Default shall mean the failure of a Breaching Party to cure its Breach in accordance with Article 17 of this GIA.

Definitive Planning Phase Queue Position shall mean the order of a valid Interconnection Request, relative to all other pending valid Interconnection Requests, in the Definitive Planning Phase. The Definitive Planning Phase Queue Position is established based upon the date Interconnection Customer satisfies all of the requirements of Section 7.2 to enter the Definitive Planning Phase.

Demonstrated Capability shall mean the continuous net real power output that the Generating Facility is required to demonstrate in compliance with Applicable Reliability Standards.

Dispute Resolution shall mean the procedure for resolution of a dispute between or among the Parties in which they will first attempt to resolve the dispute on an informal basis.

Distribution System shall mean the Transmission Owner's facilities and equipment, or the Distribution System of another party that is interconnected with the Transmission Owner's Transmission System, if any, connected to the Transmission System, over which facilities Transmission Service or Wholesale Distribution Service under the Tariff is available at the time Interconnection Customer has requested interconnection of a Generating Facility for the purpose of either transmitting electric energy in interstate commerce or selling electric energy at wholesale in interstate commerce and which are used to transmit electricity to ultimate usage points such as homes and industries directly from nearby generators or from interchanges with higher voltage transmission networks which transport bulk power over longer distances. The voltage levels at which distribution systems operate differ among Local Balancing Authorities and other entities owning distribution facilities interconnected to the Transmission System.

Distribution Upgrades shall mean the additions, modifications, and upgrades to the Distribution System at or beyond the Point of Interconnection to facilitate interconnection of the Generating Facility and render the delivery service necessary to affect Interconnection Customer's wholesale sale of electricity in interstate commerce. Distribution Upgrades do not include Interconnection Facilities.

Effective Date shall mean the date on which this GIA becomes effective upon execution by the Parties subject to acceptance by the Commission, or if filed unexecuted, upon the date specified by the Commission.

Emergency Condition shall mean a condition or situation: (1) that in the reasonable judgment of the Party making the claim is imminently likely to endanger, or is contributing to the endangerment of, life, property, or public health and safety; or (2) that, in the case of either Transmission Provider or Transmission Owner, is imminently likely (as determined in a non-discriminatory manner) to cause a material adverse effect on the security of, or damage to the Transmission System, Transmission Owner's Interconnection Facilities or the electric systems of others to which the Transmission System is directly connected; or (3) that, in the case of Interconnection Customer, is imminently likely (as determined in a non-discriminatory manner) to cause a material adverse effect on the security of, or damage to, the Generating Facility or Interconnection Customer's Interconnection Facilities. System restoration and blackstart shall be considered Emergency Conditions; provided that Interconnection Customer is not obligated by this GIA to possess blackstart capability. Any condition or situation that results from lack of sufficient generating capacity to meet load requirements or that results solely from economic conditions shall not constitute an Emergency Condition, unless one of the enumerated conditions or situations identified in this definition also exists.

Energy Displacement Agreement shall mean an agreement between an Interconnection Customer with an existing generating facility on the Transmission Provider's Transmission System and an Interconnection Customer with a proposed Generating Facility seeking to interconnect with Net Zero Interconnection Service. The Energy Displacement Agreement specifies the term of operation, the Generating Facility Interconnection Service limit, and the mode of operation for energy production (common or singular operation).

Energy Resource Interconnection Service (ER Interconnection Service) shall mean an Interconnection Service that allows Interconnection Customer to connect its Generating Facility to the Transmission System or Distribution System, as applicable, to be eligible to deliver the Generating Facility's electric output using the existing firm or non-firm capacity of the Transmission System on an as available basis. Energy Resource Interconnection Service does not convey transmission service.

Engineering & Procurement (E&P) Agreement shall mean an agreement that authorizes Transmission Owner to begin engineering and procurement of long lead-time items necessary for the establishment of the interconnection in order to advance the implementation of the Interconnection Request.

Environmental Law shall mean Applicable Laws or Regulations relating to pollution or protection of the environment or natural resources.

Federal Holiday shall mean a Federal Reserve Bank holiday for a Party that has its principal place of business in the United States and a Canadian Federal or Provincial banking holiday for a Party that has its principal place of business located in Canada.

Federal Power Act shall mean the Federal Power Act, as amended, 16 U.S.C. §§ 791a *et seq*.

FERC shall mean the Federal Energy Regulatory Commission, also known as Commission, or its successor.

Force Majeure shall mean any act of God, labor disturbance, act of the public enemy, war, insurrection, riot, fire, storm or flood, explosion, breakage or accident to machinery or equipment, any order, regulation or restriction imposed by governmental, military or lawfully established civilian authorities, or any other cause beyond a Party's control. A Force Majeure event does not include an act of negligence or intentional wrongdoing by the Party claiming Force Majeure.

Generating Facility shall mean Interconnection Customer's device(s) for the production and/or storage for later injection of electricity identified in the Interconnection Request, but shall not include the Interconnection Customer's Interconnection Facilities. A Generating Facility consists of one or more generating unit(s) and/or storage device(s) which usually can operate independently and be brought online or taken offline individually.

Generating Facility Capacity shall mean the net capacity of the Generating Facility and the aggregate net capacity of the Generating Facility where it includes multiple energy production devices.

Generating Facility Modification shall mean modification to an Existing Generating Facility, including comparable replacement of only a portion of its equipment at the Existing Generating Facility.

Generating Facility Replacement shall mean replacement of one or more generating units and/or storage devices at the Existing Generating Facility with one or more new generating units or storage devices at the same electrical Point of Interconnection as the generating units and/or storage devices that is/are being decommissioned and electrically disconnected.

Generator Interconnection Agreement (GIA) shall mean the form of interconnection agreement, set forth herein.

Generator Interconnection Procedures (GIP) shall mean the interconnection procedures set forth in Attachment X of the Tariff.

Generator Upgrades shall mean the additions, modifications, and upgrades to the electric system of an existing generating facility or of a higher queued Generating Facility at or beyond the Point of Interconnection to facilitate interconnection of the Generating Facility and render the Transmission Service necessary to affect Interconnection Customer's wholesale sale of electricity in interstate commerce.

Good Utility Practice shall mean any of the practices, methods and acts engaged in or approved by a significant portion of the electric industry during the relevant time period, or any of the practices, methods and acts which, in the exercise of reasonable judgment in light of the facts known at the time the decision was made, could have been expected to accomplish the desired result at a reasonable cost consistent with good business practices, reliability, safety and expedition. Good Utility Practice is not intended to be limited to the optimum practice, method, or act to the exclusion of all others, but rather to be acceptable practices, methods, or acts generally accepted in the region.

Governmental Authority shall mean any federal, state, local or other governmental regulatory or administrative agency, court, commission, department, board, or other governmental subdivision, legislature, rulemaking board, tribunal, or other governmental authority having jurisdiction over the Parties, their respective facilities, or the respective services they provide, and exercising or entitled to exercise any administrative, executive, police, or taxing authority or power; provided, however, that such term does not include Interconnection Customer, Transmission Provider, Transmission Owner, or any Affiliate thereof.

Group Study(ies) shall mean the process whereby more than one Interconnection Request is studied together, instead of serially, for the purpose of conducting one or more of the required Studies.

Hazardous Substances shall mean any chemicals, materials or substances defined as or included in the definition of "hazardous substances," "hazardous wastes," "hazardous materials," "hazardous constituents," "restricted hazardous materials," "extremely hazardous substances," "toxic substances," "radioactive substances," "contaminants," "pollutants," "toxic pollutants" or words of similar meaning and regulatory effect under any applicable Environmental Law, or any other chemical, material or substance, exposure to which is prohibited, limited or regulated by any applicable Environmental Law.

HVDC Facilities shall mean the high voltage direct current transmission facilities, including associated alternating current facilities, if any, that are subject to Section 27A of the Tariff and that are specifically identified in (i) any Agency Agreement pertaining to such facilities between Transmission Provider and Transmission Owner that owns or operates such facilities, or (ii) in any other arrangement that permits or will permit Transmission Provider to provide HVDC Service over such facilities as set forth in Section 27A of the Tariff.

HVDC Service shall mean Firm and Non-Firm Point-To-Point Transmission Service provided by Transmission Provider on HVDC Facilities pursuant to Section 27A of the Tariff.

Initial Synchronization Date shall mean the date upon which the Generating Facility is initially synchronized and upon which Trial Operation begins.

In-Service Date (ISD) shall mean the date upon which Interconnection Customer reasonably expects it will be ready to begin use of the Transmission Owner's Interconnection Facilities to obtain backfeed power.

Interconnection Customer shall mean any entity, including Transmission Provider, Transmission Owner or any of the Affiliates or subsidiaries of either, that proposes to interconnect its Generating Facility with the Transmission System.

Interconnection Customer's Interconnection Facilities (ICIF) shall mean all facilities and equipment, as identified in Appendix A of this GIA, that are located between the Generating Facility and the Point of Change of Ownership, including any modification, addition, or upgrades to such facilities and equipment necessary to physically and electrically interconnect the Generating Facility to the Transmission System or Distribution System, as applicable. Interconnection Customer's Interconnection Facilities are sole use facilities.

Interconnection Facilities shall mean the Transmission Owner's Interconnection Facilities and the Interconnection Customer's Interconnection Facilities. Collectively, Interconnection Facilities include all facilities and equipment between the Generating Facility and the Point of Interconnection, including any modification, additions or upgrades that are necessary to physically and electrically interconnect the Generating Facility to the Transmission System. Interconnection Facilities shall not include Distribution Upgrades, Generator Upgrades, Stand Alone Network Upgrades or Network Upgrades.

Interconnection Facilities Study shall mean a study conducted by Transmission Provider, or its agent, for Interconnection Customer to determine a list of facilities (including Transmission Owner's Interconnection Facilities, System Protection Facilities, and if such upgrades have been determined, Network Upgrades, Distribution Upgrades, Generator Upgrades, Common Use Upgrades, and upgrades on Affected Systems, as identified in the Interconnection System Impact Study), the cost of those facilities, and the time required to interconnect the Generating Facility with the Transmission System.

Interconnection Facilities Study Agreement shall mean the form of agreement contained in Appendix 4 of the Generator Interconnection Procedures for conducting the Interconnection Facilities Study.

Interconnection Request shall mean an Interconnection Customer's request, in the form of Appendix 1 to the Generator Interconnection Procedures, to interconnect a new Generating Facility, or to increase the capacity of, or make a Material Modification to the operating characteristics of, an existing Generating Facility that is interconnected with the Transmission System.

Interconnection Service shall mean the service provided by Transmission Provider associated with interconnecting the Generating Facility to the Transmission System and enabling it to receive electric energy and capacity from the Generating Facility at the Point of Interconnection, pursuant to the terms of this GIA and, if applicable, the Tariff.

Interconnection Study (or Study) shall mean any of the studies described in the Generator Interconnection Procedures.

Interconnection Study Agreement shall mean the form of agreement contained in Attachment B to Appendix 1 of the Generator Interconnection procedures for conducting all studies required by the Generator Interconnection Procedures.

Interconnection System Impact Study shall mean an engineering study that evaluates the impact of the proposed interconnection on the safety and reliability of Transmission System and, if applicable, an Affected System. The study shall identify and detail the system impacts that would result if the Generating Facility were interconnected without project modifications or system modifications, or to study potential impacts, including but not limited to those identified in the Scoping Meeting as described in the Generator Interconnection Procedures.

IRS shall mean the Internal Revenue Service.

Local Balancing Authority shall mean an operational entity or a Joint Registration Organization which is (i) responsible for compliance with the subset of NERC Balancing Authority Reliability Standards defined in the Balancing Authority Agreement for their local area within the MISO Balancing Authority Area, (ii) a Party to Balancing Authority Agreement, excluding MISO, and (iii) provided in the Balancing Authority Agreement.

Loss shall mean any and all damages, losses, claims, including claims and actions relating to injury to or death of any person or damage to property, demand, suits, recoveries, costs and expenses, court costs, attorney fees, and all other obligations by or to third parties, arising out of or resulting from the other Party's performance, or non-performance of its obligations under this GIA on behalf of the indemnifying Party, except in cases of gross negligence or intentional wrongdoing, by the indemnified party.

Material Modification shall mean: (1) modification to an Interconnection Request in the queue, that has a material adverse impact on the cost or timing of any other Interconnection

Request with a later queue priority date; or (2) planned modification to an Existing Generating Facility, that is undergoing evaluation for a Generating Facility Modification or Generating Facility Replacement, and has a material adverse impact on the Transmission System with respect to: i) steady-state thermal or voltage limits, ii) dynamic system stability and response, or iii) short-circuit capability limit; compared to the impacts of the Existing Generating Facility prior to the modification or replacement.

Metering Equipment shall mean all metering equipment installed or to be installed at the Generating Facility pursuant to this GIA at the metering points, including but not limited to instrument transformers, MWh-meters, data acquisition equipment, transducers, remote terminal unit, communications equipment, phone lines, and fiber optics.

Monitoring and Consent Agreement shall mean an agreement that defines the terms and conditions applicable to a Generating Facility acquiring Net Zero Interconnection Service. The Monitoring and Consent Agreement will list the roles and responsibilities of an Interconnection Customer seeking to interconnect with Net Zero Interconnection Service and Transmission Owner to maintain the total output of the Generating Facility inside the parameters delineated in the GIA.

NERC shall mean the North American Electric Reliability Corporation or its successor organization.

Net Zero Interconnection Service shall mean a form of ER Interconnection Service that allows Interconnection Customer to alter the characteristics of an existing generating facility, with the consent of the existing generating facility, at the same POI such that the Interconnection Service limit remains the same.

Network Customer shall have that meaning as provided in the Tariff.

Network Resource shall mean any designated generating resource owned, purchased, or leased by a Network Customer under the Tariff. Network Resources do not include any resource, or any portion thereof, that is committed for sale to third parties or otherwise cannot be called upon to meet the Network Customer's Network Load on a non-interruptible basis.

Network Resource Interconnection Service (NR Interconnection Service) shall mean an Interconnection Service that allows Interconnection Customer to integrate its Generating Facility with the Transmission System in the same manner as for any Generating Facility being designated as a Network Resource. Network Resource Interconnection Service does not convey transmission service. Network Resource Interconnection Service shall include any network resource interconnection service established under an agreement with, or the tariff of, a Transmission Owner prior to integration into MISO, that is determined to be deliverable through the integration deliverability study process.

Network Upgrades shall mean the additions, modifications, and upgrades to the Transmission System required at or beyond the point at which the Interconnection Facilities connect to the Transmission System or Distribution System, as applicable, to accommodate the

interconnection of the Generating Facility to the Transmission System. Network Upgrade shall not include any HVDC Facility Upgrades.

Notice of Dispute shall mean a written notice of a dispute or claim that arises out of or in connection with this GIA or its performance.

Operating Horizon Study shall mean an Interconnection System Impact Study that includes in service transmission and generation for an identified timeframe to determine either the available injection capacity of an Interconnection Request or Interconnection Facilities and/or Transmission System changes required for the requested Interconnection Service**.**

Optional Interconnection Study shall mean a sensitivity analysis based on assumptions specified by Interconnection Customer in the Optional Interconnection Study Agreement.

Optional Interconnection Study Agreement shall mean the form of agreement contained in Appendix 5 of the Generator Interconnection Procedures for conducting the Optional Interconnection Study.

Party or Parties shall mean Transmission Provider, Transmission Owner, Interconnection Customer, or any combination of the above.

Planning Horizon Study shall mean an Interconnection System Impact Study that includes a future year study to determine either the available injection capacity of an Interconnection Request or Interconnection Facilities and/or Transmission System changes required for the requested Interconnection Service.

Point of Change of Ownership (PCO) shall mean the point, as set forth in Appendix A to the Generator Interconnection Agreement, where the Interconnection Customer's Interconnection Facilities connect to the Transmission Owner's Interconnection Facilities.

Point of Interconnection (POI) shall mean the point, as set forth in Appendix A of the GIA, where the Interconnection Facilities connect to the Transmission System.

Provisional Interconnection Study shall mean an engineering study, performed at Interconnection Customer's request, as a condition to entering into a provisional GIA, that evaluates the impact of the proposed interconnection on the safety and reliability of the Transmission System and, if applicable, any Affected System. The study shall identify and detail the impacts on the Transmission System and, if applicable, an Affected System, from stability, short circuit, and voltage issues that would result if the Generating Facility were interconnected without project modifications or system modifications.

Queue Position shall mean the order of a valid Interconnection Request, relative to all other pending valid Interconnection Requests. The Queue Position is established based upon the date and time of receipt of the valid Interconnection Request by Transmission Provider.

Reasonable Efforts shall have that meaning as provided in the Tariff.

Replacement Generating Facility shall mean a Generating Facility that replaces an Existing Generating Facility, or a portion thereof, at the same electrical Point of Interconnection pursuant to Section 3.7 of this Attachment X.

Scoping Meeting shall mean the meeting between representatives of Interconnection Customer, Transmission Owner, Affected System Operator(s) and Transmission Provider conducted for the purpose of discussing alternative interconnection options, to exchange information including any transmission data and earlier study evaluations that would be reasonably expected to impact such interconnection options, to analyze such information, and to determine the potential feasible Points of Interconnection.

Shared Network Upgrade shall mean a Network Upgrade or Common Use Upgrade that is funded by an Interconnection Customer(s) and also benefits other Interconnection Customer(s) that are later identified as beneficiaries.

Site Control shall mean a documented right for one or more parcels of land for the purpose of constructing a Generating Facility, Interconnection Customer's Interconnection Facilities, and, if applicable (*i.e.*, when the Interconnection Customer is providing the site for such facilities), the Transmission Owner's Interconnection Facilities and Network Upgrades at the POI that the Interconnection Customer will develop. Such documented right shall be one of the following: (1) ownership of a site; (2) a leasehold interest in a site; or (3) an option to purchase or acquire a leasehold interest in a site; or (4) any other contractual or legal right to possess or occupy a site.

Small Generating Facility shall mean a Generating Facility that has an aggregate net Generating Facility Capacity of no more than five MW and meets the requirements of Section 14 and Appendix 3 of the GIP.

Special Protection System (SPS) shall mean an automatic protection system or remedial action scheme designed to detect abnormal or predetermined system conditions, and take corrective actions other than and/or in addition to the isolation of faulted components, to maintain system reliability. Such action may include changes in demand (MW and MVar), energy (MWh and MVarh), or system configuration to maintain system stability, acceptable voltage, or power flows. An SPS does not include (a) underfrequency or undervoltage load shedding, (b) fault conditions that must be isolated, (c) out-of-step relaying not designed as an integral part of an SPS, or (d) Transmission Control Devices.

Stand Alone Network Upgrades shall mean Network Upgrades that an Interconnection Customer may construct without affecting day-to-day operations of the Transmission System during their construction. Transmission Provider, Transmission Owner and Interconnection Customer must agree as to what constitutes Stand Alone Network Upgrades and identify them in Appendix A to this GIA.

System Protection Facilities shall mean the equipment, including necessary protection signal communications equipment, required to protect (1) the Transmission System or other

delivery systems or other generating systems from faults or other electrical disturbances occurring at the Generating Facility and (2) the Generating Facility from faults or other electrical system disturbances occurring on the Transmission System or on other delivery systems or other generating systems to which the Transmission System is directly connected.

Tariff shall mean the Transmission Provider's Tariff through which open access transmission service and Interconnection Service are offered, as filed with the Commission, and as amended or supplemented from time to time, or any successor tariff.

Transmission Control Devices shall mean a generally accepted transmission device that is planned and designed to provide dynamic control of electric system quantities, and are usually employed as solutions to specific system performance issues. Examples of such devices include fast valving, high response exciters, high voltage DC links, active or real power flow control and reactive compensation devices using power electronics (*e.g.*, unified power flow controllers), static var compensators, thyristor controlled series capacitors, braking resistors, and in some cases mechanically-switched capacitors and reactors. In general, such systems are not considered to be Special Protection Systems.

Transmission Owner shall mean that Transmission Owner as defined in the Tariff, which includes an entity that owns, leases or otherwise possesses an interest in the portion of the Transmission System at which Interconnection Customer proposes to interconnect or otherwise integrate the operation of the Generating Facility. Transmission Owner should be read to include any Independent Transmission Company that manages the transmission facilities of Transmission Owner and shall include, as applicable, the owner and/or operator of distribution facilities interconnected to the Transmission System, over which facilities transmission service or Wholesale Distribution Service under the Tariff is available at the time Interconnection Customer requests Interconnection Service and to which Interconnection Customer has requested interconnection of a Generating Facility for the purpose of either transmitting electric energy in interstate commerce or selling electric energy at wholesale in interstate commerce.

Transmission Provider shall mean the Midcontinent Independent System Operator, Inc. ("MISO"), the Regional Transmission Organization that controls or operates the transmission facilities of its transmission-owning members used for the transmission of electricity in interstate commerce and provides transmission service under the Tariff.

Transmission Owner's Interconnection Facilities (TOIF) shall mean all facilities and equipment owned by Transmission Owner from the Point of Change of Ownership to the Point of Interconnection as identified in Appendix A to this GIA, including any modifications, additions or upgrades to such facilities and equipment. Transmission Owner's Interconnection Facilities are sole use facilities and shall not include Distribution Upgrades, Generator Upgrades, Stand Alone Network Upgrades or Network Upgrades.

Transmission System shall mean the facilities owned by Transmission Owner and controlled or operated by Transmission Provider or Transmission Owner that are used to provide Transmission Service (including HVDC Service) or Wholesale Distribution Service under the Tariff.

Trial Operation shall mean the period during which Interconnection Customer is engaged in on-site test operations and commissioning of the Generating Facility prior to Commercial Operation.

Variable Energy Resource shall mean a device for the production of electricity that is characterized by an energy source that: (1) is renewable; (2) cannot be stored by the facility owner or operator; and (3) has variability that is beyond the control of the facility owner or operator.

Wholesale Distribution Service shall have that meaning as provided in the Tariff. Wherever the term "transmission delivery service" is used, Wholesale Distribution Service shall also be implied.

ARTICLE 2. EFFECTIVE DATE, TERM AND TERMINATION

2.1 Effective Date. This GIA shall become effective upon execution by the Parties subject to acceptance by FERC (if applicable), or if filed unexecuted, upon the date specified by FERC. Transmission Provider shall promptly file this GIA with FERC upon execution in accordance with Article 3.1, if required.

2.2 Term of Agreement. Subject to the provisions of Article 2.3, this GIA shall remain in effect for a period of 30 years from the Effective Date and shall be automatically renewed for each successive one-year period thereafter on the anniversary of the Effective Date.

2.3 Termination Procedures. This GIA may be terminated as follows:

2.3.1 Written Notice. This GIA may be terminated by Interconnection Customer after giving Transmission Provider and Transmission Owner ninety (90) Calendar Days advance written notice. This GIA shall be terminated by Transmission Provider if the Generating Facility or a portion of the Generating Facility fails to achieve Commercial Operation by the Commercial Operation Date established in accordance with Section 4.4.4 of Attachment X, including any extension provided thereunder, or has ceased Commercial Operation for three (3) consecutive years, beginning with the last date of Commercial Operation for the Generating Facility, after giving Interconnection Customer ninety (90) Calendar Days advance written notice. Where only a portion of the Generating Facility fails to achieve Commercial Operation by the Commercial Operation Date established in accordance with Section 4.4.4 of Attachment X, including any extension provided thereunder, Transmission Provider shall only terminate that portion of the GIA. Notwithstanding the foregoing, in the limited circumstance that the Interconnection Request is served by a contingent Network Upgrade with an in-service date that is farther out than the Commercial Operation Date permitted under Section 4.4.4 of Attachment X, Transmission Provider shall only terminate this GIA for failure to achieve Commercial Operation by that later in-service date of the contingent Network Upgrade. The Generating Facility will not be deemed to have ceased Commercial Operation for purposes of this Article 2.3.1 if Interconnection Customer can document that it has taken other significant steps to maintain or restore operational readiness of the Generating Facility for the purpose of returning the Generating Facility to Commercial Operation as soon as possible.

2.3.1.1 Net Zero Interconnection Service. Where this GIA provides for Net Zero Interconnection Service and the Energy Displacement Agreement or the Monitoring and Consent Agreement required for Net Zero Interconnection Service are no longer in effect, Interconnection Customer shall immediately cease Commercial Operation of the Generating Facility and this GIA shall be deemed terminated.

2.3.2 Default. Any Party may terminate this GIA in accordance with Article 17.

2.3.3 Notwithstanding Articles 2.3.1 and 2.3.2, no termination shall become effective until the Parties have complied with all Applicable Laws and Regulations applicable to such termination, including the filing with FERC of a notice of termination of this GIA, if required, which notice has been accepted for filing by FERC.

2.4 Termination Costs. If a Party elects to terminate this GIA pursuant to Article 2.3 above, each Party shall pay all costs incurred for which that Party is responsible (including any cancellation costs relating to orders or contracts for Interconnection Facilities, applicable upgrades, and related equipment) or charges assessed by the other Parties, as of the date of the other Parties' receipt of such notice of termination, under this GIA. In the event of termination by a Party, the Parties shall use commercially Reasonable Efforts to mitigate the costs, damages and charges arising as a consequence of termination. Upon termination of this GIA, unless otherwise ordered or approved by FERC:

2.4.1 With respect to any portion of the Transmission Owner's Interconnection Facilities, Network Upgrades, System Protection Facilities, Distribution Upgrades, Generator Upgrades, and if so determined and made a part of this GIA, upgrades on Affected Systems, that have not yet been constructed or installed, Transmission Owner shall to the extent possible and to the extent of Interconnection Customer's written notice under Article 2.3.1, cancel any pending orders of, or return, any materials or equipment for, or contracts for construction of, such facilities; provided that in the event Interconnection Customer elects not to authorize such cancellation, Interconnection Customer shall assume all payment obligations with respect to such materials, equipment, and contracts, and Transmission Owner shall deliver such material and equipment, and, if necessary, assign such contracts, to Interconnection Customer as soon as practicable, at Interconnection Customer's expense. To the extent that Interconnection Customer has already paid Transmission Owner for any or all such costs of materials or equipment not taken by Interconnection Customer, Transmission Owner shall promptly refund such amounts to Interconnection Customer, less any costs, including penalties incurred by Transmission Owner to cancel any pending orders of or return such materials, equipment, or contracts.

If an Interconnection Customer terminates this GIA, it shall be responsible for all costs incurred in association with that Interconnection Customer's interconnection, including any cancellation costs relating to orders or contracts for Interconnection Facilities and equipment, and other expenses including any upgrades or related equipment for which Transmission Owner has incurred expenses and has not been reimbursed by Interconnection Customer.

2.4.2 Transmission Owner may, at its option, retain any portion of such materials, equipment, or facilities that Interconnection Customer chooses not to accept delivery of, in which case Transmission Owner shall be responsible for all costs associated with procuring such materials, equipment, or facilities. If

Transmission Owner does not so elect, then Interconnection Customer shall be responsible for such costs.

2.4.3 With respect to any portion of the Interconnection Facilities, and any other facilities already installed or constructed pursuant to the terms of this GIA, Interconnection Customer shall be responsible for all costs associated with the removal, relocation, reconfiguration or other disposition or retirement of such materials, equipment, or facilities, and such other expenses actually incurred by Transmission Owner necessary to return the Transmission, Distribution or Generator System, as applicable, to safe and reliable operation.

2.5 **Disconnection**. Upon termination of this GIA, the Parties will take all appropriate steps to disconnect the Generating Facility from the Transmission or Distribution System, as applicable. All costs required to effectuate such disconnection shall be borne by the terminating Party, unless such termination resulted from the non-terminating Party's Default of this GIA or such non-terminating Party otherwise is responsible for these costs under this GIA.

2.6 **Survival.** This GIA shall continue in effect after termination to the extent necessary to provide for final billings and payments and for costs incurred hereunder, including billings and payments pursuant to this GIA; to permit the determination and enforcement of liability and indemnification obligations arising from acts or events that occurred while this GIA was in effect; and to permit each Party to have access to the lands of the other Party pursuant to this GIA or other applicable agreements, to disconnect, remove or salvage its own facilities and equipment.

ARTICLE 3. REGULATORY FILINGS

3.1 **Filing.** Transmission Provider shall file this GIA (and any amendment hereto) with the appropriate Governmental Authority, if required. A Party may request that any information so provided be subject to the confidentiality provisions of Article 22. If that Party has executed this GIA, or any amendment thereto, the Party shall reasonably cooperate with Transmission Provider with respect to such filing and to provide any information reasonably requested by Transmission Provider needed to comply with applicable regulatory requirements.

ARTICLE 4. SCOPE OF SERVICE

4.1 **Interconnection Product Options**. Interconnection Customer has selected the following (checked) type of Interconnection Service:

Check: _____ NZ or ____ ER and/or __X__ NR (See Appendix A for details)

4.1.1 Energy Resource Interconnection Service (ER Interconnection Service).

4.1.1.1 The Product. ER Interconnection Service allows Interconnection Customer to connect the Generating Facility to the Transmission or Distribution System, as applicable, and be eligible to deliver the Generating Facility's output using the existing firm or non-firm capacity of the Transmission System on an "as available" basis. To the extent Interconnection Customer wants to receive ER Interconnection Service, Transmission Owner shall construct facilities consistent with the studies identified in Appendix A.

An Interconnection Customer seeking ER Interconnection Service for new or added capacity at a Generating Facility may be granted conditional ER Interconnection Service status to the extent there is such capacity available on the Transmission System to accommodate the Interconnection Customer's Generating Facility. At the request of Interconnection Customer, conditional ER Interconnection Service status may be granted subject to the system being able to accommodate the interconnection without upgrades, until such time as a higher queued project(s) with a later service date affecting the same common elements is placed into service. The conditional ER Interconnection Service shall be terminated in the event Interconnection Customer fails to fund the necessary studies and the Network Upgrades necessary to grant the Interconnection Customer's ER Interconnection Service upon the completion of higher queued projects involving the same common elements.

4.1.1.2 Transmission Delivery Service Implications. Under ER Interconnection Service, Interconnection Customer will be eligible to inject power from the Generating Facility into and deliver power across the Transmission System on an "as available" basis up to the amount of MW identified in the applicable stability and steady state studies to the extent the upgrades initially required to qualify for ER Interconnection Service have been constructed. After that date FERC makes effective MISO's Energy Market Tariff filed in Docket No. ER04-691-000, Interconnection Customer may place a bid to sell into the market up to the maximum identified Generating Facility output, subject to any conditions specified in the Interconnection Service approval, and the Generating Facility will be dispatched to the extent the Interconnection Customer's bid clears. In all other instances, no transmission or other delivery service from the Generating Facility is assured, but Interconnection Customer may obtain Point-To-Point Transmission Service, Network Integration Transmission Service or be used for secondary network transmission service, pursuant to the Tariff, up to the maximum output identified in the stability and steady state studies. In those instances, in order for Interconnection Customer to obtain the right to deliver or inject energy beyond the Point of Interconnection or to improve its ability to do so, transmission delivery service must be obtained pursuant to the provisions of the Tariff. The Interconnection Customer's ability to inject its Generating Facility output

beyond the Point of Interconnection, therefore, will depend on the existing capacity of the Transmission or Distribution System as applicable, at such time as a Transmission Service request is made that would accommodate such delivery. The provision of Firm Point-To-Point Transmission Service or Network Integration Transmission Service may require the construction of additional Network or Distribution Upgrades.

4.1.2 Network Resource Interconnection Service (NR Interconnection Service).

4.1.2.1 The Product. Transmission Provider must conduct the necessary studies and Transmission Owner shall construct the facilities identified in Appendix A of this GIA, subject to the approval of Governmental Authorities, needed to integrate the Generating Facility in the same manner as for any Generating Facility being designated as a Network Resource.

4.1.2.2 Transmission Delivery Service Implications. NR Interconnection Service allows the Generating Facility to be designated by any Network Customer under the Tariff on the Transmission System as a Network Resource, up to the Generating Facility's full output, on the same basis as existing Network Resources that are interconnected to the Transmission or Distribution System, as applicable, and to be studied as a Network Resource on the assumption that such a designation will occur. Although NR Interconnection Service does not convey a reservation of Transmission Service, any Network Customer can utilize Network Integration Transmission Service under the Tariff to obtain delivery of energy from the Generating Facility in the same manner as it accesses Network Resources. A Generating Facility receiving NR Interconnection Service may also be used to provide Ancillary Services after technical studies and/or periodic analyses are performed with respect to the Generating Facility's ability to provide any applicable Ancillary Services, provided that such studies and analyses have been or would be required in connection with the provision of such Ancillary Services by any existing Network Resource. However, if the Generating Facility has not been designated as a Network Resource by any Network Customer, it cannot be required to provide Ancillary Services except to the extent such requirements extend to all generating facilities that are similarly situated. The provision of Network Integration Transmission Service or Firm Point-To-Point Transmission Service may require additional studies and the construction of additional upgrades. Because such studies and upgrades would be associated with a request for delivery service under the Tariff, cost responsibility for the studies and upgrades would be in accordance with FERC's policy for pricing transmission delivery services.

NR Interconnection Service does not necessarily provide Interconnection Customer with the capability to physically deliver the output of its

Generating Facility to any particular load on the Transmission System without incurring congestion costs. In the event of transmission or distribution constraints on the Transmission or Distribution System, as applicable, the Generating Facility shall be subject to the applicable congestion management procedures in the Transmission System in the same manner as Network Resources.

There is no requirement either at the time of study or interconnection, or at any point in the future, that the Generating Facility be designated as a Network Resource by a Network Customer or that Interconnection Customer identify a specific buyer (or sink). To the extent a Network Customer does designate the Generating Facility as a Network Resource, it must do so pursuant to the Tariff.

Once an Interconnection Customer satisfies the requirements for obtaining NR Interconnection Service, any future Transmission Service request for delivery from the Generating Facility within the Transmission System of any amount of capacity and/or energy, up to the amount initially studied, will not require that any additional studies be performed or that any further upgrades associated with such Generating Facility be undertaken, regardless of whether such Generating Facility is ever designated by a Network Customer as a Network Resource and regardless of changes in ownership of the Generating Facility. To the extent Interconnection Customer enters into an arrangement for long term Transmission Service for deliveries from the Generating Facility to customers other than the studied Network Customers, or for any Point-To-Point Transmission Service, such request may require additional studies and upgrades in order for Transmission Provider to grant such request. However, the reduction or elimination of congestion or redispatch costs may require additional studies and the construction of additional upgrades.

To the extent Interconnection Customer enters into an arrangement for long term Transmission Service for deliveries from the Generating Facility outside the Transmission System, such request may require additional studies and upgrades in order for Transmission Provider to grant such request.

4.1.2.3 Conditional NR Interconnection Service. An Interconnection Customer seeking NR Interconnection Service for new or added capacity at a Generating Facility may be granted conditional NR Interconnection Service status to the extent there is such capacity available on the Transmission System to accommodate the Interconnection Customer's Generating Facility. At the request of Interconnection Customer, conditional NR Interconnection Service status may be granted subject to the system being able to accommodate the interconnection without upgrades, until such time as higher queued project(s) with a later service

date affecting the same common elements is placed into service. The conditional NR Interconnection Service status may be converted to ER Interconnection Service if either of the following occurs:

1) Interconnection Customer fails to fund necessary studies and Network Upgrades required to allow the Interconnection Customer's Generating Facility to receive NR Interconnection Service upon the completion of higher queued projects involving the same common elements; or

2) The higher queued project(s) or planned and required Network Upgrades are placed in service and the Network Upgrades required to provide NR Interconnection Service status to the Interconnection Customer's Generating Facility are not in service.

In the event Interconnection Customer fails to fund the necessary studies and Network Upgrades for NR Interconnection Service, the Interconnection Customer's conditional NR Interconnection Service status shall be converted to ER Interconnection Service status unless Interconnection Customer makes a new Interconnection Request. Such new Interconnection Request shall be evaluated in accordance with the GIP and its new queue position.

Some or all of the conditional NR Interconnection Service status may be temporarily revoked if the Network Upgrades are not in service when the higher queued project(s) are placed in service. The availability of conditional NR Interconnection Service status will be determined by Transmission Provider's studies. Upon funding and completion of the Network Upgrades required to establish the Generating Facility's NR Interconnection Service status, the Generating Facility will be granted NR Interconnection Service status.

The Parties agree that the portion of the Generating Facility classified as NR Interconnection Service is the first portion of the output of the combined output of all the units at the Generating Facility except in circumstances where Interconnection Customer otherwise elects this GIA, as amended, to allocate that portion to the output of specific unit(s) at the Generating Facility, the total of which will not exceed the output eligible for NR Interconnection Service as shown by the additional studies. To the extent Interconnection Customer desires to obtain NR Interconnection Service for any portion of the Generating Facility in addition to that supported by such additional studies, Interconnection Customer will be required to request such additional NR Interconnection Service through a separate Interconnection Request in accordance with the GIP.

4.1.3 Net Zero Interconnection Service (NZ Interconnection Service).

4.1.3.1 The Product. Net Zero Interconnection Service is restricted ER Interconnection Service that allows an Interconnection Customer to increase the gross generating capability at the same Point of Interconnection of an existing generating facility without increasing the existing Interconnection Service limit at that Point of Interconnection.

4.1.3.2 Transmission Delivery Service Implications. Net Zero Interconnection Service does not convey any right to deliver electricity to any specific customer or Point of Delivery.

4.2 Provision of Service. Transmission Provider shall provide Interconnection Service for the Generating Facility at the Point of Interconnection.

4.3 Performance Standards. Each Party shall perform all of its obligations under this GIA in accordance with Applicable Laws and Regulations, Applicable Reliability Standards, and Good Utility Practice. To the extent a Party is required or prevented or limited in taking any action by such regulations and standards, or if the obligations of any Party may become limited by a change in Applicable Laws and Regulations, Applicable Reliability Standards, and Good Utility Practice after the execution of this GIA, that Party shall not be deemed to be in Breach of this GIA for its compliance therewith. The Party so limited shall notify the other Parties whereupon Transmission Provider shall amend this GIA in concurrence with the other Parties and submit the amendment to the Commission for approval.

4.4 No Transmission Delivery Service. The execution of this GIA does not constitute a request for, or the provision of, any transmission delivery service under the Tariff, and does not convey any right to deliver electricity to any specific customer or Point of Delivery.

4.5 Interconnection Customer Provided Services. The services provided by Interconnection Customer under this GIA are set forth in Article 9.6 and Article 13.4.1. Interconnection Customer shall be paid for such services in accordance with Article 11.7.

ARTICLE 5. INTERCONNECTION FACILITIES ENGINEERING, PROCUREMENT, AND CONSTRUCTION

5.1 Options. Unless otherwise mutually agreed to between the Parties, Interconnection Customer shall select: 1) the In-Service Date, Initial Synchronization Date, and Commercial Operation Date based on a reasonable construction schedule that will allow sufficient time for design, construction, equipment procurement, and permit acquisition of Transmission System equipment or right-of-way; and 2) either Standard Option or Alternate Option set forth below for completion of the Transmission Owner's Interconnection Facilities, Network Upgrades, System Protection Facilities, Distribution Upgrades and Generator Upgrades, as applicable, and set forth in Appendix A, and such dates and selected option shall be set forth in Appendix B. The dates and selected option

shall be subject to the acceptance of Transmission Owner taking into account the type of construction to be employed and the regulatory requirements of Governmental Authority, and does not convey any right to deliver electricity to any specific customer or Point of Delivery, including the need to obtain permits or other authorizations for construction of the Interconnection Facilities, Network Upgrades, System Protection Facilities, Distribution Upgrades, Generator Upgrades, the Generating Facility and Stand-Alone Network Upgrades.

5.1.1 Standard Option. Transmission Owner shall design, procure, and construct the Transmission Owner's Interconnection Facilities, Network Upgrades, System Protection Facilities, Distribution Upgrades, and Generator Upgrades using Reasonable Efforts to complete the Transmission Owner's Interconnection Facilities, Network Upgrades, System Protection Facilities, Distribution Upgrades and Generator Upgrades by the dates set forth in Appendix B, Milestones, subject to the receipt of all approvals required from Governmental Authorities and the receipt of all land rights necessary to commence construction of such facilities, and such other permits or authorizations as may be required. Transmission Provider or Transmission Owner shall not be required to undertake any action which is inconsistent with its standard safety practices, its material and equipment specifications, its design criteria and construction procedures, its labor agreements, Applicable Laws and Regulations and Good Utility Practice. In the event Transmission Owner reasonably expects that it will not be able to complete the Transmission Owner's Interconnection Facilities, Network Upgrades, System Protection Facilities, Distribution Upgrades and Generator Upgrades by the specified dates, Transmission Owner shall promptly provide written notice to Interconnection Customer and Transmission Provider and shall undertake Reasonable Efforts to meet the earliest dates thereafter.

5.1.2 Alternate Option. If the dates designated by Interconnection Customer are acceptable to Transmission Provider and Transmission Owner, Transmission Provider shall so notify Interconnection Customer within thirty (30) Calendar Days, and Transmission Owner shall assume responsibility for the design, procurement and construction of the Transmission Owner's Interconnection Facilities by the designated dates.

If Transmission Owner subsequently fails to complete the Transmission Owner's Interconnection Facilities by the In-Service Date, to the extent necessary to provide back feed power; or fails to complete Network Upgrades by the Initial Synchronization Date to the extent necessary to allow for Trial Operation at full power output, unless other arrangements are made by the Parties for such Trial Operation; or fails to complete the Network Upgrades by the Commercial Operation Date, as such dates are reflected in Appendix B, Milestones; Transmission Owner shall pay Interconnection Customer liquidated damages in accordance with Article 5.3, Liquidated Damages, provided, however, the dates designated by Interconnection Customer shall be extended day for day for each Calendar Day that Transmission Provider refuses to grant clearances to install

equipment.

Transmission Owner and Interconnection Customer may adopt an incentive payment schedule that is mutually agreeable to encourage Transmission Owner to meet specified accelerated dates. Such payment by Interconnection Customer is not subject to refund.

5.1.3 Option to Build. If the dates designated by Interconnection Customer are not acceptable to Transmission Owner to complete the Transmission Owner's Interconnection Facilities or Stand Alone Network Upgrades, Transmission Provider shall so notify Interconnection Customer within thirty (30) Calendar Days, and unless the Parties agree otherwise, Interconnection Customer shall have the option to assume responsibility for the design, procurement and construction of the Transmission Owner's Interconnection Facilities and Stand Alone Network Upgrades by the dates originally designated by Interconnection Customer under Article 5.1.2. The Parties must agree as to what constitutes Stand Alone Network Upgrades and identify such Stand Alone Network Upgrades in Appendix A. Except for Stand Alone Network Upgrades, Interconnection Customer shall have no right to construct Network Upgrades under this option.

5.1.4 Negotiated Option. If Interconnection Customer elects not to exercise its option under Article 5.1.3, Option to Build, Interconnection Customer shall so notify Transmission Provider and Transmission Owner within thirty (30) Calendar Days, and the Parties shall in good faith attempt to negotiate terms and conditions (including revision of the specified dates and liquidated damages, the provision of incentives or the procurement and construction of a portion of the Transmission Owner's Interconnection Facilities and Stand Alone Network Upgrades by Interconnection Customer) pursuant to which Transmission Owner is responsible for the design, procurement and construction of the Transmission Owner's Interconnection Facilities and Network Upgrades. If the Parties are unable to reach agreement on such terms and conditions, Transmission Owner shall assume responsibility for the design, procurement and construction of the Transmission Owner's Interconnection Facilities and Network Upgrades pursuant to 5.1.1, Standard Option.

Transmission Owner and Interconnection Customer may adopt an incentive payment schedule that is mutually agreeable to encourage Transmission Owner to meet specified accelerated dates. Such payment by Interconnection Customer is not subject to refund.

5.2 General Conditions Applicable to Option to Build. If Interconnection Customer assumes responsibility for the design, procurement and construction of the Transmission Owner's Interconnection Facilities and Stand Alone Network Upgrades after receipt of all required approvals from Governmental Authorities necessary to commence construction,

(1) Interconnection Customer shall engineer, procure equipment, and construct the Transmission Owner's Interconnection Facilities and Stand Alone Network Upgrades (or portions thereof) using Good Utility Practice and using standards and specifications provided in advance by Transmission Owner, or as required by any Governmental Authority;

(2) Interconnection Customer's engineering, procurement and construction of the Transmission Owner's Interconnection Facilities and Stand Alone Network Upgrades shall comply with all requirements of law or Governmental Authority to which Transmission Owner would be subject in the engineering, procurement or construction of the Transmission Owner's Interconnection Facilities and Stand Alone Network Upgrades;

(3) Transmission Provider, at Transmission Provider's option, and Transmission Owner shall be entitled to review and approve the engineering design, equipment acceptance tests(including witnessing of acceptance tests), and the construction (including monitoring of construction) of the Transmission Owner's Interconnection Facilities and Stand Alone Network Upgrades, and shall have the right to reject any design, procurement, construction or acceptance test of any equipment that does not meet the standards and specifications of Transmission Provider, Transmission Owner and any Governmental Authority;

(4) prior to commencement of construction, Interconnection Customer shall provide to Transmission Provider and Transmission Owner a schedule for construction of the Transmission Owner's Interconnection Facilities and Stand Alone Network Upgrades, and shall promptly respond to requests for information from Transmission Provider and Transmission Owner;

(5) at any time during construction, Transmission Provider and Transmission Owner shall have unrestricted access to the construction site for the Transmission Owner's Interconnection Facilities and Stand Alone Network Upgrades and to conduct inspections of the same;

(6) at any time during construction, should any phase of the engineering, equipment procurement, or construction of the Transmission Owner's Interconnection Facilities and Stand Alone Network Upgrades not meet the standards and specifications provided by Transmission Owner, Interconnection Customer shall be obligated to remedy deficiencies in that portion of the Transmission Owner's Interconnection Facilities and Stand Alone Network Upgrades to meet the standards and specifications provided by Transmission Provider and Transmission Owner;

(7) Interconnection Customer shall indemnify Transmission Provider and Transmission Owner for claims arising from the Interconnection Customer's construction of the Transmission Owner's Interconnection Facilities and Stand Alone Network Upgrades under the terms and procedures applicable to Article 18.1, Indemnity;

(8) Interconnection Customer shall transfer control of the Transmission Owner's Interconnection Facilities and Stand Alone Network Upgrades to Transmission Owner;

(9) Unless Parties otherwise agree, Interconnection Customer shall transfer ownership of the Transmission Owner's Interconnection Facilities and Stand Alone Network Upgrades to Transmission Owner;

(10) Transmission Provider, at Transmission Provider's option, and Transmission Owner shall approve and accept for operation and maintenance the Transmission Owner's Interconnection Facilities and Stand Alone Network Upgrades to the extent engineered, procured, and constructed in accordance with this Article 5.2 only if the Transmission Owner's Interconnection Facilities and Stand Alone Network Upgrades meet the standards and specifications of Transmission Provider, Transmission Owner and any Governmental Authority.

(11) Interconnection Customer shall deliver to Transmission Owner "as-built" drawings, information, and any other documents that are reasonably required by Transmission Owner to assure that the Interconnection Facilities and Stand-Alone Network Upgrades are built to the standards and specifications required by Transmission Owner.

5.3 Liquidated Damages. The actual damages to Interconnection Customer, in the event the Transmission Owner's Interconnection Facilities or Network Upgrades are not completed by the dates designated by Interconnection Customer and accepted by Transmission Provider and Transmission Owner pursuant to subparagraphs 5.1.2 or 5.1.4, above, may include Interconnection Customer's fixed operation and maintenance costs and lost opportunity costs. Such actual damages are uncertain and impossible to determine at this time. Because of such uncertainty, any liquidated damages paid by Transmission Owner to Interconnection Customer in the event that Transmission Owner does not complete any portion of the Transmission Owner's Interconnection Facilities or Network Upgrades by the applicable dates, shall be an amount equal to ½ of 1 percent per day of the actual cost of the Transmission Owner's Interconnection Facilities and Network Upgrades, in the aggregate, for which Transmission Owner has assumed responsibility to design, procure and construct.

However, in no event shall the total liquidated damages exceed 20 percent of the actual cost of the Transmission Owner's Interconnection Facilities and Network Upgrades for which Transmission Owner has assumed responsibility to design, procure, and construct. The foregoing payments will be made by Transmission Owner to Interconnection Customer as just compensation for the damages caused to Interconnection Customer, which actual damages are uncertain and impossible to determine at this time, and as reasonable liquidated damages, but not as a penalty or a method to secure performance of this GIA. Liquidated damages, when the Parties agree to them, are the exclusive remedy for the Transmission Owner's failure to meet its schedule.

No liquidated damages shall be paid to Interconnection Customer if: (1) Interconnection Customer is not ready to commence use of the Transmission Owner's Interconnection Facilities or Network Upgrades to take the delivery of power for the Generating Facility's Trial Operation or to export power from the Generating Facility on the specified dates, unless Interconnection Customer would have been able to commence use of the Transmission Owner's Interconnection Facilities or Network Upgrades to take the delivery of power for Generating Facility's Trial Operation or to export power from the Generating Facility, but for Transmission Owner's delay; (2) the Transmission Owner's failure to meet the specified dates is the result of the action or inaction of Transmission Provider, Interconnection Customer or any other earlier queued Interconnection Customer who has entered into an earlier GIA with Transmission Provider and/or a Transmission Owner or with an Affected System Operator, or any cause beyond Transmission Owner's reasonable control or reasonable ability to cure;
(3) Interconnection Customer has assumed responsibility for the design, procurement and construction of the Transmission Owner's Interconnection Facilities and Stand Alone Network Upgrades; (4) the delay is due to the inability of Transmission Owner to obtain all required approvals from Governmental Authorities in a timely manner for the construction of any element of the Interconnection Facilities, Network Upgrades or Stand Alone Network Upgrades, or any other permit or authorization required, or any land rights or other private authorizations that may be required, and Transmission Owner has exercised Reasonable Efforts in procuring such approvals, permits, rights or authorizations; or (5) the Parties have otherwise agreed.

5.4 Power System Stabilizers. Interconnection Customer shall procure, install, maintain and operate power system stabilizers in accordance with the guidelines and procedures established by the Applicable Reliability Council. Transmission Provider and Transmission Owner reserve the right to reasonably establish minimum acceptable settings for any installed power system stabilizers, subject to the design and operating limitations of the Generating Facility. If the Generating Facility's power system stabilizers are removed from service or are not capable of automatic operation, Interconnection Customer shall immediately notify the Transmission Provider's system operator, or its designated representative. The requirements of this paragraph shall not apply to induction generators.

5.5 Equipment Procurement. If responsibility for construction of the Transmission Owner's Interconnection Facilities, Network Upgrades and/or Distribution Upgrades is to be borne by Transmission Owner, then Transmission Owner shall commence design of the Transmission Owner's Interconnection Facilities, Network Upgrades and/or Distribution Upgrades, and procure necessary equipment as soon as practicable after all of the following conditions are satisfied, unless the Parties otherwise agree in writing:

5.5.1 Transmission Provider has completed the Interconnection Facilities Study pursuant to the Interconnection Facilities Study Agreement; and

5.5.2 Where applicable, Interconnection Customer has provided security to Transmission Owner in accordance with Article 11.6 by the dates specified in Appendix B, Milestones.

5.6 Construction Commencement. Transmission Owner shall commence construction of the Transmission Owner's Interconnection Facilities, Network Upgrades, Transmission Owner's System Protection Facilities, Distribution Upgrades, and Generator Upgrades for which it is responsible as soon as practicable after the following additional conditions are satisfied:

5.6.1 Approval of the appropriate Governmental Authority has been obtained for any facilities requiring regulatory approval; and

5.6.2 Where applicable, Interconnection Customer has provided security to Transmission Owner in accordance with Article 11.6 by the dates specified in Appendix B, Milestones.

5.7 Work Progress. Transmission Owner and Interconnection Customer will keep each other and Transmission Provider advised periodically as to the progress of their respective design, procurement and construction efforts. Either Transmission Owner or Interconnection Customer may, at any time, request a progress report from the other, with a copy to be provided to the other Parties. If, at any time, Interconnection Customer determines that the completion of the Transmission Owner's Interconnection Facilities, Network Upgrades, or Transmission Owner's System Protection Facilities will not be required until after the specified In-Service Date, Interconnection Customer will provide written notice to Transmission Provider and Transmission Owner of such later date upon which the completion of the Transmission Owner's Interconnection Facilities, Network Upgrades or Transmission Owner's System Protection Facilities will be required. Transmission Owner may delay the In-Service Date of its facilities accordingly.

5.8 Information Exchange. As soon as reasonably practicable after the Effective Date, the Parties shall exchange information regarding the design and compatibility of the Interconnection Facilities and compatibility of the Interconnection Facilities with the Transmission System or Distribution System, as applicable, and shall work diligently and in good faith to make any necessary design changes.

5.9 Limited Operation. If any of the Transmission Owner's Interconnection Facilities, Network Upgrades, or Transmission Owner's System Protection Facilities, Distribution Upgrades or Generator Upgrades are not reasonably expected to be completed prior to the Commercial Operation Date of the Generating Facility, Transmission Provider shall, upon the request and at the expense of Interconnection Customer, perform operating studies on a timely basis to determine the extent to which the Generating Facility and the Interconnection Customer's Interconnection Facilities may operate prior to the completion of the Transmission Owner's Interconnection Facilities, Network Upgrades, Transmission Owner's System Protection Facilities, Distribution Upgrades or Generator Upgrades consistent with Applicable Laws and Regulations, Applicable Reliability

Standards, Good Utility Practice, and this GIA. Transmission Provider and Transmission Owner shall permit Interconnection Customer to operate the Generating Facility and the Interconnection Customer's Interconnection Facilities in accordance with the results of such studies; provided, however, such studies reveal that such operation may occur without detriment to the Transmission System as then configured and in accordance with the safety requirements of Transmission Owner and any Governmental Authority.

The maximum permissible output of the Generating Facility will be updated on a quarterly basis if the Network Upgrades necessary for the interconnection of the Generating Facility pursuant to this GIA are not in service within six (6) months following the Commercial Operation Date of the Generating Facility as specified in Appendix B of this GIA. These quarterly studies will be performed using the same methodology set forth in Section 11.5 of the GIP. These quarterly updates will end when all Network Upgrades necessary for the interconnection of the Generating Facility pursuant to this GIA are in service.

5.10 Interconnection Customer's Interconnection Facilities. Interconnection Customer shall, at its expense, design, procure, construct, own and install the ICIF, as set forth in Appendix A.

5.10.1 Interconnection Customer's Interconnection Facility Specifications. Interconnection Customer shall submit initial design and specifications for the ICIF, including Interconnection Customer's System Protection Facilities, to Transmission Provider and Transmission Owner at least one hundred eighty (180) Calendar Days prior to the Initial Synchronization Date; and final design and specifications for review and comment at least ninety (90) Calendar Days prior to the Initial Synchronization Date. Transmission Provider at Transmission Provider's option, and Transmission Owner shall review such specifications to ensure that the ICIF are compatible with their respective technical specifications, operational control, and safety requirements and comment on such design and specifications within thirty (30) Calendar Days of Interconnection Customer's submission. All specifications provided hereunder shall be deemed confidential.

5.10.2 Transmission Provider's and Transmission Owner's Review. Transmission Provider's and Transmission Owner's review of Interconnection Customer's final specifications shall not be construed as confirming, endorsing, or providing a warranty as to the design, fitness, safety, durability or reliability of the Generating Facility, or the ICIF. Interconnection Customer shall make such changes to the ICIF as may reasonably be required by Transmission Provider and Transmission Owner, in accordance with Good Utility Practice, to ensure that the ICIF are compatible with the technical specifications, operational control and safety requirements of Transmission Provider and Transmission Owner.

5.10.3 ICIF Construction. The ICIF shall be designed and constructed in accordance with Good Utility Practice. Within one hundred twenty (120) Calendar Days after the Commercial Operation Date, unless the Parties agree on another mutually

acceptable deadline, Interconnection Customer shall deliver to Transmission Provider and Transmission Owner "as-built" drawings, information and documents for the ICIF, such as: a one-line diagram, a site plan showing the Generating Facility and the ICIF, plan and elevation drawings showing the layout of the ICIF, a relay functional diagram, relaying AC and DC schematic wiring diagrams and relay settings for all facilities associated with the Interconnection Customer's step-up transformers, the facilities connecting the Generating Facility to the step-up transformers and the ICIF, and the impedances (determined by factory tests) for the associated step-up transformers and the Generating Facility. Interconnection Customer shall provide Transmission Provider and Transmission Owner with Interconnection Customer's specifications for the excitation system, automatic voltage regulator, Generating Facility control and protection settings, transformer tap settings, and communications, if applicable.

5.11 Transmission Owner's Interconnection Facilities Construction. The Transmission Owner's Interconnection Facilities shall be designed and constructed in accordance with Good Utility Practice. Upon request, within one hundred twenty (120) Calendar Days after the Commercial Operation Date, unless the Parties agree on another mutually acceptable deadline, Transmission Owner shall deliver to Transmission Provider (if requested) and Interconnection Customer the "as-built" drawings, information and documents for the Transmission Owner's Interconnection Facilities specified in Appendix C to this GIA.

Such drawings, information and documents shall be deemed Confidential Information.

Upon completion, the Transmission Owner's Interconnection Facilities and Stand Alone Network Upgrades shall be under the control of Transmission Provider or its designated representative.

5.12 Access Rights. Upon reasonable notice by a Party, and subject to any required or necessary regulatory approvals, a Party ("Granting Party") shall furnish *at no cost* to the other Party ("Access Party") any rights of use, licenses, rights of way and easements with respect to lands owned or controlled by the Granting Party, its agents (if allowed under the applicable agency agreement), or any Affiliate, that are necessary to enable the Access Party to obtain ingress and egress to construct, operate, maintain, repair, test (or witness testing), inspect, replace or remove facilities and equipment to: (i) interconnect the Generating Facility with the Transmission System; (ii) operate and maintain the Generating Facility, the Interconnection Facilities and the Transmission System; and (iii) disconnect or remove the Access Party's facilities and equipment upon termination of this GIA. In exercising such licenses, rights of way and easements, the Access Party shall not unreasonably disrupt or interfere with normal operation of the Granting Party's business and shall adhere to the safety rules and procedures established in advance, as may be changed from time to time, by the Granting Party and provided to the Access Party.

5.13 Lands of Other Property Owners. If any part of the Transmission Owner's Interconnection Facilities, Network Upgrades, and/or Distribution Upgrades is to be installed on property owned by persons other than Interconnection Customer or Transmission Owner, Transmission Owner shall at Interconnection Customer's expense use efforts, similar in nature and extent to those that it typically undertakes on its own behalf or on behalf of its Affiliates, including use of its eminent domain authority to the extent permitted and consistent with Applicable Laws and Regulations and, to the extent consistent with such Applicable Laws and Regulations, to procure from such persons any rights of use, licenses, rights of way and easements that are necessary to construct, operate, maintain, test, inspect, replace or remove the Transmission Owner's Interconnection Facilities, Network Upgrades and/or Distribution Upgrades upon such property.

5.14 Permits. Transmission Provider or Transmission Owner and Interconnection Customer shall cooperate with each other in good faith in obtaining all permits, licenses and authorizations that are necessary to accomplish the interconnection in compliance with Applicable Laws and Regulations. With respect to this paragraph, Transmission Owner shall provide permitting assistance to Interconnection Customer comparable to that provided to the Transmission Owner's own, or an Affiliate's, generation to the extent that Transmission Owner or its Affiliate owns generation.

5.15 Early Construction of Base Case Facilities. (Includes facilities required for all queued projects with interconnection agreements).Interconnection Customer may request Transmission Owner to construct, and Transmission Owner shall construct, using Reasonable Efforts to accommodate Interconnection Customer's In-Service Date, all or any portion of any Network Upgrades, Transmission Owner's System Protection Facilities or Distribution Upgrades required for Interconnection Customer to be interconnected to the Transmission or Distribution System, as applicable, which are included in the Base Case of the Interconnection Facilities Study for Interconnection Customer, and which also are required to be constructed for another Interconnection Customer with a prior GIA, but where such construction is not scheduled to be completed in time to achieve Interconnection Customer's In-Service Date. Any such Network Upgrades, System Protection Facilities or Distribution Upgrades are included in the facilities to be constructed and as set forth in Appendix A to this GIA to the extent they are reasonably known.

5.16 Suspension.

5.16.1 Interconnection Customer's Right to Suspend for Force Majeure Event; Obligations. Provided that such suspension is permissible under the authorizations, permits or approvals granted for the construction of such Interconnection Facilities, Network Upgrades or Stand Alone Network Upgrades, Interconnection Customer will not suspend unless a Force Majeure event occurs.

Interconnection Customer must provide written notice of its request for suspension to Transmission Provider and Transmission Owner, and provide a

description of the Force Majeure event that is acceptable to Transmission Provider. Suspension will only apply to Interconnection Customer milestones and Interconnection Facilities described in the Appendices of this GIA. Prior to suspension, Interconnection Customer must also provide security acceptable to Transmission Owner, equivalent to the higher of $5 million or the total cost of all Network Upgrades, Transmission Owner's System Protection Facilities, and Distribution Upgrades listed in Appendix A of this GIA. Network Upgrades and Transmission Owner's Interconnection Facilities will be constructed on the schedule described in the Appendices of this GIA unless: (1) construction is prevented by the order of a Governmental Authority; (2) the Network Upgrades are not needed by any other project; or (3) Transmission Owner or Transmission Provider determines that a Force Majeure event prevents construction. In the event of (1), (2), or (3) security shall be released upon the determination that the Network Upgrades will no longer be constructed.

If suspension occurs, the Transmission or Distribution System, as applicable, shall be left in a safe and reliable condition in accordance with Good Utility Practice and the Transmission Provider's and Transmission Owner's safety and reliability criteria. In such event, Interconnection Customer shall be responsible for all reasonable and necessary costs which Transmission Provider and Transmission Owner (i) have incurred pursuant to this GIA prior to the suspension and (ii) incur in suspending such work, including any costs incurred to perform such work as may be necessary to ensure the safety of persons and property and the integrity of the Transmission or Distribution System, as applicable, during such suspension and, if applicable, any costs incurred in connection with the cancellation or suspension of material, equipment and labor contracts which Transmission Provider and Transmission Owner cannot reasonably avoid; provided, however, that prior to canceling or suspending any such material, equipment or labor contract, Transmission Provider and Transmission Owner shall obtain Interconnection Customer's authorization to do so.

Transmission Provider and Transmission Owner shall each invoice Interconnection Customer for such costs pursuant to Article 12 and shall use Reasonable Efforts to minimize its costs. In the event Interconnection Customer suspends work by Transmission Owner required under this GIA pursuant to this Article 5.16, and has not requested Transmission Owner to recommence the work required under this GIA on or before the expiration of three (3) years following commencement of such suspension, this GIA shall be deemed terminated. The three-year period shall begin on the date the suspension is requested, or the date of the written notice to Transmission Provider, if no effective date is specified.

5.16.2 Effect of Missed Interconnection Customer Milestones. If Interconnection Customer fails to provide notice of suspension pursuant to Article 5.16, and Interconnection Customer fails to fulfill or complete any Interconnection Customer Milestone provided in Appendix B ("Milestone"), this constitutes a Breach under this GIA. Depending upon the consequences of the Breach and

effectiveness of the cure pursuant to Article 17, the Transmission Owners' Milestones may be revised, following consultation with Interconnection Customer, consistent with Reasonable Efforts, and in consideration of all relevant circumstances. Parties shall employ Reasonable Efforts to maintain their remaining respective Milestones.

5.16.3 Effect of Suspension; Parties Obligations. In the event that Interconnection Customer suspends work pursuant to this Article 5.16, no construction duration, timelines and schedules set forth in Appendix B shall be suspended during the period of suspension unless ordered by a Governmental Authority, with such order being the Force Majeure event causing the suspension. Should Interconnection Customer request that work be recommenced, Transmission Owner shall be obligated to proceed with Reasonable Efforts and in consideration of all relevant circumstances including regional outage schedules, construction availability and material procurement in performing the work as described in Appendix A and Appendix B. Transmission Owner will provide Interconnection Customer with a revised schedule for the design, procurement, construction, installation and testing of the Transmission Owner's Interconnection Facilities and Network Upgrades. Upon any suspension by Interconnection Customer pursuant to Article 5.16, Interconnection Customer shall be responsible for only those costs specified in this Article 5.16.

5.17 Taxes.

5.17.1 Interconnection Customer Payments Not Taxable. The Parties intend that all payments or property transfers made by Interconnection Customer to Transmission Owner for the installation of the Transmission Owner's Interconnection Facilities, Network Upgrades, Transmission Owner's System Protection Facilities, Distribution Upgrades and Generator Upgrades shall be non-taxable, either as contributions to capital, or as an advance, in accordance with the Internal Revenue Code and any applicable state income tax laws and shall not be taxable as contributions in aid of construction or otherwise under the Internal Revenue Code and any applicable state income tax laws. To the extent that Transmission Owner is a limited liability company and not a corporation, and has elected to be taxed as a partnership, then the following shall apply: Transmission Owner represents, and the Parties acknowledge, that Transmission Owner is a limited liability company and is treated as a partnership for federal income tax purposes. Any payment made by Interconnection Customer to Transmission Owner for Network Upgrades is to be treated as an upfront payment in accordance with Rev Proc 2005-35. It is anticipated by the parties that any amounts paid by Interconnection Customer to Transmission Owner for Network Upgrades will be reimbursed to Interconnection Customer in accordance with the terms of this GIA, provided Interconnection Customer fulfills its obligations under this GIA.

5.17.2 Representations and Covenants. In accordance with IRS Notice 2016-36, Interconnection Customer represents and covenants that (i) ownership of the electricity generated at the Generating Facility will pass to another party prior to the transmission of the electricity on the Transmission System, (ii) for income tax purposes, the amount of any payments and the cost of any property transferred to Transmission Owner for the Transmission Owner's Interconnection Facilities will be capitalized by Interconnection Customer as an intangible asset and recovered using the straight-line method over a useful life of twenty (20) years, and (iii) any portion of the Transmission Owner's Interconnection Facilities that is a "dual-use intertie," within the meaning of IRS Notice 2016-36, is reasonably expected to carry only a de minimis amount of electricity in the direction of the Generating Facility. For this purpose, "de minimis amount" means no more than 5 percent of the total power flows in both directions, calculated in accordance with the "5 percent test" set forth in IRS Notice 2016-36. This is not intended to be an exclusive list of the relevant conditions that must be met to conform to IRS requirements for non-taxable treatment.

At Transmission Owner's request, Interconnection Customer shall provide Transmission Owner with a report from an independent engineer confirming its representation in clause (iii), above, with a copy to Transmission Provider. Transmission Owner represents and covenants that the cost of the Transmission Owner's Interconnection Facilities paid for by Interconnection Customer will have no net effect on the base upon which rates are determined.

5.17.3 Indemnification for the Cost Consequences of Current Tax Liability Upon Transmission Owner. Notwithstanding Article 5.17.1 and to the extent permitted by law, Interconnection Customer shall protect, indemnify and hold harmless Transmission Owner from the cost consequences of any tax liability imposed against Transmission Owner as the result of payments or property transfers made by Interconnection Customer to Transmission Owner under this GIA for Interconnection Facilities, as well as any interest and penalties, other than interest and penalties attributable to any delay caused by Transmission Owner.

Transmission Owner shall not include a gross-up for the cost consequences of any current tax liability in the amounts it charges Interconnection Customer under this GIA unless (i) Transmission Owner has determined, in good faith, that the payments or property transfers made by Interconnection Customer to Transmission Owner should be reported as income subject to taxation or (ii) any Governmental Authority directs Transmission Owner to report payments or property as income subject to taxation; provided, however, that Transmission Owner may require Interconnection Customer to provide security for Interconnection Facilities, in a form reasonably acceptable to Transmission Owner (such as a parental guarantee or a letter of credit), in an amount equal to the cost consequences or any current tax liability under this Article 5.17. Interconnection Customer shall reimburse Transmission Owner for such costs on a fully grossed-up basis, in accordance with Article 5.17.4, within thirty (30)

Calendar Days of receiving written notification from Transmission Owner of the amount due, including detail about how the amount was calculated.

The indemnification obligation shall terminate at the earlier of (1) the expiration of the ten-year testing period and the applicable statute of limitation, as it may be extended by Transmission Owner upon request of the IRS, to keep these years open for audit or adjustment, or (2) the occurrence of a subsequent taxable event and the payment of any related indemnification obligations as contemplated by this Article 5.17.

5.17.4 Tax Gross-Up Amount. Interconnection Customer's liability for the cost consequences of any current tax liability under this Article 5.17 shall be calculated on a fully grossed-up basis. Except as may otherwise be agreed to by the parties, this means that Interconnection Customer will pay Transmission Owner, in addition to the amount paid for the Interconnection Facilities, Network Upgrades, Transmission Owner's System Protection Facilities, and/or Distribution Upgrades, an amount equal to (1) the current taxes imposed on Transmission Owner ("Current Taxes") on the excess of (a) the gross income realized by Transmission Owner as a result of payments or property transfers made by Interconnection Customer to Transmission Owner under this GIA (without regard to any payments under this Article 5.17) (the "Gross Income Amount") over (b) the present value of future tax deductions for depreciation that will be available as a result of such payments or property transfers (the "Present Value Depreciation Amount"), plus (2) an additional amount sufficient to permit Transmission Owner to receive and retain, after the payment of all Current Taxes, an amount equal to the net amount described in clause (1).

For this purpose, (i) Current Taxes shall be computed based on Transmission Owner's composite federal and state tax rates at the time the payments or property transfers are received and Transmission Owner will be treated as being subject to tax at the highest marginal rates in effect at that time (the "Current Tax Rate"), and (ii) the Present Value Depreciation Amount shall be computed by discounting Transmission Owner's anticipated tax depreciation deductions as a result of such payments or property transfers by Transmission Owner's current weighted average cost of capital. Thus, the formula for calculating Interconnection Customer's liability to Transmission Owner pursuant to this Article 5.17.4 can be expressed as follows: (Current Tax Rate x (Gross Income Amount – Present Value of Tax Depreciation))/(1-Current Tax Rate). Interconnection Customer's estimated tax liability in the event taxes are imposed shall be stated in Appendix A, Interconnection Facilities, Network Upgrades and Distribution Upgrades.

5.17.5 Private Letter Ruling or Change or Clarification of Law. At Interconnection Customer's request and expense, Transmission Owner shall file with the IRS a request for a private letter ruling as to whether any property transferred or sums paid, or to be paid, by Interconnection Customer to Transmission Owner under this GIA are subject to federal income taxation. Interconnection Customer will

prepare the initial draft of the request for a private letter ruling, and will certify under penalties of perjury that all facts represented in such request are true and accurate to the best of Interconnection Customer's knowledge. Transmission Owner and Interconnection Customer shall cooperate in good faith with respect to the submission of such request.

Transmission Owner shall keep Interconnection Customer fully informed of the status of such request for a private letter ruling and shall execute either a privacy act waiver or a limited power of attorney, in a form acceptable to the IRS, that authorizes Interconnection Customer to participate in all discussions with the IRS regarding such request for a private letter ruling. Transmission Owner shall allow Interconnection Customer to attend all meetings with IRS officials about the request and shall permit Interconnection Customer to prepare the initial drafts of any follow-up letters in connection with the request.

5.17.6 Subsequent Taxable Events. If, within 10 years from the date on which the relevant Transmission Owner's Interconnection Facilities are placed in service, (i) Interconnection Customer breaches the covenant contained in Article 5.17.2, (ii) a "disqualification event" occurs within the meaning of IRS Notice 88-129, or (iii) this GIA terminates and Transmission Owner retains ownership of the Interconnection Facilities, Network Upgrades, Transmission Owner's System Protection Facilities, and/or Distribution Upgrades, Interconnection Customer shall pay a tax gross-up for the cost consequences of any current tax liability imposed on Transmission Owner, calculated using the methodology described in Article 5.17.4 and in accordance with IRS Notice 90-60.

5.17.7 Contests. In the event any Governmental Authority determines that Transmission Owner's receipt of payments or property constitutes income that is subject to taxation, Transmission Owner shall notify Interconnection Customer, in writing, within thirty (30) Calendar Days of receiving notification of such determination by a Governmental Authority. Upon the timely written request by Interconnection Customer and at Interconnection Customer's sole expense, Transmission Owner may appeal, protest, seek abatement of, or otherwise oppose such determination. Upon Interconnection Customer's written request and sole expense, Transmission Owner shall file a claim for refund with respect to any taxes paid under this Article 5.17, whether or not it has received such a determination. Transmission Owner reserves the right to make all decisions with regard to the prosecution of such appeal, protest, abatement or other contest, including the selection of counsel and compromise or settlement of the claim, but Transmission Owner shall keep Interconnection Customer informed, shall consider in good faith suggestions from Interconnection Customer about the conduct of the contest, and shall reasonably permit Interconnection Customer or an Interconnection Customer representative to attend contest proceedings.

Interconnection Customer shall pay to Transmission Owner on a periodic basis, as invoiced by Transmission Owner, Transmission Owner's documented reasonable

costs of prosecuting such appeal, protest, abatement or other contest. At any time during the contest, Transmission Owner may agree to a settlement either with Interconnection Customer's consent or after obtaining written advice from nationally-recognized tax counsel, selected by Transmission Owner, but reasonably acceptable to Interconnection Customer, that the proposed settlement represents a reasonable settlement given the hazards of litigation. Interconnection Customer's obligation shall be based on the amount of the settlement agreed to by Interconnection Customer, or if a higher amount, so much of the settlement that is supported by the written advice from nationally-recognized tax counsel selected under the terms of the preceding sentence. The settlement amount shall be calculated on a fully grossed-up basis to cover any related cost consequences of the current tax liability. Any settlement without Interconnection Customer's consent or such written advice will relieve Interconnection Customer from any obligation to indemnify Transmission Owner for the tax at issue in the contest.

5.17.8 Refund. In the event that (a) a private letter ruling is issued to Transmission Owner which holds that any amount paid or the value of any property transferred by Interconnection Customer to Transmission Owner under the terms of this GIA is not subject to federal income taxation, (b) any legislative change or administrative announcement, notice, ruling or other determination makes it reasonably clear to Transmission Owner in good faith that any amount paid or the value of any property transferred by Interconnection Customer to Transmission Owner under the terms of this GIA is not taxable to Transmission Owner, (c) any abatement, appeal, protest, or other contest results in a determination that any payments or transfers made by Interconnection Customer to Transmission Owner are not subject to federal income tax, or (d) if Transmission Owner receives a refund from any taxing authority for any overpayment of tax attributable to any payment or property transfer made by Interconnection Customer to Transmission Owner pursuant to this GIA, Transmission Owner shall promptly refund to Interconnection Customer the following:

(i) any payment made by Interconnection Customer under this Article 5.17 for taxes that is attributable to the amount determined to be non-taxable, together with interest thereon,

(ii) interest on any amounts paid by Interconnection Customer to Transmission Owner for such taxes which Transmission Owner did not submit to the taxing authority, calculated in accordance with the methodology set forth in 18 C.F.R. Section 35.19a(a)(2)(iii) from the date payment was made by Interconnection Customer to the date Transmission Owner refunds such payment to Interconnection Customer, and

(iii) with respect to any such taxes paid by Transmission Owner, any refund or credit Transmission Owner receives or to which it may be entitled from any Governmental Authority, interest (or that portion thereof attributable to the payment described in clause (i), above) owed to

Transmission Owner for such overpayment of taxes (including any reduction in interest otherwise payable by Transmission Owner to any Governmental Authority resulting from an offset or credit); provided, however, that Transmission Owner will remit such amount promptly to Interconnection Customer only after and to the extent that Transmission Owner has received a tax refund, credit or offset from any Governmental Authority for any applicable overpayment of income tax related to the Transmission Owner's Interconnection Facilities.

The intent of this provision is to leave both parties, to the extent practicable, in the event that no taxes are due with respect to any payment for Interconnection Facilities and Network Upgrades hereunder, in the same position they would have been in had no such tax payments been made.

5.17.9 Taxes Other Than Income Taxes. Upon the timely request by Interconnection Customer, and at Interconnection Customer's sole expense, Transmission Owner shall appeal, protest, seek abatement of, or otherwise contest any tax (other than federal or state income tax) asserted or assessed against Transmission Owner for which Interconnection Customer may be required to reimburse Transmission Owner under the terms of this GIA. Interconnection Customer shall pay to Transmission Owner on a periodic basis, as invoiced by Transmission Owner, Transmission Owner's documented reasonable costs of prosecuting such appeal, protest, abatement, or other contest. Interconnection Customer and Transmission Owner shall cooperate in good faith with respect to any such contest. Unless the payment of such taxes is a prerequisite to an appeal or abatement or cannot be deferred, no amount shall be payable by Interconnection Customer to Transmission Owner for such taxes until they are assessed by a final, non-appealable order by any court or agency of competent jurisdiction. In the event that a tax payment is withheld and ultimately due and payable after appeal, Interconnection Customer will be responsible for all taxes, interest and penalties, other than penalties attributable to any delay caused by Transmission Owner.

5.18 Tax Status. Each Party shall cooperate with the other Parties to maintain each Party's tax status. Nothing in this GIA is intended to adversely affect any Party's tax-exempt status with respect to the issuance of bonds including, but not limited to, Local Furnishing Bonds.

5.19 Modification.

5.19.1 General. Either Party may undertake modifications to its facilities. If a Party plans to undertake a modification that reasonably may be expected to affect another Party's facilities, that Party shall provide to the other Parties sufficient information regarding such modification so that the other Parties may evaluate the potential impact of such modification prior to commencement of the work. Such information shall be deemed to be Confidential Information hereunder and shall

include information concerning the timing of such modifications and whether such modifications are expected to interrupt the flow of electricity from the Generating Facility. The Party desiring to perform such work shall provide the relevant drawings, plans, and specifications to the other Parties at least ninety (90) Calendar Days in advance of the commencement of the work or such shorter period upon which the Parties may agree, which agreement shall not unreasonably be withheld, conditioned or delayed.

In the case of Generating Facility modifications that do not require Interconnection Customer to submit an Interconnection Request, Transmission Provider shall provide, within thirty (30) Calendar Days (or such other time as the Parties may agree), an estimate of any additional modifications to the Transmission or Distribution System as applicable, Transmission Owner's Interconnection Facilities, Network Upgrades, Transmission Owner's System Protection Facilities, and/or Distribution Upgrades necessitated by such Interconnection Customer modification and a good faith estimate of the costs thereof which shall be the responsibility of Interconnection Customer.

5.19.2 Standards. Any additions, modifications, or replacements made to a Party's facilities shall be designed, constructed and operated in accordance with this GIA and Good Utility Practice.

5.19.3 Modification Costs. Interconnection Customer shall not be directly assigned the costs of any additions, modifications, or replacements that Transmission Owner makes to the Transmission Owner's Interconnection Facilities, Network Upgrades, Transmission Owner's System Protection Facilities, Distribution Upgrades, or the Transmission or Distribution System, as applicable, to facilitate the interconnection of a third party to the Transmission Owner's Interconnection Facilities or the Transmission or Distribution System, as applicable, or to provide transmission service to a third party under the Tariff. Interconnection Customer shall be responsible for the costs of any additions, modifications, or replacements to the Interconnection Customer's Interconnection Facilities that may be necessary to maintain or upgrade such Interconnection Customer's Interconnection Facilities consistent with Applicable Laws and Regulations, Applicable Reliability Standards or Good Utility Practice.

ARTICLE 6. TESTING AND INSPECTION

6.1 Pre-Commercial Operation Date Testing and Modifications. Prior to the Commercial Operation Date, Transmission Owner shall test the Transmission Owner's Interconnection Facilities, Network Upgrades, Transmission Owner's System Protection Facilities and Distribution Upgrades, and Interconnection Customer shall test each electric production device at the Generating Facility, Interconnection Customer's System Protection Facilities and the Interconnection Customer's Interconnection Facilities to ensure their safe and reliable operation. Similar testing may be required after initial operation. Transmission Owner and Interconnection Customer shall make any

modifications to their respective facilities that are found to be necessary as a result of such testing. Interconnection Customer shall bear the cost of all such testing and modifications. Interconnection Customer shall generate test energy at the Generating Facility only if it has arranged for the delivery of such test energy.

6.2 Post-Commercial Operation Date Testing and Modifications. Each Party shall at its own expense perform routine inspection and testing of its facilities and equipment in accordance with Good Utility Practice as may be necessary to ensure the continued interconnection of the Generating Facility with the Transmission or Distribution System, as applicable, in a safe and reliable manner. Each Party shall have the right, upon advance written notice, to require reasonable additional testing of the Interconnection Facilities, at the requesting Party's expense, as may be in accordance with Good Utility Practice.

6.3 Right to Observe Testing. Each Party shall notify the other Parties in advance of its performance of tests of its Interconnection Facilities. The other Parties shall each have the right, at its own expense, to observe such testing.

6.4 Right to Inspect. Each Party shall have the right, but shall have no obligation to: (i) observe Transmission Owner's and Interconnection Customer's tests and/or inspection of any of their respective System Protection Facilities and other protective equipment, including power system stabilizers; (ii) review the settings of the System Protection Facilities and other protective equipment; and (iii) review the maintenance records relative to the Interconnection Facilities, the System Protection Facilities and other protective equipment. A Party may exercise these rights from time to time as it deems necessary upon reasonable notice to the other Parties. The exercise or non-exercise by a Party of any such rights shall not be construed as an endorsement or confirmation of any element or condition of the Interconnection Facilities or the System Protection Facilities or other protective equipment or the operation thereof, or as a warranty as to the fitness, safety, desirability, or reliability of same. Any information that a Party obtains through the exercise of any of its rights under this Article 6.4 shall be deemed to be Confidential Information and treated pursuant to Article 22 of this GIA.

ARTICLE 7. METERING

7.1 General. Each Party shall comply with the Applicable Reliability Council requirements. Unless otherwise agreed by the Parties, Transmission Owner, at its election, or otherwise Interconnection Customer, shall install Metering Equipment (the "Metering Party") at the Point of Interconnection prior to any operation of the Generating Facility and Transmission Owner, at its election, or otherwise Interconnection Customer shall own, operate, test and maintain such Metering Equipment. Power flows to and from the Generating Facility shall be measured at or, at the Metering Party's option, compensated to, the Point of Interconnection. In addition to the Metering Equipment installed at the Point of Interconnection, if Interconnection Customer will share Interconnection Facilities with any other projects, Interconnection Customer shall install Metering Equipment either on its own Generating Facility or its own non-shared facilities sufficient

to measure the output of such Interconnection Customer's Generating Facility separately from any other Generating Facilities with which it will share Interconnection Facilities. The Metering Party shall provide metering quantities, in analog and/or digital form, to the other Parties upon request. Interconnection Customer shall bear all reasonable documented costs associated with the purchase, installation, operation, testing and maintenance of the Metering Equipment.

7.2 Check Meters. Interconnection Customer, at its option and expense, may install and operate, on its premises and on its side of the Point of Interconnection, one or more check meters to check the Metering Equipment owned by the Metering Party. Such check meters shall be for check purposes only and shall not be used for the measurement of power flows for purposes of this GIA, except as provided in Article 7.4 below. The check meters shall be subject at all reasonable times to inspection and examination by Transmission Provider, Transmission Owner or their designees. The installation, operation and maintenance thereof shall be performed entirely by Interconnection Customer in accordance with Good Utility Practice.

7.3 Standards. The Metering Party shall install, calibrate, and test revenue quality Metering Equipment in accordance with applicable ANSI standards.

7.4 Testing of Metering Equipment. The Metering Party shall inspect and test Metering Equipment upon installation and at least once every two (2) years thereafter. If requested to do so by a Party, the Metering Party shall, at the requesting Party's expense, inspect or test Metering Equipment more frequently than every two (2) years. The Metering Party shall give reasonable notice to the other Parties of the time when any inspection or test shall take place, and the other Parties may have representatives present at the test or inspection. If at any time Metering Equipment is found to be inaccurate or defective, it shall be adjusted, repaired or replaced at Interconnection Customer's expense, in order to provide accurate metering, unless the inaccuracy or defect is due to the Metering Party's failure to maintain, then the Metering Party shall pay. If Metering Equipment fails to register, or if the measurement made by Metering Equipment during a test varies by more than two percent (2%) from the measurement made by the standard meter used in the test, the Metering Party shall adjust the measurements by correcting all measurements for the period during which Metering Equipment was in error by using Interconnection Customer's check meters, if installed. If no such check meters are installed or if the period cannot be reasonably ascertained, the adjustment shall be for the period immediately preceding the test of the Metering Equipment equal to one-half the time from the date of the previous test of the Metering Equipment.

7.5 Metering Data. At Interconnection Customer's expense, the metered data shall be telemetered to one or more locations designated by Transmission Provider and Transmission Owner and one or more locations designated by Interconnection Customer. Such telemetered data shall be used, under normal operating conditions, as the official measurement of the amount of energy delivered from the Generating Facility to the Point of Interconnection.

ARTICLE 8. COMMUNICATIONS

8.1 Interconnection Customer Obligations. Interconnection Customer shall maintain satisfactory operating communications with Transmission Provider's Transmission System dispatcher or representative designated by Transmission Provider. Interconnection Customer shall provide standard voice line, dedicated voice line and facsimile communications at its Generating Facility control room or central dispatch facility through use of either the public telephone system, or a voice communications system that does not rely on the public telephone system. Interconnection Customer shall also provide the dedicated data circuit(s) necessary to provide Interconnection Customer data to Transmission Provider as set forth in Appendix D, Security Arrangements Details. The data circuit(s) shall extend from the Generating Facility to the location(s) specified by Transmission Provider. Any required maintenance of such communications equipment shall be performed by and at the cost of Interconnection Customer. Operational communications shall be activated and maintained under, but not be limited to, the following events: system paralleling or separation, scheduled and unscheduled shutdowns, equipment clearances, and hourly and daily load data.

Unless the Generating Facility is an Intermittent Resource not relying on wind as a fuel source, Interconnection Customer shall install communication and control equipment such that the Generating Facility can receive and respond to the appropriate dispatch signals while operating under the Tariff. Where applicable, the requirements of the communication and control equipment will be enumerated in Appendix C to this GIA.

8.2 Remote Terminal Unit (RTU). Prior to the Initial Synchronization Date of the Generating Facility, a remote terminal unit, or equivalent data collection and transfer equipment acceptable to both Parties, shall be installed by Interconnection Customer, or by Transmission Owner at Interconnection Customer's expense, to gather accumulated and instantaneous data to be telemetered to the location(s) designated by Transmission Owner and Transmission Provider through use of a dedicated point-to-point data circuit(s) as indicated in Article 8.1. The communication protocol for the data circuit(s) shall be specified by Transmission Owner and Transmission Provider. Instantaneous bi-directional analog real power and reactive power flow information must be telemetered directly to the location(s) specified by Transmission Provider and Transmission Owner.

Each Party will promptly advise the other Parties if it detects or otherwise learns of any metering, telemetry or communications equipment errors or malfunctions that require the attention and/or correction. The Party owning such equipment shall correct such error or malfunction as soon as reasonably feasible.

8.3 No Annexation. Any and all equipment placed on the premises of a Party shall be and remain the property of the Party providing such equipment regardless of the mode and manner of annexation or attachment to real property, unless otherwise mutually agreed by the Parties.

8.4 Provision of Data from a Variable Energy Resource. The Interconnection Customer

whose Generating Facility is a Variable Energy Resource shall provide meteorological and forced outage data to the Transmission Provider to the extent necessary for the Transmission Provider's development and deployment of power production forecasts for that class of Variable Energy Resources. The Interconnection Customer with a Variable Energy Resource having wind as the energy source will, upon request by the Transmission Provider, be required to provide the Transmission Provider with site-specific meteorological data including: temperature, wind speed, wind direction, and atmospheric pressure. The Interconnection Customer with a Variable Energy Resource having solar as the energy source will, upon request by the Transmission Provider, be required to provide the Transmission Provider with site-specific meteorological data including: temperature, atmospheric pressure, and irradiance. The Transmission Provider and Interconnection Customer whose Generating Facility is a Variable Energy Resource shall mutually agree to any additional meteorological data that are required for the development and deployment of a power production forecast. The Interconnection Customer whose Generating Facility is a Variable Energy Resource also shall submit data to the Transmission Provider regarding all forced outages to the extent necessary for the Transmission Provider's development and deployment of power production forecasts for that class of Variable Energy Resources. The exact specifications of the meteorological and forced outage data to be provided by the Interconnection Customer to the Transmission Provider, including the frequency and timing of data submittals, shall be made taking into account the size and configuration of the Variable Energy Resource, its characteristics, location, and its importance in maintaining generation resource adequacy and transmission system reliability in its area. All requirements for meteorological and forced outage data must be commensurate with the power production forecasting employed by the Transmission Provider. Data requirements for meteorological and forced outage data will be negotiated by the Transmission Provider and the Interconnection Customer, and will be set forth in Appendix C, Interconnection Details, of this GIA.

ARTICLE 9. OPERATIONS

9.1 **General.** Each Party shall comply with the Applicable Reliability Council requirements. Each Party shall provide to any Party all information that may reasonably be required by that Party to comply with Applicable Laws and Regulations and Applicable Reliability Standards.

9.2 **Local Balancing Authority Notification**. At least three (3) months before Initial Synchronization Date, Interconnection Customer shall notify Transmission Provider and Transmission Owner in writing of the Local Balancing Authority in which the Generating Facility will be located. If Interconnection Customer elects to locate the Generating Facility through dynamic metering/scheduling in a Local Balancing Authority other than the Local Balancing Authority in which the Generating Facility is physically located, and if permitted to do so by the relevant transmission tariffs, all necessary arrangements, including but not limited to those set forth in Article 7 and Article 8 of this GIA, and remote Local Balancing Authority generator interchange agreements, if applicable, and

the appropriate measures under such agreements, shall be executed and implemented prior to the placement of the Generating Facility in the other Local Balancing Authority.

9.3 Transmission Provider and Transmission Owner Obligations. Transmission Provider shall cause the Transmission System and the Transmission Owner's Interconnection Facilities to be operated, maintained and controlled in a safe and reliable manner in accordance with this GIA. Transmission Provider, or its designee, may provide operating instructions to Interconnection Customer consistent with this GIA and the Tariff and, if applicable, Transmission Owner's operating protocols and procedures as they may change from time to time. Transmission Provider will consider changes to its operating protocols and procedures proposed by Interconnection Customer.

9.4 Interconnection Customer Obligations. Interconnection Customer shall at its own expense operate, maintain and control the Generating Facility and the Interconnection Customer's Interconnection Facilities in a safe and reliable manner and in accordance with this GIA. The Generating Facility must be operated in accordance with the operating limits, if any, in the Interconnection Facilities Study and specified in Appendix C of this GIA. Interconnection Customer shall operate the Generating Facility and the Interconnection Customer's Interconnection Facilities in accordance with all applicable requirements of Transmission Provider or its designated Local Balancing Authority Operator of which the Generating Facility is part, as such requirements are set forth in Appendix C, Interconnection Details, of this GIA. Appendix C, Interconnection Details, will be modified to reflect changes to the requirements as they may change from time to time. Any Party may request that a Party provide copies of the requirements set forth in Appendix C, Interconnection Details, of this GIA.

9.5 Start-Up and Synchronization. Consistent with the Parties' mutually acceptable procedures, Interconnection Customer is responsible for the proper synchronization of the Generating Facility to the Transmission or Distribution System, as applicable.

9.6 Reactive Power and Primary Frequency Response.

9.6.1 Power Factor Design Criteria.

9.6.1.1 Synchronous Generation. Interconnection Customer shall design the Generating Facility to be capable of maintaining a composite power delivery at continuous rated power output at the Point of Interconnection at all power factors over 0.95 leading to 0.95 lagging, unless the Transmission Provider has established different requirements that apply to all synchronous generators in the Local Balancing Authority on a comparable basis. The applicable Local Balancing Authority power factor requirements are listed on the Transmission Provider's website at

https://cdn.misoenergy.org/Reactive_Generator_Requirements108137.pdf

and may be referenced in the Appendices to this GIA. The Generating Facility shall be capable of continuous dynamic operation throughout the power factor design range as measured at the Point of Interconnection. Such operation shall account for the net effect of all energy production devices on the Interconnection Customer's side of the Point of Interconnection.

9.6.1.2 Non-Synchronous Generation. Interconnection Customer shall design the Generating Facility to be capable of maintaining a composite power delivery at continuous rated power output at the high-side of the generator substation at all power factors over 0.95 leading to 0.95 lagging, unless the Transmission Provider has established different requirements that apply to all non-synchronous generators in the Local Balancing Authority on a comparable basis. The applicable Local Balancing Authority power factor requirements are listed on the Transmission Provider's website at

https://cdn.misoenergy.org/Reactive_Generator_Requirements108137.pdf

and may be referenced in the Appendices to this GIA. This power factor range standard shall be dynamic and can be met using, for example, power electronics designed to supply this level of reactive capability (taking into account any limitations due to voltage level, real power output, etc.) or fixed and switched capacitors, or a combination of the two. This requirement shall only apply to newly interconnecting non-synchronous generators that have not yet completed a System Impact Study as of the effective date of the Final Rule establishing this requirement (Order No. 827). These requirements apply to existing non-synchronous generators making upgrades that require a new Generator Interconnection Agreement only where the Transmission Provider's System Impact Study shows the need for reactive power as a result of an upgrade. If applicable, these requirements will be memorialized in Appendix C to this GIA.

9.6.2 Voltage Schedules. Once Interconnection Customer has synchronized the Generating Facility with the Transmission System, Transmission Provider shall require Interconnection Customer to operate the Generating Facility to produce or absorb reactive power within the design limitations of the Generating Facility set forth in Article 9.6.1 (Power Factor Design Criteria), to maintain the output voltage or power factor at the Point of Interconnection as specified by Transmission Provider. Transmission Provider's voltage schedules shall treat all sources of reactive power in the Local Balancing Authority in an equitable and not unduly discriminatory manner. Transmission Provider shall exercise Reasonable Efforts to provide Interconnection Customer with such schedules at least one (1) Calendar Day in advance, and may make changes to such schedules as necessary to maintain the reliability of the Transmission or Distribution System as applicable. Interconnection Customer shall operate the Generating Facility to maintain the specified output voltage or power factor at the Point of

Interconnection within the design limitations of the Generating Facility set forth in Article 9.6.1 (Power Factor Design Criteria). If Interconnection Customer is unable to maintain the specified voltage or power factor, it shall promptly notify Transmission Provider's system operator, or its designated representative.

9.6.2.1 Voltage Regulators. Whenever the Generating Facility is operated in parallel with the Transmission or Distribution System as applicable and voltage regulators are capable of operation, Interconnection Customer shall operate the Generating Facility with its speed governors and voltage regulators in automatic operation. If the Generating Facility's voltage regulators are not capable of such automatic operation, Interconnection Customer shall immediately notify Transmission Provider's system operator, or its designated representative, and ensure that such Generating Facility's reactive power production or absorption (measured in MVARs) are within the design capability of the Generating Facility's generating unit(s) and steady state stability limits. Interconnection Customer shall not cause its Generating Facility to disconnect automatically or instantaneously from the Transmission or Distribution System, as applicable, or trip any generating unit comprising the Generating Facility for an under or over frequency condition unless the abnormal frequency condition persists for a time period beyond the limits set forth in ANSI/IEEE Standard C37.106, or such other standard as applied to other generators in the Local Balancing Authority on a comparable basis.

9.6.3 Payment for Reactive Power. Payments for reactive power shall be pursuant to any tariff or rate schedule filed by Transmission Provider and approved by the FERC.

9.6.4 Primary Frequency Response. This Section 9.6.4 shall only apply in the event that the Interconnection Request for the Generating Facility completed Definitive Planning Phase Interconnection Customer Decision Point 2 after May 15, 2018.

Interconnection Customer shall ensure the primary frequency response capability of its Generating Facility by installing, maintaining, and operating a functioning governor or equivalent controls. The term "functioning governor or equivalent controls" as used herein shall mean the required hardware and/or software that provides frequency responsive real power control with the ability to sense changes in system frequency and autonomously adjust the Generating Facility's real power output in accordance with the droop and deadband parameters and in the direction needed to correct frequency deviations. Interconnection Customer is required to install a governor or equivalent controls with the capability of operating: (1) with a maximum 5 percent droop and ±0.036 Hz deadband; or (2) in accordance with the relevant droop, deadband, and timely and sustained response settings from an approved NERC Reliability Standard providing for equivalent or more stringent parameters. The droop characteristic shall be: (1) based on the nameplate capacity of the Generating Facility, and shall be linear in

the range of frequencies between 59 to 61 Hz that are outside of the deadband parameter; or (2) based on an approved NERC Reliability Standard providing for an equivalent or more stringent parameter. The deadband parameter shall be: the range of frequencies above and below nominal (60 Hz) in which the governor or equivalent controls is not expected to adjust the Generating Facility's real power output in response to frequency deviations. The deadband shall be implemented: (1) without a step to the droop curve, that is, once the frequency deviation exceeds the deadband parameter, the expected change in the Generating Facility's real power output in response to frequency deviations shall start from zero and then increase (for under-frequency deviations) or decrease (for over-frequency deviations) linearly in proportion to the magnitude of the frequency deviation; or (2) in accordance with an approved NERC Reliability Standard providing for an equivalent or more stringent parameter. Interconnection Customer shall notify Transmission Provider that the primary frequency response capability of the Generating Facility has been tested and confirmed during commissioning. Once Interconnection Customer has synchronized the Generating Facility with the Transmission System, Interconnection Customer shall operate the Generating Facility consistent with the provisions specified in Sections 9.6.4.1 and 9.6.4.2 of this GIA. The primary frequency response requirements contained herein shall apply to both synchronous and non-synchronous Generating Facilities.

9.6.4.1 Governor or Equivalent Controls. Whenever the Generating Facility is operated in parallel with the Transmission System, Interconnection Customer shall operate the Generating Facility with its governor or equivalent controls in service and responsive to frequency. Interconnection Customer shall: (1) in coordination with Transmission Provider and/or the relevant balancing authority, set the deadband parameter to: (a) a maximum of ±0.036 Hz and set the droop parameter to a maximum of 5 percent; or (b) implement the relevant droop and deadband settings from an approved NERC Reliability Standard that provides for equivalent or more stringent parameters. Interconnection Customer shall be required to provide the status and settings of the governor or equivalent controls to Transmission Provider and/or the relevant balancing authority upon request. If Interconnection Customer needs to operate the Generating Facility with its governor or equivalent controls not in service, Interconnection Customer shall immediately notify Transmission Provider and the relevant balancing authority, and provide both with the following information: (1) the operating status of the governor or equivalent controls (i.e., whether it is currently out of service or when it will be taken out of service); (2) the reasons for removing the governor or equivalent controls from service; and (3) a reasonable estimate of when the governor or equivalent controls will be returned to service. Interconnection Customer shall make Reasonable Efforts to return its governor or equivalent controls into service as soon as practicable. Interconnection Customer shall make Reasonable Efforts to keep outages of the Generating Facility's governor or equivalent controls to a minimum

whenever the Generating Facility is operated in parallel with the Transmission System.

9.6.4.2 Timely and Sustained Response. Interconnection Customer shall ensure that the Generating Facility's real power response to sustained frequency deviations outside of the deadband setting is automatically provided and shall begin immediately after frequency deviates outside of the deadband, and to the extent the Generating Facility has operating capability in the direction needed to correct the frequency deviation. Interconnection Customer shall not block or otherwise inhibit the ability of the governor or equivalent controls to respond and shall ensure that the response is not inhibited, except under certain operational constraints including, but not limited to, ambient temperature limitations, physical energy limitations, outages of mechanical equipment, or regulatory requirements. The Generating Facility shall sustain the real power response at least until system frequency returns to a value within the deadband setting of the governor or equivalent controls. A Commission-approved Reliability Standard with equivalent or more stringent requirements shall supersede the above requirements.

9.6.4.3 Exemptions. Generating Facilities that are regulated by the United States Nuclear Regulatory Commission shall be exempt from Sections 9.6.4, 9.6.4.1, and 9.6.4.2 of this GIA. Generating Facilities that are behind the meter generation that is sized-to-load (i.e., the thermal load and the generation are near-balanced in real-time operation and the generation is primarily controlled to maintain the unique thermal, chemical, or mechanical output necessary for the operating requirements of its host facility) shall be required to install primary frequency response capability in accordance with the droop and deadband capability requirements specified in Section 9.6.4, but shall be otherwise exempt from the operating requirements in Sections 9.6.4, 9.6.4.1, 9.6.4.2, and 9.6.4.4 of this GIA.

9.6.4.4 Electric Storage Resources. Interconnection Customer interconnecting an electric storage resource shall establish an operating range in Appendix C that specifies a minimum state of charge and a maximum state of charge between which the electric storage resource will be required to provide primary frequency response consistent with the conditions set forth in Sections 9.6.4, 9.6.4.1, 9.6.4.2 and 9.6.4.3 of this GIA. Appendix C shall specify whether the operating range is static or dynamic, and shall consider (1) the expected magnitude of frequency deviations in the interconnection; (2) the expected duration that system frequency will remain outside of the deadband parameter in the interconnection; (3) the expected incidence of frequency deviations outside of the deadband parameter in the interconnection; (4) the physical capabilities of the electric storage resource; (5) operational limitations of the electric storage

resource due to manufacturer specifications; and (6) any other relevant factors agreed to by Transmission Provider and Interconnection Customer, and in consultation with the relevant transmission owner or balancing authority as appropriate. If the operating range is dynamic, then Appendix C must establish how frequently the operating range will be reevaluated and the factors that may be considered during its reevaluation.

Interconnection Customer's electric storage resource is required to provide timely and sustained primary frequency response consistent with Section 9.6.4.2 of this GIA when it is online and dispatched to inject electricity to the Transmission System and/or receive electricity from the Transmission System. This excludes circumstances when the electric storage resource is not dispatched to inject electricity to the Transmission System and/or dispatched to receive electricity from the Transmission System. If Interconnection Customer's electric storage resource is charging at the time of a frequency deviation outside of its deadband parameter, it is to increase (for over-frequency deviations) or decrease (for under-frequency deviations) the rate at which it is charging in accordance with its droop parameter. Interconnection Customer's electric storage resource is not required to change from charging to discharging, or vice versa, unless the response necessitated by the droop and deadband settings requires it to do so and it is technically capable of making such a transition.

9.7 Outages and Interruptions.

9.7.1 Outages.

9.7.1.1 Outage Authority and Coordination. Interconnection Customer and Transmission Owner may each in accordance with Good Utility Practice in coordination with the other Party and Transmission Provider remove from service any of its respective Interconnection Facilities, System Protection Facilities, Network Upgrades, System Protection Facilities or Distribution Upgrades that may impact the other Party's facilities as necessary to perform maintenance or testing or to install or replace equipment. Absent an Emergency Condition, the Party scheduling a removal of such facility(ies) from service will use Reasonable Efforts to notify one another and schedule such removal on a date and time mutually acceptable to the Parties. In all circumstances, any Party planning to remove such facility(ies) from service shall use Reasonable Efforts to minimize the effect on the other Parties of such removal.

9.7.1.2 Outage Schedules. Transmission Provider shall post scheduled outages of transmission facilities on the OASIS. Interconnection Customer shall submit its planned maintenance schedules for the Generating Facility to Transmission Provider and Transmission Owner for a minimum of a rolling twenty-four (24) month period in accordance with the

Transmission Provider's procedures. Interconnection Customer shall update its planned maintenance schedules as necessary. Transmission Provider may request Interconnection Customer to reschedule its maintenance as necessary to maintain the reliability of the Transmission System; provided, however, adequacy of generation supply shall not be a criterion in determining Transmission System reliability.

Transmission Provider shall compensate, pursuant to applicable Transmission Provider tariff or rate schedule, Interconnection Customer for any additional direct costs that Interconnection Customer incurs as a result of having to reschedule maintenance, including any additional overtime, breaking of maintenance contracts or other costs above and beyond the cost Interconnection Customer would have incurred absent the Transmission Provider's request to reschedule maintenance. Interconnection Customer will not be eligible to receive compensation, if during the twelve (12) months prior to the date of the scheduled maintenance, Interconnection Customer had modified its schedule of maintenance activities.

Costs shall be determined by negotiation between Transmission Provider and Interconnection Customer prior to implementation of the voluntary change in outage schedules, or if such request is made by or on behalf of a Transmission Customer requesting firm service, costs and recovery of costs shall be determined through a bilateral agreement between the Transmission Customer and Interconnection Customer. Voluntary changes to outage schedules under this Article 9.7.1.2 are separate from actions and compensation required under Article 13 and for which costs are recovered in accordance with Transmission Provider's applicable tariff or rate schedule.

9.7.1.3 Outage Restoration. If an outage on either the Interconnection Customer's or Transmission Owner's Interconnection Facilities, Network Upgrades, System Protection Facilities or Distribution Upgrades adversely affects a Party's operations or facilities, the Party that owns or controls the facility that is out of service shall use Reasonable Efforts to promptly restore such facility(ies) to a normal operating condition consistent with the nature of the outage. The Party that owns or controls the facility that is out of service shall provide the other Parties, to the extent such information is known, information on the nature of the Emergency Condition, an estimated time of restoration, and any corrective actions required. Initial verbal notice shall be followed up as soon as practicable with written notice to the other Parties explaining the nature of the outage.

9.7.2 Interruption of Service. If required by Good Utility Practice to do so, Transmission Provider may require Interconnection Customer to interrupt or reduce deliveries of electricity if such delivery of electricity could adversely

affect Transmission Provider's ability to perform such activities as are necessary to safely and reliably operate and maintain the Transmission System. The following provisions shall apply to any interruption or reduction permitted under this Article 9.7.2:

9.7.2.1 The interruption or reduction shall continue only for so long as reasonably necessary under Good Utility Practice;

9.7.2.2 Any such interruption or reduction shall be made on an equitable, non-discriminatory basis with respect to all generating facilities directly connected to the Transmission or Distribution System, as applicable;

9.7.2.3 When the interruption or reduction must be made under circumstances which do not allow for advance notice, Transmission Provider shall notify Interconnection Customer by telephone as soon as practicable of the reasons for the curtailment, interruption, or reduction, and, if known, its expected duration. Telephone notification shall be followed by written notification as soon as practicable;

9.7.2.4 Except during the existence of an Emergency Condition, when the interruption or reduction can be scheduled without advance notice, Transmission Provider shall notify Interconnection Customer in advance regarding the timing of such scheduling and further notify Interconnection Customer of the expected duration. Transmission Provider shall coordinate with Interconnection Customer using Good Utility Practice to schedule the interruption or reduction during periods of least impact to Interconnection Customer, Transmission Owner and Transmission Provider;

9.7.2.5 The Parties shall cooperate and coordinate with each other to the extent necessary in order to restore the Generating Facility, Interconnection Facilities, and the Transmission or Distribution System, as applicable to their normal operating state, consistent with system conditions and Good Utility Practice.

9.7.3 Under-Frequency, Over-Frequency, Under-Voltage, and Over-Voltage Conditions. The Transmission System is designed to automatically activate a load-shed program as required by the Applicable Reliability Council in the event of an under-frequency or under-voltage system disturbance. Interconnection Customer shall implement under-frequency, over-frequency, under-voltage, and over-voltage relay set points for the Generating Facility as required by the Applicable Reliability Council to ensure "ride through" capability of the Transmission System. Generating Facilities that are not required to implement under-frequency, over-frequency, under-voltage, and over-voltage relays as directed by the Applicable Reliability Council shall implement such relays with set points according to guidelines published by the Applicable Reliability

Council. Generating Facility response to frequency and/or voltage deviations of pre-determined magnitudes, including under-frequency, over-frequency, under-voltage, and over-voltage, shall be studied and coordinated with Transmission Provider in accordance with Good Utility Practice. The term "ride through" as used herein shall mean the ability of a Generating Facility to stay connected to and synchronized with the Transmission System during system disturbances within a range of under-frequency, over-frequency, under-voltage, and over-voltage conditions, in accordance with Good Utility Practice.

9.7.4 System Protection and Other Control Requirements.

9.7.4.1 System Protection Facilities. Interconnection Customer shall, at its expense, install, operate and maintain its System Protection Facilities as a part of the Generating Facility or the Interconnection Customer's Interconnection Facilities. Transmission Owner shall install at Interconnection Customer's expense any Transmission Owner's System Protection Facilities that may be required on the Transmission Owner's Interconnection Facilities or the Transmission Owner's transmission or distribution facilities as a result of the interconnection of the Generating Facility and the Interconnection Customer's Interconnection Facilities.

9.7.4.2 Interconnection Customer's and Transmission Owner's System Protection Facilities shall be designed and coordinated with Affected Systems in accordance with Good Utility Practice.

9.7.4.3 Each Party shall be responsible for protection of its facilities consistent with Good Utility Practice.

9.7.4.4 Each Party's protective relay design shall incorporate the necessary test switches to perform the tests required in Article 6. The required test switches will be placed such that they allow operation of lockout relays while preventing breaker failure schemes from operating and causing unnecessary breaker operations and/or the tripping of the Generating Facility.

9.7.4.5 Each Party will test, operate and maintain their respective System Protection Facilities in accordance with Good Utility Practice.

9.7.4.6 Prior to the In-Service Date, and again prior to the Commercial Operation Date, Interconnection Customer or Transmission Owner, or their respective agents, shall perform a complete calibration test and functional trip test of the System Protection Facilities. At intervals suggested by Good Utility Practice and following any apparent malfunction of the System Protection Facilities, Interconnection Customer or Transmission Owner shall each perform both calibration and functional trip tests of their respective System Protection Facilities. These tests do not require the

tripping of any in-service generating unit. These tests do, however, require that all protective relays and lockout contacts be activated.

9.7.5 Requirements for Protection. In compliance with Good Utility Practice, Interconnection Customer shall provide, install, own, and maintain relays, circuit breakers and all other devices necessary to remove any fault contribution of the Generating Facility to any short circuit occurring on the Transmission or Distribution System, as applicable, not otherwise isolated by Transmission Owner's equipment, such that the removal of the fault contribution shall be coordinated with the protective requirements of the Transmission or Distribution System, as applicable. Such protective equipment shall include, without limitation, a disconnecting device or switch with load-interrupting capability located between the Generating Facility and the Transmission or Distribution System, as applicable, at a site selected upon mutual agreement (not to be unreasonably withheld, conditioned or delayed) of the Parties. Interconnection Customer shall be responsible for protection of the Generating Facility and Interconnection Customer's other equipment from such conditions as negative sequence currents, over- or under-frequency, sudden load rejection, over- or under-voltage, and generator loss-of-field. Interconnection Customer shall be solely responsible to disconnect the Generating Facility and Interconnection Customer's other equipment if conditions on the Transmission or Distribution System, as applicable, could adversely affect the Generating Facility.

9.7.6 Power Quality. Neither Party's facilities shall cause excessive voltage flicker nor introduce excessive distortion to the sinusoidal voltage or current waves as defined by ANSI Standard C84.1-1989, in accordance with IEEE Standard 519, or any applicable superseding electric industry standard. In the event of a conflict between ANSI Standard C84.1-1989, and any applicable superseding electric industry standard, the applicable superseding electric industry standard shall control.

9.8 Switching and Tagging Rules. Prior to the Initial Synchronization Date, each Party shall provide the other Parties a copy of its switching and tagging rules that are applicable to the other Parties' activities. Such switching and tagging rules shall be developed on a non-discriminatory basis. The Parties shall comply with applicable switching and tagging rules, as amended from time to time, in obtaining clearances for work or for switching operations on equipment.

9.9 Use of Interconnection Facilities by Other Parties.

9.9.1 Purpose of Interconnection Facilities. Except as may be required by Applicable Laws and Regulations, or as otherwise agreed to among the Parties, the Interconnection Facilities shall be constructed for the sole purpose of interconnecting the Generating Facility to the Transmission or Distribution System, as applicable, and shall be used for no other purpose.

9.9.2 Other Users. If required by Applicable Laws and Regulations or if the Parties mutually agree, such agreement not to be unreasonably withheld or delayed, to allow one or more Parties to use the Transmission Owner's Interconnection Facilities, or any part thereof, Interconnection Customer will be entitled to compensation for the capital expenses it incurred in connection with the Interconnection Facilities based upon the pro rata use of the Interconnection Facilities by Transmission Owner, all non-Party users, and Interconnection Customer, in accordance with Applicable Laws and Regulations or upon some other mutually-agreed upon methodology. In addition, cost responsibility for ongoing costs, including operation and maintenance costs associated with the Interconnection Facilities, will be allocated between Interconnection Customer and any non-Party users based upon the pro rata use of the Interconnection Facilities by Transmission Owner, all non-Party users, and Interconnection Customer, in accordance with Applicable Laws and Regulations or upon some other mutually agreed upon methodology. If the issue of such compensation or allocation cannot be resolved through such negotiations, it shall be submitted to Dispute Resolution pursuant to Section 12 of the Tariff.

9.10 Disturbance Analysis Data Exchange. The Parties will cooperate with one another in the analysis of disturbances to either the Generating Facility or the Transmission System by gathering and providing access to any information relating to any disturbance, including information from oscillography, protective relay targets, breaker operations and sequence of events records, and any disturbance information required by Good Utility Practice.

ARTICLE 10. MAINTENANCE

10.1 Transmission Owner Obligations. Transmission Owner shall maintain the Transmission Owner's Interconnection Facilities in a safe and reliable manner and in accordance with this GIA and all Applicable Laws and Regulations.

10.2 Interconnection Customer Obligations. Interconnection Customer shall maintain the Generating Facility and the Interconnection Customer's Interconnection Facilities in a safe and reliable manner and in accordance with this GIA and all Applicable Laws and Regulations.

10.3 Coordination. The Parties shall confer regularly to coordinate the planning, scheduling and performance of preventive and corrective maintenance on the Generating Facility and the Interconnection Facilities.

10.4 Secondary Systems. Each Party shall cooperate with the other in the inspection, maintenance, and testing of control or power circuits that operate below 600 volts, AC or DC, including, but not limited to, any hardware, control or protective devices, cables, conductors, electric raceways, secondary equipment panels, transducers, batteries, chargers, and voltage and current transformers that directly affect the operation of a Party's facilities and equipment which may reasonably be expected to impact another

Party. Each Party shall provide advance notice to the other Parties before undertaking any work on such circuits, especially on electrical circuits involving circuit breaker trip and close contacts, current transformers, or potential transformers.

10.5 Operating and Maintenance Expenses. Subject to the provisions herein addressing the use of facilities by others, and except for operations and maintenance expenses associated with modifications made for providing Interconnection Service or Transmission Service to a non-Party and such non-Party pays for such expenses, Interconnection Customer shall be responsible for all reasonable expenses including overheads, associated with: (1) owning, operating, maintaining, repairing, and replacing Interconnection Customer's Interconnection Facilities; and (2) operation, maintenance, repair and replacement of Transmission Owner's Interconnection Facilities to the extent required by Transmission Owner on a comparable basis.

ARTICLE 11. PERFORMANCE OBLIGATION

11.1 Interconnection Customer's Interconnection Facilities. Interconnection Customer shall design, procure, construct, install, own and/or control the Interconnection Customer's Interconnection Facilities described in Appendix A at its sole expense.

11.2 Transmission Owner's Interconnection Facilities. Transmission Owner shall design, procure, construct, install, own and/or control the Transmission Owner's Interconnection Facilities described in Appendix A at the sole expense of Interconnection Customer.

11.3 Network Upgrades, System Protection Facilities and Distribution Upgrades. Transmission Owner shall design, procure, construct, install, and own the Network Upgrades, Transmission Owner's System Protection Facilities and Distribution Upgrades described in Appendix A. Interconnection Customer shall be responsible for all costs related to Distribution Upgrades and/or Generator Upgrades. Transmission Owner shall provide Transmission Provider and Interconnection Customer with written notice pursuant to Article 15 if Transmission Owner elects to fund the capital for the Network Upgrades and Transmission Owner's System Protection Facilities; otherwise, such facilities, if any, shall be solely funded by Interconnection Customer.

11.3.1 Contingencies Affecting Network Upgrades, System Protection Facilities and Distribution Upgrades**.** Network Upgrades, System Protection Facilities and Distribution Upgrades that are required to accommodate the Generating Facility may be modified because (1) a higher queued interconnection request withdrew or was deemed to have withdrawn, (2) the interconnection agreement associated with a higher queued interconnection request was terminated prior to the project's In-Service Date, (3) the Commercial Operation Date for a higher queued interconnection request is delayed, or the project itself is delayed (including due to suspension) such that facilities required to accommodate lower queued projects or the project itself may be altered, (4) the queue position is reinstated for a higher-queued interconnection request whose queue position was subject to dispute resolution, (5) changes occur in Transmission Provider or Transmission

Owner equipment design standards or reliability criteria giving rise to the need for restudy, (6) the facilities required to accommodate a higher queued Interconnection Request were modified constituting a Material Modification pursuant to Section 4.4 of the GIP, (7) a GIA with an effective date prior to this GIA is terminated, or (8) when ordered to restudy by FERC. The higher queued Interconnection Requests that could impact the Network Upgrades, System Protection Facilities and Distribution Upgrades required to accommodate the Generating Facility, and possible Modifications that may result from the above listed events affecting the higher queued Interconnection Requests, to the extent such modifications are reasonably known and can be determined, and estimates of the costs associated with such required Network Upgrades, System Protection Facilities and Distribution Upgrades, are provided in Appendix A.

11.3.2 Agreement to Restudy and Cost Reallocation**.** In the event that one of the contingencies listed in Article 11.3.1 occurs, at any time before the Network Upgrades, Common Use Upgrades, Shared Network Upgrades, System Protection Facilities and/or Distribution Upgrades associated with higher queued Interconnection Requests with GIA in effect prior to this GIA are completed, Transmission Provider may determine, in its discretion, that a restudy is required. If a restudy is required, Transmission Provider will provide notice to Interconnection Customer and Interconnection Customer agrees to enter into an Interconnection Study Agreement for such restudy. Transmission Provider will reevaluate the need for any Common Use Upgrade(s) and/or Shared Network Upgrade(s), and if still required, reallocate the cost and responsibility for any Common Use Upgrade and/or Shared Network Upgrade, without a restudy when possible, or with a restudy if the Transmission Provider deems it necessary in order to ensure reliability of the Transmission System. The Parties agree to amend Appendix A to this GIA in accordance with Article 30.10 to reflect the results of any cost reallocation required under this Article 11.3.2.

11.3.3 Agreement to Fund Shared Network Upgrades. Interconnection Customer agrees to fund Shared Network Upgrades, as determined by Transmission Provider. Where applicable, payments to fund Shared Network Upgrade(s) that are made to Transmission Provider by Interconnection Customer will be disbursed by Transmission Provider to the appropriate entities that funded the Shared Network Upgrades in accordance with Attachment X and Attachment FF of the Tariff. In the event that Interconnection Customer fails to meet its obligation to fund Shared Network Upgrades, Transmission Owner and Transmission Provider shall not be responsible for the Interconnection Customer's funding obligation.

11.4 Transmission Credits.

11.4.1 Repayment of Amounts Advanced for Network Upgrades. Interconnection Customer shall be entitled to a cash repayment by Transmission Owner(s) and the Affected System Owner(s) that own the Network Upgrades, of the amount paid respectively to Transmission Owner and Affected System Operator, if any,

for the Network Upgrades, as provided under Attachment FF of this Tariff and including any tax gross-up or other tax-related payments associated with the repayable portion of the Network Upgrades, and not repaid to Interconnection Customer pursuant to Article 5.17.8 or otherwise, to be paid to Interconnection Customer on a dollar-for-dollar basis for the non-usage sensitive portion of transmission charges, as payments are made under the Tariff and Affected System's Tariff for Transmission Services with respect to the Generating Facility. Any repayment shall include interest calculated in accordance with the methodology set forth in FERC's regulations at 18 C.F.R. § 35.19 (a)(2)(iii) from the date of any payment for Network Upgrades through the date on which Interconnection Customer receives a repayment of such payment pursuant to this subparagraph. Interest shall not accrue during periods in which Interconnection Customer has suspended construction pursuant to Article 11 or the Network Upgrades have been determined not to be needed pursuant to this Article 11.4.1. Interconnection Customer may assign such repayment rights to any person.

If the Generating Facility is designated a Network Resource under the Tariff, or if there are otherwise no incremental payments for Transmission Service resulting from the use of the Generating Facility by Transmission Customer, and in the absence of another mutually agreeable payment schedule any repayments provided under Attachment FF shall be established equal to the applicable rate for Firm Point-To-Point Transmission Service for the pricing zone where the Network Load is located multiplied by the portion of the demonstrated output of the Generating Facility designated as a Network Resource by the Network Customer(s) or in the absence of such designation, equal to the monthly firm single system-wide rate defined under Schedule 7 of the Tariff multiplied by the portion of the demonstrated output of the Generating Facility under contract to Network Customer(s) and consistent with studies pursuant to Section 3.2.2.2 of the GIP.

Notwithstanding the foregoing, as applicable and consistent with the provisions of Attachment FF of this Tariff, Interconnection Customer, Transmission Provider, Transmission Owner, and Affected System Operator may adopt any alternative payment schedule that is mutually agreeable so long as Transmission Owner and Affected System Operator take one of the following actions no later than five (5) years from the Commercial Operation Date: (1) return to Interconnection Customer any amounts advanced for Network Upgrades not previously repaid, or (2) declare in writing that Transmission Owner or Affected System Operator will continue to provide payments to Interconnection Customer on a dollar-for-dollar basis for the non-usage sensitive portion of transmission charges, or develop an alternative schedule that is mutually agreeable and provides for the return of all amounts advanced for Network Upgrades not previously repaid; however, full reimbursement shall not extend beyond twenty (20) years from the Commercial Operation Date.

If the Generating Facility is installed in phases, the amount eligible for refund as each phase achieves Commercial Operation will be reduced by the proportional amount of generation capacity not yet installed. However, all facilities in Appendix A other than the Generating Facility shall be built without consideration for the phasing of the Generating Facility as though the entire Generating Facility will be placed in Commercial Operation for the full output or increased output of the Generating Facility constructed by Interconnection Customer under this GIA.

If the Generating Facility fails to achieve Commercial Operation, but it or another generating facility is later constructed and makes use of the Network Upgrades, Transmission Owner and Affected System Operator shall at that time reimburse Interconnection Customer for the remaining applicable amounts that may be refundable pursuant to Attachment FF of this Tariff that were advanced for the Network Upgrades on their respective systems as described above. Before any such reimbursement can occur, Interconnection Customer, or the entity that ultimately constructs the Generating Facility, if different, is responsible for identifying the entity to which the reimbursement must be made.

11.4.2 Special Provisions for Transmission Provider as an Affected System to be covered under Separate Agreements. When the Transmission Owner's Transmission or Distribution System (including for this Article 11.4.2 independent distribution systems connected to the Transmission System) is an Affected System for an interconnection in another electric system, Transmission Provider will coordinate the performance of Interconnection Studies with the other system. Transmission Provider will determine if any Network Upgrades or Distribution Upgrades, which may be required on the Transmission System as a result of the interconnection, would not have been needed but for the interconnection. Unless Transmission Owner provides, under the interconnection agreement between Interconnection Customer and the other system, for the repayment of amounts advanced to Transmission Provider or an impacted Transmission Owner for Network Upgrades, Interconnection Customer, Transmission Provider, and the impacted Transmission Owner(s) shall enter into an agreement that provides for such repayment by Transmission Owner(s) as directed by Transmission Provider. The agreement shall specify the terms governing payments to be made by Interconnection Customer to the Affected System Operator as well as the payment of refunds by the Affected System Operator.

11.4.3 Notwithstanding any other provision of this GIA, nothing herein shall be construed as relinquishing or foreclosing any rights, including but not limited to firm transmission rights, capacity rights, transmission congestion rights, or transmission credits, that Interconnection Customer, shall be entitled to, now or in the future under any other agreement or tariff as a result of, or otherwise associated with, the transmission capacity, if any, created by the Network

Upgrades, including the right to obtain cash reimbursement or transmission credits for transmission service that is not associated with the Generating Facility.

11.5 Initial Payment. Interconnection Customer shall elect (and provide its election to the Transmission Provider within five days of the commencement of negotiation of the GIA pursuant to Section 11.2 of the GIP) to make either 1) an initial payment equal to twenty (20) percent of the total cost of Network Upgrades, Transmission Owner Interconnection Facilities, Transmission Owner's System Protection Facilities, Distribution Upgrades and/or Generator Upgrades (if the In-Service Date is less than or equal to five (5) years of the initial payment date); or 2) an initial payment equal to ten (10) percent of the total cost of Network Upgrades, Transmission Owner Interconnection Facilities, Transmission Owner's System Protection Facilities, Distribution Upgrades and/or Generator Upgrades (if the In-Service Date exceeds the initial payment date by more than five (5) years); or 3) the total cost of Network Upgrades, Transmission Owner Interconnection Facilities, Transmission Owner's System Protection Facilities, Distribution Upgrades and/or Generator Upgrades in the form of security pursuant to Article 11.6. The initial payment shall be provided to Transmission Owner by Interconnection Customer pursuant to this Article 11.5 within the later of a) forty-five (45) Calendar Days of the execution of the GIA by all Parties, or b) forty-five (45) Calendar Days of acceptance by FERC if the GIA is filed unexecuted and the payment is being protested by Interconnection Customer, or c) forty-five (45) Calendar Days of the filing if the GIA is filed unexecuted and the initial payment is not being protested by Interconnection Customer. If the Interconnection Customer made its milestone payments in the form of cash and the Interconnection Customer elects a cash initial payment, then the Transmission Provider shall transfer those funds to the Transmission Owner on the Interconnection Customer's behalf.

11.6 Provision of Security. Unless otherwise provided in Appendix B, at least forty-five (45) Calendar Days prior to the commencement of the design, procurement, installation, or construction of a discrete portion of an element, not otherwise funded under Article 11.5, of the Transmission Owner's Interconnection Facilities, Transmission Owner's System Protection Facilities, Network Upgrades, Distribution Upgrades or Stand-Alone Network Upgrades, or at the request of Transmission Owner if regulatory approvals are required for the construction of such facilities, Interconnection Customer shall provide Transmission Owner, at Interconnection Customer's selection, a guarantee, a surety bond, letter of credit or other form of security that is reasonably acceptable to Transmission Owner and is consistent with the Uniform Commercial Code of the jurisdiction identified in Article 14.2.1. Such security for payment shall be in an amount sufficient to cover the applicable costs and cost commitments, in addition to those funded under Article 11.5, required of the Party responsible for building the facilities pursuant to the construction schedule developed in Appendix B for designing, engineering, seeking regulatory approval from any Governmental Authority, constructing, procuring and installing the applicable portion of the Transmission Owner's Interconnection Facilities, Transmission Owner's System Protection Facilities, Network Upgrades, Distribution Upgrades or Stand-Alone Network Upgrades and shall be reduced on a dollar-for-dollar basis for payments made to Transmission Owner for these purposes.

In addition:

11.6.1 The guarantee must be made by an entity that meets the creditworthiness requirements of Transmission Owner, and contain terms and conditions that guarantee payment of any amount that may be due from Interconnection Customer, up to an agreed-to maximum amount.

11.6.2 The letter of credit must be issued by a financial institution reasonably acceptable to Transmission Owner and must specify a reasonable expiration date.

11.6.3 The surety bond must be issued by an insurer reasonably acceptable to Transmission Owner and must specify a reasonable expiration date.

11.6.4 If the Shared Network Upgrade is not in service, Interconnection Customer will provide, as applicable, an Irrevocable Letter of Credit to fund any Shared Network Upgrade pursuant to Attachment FF of the Tariff. The Irrevocable Letter of Credit shall be in an amount sufficient to cover the Interconnection Customer's share of the applicable costs and cost commitments associated with the Shared Network Upgrades. Transmission Provider may periodically adjust the Interconnection Customer's share of the applicable costs and cost commitment of Shared Network Upgrades and may require Interconnection Customer to adjust the amount of the Irrevocable Letter of Credit accordingly.

11.7 Interconnection Customer Compensation. If Transmission Provider requests or directs Interconnection Customer to provide a service pursuant to Article 13.4 of this GIA, Transmission Provider shall compensate Interconnection Customer in accordance with any tariff or rate schedule filed by Transmission Provider and approved by the FERC.

ARTICLE 12. INVOICE

12.1 General. Each Party shall submit to the other Party, on a monthly basis, invoices of amounts due, if any, for the preceding month. Each invoice shall state the month to which the invoice applies and fully describe the services and equipment provided. The Parties may discharge mutual debts and payment obligations due and owing to each other on the same date through netting, in which case all amounts a Party owes to the other Party under this GIA, including interest payments or credits, shall be netted so that only the net amount remaining due shall be paid by the owing Party.

12.2 Final Invoice. Within six (6) months after completion of the construction of the Transmission Owner's Interconnection Facilities, Transmission Owner's System Protection Facilities, Distribution Upgrades and the Network Upgrades, Transmission Owner shall provide an invoice of the final cost of the construction of the Transmission Owner's Interconnection Facilities, Transmission Owner's System Protection Facilities, Distribution Upgrades and the Network Upgrades and shall set forth such costs in sufficient detail to enable Interconnection Customer to compare the actual costs with the estimates and to ascertain deviations, if any, from the cost estimates. Transmission

Owner shall refund, with interest (calculated in accordance with 18 C.F.R. Section 35.19a(a)(2)(iii), to Interconnection Customer any amount by which the actual payment by Interconnection Customer for estimated costs exceeds the actual costs of construction within thirty (30) Calendar Days of the issuance of such final construction invoice.

12.3 Payment. Invoices shall be rendered to the paying Party at the address specified in Appendix F. The Party receiving the invoice shall pay the invoice within thirty (30) Calendar Days of receipt. All payments shall be made in immediately available funds payable to the other Party, or by wire transfer to a bank named and account designated by the invoicing Party. Payment of invoices by a Party will not constitute a waiver of any rights or claims that Party may have under this GIA.

12.4 Disputes. In the event of a billing dispute among the Parties, Transmission Provider shall continue to provide Interconnection Service under this GIA as long as Interconnection Customer: (i) continues to make all payments not in dispute; and (ii) pays to Transmission Provider or Transmission Owner or into an independent escrow account the portion of the invoice in dispute, pending resolution of such dispute. If Interconnection Customer fails to meet these two requirements for continuation of service, then Transmission Provider may or, at Transmission Owner's request upon Interconnection Customer's failure to pay, Transmission Owner, shall provide notice to Interconnection Customer of a Default pursuant to Article 17. Within thirty (30) Calendar Days after the resolution of the dispute, the Party that owes money to another Party shall pay the amount due with interest calculated in accord with the methodology set forth in 18 C.F.R. § 35.19a(a)(2)(iii).

ARTICLE 13. EMERGENCIES

13.1 Obligations. Each Party shall comply with the Emergency Condition procedures of Transmission Provider, NERC, the Applicable Reliability Council, and Applicable Laws and Regulations.

13.2 Notice. Transmission Provider or Transmission Owner shall notify the other Parties promptly when it becomes aware of an Emergency Condition that affects the Transmission Owner's Interconnection Facilities or the Transmission or Distribution System, as applicable, that may reasonably be expected to affect Interconnection Customer's operation of the Generating Facility or the Interconnection Customer's Interconnection Facilities.

Interconnection Customer shall notify Transmission Provider and Transmission Owner, which includes by definition if applicable, the operator of a Distribution System, promptly when it becomes aware of an Emergency Condition that affects the Generating Facility or the Interconnection Customer's Interconnection Facilities that may reasonably be expected to affect the Transmission or Distribution System, as applicable, or the Transmission Owner's Interconnection Facilities.

To the extent information is known, the notification shall describe the Emergency Condition, the extent of the damage or deficiency, the expected effect on the operation of Interconnection Customer's or Transmission Provider's or Transmission Owner's facilities and operations, its anticipated duration and the corrective action taken and/or to be taken. The initial notice shall be followed as soon as practicable with written notice.

13.3 Immediate Action. Unless, in a Party's reasonable judgment, immediate action is required, the Party exercising such judgment shall notify and obtain the consent of the other Parties, such consent to not be unreasonably withheld, prior to performing any manual switching operations at the Generating Facility or the Interconnection Customer's Interconnection Facilities in response to an Emergency Condition either declared by Transmission Provider or otherwise regarding the Transmission or Distribution System, as applicable.

13.4 Transmission Provider and Transmission Owner Authority.

13.4.1 General. Transmission Provider or Transmission Owner may take whatever actions or inactions with regard to the Transmission System or the Transmission Owner's Interconnection Facilities it deems necessary during an Emergency Condition in order to (i) preserve public health and safety, (ii) preserve the reliability of the Transmission System or the Transmission Owner's Interconnection Facilities, (iii) limit or prevent damage, and (iv) expedite restoration of service.

Transmission Provider or Transmission Owner shall use Reasonable Efforts to minimize the effect of such actions or inactions on the Generating Facility or the Interconnection Customer's Interconnection Facilities. Transmission Provider or Transmission Owner may, on the basis of technical considerations, require the Generating Facility to mitigate an Emergency Condition by taking actions necessary and limited in scope to remedy the Emergency Condition, including, but not limited to, directing Interconnection Customer to shut-down, start-up, increase or decrease the real or reactive power output of the Generating Facility; implementing a reduction or disconnection pursuant to Article 13.4.2; directing Interconnection Customer to assist with blackstart (if available) or restoration efforts; or altering the outage schedules of the Generating Facility and the Interconnection Customer's Interconnection Facilities. Interconnection Customer shall comply with all of Transmission Provider's or Transmission Owner's operating instructions concerning Generating Facility real power and reactive power output within the manufacturer's design limitations of the Generating Facility's equipment that is in service and physically available for operation at the time, in compliance with Applicable Laws and Regulations.

13.4.2 Reduction and Disconnection. Transmission Provider or Transmission Owner may reduce Interconnection Service or disconnect the Generating Facility or the Interconnection Customer's Interconnection Facilities, when such reduction or disconnection is necessary under Good Utility Practice due to Emergency

Conditions. These rights are separate and distinct from any right of curtailment of Transmission Provider pursuant to the Tariff. When Transmission Provider can schedule the reduction or disconnection in advance, Transmission Provider shall notify Interconnection Customer of the reasons, timing and expected duration of the reduction or disconnection. Transmission Provider shall coordinate with Interconnection Customer and Transmission Owner using Good Utility Practice to schedule the reduction or disconnection during periods of least impact to Interconnection Customer, Transmission Owner and Transmission Provider. Any reduction or disconnection shall continue only for so long as reasonably necessary pursuant to Good Utility Practice. The Parties shall cooperate with each other to restore the Generating Facility, the Interconnection Facilities, and the Transmission System to their normal operating state as soon as practicable consistent with Good Utility Practice.

13.5 Interconnection Customer Authority. Consistent with Good Utility Practice and this GIA and the GIP, Interconnection Customer may take whatever actions or inactions with regard to the Generating Facility or the Interconnection Customer's Interconnection Facilities during an Emergency Condition in order to (i) preserve public health and safety, (ii) preserve the reliability of the Generating Facility or the Interconnection Customer's Interconnection Facilities, (iii) limit or prevent damage, and (iv) expedite restoration of service. Interconnection Customer shall use Reasonable Efforts to minimize the effect of such actions or inactions on the Transmission System and the Transmission Owner's Interconnection Facilities. Transmission Provider and Transmission Owner shall use Reasonable Efforts to assist Interconnection Customer in such actions.

13.6 Limited Liability. Except as otherwise provided in Article 11.6 of this GIA, no Party shall be liable to any other for any action it takes in responding to an Emergency Condition so long as such action is made in good faith and is consistent with Good Utility Practice.

13.7 Audit. In accordance with Article 25.3, any Party may audit the performance of another Party when that Party declared an Emergency Condition.

ARTICLE 14. REGULATORY REQUIREMENTS AND GOVERNING LAW

14.1 Regulatory Requirements. Each Party's obligations under this GIA shall be subject to its receipt of any required approval or certificate from one or more Governmental Authorities in the form and substance satisfactory to the applying Party, or the Party making any required filings with, or providing notice to, such Governmental Authorities, and the expiration of any time period associated therewith. Each Party shall in good faith seek, and if necessary assist the other Party and use its Reasonable Efforts to obtain such other approvals. Nothing in this GIA shall require Interconnection Customer to take any action that could result in its inability to obtain, or its loss of, status or exemption under the Federal Power Act, the Public Utility Holding Company Act of 2005, as amended, or the Public Utility Regulatory Policies Act of 1978.

14.2 Governing Law.

14.2.1 The validity, interpretation and performance of this GIA and each of its provisions shall be governed by the laws of the state where the Point of Interconnection is located, without regard to its conflicts of law principles.

14.2.2 This GIA is subject to all Applicable Laws and Regulations.

14.2.3 Each Party expressly reserves the right to seek changes in, appeal, or otherwise contest any laws, orders, rules, or regulations of a Governmental Authority.

ARTICLE 15. NOTICES

15.1 General. Unless otherwise provided in this GIA, any notice, demand or request required or permitted to be given by any Party to the other Parties and any instrument required or permitted to be tendered or delivered by a Party in writing to the other Parties shall be effective when delivered and may be so given, tendered or delivered, by recognized national courier, or by depositing the same with the United States Postal Service with postage prepaid, for delivery by certified or registered mail, addressed to the Party, or personally delivered to the Party, at the address set out in Appendix F, Addresses for Delivery of Notices and Billings.

Either Party may change the notice information in this GIA by giving five (5) Business Days written notice prior to the effective date of the change.

15.2 Billings and Payments. Billings and payments shall be sent to the addresses set out in Appendix F.

15.3 Alternative Forms of Notice. Any notice or request required or permitted to be given by any Party to the other and not required by this GIA to be given in writing may be so given by telephone, facsimile or email to the telephone numbers and email addresses set out in Appendix F.

15.4 Operations and Maintenance Notice. Each Party shall notify the other Parties in writing of the identity of the person(s) that it designates as the point(s) of contact with respect to the implementation of Articles 9 and 10.

ARTICLE 16. FORCE MAJEURE

16.1 Force Majeure.

16.1.1 Economic hardship is not considered a Force Majeure event.

16.1.2 A Party shall not be considered to be in Default with respect to any obligation hereunder, (including obligations under Article 4 and 5), other than the obligation

to pay money when due, if prevented from fulfilling such obligation by Force Majeure. A Party unable to fulfill any obligation hereunder (other than an obligation to pay money when due) by reason of Force Majeure shall give notice and the full particulars of such Force Majeure to the other Parties in writing or by telephone as soon as reasonably possible after the occurrence of the cause relied upon. Telephone, facsimile or email notices given pursuant to this Article shall be confirmed in writing as soon as reasonably possible and shall specifically state full particulars of the Force Majeure, the time and date when the Force Majeure occurred and when the Force Majeure is reasonably expected to cease. The Party affected shall exercise Reasonable Efforts to remove such disability with reasonable dispatch, but shall not be required to accede or agree to any provision not satisfactory to it in order to settle and terminate a strike or other labor disturbance.

ARTICLE 17. DEFAULT

17.1 Default

17.1.1 General. No Default shall exist where such failure to discharge an obligation (other than the payment of money) is the result of Force Majeure as defined in this GIA or the result of an act or omission of another Party. Upon a Breach, the non-Breaching Party or Parties shall give written notice of such Breach to the Breaching Party with a copy to the other Party if one Party gives notice of such Breach. Except as provided in Article 17.1.2, the Breaching Party shall have thirty (30) Calendar Days from receipt of the Breach notice within which to cure such Breach; provided however, if such Breach is not capable of cure within thirty (30) Calendar Days, the Breaching Party shall commence such cure within thirty (30) Calendar Days after notice and continuously and diligently complete such cure within ninety (90) Calendar Days from receipt of the Breach notice; and, if cured within such time, the Breach specified in such notice shall cease to exist.

17.1.2 Termination. If a Breach is not cured as provided in this Article, or if a Breach is not capable of being cured within the period provided for herein, the non-Breaching Party or Parties shall terminate this GIA, subject to Article 2.3.2 of this GIA, by written notice to the Breaching Party, with a copy to the other Party if one Party gives notice of termination, and be relieved of any further obligation hereunder and, whether or not that Party(ies) terminates this GIA, to recover from the Breaching Party all amounts due hereunder, plus all other damages and remedies to which it is (they are) entitled at law or in equity. The provisions of this Article will survive termination of this GIA.

ARTICLE 18. LIMITATION OF LIABILITY, INDEMNITY, CONSEQUENTIAL DAMAGES AND INSURANCE

18.1 Limitation of Liability. A Party shall not be liable to another Party or to any third party or other person for any damages arising out of actions under this GIA, including, but not

limited to, any act or omission that results in an interruption, deficiency or imperfection of Interconnection Service, except as provided in this Tariff. The provisions set forth in the Tariff shall be additionally applicable to any Party acting in good faith to implement or comply with its obligations under this GIA, regardless of whether the obligation is preceded by a specific directive.

18.2 Indemnity. To the extent permitted by law, an Indemnifying Party shall at all times indemnify, defend and hold the other Parties harmless from Loss.

18.2.1 Indemnified Party. If an Indemnified Party is entitled to indemnification under this Article 18 as a result of a claim by a non-Party, and the Indemnifying Party fails, after notice and reasonable opportunity to proceed under Article 18.2, to assume the defense of such claim, such Indemnified Party may at the expense of the Indemnifying Party contest, settle or consent to the entry of any judgment with respect to, or pay in full, such claim.

18.2.2 Indemnifying Party. If an Indemnifying Party is obligated to indemnify and hold any Indemnified Party harmless under this Article 18, the amount owing to the Indemnified Party shall be the amount of such Indemnified Party's actual Loss, net of any insurance or other recovery.

18.2.3 Indemnity Procedures. Promptly after receipt by an Indemnified Party of any claim or notice of the commencement of any action or administrative or legal proceeding or investigation as to which the indemnity provided for in Article 18.2 may apply, the Indemnified Party shall notify the Indemnifying Party of such fact. Any failure of or delay in such notification shall not affect a Party's indemnification obligation unless such failure or delay is materially prejudicial to the Indemnifying Party.

The Indemnifying Party shall have the right to assume the defense thereof with counsel designated by such Indemnifying Party and reasonably satisfactory to the Indemnified Party. If the defendants in any such action include one or more Indemnified Parties and the Indemnifying Party and if the Indemnified Party reasonably concludes that there may be legal defenses available to it and/or other Indemnified Parties which are different from or additional to those available to the Indemnifying Party, the Indemnified Party shall have the right to select separate counsel to assert such legal defenses and to otherwise participate in the defense of such action on its own behalf. In such instances, the Indemnifying Party shall only be required to pay the fees and expenses of one additional attorney to represent an Indemnified Party or Indemnified Parties having such differing or additional legal defenses.

The Indemnified Party shall be entitled, at its expense, to participate in any such action, suit or proceeding, the defense of which has been assumed by the Indemnifying Party. Notwithstanding the foregoing, the Indemnifying Party (i) shall not be entitled to assume and control the defense of any such action, suit

or proceedings if and to the extent that, in the opinion of the Indemnified Party and its counsel, such action, suit or proceeding involves the potential imposition of criminal liability on the Indemnified Party, or there exists a conflict or adversity of interest between the Indemnified Party and the Indemnifying Party, in such event the Indemnifying Party shall pay the reasonable expenses of the Indemnified Party, and (ii) shall not settle or consent to the entry of any judgment in any action, suit or proceeding without the consent of the Indemnified Party, which shall not be reasonably withheld, conditioned or delayed.

18.3 Consequential Damages. Other than the Liquidated Damages heretofore described, in no event shall either Party be liable under any provision of this GIA for any losses, damages, costs or expenses for any special, indirect, incidental, consequential, or punitive damages, including but not limited to loss of profit or revenue, loss of the use of equipment, cost of capital, cost of temporary equipment or services, whether based in whole or in part in contract, in tort, including negligence, strict liability, or any other theory of liability; provided; however, that damages for which a Party may be liable to the other Party under another agreement will not be considered to be special, indirect, incidental, or consequential damages hereunder.

18.4 Insurance. Transmission Owner and Interconnection Customer shall, at their own expense, maintain in force throughout the period of this GIA pursuant to 18.4.9, and until released by the other Party, the following minimum insurance coverages, with insurers authorized to do business or an approved surplus lines carrier in the state where the Point of Interconnection is located:

18.4.1 Employers' Liability and Workers' Compensation Insurance providing statutory benefits in accordance with the laws and regulations of the state in which the Point of Interconnection is located.

18.4.2 Commercial General Liability Insurance including premises and operations, personal injury, broad form property damage, broad form blanket contractual liability coverage (including coverage for the contractual indemnification) products and completed operations coverage, coverage for explosion, collapse and underground hazards, independent contractors coverage, coverage for pollution to the extent normally available and punitive damages to the extent normally available and a cross liability endorsement, with minimum limits of One Million Dollars ($1,000,000) per occurrence/One Million Dollars ($1,000,000) aggregate combined single limit for personal injury, bodily injury, including death and property damage.

18.4.3 Comprehensive Automobile Liability Insurance, for coverage of owned and non-owned and hired vehicles, trailers or semi-trailers licensed for travel on public roads, with a minimum combined single limit of One Million Dollars ($1,000,000) each occurrence for bodily injury, including death, and property damage.

18.4.4 Excess Public Liability Insurance over and above the Employer's Liability, Commercial General Liability and Comprehensive Automobile Liability Insurance coverage, with a minimum combined single limit of Twenty Million Dollars ($20,000,000) per occurrence/Twenty Million Dollars ($20,000,000) aggregate.

18.4.5 The Commercial General Liability Insurance, Comprehensive Automobile Insurance and Excess Public Liability Insurance policies shall name the other Parties, their parents, associated and Affiliate companies and their respective directors, officers, agents, servants and employees ("Other Party Group") as additional insured. All policies shall contain provisions whereby the insurers waive all rights of subrogation in accordance with the provisions of this GIA against the Other Party Groups and provide thirty (30) Calendar Days' advance written notice to the Other Party Groups prior to anniversary date of cancellation or any material change in coverage or condition.

18.4.6 The Commercial General Liability Insurance, Comprehensive Automobile Liability Insurance and Excess Public Liability Insurance policies shall contain provisions that specify that the policies are primary and shall apply to such extent without consideration for other policies separately carried and shall state that each insured is provided coverage as though a separate policy had been issued to each, except the insurer's liability shall not be increased beyond the amount for which the insurer would have been liable had only one insured been covered. Each Party shall be responsible for its respective deductibles or retentions.

18.4.7 The Commercial General Liability Insurance, Comprehensive Automobile Liability Insurance and Excess Public Liability Insurance policies, if written on a Claims First Made Basis, shall be maintained in full force and effect for two (2) years after termination of this GIA, which coverage may be in the form of tail coverage or extended reporting period coverage if agreed by Transmission Owner and Interconnection Customer.

18.4.8 The requirements contained herein as to the types and limits of all insurance to be maintained by Transmission Owner and Interconnection Customer are not intended to and shall not in any manner, limit or qualify the liabilities and obligations assumed by Transmission Owner and Interconnection Customer under this GIA.

18.4.9 As of the date set forth in Appendix B, Milestones, and as soon as practicable after the end of each fiscal year or at the renewal of the insurance policy and in any event within ninety (90) Calendar Days thereafter, Interconnection Customer and Transmission Owner shall provide the other Party with certification of all insurance required in this GIA, executed by each insurer or by an authorized representative of each insurer.

18.4.10 Notwithstanding the foregoing, Transmission Owner or Interconnection Customer may self-insure to meet the minimum insurance requirements of Articles 18.4.1 through 18.4.8, to the extent it maintains a self-insurance program; provided that, Transmission Owner's or Interconnection Customer's senior secured debt is rated at investment grade, or better, by Standard & Poor's and that its self-insurance program meets minimum insurance requirements under Articles 18.4.1 through 18.4.8. For any period of time that a Transmission Owner's or Interconnection Customer's senior secured debt is unrated by Standard & Poor's or is rated at less than investment grade by Standard & Poor's, such Party shall comply with the insurance requirements applicable to it under Articles 18.4.1 through 18.4.9. In the event that Transmission Owner or Interconnection Customer is permitted to self-insure pursuant to this article, it shall notify the other Party that it meets the requirements to self-insure and that its self-insurance program meets the minimum insurance requirements in a manner consistent with that specified in Article 18.4.9.

18.4.11 Transmission Owner and Interconnection Customer agree to report to each other in writing as soon as practical all accidents or occurrences resulting in injuries to any person, including death, and any property damage arising out of this GIA.

ARTICLE 19. ASSIGNMENT

19.1 Assignment. This GIA may be assigned by any Party only with the written consent of the other Parties; provided that a Party may assign this GIA without the consent of the other Parties to any Affiliate of the assigning Party with an equal or greater credit rating and with the legal authority and operational ability to satisfy the obligations of the assigning Party under this GIA; and provided further that Interconnection Customer shall have the right to assign this GIA, without the consent of either Transmission Provider or Transmission Owner, for collateral security purposes to aid in providing financing for the Generating Facility, provided that Interconnection Customer will promptly notify Transmission Provider of any such assignment. Any financing arrangement entered into by Interconnection Customer pursuant to this Article will provide that prior to or upon the exercise of the secured party's, trustee's or mortgagee's assignment rights pursuant to said arrangement, the secured creditor, the trustee or mortgagee will notify Transmission Provider of the date and particulars of any such exercise of assignment right(s), including providing Transmission Provider and Transmission Owner with proof that it meets the requirements of Article 11.5 and 18.4. Any attempted assignment that violates this Article is void and ineffective. Any assignment under this GIA shall not relieve a Party of its obligations, nor shall a Party's obligations be enlarged, in whole or in part, by reason thereof. Where required, consent to assignment will not be unreasonably withheld, conditioned or delayed.

ARTICLE 20. SEVERABILITY

20.1 Severability. If any provision in this GIA is finally determined to be invalid, void or unenforceable by any court or other Governmental Authority having jurisdiction, such

determination shall not invalidate, void or make unenforceable any other provision, agreement or covenant of this GIA; provided that if Interconnection Customer (or any non-Party, but only if such non-Party is not acting at the direction of either Transmission Provider or Transmission Owner) seeks and obtains such a final determination with respect to any provision of the Alternate Option (Article 5.1.2), or the Negotiated Option (Article 5.1.4), then none of these provisions shall thereafter have any force or effect and the Parties' rights and obligations shall be governed solely by the Standard Option (Article 5.1.1).

ARTICLE 21. COMPARABILITY

21.1 Comparability. The Parties will comply with all applicable comparability and code of conduct laws, rules and regulations including such laws, rules and regulations of Governmental Authorities establishing standards of conduct, as amended from time to time.

ARTICLE 22. CONFIDENTIALITY

22.1 Confidentiality. Confidential Information shall include, without limitation, all information relating to a Party's technology, research and development, business affairs, and pricing, and any information supplied by a Party to another Party prior to the execution of this GIA.

Information is Confidential Information only if it is clearly designated or marked in writing as confidential on the face of the document, or, if the information is conveyed orally or by inspection, if the Party providing the information orally informs the Party receiving the information that the information is confidential. The Parties shall maintain as confidential any information that is provided and identified by a Party as Critical Energy Infrastructure Information (CEII), as that term is defined in 18 C.F.R. Section 388.113(c). Such confidentiality will be maintained in accordance with this Article 22.

If requested by the receiving Party, the disclosing Party shall provide in writing, the basis for asserting that the information referred to in this Article warrants confidential treatment, and the requesting Party may disclose such writing to the appropriate Governmental Authority. Each Party shall be responsible for the costs associated with affording confidential treatment to its information.

22.1.1 Term**.** During the term of this GIA, and for a period of three (3) years after the expiration or termination of this GIA, except as otherwise provided in this Article 22 or with regard to CEII, each Party shall hold in confidence and shall not disclose to any person Confidential Information. CEII shall be treated in accordance with Commission policy and regulations.

22.1.2 Scope. Confidential Information shall not include information that the receiving Party can demonstrate: (1) is generally available to the public other than as a

result of a disclosure by the receiving Party; (2) was in the lawful possession of the receiving Party on a non-confidential basis before receiving it from the disclosing Party; (3) was supplied to the receiving Party without restriction by a non-Party, who, to the knowledge of the receiving Party after due inquiry, was under no obligation to the disclosing Party to keep such information confidential; (4) was independently developed by the receiving Party without reference to Confidential Information of the disclosing Party; (5) is, or becomes, publicly known, through no wrongful act or omission of the receiving Party or Breach of this GIA; or (6) is required, in accordance with Article 22.1.7 of this GIA, Order of Disclosure, to be disclosed by any Governmental Authority or is otherwise required to be disclosed by law or subpoena, or is necessary in any legal proceeding establishing rights and obligations under this GIA. Information designated as Confidential Information will no longer be deemed confidential if the Party that designated the information as confidential notifies the receiving Party that it no longer is confidential.

22.1.3 Release of Confidential Information. No Party shall release or disclose Confidential Information to any other person, except to its Affiliates (limited by the Standards of Conduct requirements), subcontractors, employees, agents, consultants, or to non-parties who may be or are considering providing financing to or equity participation with Interconnection Customer, or to potential purchasers or assignees of Interconnection Customer, on a need-to-know basis in connection with this GIA, unless such person has first been advised of the confidentiality provisions of this Article 22 and has agreed to comply with such provisions. Notwithstanding the foregoing, a Party providing Confidential Information to any person shall remain primarily responsible for any release of Confidential Information in contravention of this Article 22.

22.1.4 Rights. Each Party retains all rights, title, and interest in the Confidential Information that it discloses to the receiving Party. The disclosure by a Party to the receiving Party of Confidential Information shall not be deemed a waiver by the disclosing Party or any other person or entity of the right to protect the Confidential Information from public disclosure.

22.1.5 No Warranties. By providing Confidential Information, no Party makes any warranties or representations as to its accuracy or completeness. In addition, by supplying Confidential Information, no Party obligates itself to provide any particular information or Confidential Information to another Party nor to enter into any further agreements or proceed with any other relationship or joint venture.

22.1.6 Standard of Care. Each Party shall use at least the same standard of care to protect Confidential Information it receives as it uses to protect its own Confidential Information from unauthorized disclosure, publication or dissemination. Each Party may use Confidential Information solely to fulfill its obligations to another Party under this GIA or its regulatory requirements.

22.1.7 Order of Disclosure. If a court or a Government Authority or entity with the right, power, and apparent authority to do so requests or requires any Party, by subpoena, oral deposition, interrogatories, requests for production of documents, administrative order, or otherwise, to disclose Confidential Information, that Party shall provide the disclosing Party with prompt notice of such request(s) or requirement(s) so that the disclosing Party may seek an appropriate protective order or waive compliance with the terms of this GIA. Notwithstanding the absence of a protective order or waiver, the Party may disclose such Confidential Information which, in the opinion of its counsel, the Party is legally compelled to disclose. Each Party will use Reasonable Efforts to obtain reliable assurance that confidential treatment will be accorded any Confidential Information so furnished.

22.1.8 Termination of Agreement. Upon termination of this GIA for any reason, each Party shall, within ten (10) Calendar Days of receipt of a written request from another Party, use Reasonable Efforts to destroy, erase, or delete (with such destruction, erasure, and deletion certified in writing to the requesting Party) or return to the requesting Party, without retaining copies thereof, any and all written or electronic Confidential Information received from the requesting Party, except that each Party may keep one copy for archival purposes, provided that the obligation to treat it as Confidential Information in accordance with this Article 22 shall survive such termination.

22.1.9 Remedies**.** The Parties agree that monetary damages would be inadequate to compensate a Party for another Party's Breach of its obligations under this Article 22. Each Party accordingly agrees that the disclosing Party shall be entitled to equitable relief, by way of injunction or otherwise, if the receiving Party Breaches or threatens to Breach its obligations under this Article 22, which equitable relief shall be granted without bond or proof of damages, and the Breaching Party shall not plead in defense that there would be an adequate remedy at law. Such remedy shall not be deemed an exclusive remedy for the Breach of this Article 22, but shall be in addition to all other remedies available at law or in equity. The Parties further acknowledge and agree that the covenants contained herein are necessary for the protection of legitimate business interests and are reasonable in scope. No Party, however, shall be liable for indirect, incidental, or consequential or punitive damages of any nature or kind resulting from or arising in connection with this Article 22.

22.1.10 Disclosure to FERC, its Staff or a State**.** Notwithstanding anything in this Article 22 to the contrary, and pursuant to 18 CFR § 1b.20, if FERC or its staff, during the course of an investigation or otherwise, requests information from a Party that is otherwise required to be maintained in confidence pursuant to this GIA, the Party shall provide the requested information to FERC or its staff, within the time provided for in the request for information. In providing the information to FERC or its staff, the Party must, consistent with 18 CFR § 388.112, request

that the information be treated as confidential and non-public by FERC and its staff and that the information be withheld from public disclosure. Parties are prohibited from notifying the other Parties to this GIA prior to the release of the Confidential Information to FERC or its staff. The Party shall notify the other Parties to this GIA when it is notified by FERC or its staff that a request to release Confidential Information has been received by FERC, at which time any of the Parties may respond before such information would be made public, pursuant to 18 CFR § 388.112. Requests from a state regulatory body conducting a confidential investigation shall be treated in a similar manner if consistent with the applicable state rules and regulations.

22.1.11 Subject to the exception in Article 22.1.10, any information that a disclosing Party claims is competitively sensitive, commercial or financial information under this GIA shall not be disclosed by the receiving Party to any person not employed or retained by the receiving Party, except to the extent disclosure is (i) required by law; (ii) reasonably deemed by the receiving Party to be required to be disclosed in connection with a dispute between or among the Parties, or the defense of litigation or dispute; (iii) otherwise permitted by consent of the disclosing Party, such consent not to be unreasonably withheld; or (iv) necessary to fulfill its obligations under this GIA or as the Regional Transmission Organization or a Local Balancing Authority operator including disclosing the Confidential Information to a regional or national reliability organization. The Party asserting confidentiality shall notify the receiving Party in writing of the information that Party claims is confidential. Prior to any disclosures of that Party's Confidential Information under this subparagraph, or if any non-Party or Governmental Authority makes any request or demand for any of the information described in this subparagraph, the Party who received the Confidential Information from the disclosing Party agrees to promptly notify the disclosing Party in writing and agrees to assert confidentiality and cooperate with the disclosing Party in seeking to protect the Confidential Information from public disclosure by confidentiality agreement, protective order or other reasonable measures.

ARTICLE 23. ENVIRONMENTAL RELEASES

23.1 Each Party shall notify the other Parties, first orally and then in writing, of the release of any Hazardous Substances, any asbestos or lead abatement activities, or any type of remediation activities related to the Generating Facility or the Interconnection Facilities, each of which may reasonably be expected to affect another Party. The notifying Party shall: (i) provide the notice as soon as practicable, provided such Party makes a good faith effort to provide the notice no later than twenty-four hours after such Party becomes aware of the occurrence; and (ii) promptly furnish to the other Parties copies of any publicly available reports filed with any Governmental Authorities addressing such events.

ARTICLE 24. INFORMATION REQUIREMENTS

24.1 Information Acquisition. Transmission Provider, Transmission Owner and Interconnection Customer shall submit specific information regarding the electrical characteristics of their respective facilities to each other as described below and in accordance with Applicable Reliability Standards.

24.2 Information Submission by Transmission Provider and Transmission Owner The initial information submission by Transmission Provider to Interconnection Customer, with copy provided to Transmission Owner, shall occur no later than one hundred eighty (180) Calendar Days prior to Trial Operation and shall include Transmission or Distribution System information, as applicable and available, necessary to allow Interconnection Customer to select equipment and meet any system protection and stability requirements, unless otherwise mutually agreed to by the Parties. On a monthly basis, Transmission Owner shall provide Interconnection Customer a status report on the construction and installation of Transmission Owner's Interconnection Facilities, Transmission Owner's System Protection Facilities, Distribution Upgrades and Network Upgrades, including, but not limited to, the following information: (1) progress to date; (2) a description of the activities since the last report (3) a description of the action items for the next period; and (4) the delivery status of equipment ordered.

24.3 Updated Information Submission by Interconnection Customer. The updated information submission by Interconnection Customer to Transmission Provider, with copy to Transmission Owner, including manufacturer information, shall occur no later than one hundred eighty (180) Calendar Days prior to the Trial Operation. Interconnection Customer shall submit to Transmission Provider and Transmission Owner a completed copy of the Generating Facility data requirements contained in Appendix 1 to the GIP. It shall also include any additional information provided to Transmission Provider for the Interconnection Facilities Study. Information in this submission shall be the most current Generating Facility design or expected performance data. Information submitted for stability models shall be compatible with Transmission Provider standard models. If there is no compatible model, Interconnection Customer will work with a consultant mutually agreed to by Transmission Provider and Interconnection Customer to develop and supply a standard model and associated information.

If the Interconnection Customer's data is materially different from what was originally provided to Transmission Provider pursuant to the Interconnection Study Agreement between Transmission Provider and Interconnection Customer, then Transmission Provider will conduct appropriate studies to determine the impact on the Transmission System based on the actual data submitted pursuant to this Article 24.3. Interconnection Customer shall not begin Trial Operation until such studies are completed.

24.4 Information Supplementation. Prior to the Commercial Operation Date, the Parties shall supplement their information submissions described above in this Article 24 with any and all "as-built" Generating Facility information or "as-tested" performance information that differs from the initial submissions or, alternatively, written confirmation that no such differences exist. Interconnection Customer shall conduct tests

on the Generating Facility as required by Good Utility Practice, such as an open circuit "step voltage" test on the Generating Facility to verify proper operation of the Generating Facility's automatic voltage regulator.

Unless otherwise agreed, the test conditions shall include: (1) Generating Facility at synchronous speed; (2) automatic voltage regulator on and in voltage control mode; and (3) a five percent (5 %) change in Generating Facility terminal voltage initiated by a change in the voltage regulators reference voltage. Interconnection Customer shall provide validated test recordings showing the responses in Generating Facility terminal and field voltages. In the event that direct recordings of these voltages is impractical, recordings of other voltages or currents that mirror the response of the Generating Facility's terminal or field voltage are acceptable if information necessary to translate these alternate quantities to actual Generating Facility terminal or field voltages is provided. Generating Facility testing shall be conducted and results provided to Transmission Provider and Transmission Owner for each individual generating unit in a station.

Subsequent to the Commercial Operation Date, Interconnection Customer shall provide Transmission Provider and Transmission Owner any information changes due to equipment replacement, repair, or adjustment. Transmission Owner shall provide Interconnection Customer, with copy to Transmission Provider, any information changes due to equipment replacement, repair or adjustment in the directly connected substation or any adjacent Transmission Owner substation that may affect the Interconnection Customer's Interconnection Facilities equipment ratings, protection or operating requirements. The Parties shall provide such information no later than thirty (30) Calendar Days after the date of the equipment replacement, repair or adjustment.

ARTICLE 25. INFORMATION ACCESS AND AUDIT RIGHTS

25.1 Information Access. Each Party (the "disclosing Party") shall make available to the other Parties information that is in the possession of the disclosing Party and is necessary in order for the other Parties to: (i) verify the costs incurred by the disclosing Party for which another Party is responsible under this GIA; and (ii) carry out its obligations and responsibilities under this GIA. The Parties shall not use such information for purposes other than those set forth in this Article 25.1 and to enforce their rights under this GIA.

25.2 Reporting of Non-Force Majeure Events. A Party (the "notifying Party") shall notify the other Parties when the notifying Party becomes aware of its inability to comply with the provisions of this GIA for a reason other than a Force Majeure event. The Parties agree to cooperate with each other and provide necessary information regarding such inability to comply, including the date, duration, reason for the inability to comply, and corrective actions taken or planned to be taken with respect to such inability to comply. Notwithstanding the foregoing, notification, cooperation or information provided under this Article shall not entitle any Party receiving such notification to allege a cause for anticipatory breach of this GIA.

25.3 Audit Rights. Subject to the requirements of confidentiality under Article 22 of this GIA, each Party shall have the right, during normal business hours, and upon prior reasonable notice to the other Parties, to audit at its own expense the other Parties' accounts and records pertaining to the Parties' performance or the Parties' satisfaction of obligations under this GIA. Such audit rights shall include audits of the other Parties' costs, calculation of invoiced amounts, the Transmission Provider's efforts to allocate responsibility for the provision of reactive support to the Transmission or Distribution System, as applicable, the Transmission Provider's efforts to allocate responsibility for interruption or reduction of generation, and each Party's actions in an Emergency Condition. Any audit authorized by this Article shall be performed at the offices where such accounts and records are maintained and shall be limited to those portions of such accounts and records that relate to each Party's performance and satisfaction of obligations under this GIA. Each Party shall keep such accounts and records for a period equivalent to the audit rights periods described in Article 25.4.

25.4 Audit Rights Periods.

25.4.1 Audit Rights Period for Construction-Related Accounts and Records. Accounts and records related to the design, engineering, procurement, and construction of the Transmission Owner's Interconnection Facilities, Transmission Owner's System Protection Facilities, Distribution Upgrades and Network Upgrades shall be subject to audit for a period of twenty-four months following Transmission Owner's issuance of a final invoice in accordance with Article 12.2.

25.4.2 Audit Rights Period for All Other Accounts and Records. Accounts and records related to a Party's performance or satisfaction of all obligations under this GIA other than those described in Article 25.4.1 shall be subject to audit as follows: (i) for an audit relating to cost obligations, the applicable audit rights period shall be twenty-four (24) months after the auditing Party's receipt of an invoice giving rise to such cost obligations; and (ii) for an audit relating to all other obligations, the applicable audit rights period shall be twenty-four (24) months after the event for which the audit is sought.

25.5 Audit Results. If an audit by a Party determines that an overpayment or an underpayment has occurred, a notice of such overpayment or underpayment shall be given to the Party or from whom the overpayment or underpayment is owed together with those records from the audit which support such determination.

ARTICLE 26. SUBCONTRACTORS

26.1 General. Nothing in this GIA shall prevent a Party from utilizing the services of any subcontractor as it deems appropriate to perform its obligations under this GIA; provided, however, that each Party shall require its subcontractors to comply with all applicable terms and conditions of this GIA in providing such services and each Party shall remain primarily liable to the other Parties for the performance of such subcontractor.

26.2 Responsibility of Principal. The creation of any subcontract relationship shall not relieve the hiring Party of any of its obligations under this GIA. The hiring Party shall be fully responsible to the other Parties for the acts or omissions of any subcontractor the hiring Party hires as if no subcontract had been made; provided, however, that in no event shall Transmission Provider or Transmission Owner be liable for the actions or inactions of Interconnection Customer or its subcontractors with respect to obligations of Interconnection Customer under Article 5 of this GIA. Any applicable obligation imposed by this GIA upon the hiring Party shall be equally binding upon, and shall be construed as having application to, any subcontractor of such Party.

26.3 No Limitation by Insurance. The obligations under this Article 26 will not be limited in any way by any limitation of subcontractor's insurance.

ARTICLE 27. DISPUTES

27.1 Submission. In the event any Party has a dispute, or asserts a claim, that arises out of or in connection with this GIA or its performance, such Party (the "disputing Party") shall provide the other Parties with written notice of the dispute or claim ("Notice of Dispute"). Such dispute or claim shall be referred to a designated senior representative of each Party for resolution on an informal basis as promptly as practicable after receipt of the Notice of Dispute by the non-disputing Parties. In the event the designated representatives are unable to resolve the claim or dispute through unassisted or assisted negotiations within thirty (30) Calendar Days of the non-disputing Parties' receipt of the Notice of Dispute, such claim or dispute shall be submitted for resolution in accordance with the dispute resolution procedures of the Tariff.

ARTICLE 28. REPRESENTATIONS, WARRANTIES AND COVENANTS

28.1 General. Each Party makes the following representations, warranties and covenants:

28.1.1 Good Standing. Such Party is duly organized, validly existing and in good standing under the laws of the state in which it is organized, formed, or incorporated, as applicable; that it is qualified to do business in the state or states in which the Generating Facility, Interconnection Facilities and Network Upgrades owned by such Party, as applicable, are located; and that it has the corporate power and authority to own its properties, to carry on its business as now being conducted and to enter into this GIA and carry out the transactions contemplated hereby and perform and carry out all covenants and obligations on its part to be performed under and pursuant to this GIA.

28.1.2 Authority**.** Such Party has the right, power and authority to enter into this GIA, to become a Party hereto and to perform its obligations hereunder. This GIA is a legal, valid and binding obligation of such Party, enforceable against such Party in accordance with its terms, except as the enforceability thereof may be limited by applicable bankruptcy, insolvency, reorganization or other similar laws affecting

creditors' rights generally and by general equitable principles (regardless of whether enforceability is sought in a proceeding in equity or at law).

28.1.3 No Conflict. The execution, delivery and performance of this GIA does not violate or conflict with the organizational or formation documents, or bylaws or operating agreement, of such Party, or any judgment, license, permit, order, material agreement or instrument applicable to or binding upon such Party or any of its assets.

28.1.4 Consent and Approval. Such Party has sought or obtained, or, in accordance with this GIA will seek or obtain, each consent, approval, authorization, order, or acceptance by any Governmental Authority in connection with the execution, delivery and performance of this GIA, and it will provide to any Governmental Authority notice of any actions under this GIA that are required by Applicable Laws and Regulations.

ARTICLE 29. {RESERVED}

ARTICLE 30. MISCELLANEOUS

30.1 Binding Effect. This GIA and the rights and obligations hereof, shall be binding upon and shall inure to the benefit of the successors and assigns of the Parties hereto.

30.1.1 Reversion. If offered pursuant to an Agency Agreement under which this GIA is executed by Transmission Provider as agent for the relevant Transmission Owner, in the event that the relevant Agency Agreement terminates, any HVDC Service offered by Transmission Provider under this GIA shall revert to the relevant Transmission Owner and Transmission Provider shall be released from all obligations and responsibilities under this GIA.

30.2 Conflicts. In the event of a conflict between the body of this GIA and any attachment, appendices or exhibits hereto, the terms and provisions of the body of this GIA shall prevail and be deemed the final intent of the Parties.

30.3 Rules of Interpretation. This GIA, unless a clear contrary intention appears, shall be construed and interpreted as follows: (1) the singular number includes the plural number and vice versa; (2) reference to any person includes such person's successors and assigns but, in the case of a Party, only if such successors and assigns are permitted by this GIA, and reference to a person in a particular capacity excludes such person in any other capacity or individually; (3) reference to any agreement (including this GIA), document, instrument or tariff means such agreement, document, instrument, or tariff as amended or modified and in effect from time to time in accordance with the terms thereof and, if applicable, the terms hereof; (4) reference to any Applicable Laws and Regulations means such Applicable Laws and Regulations as amended, modified, codified, or reenacted, in whole or in part, and in effect from time to time, including, if applicable, rules and regulations promulgated thereunder; (5) unless expressly stated otherwise,

reference to any Article, Section or Appendix means such Article of this GIA or such Appendix to this GIA, or such Section to the GIP or such Appendix to the GIP, as the case may be; (6) "hereunder", "hereof", "herein", "hereto" and words of similar import shall be deemed references to this GIA as a whole and not to any particular Article or other provision hereof or thereof; (7) "including" (and with correlative meaning "include") means including without limiting the generality of any description preceding such term; and (8) relative to the determination of any period of time, "from" means "from and including", "to" means "to but excluding" and "through" means "through and including."

30.4 Entire Agreement. This GIA, including all Appendices and attachments hereto, constitutes the entire agreement between the Parties with reference to the subject matter hereof, and supersedes all prior and contemporaneous understandings or agreements, oral or written, between the Parties with respect to the subject matter of this GIA. There are no other agreements, representations, warranties, or covenants, which constitute any part of the consideration for, or any condition to, any Party's compliance with its obligations under this GIA.

30.5 No Third Party Beneficiaries. This GIA is not intended to and does not create rights, remedies, or benefits of any character whatsoever in favor of any persons, corporations, associations, or entities other than the Parties, and the obligations herein assumed are solely for the use and benefit of the Parties, their successors in interest and, where permitted, their assigns.

30.6 Waiver. The failure of a Party to this GIA to insist, on any occasion, upon strict performance of any provision of this GIA will not be considered a waiver of any obligation, right, or duty of, or imposed upon, such Party.

Any waiver at any time by any Party of its rights with respect to this GIA shall not be deemed a continuing waiver or a waiver with respect to any other failure to comply with any other obligation, right, duty of this GIA. Termination or Default of this GIA for any reason by Interconnection Customer shall not constitute a waiver of the Interconnection Customer's legal rights to obtain Interconnection Service from Transmission Provider. Any waiver of this GIA shall, if requested, be provided in writing.

30.7 Headings. The descriptive headings of the various Articles of this GIA have been inserted for convenience of reference only and are of no significance in the interpretation or construction of this GIA.

30.8 Multiple Counterparts. This GIA may be executed in two or more counterparts, each of which is deemed an original but all constitute one and the same instrument.

30.9 Amendment. The Parties may by mutual agreement amend this GIA by a written instrument duly executed by all of the Parties.

30.10 Modification by the Parties. The Parties may by mutual agreement amend the Appendices to this GIA by a written instrument duly executed by all of the Parties. Such amendment shall become effective and a part of this GIA upon satisfaction of all Applicable Laws and Regulations.

30.11 Reservation of Rights. Transmission Provider shall have the right to make a unilateral filing with FERC to modify this GIA with respect to any rates, terms and conditions, charges, classifications of service, rule or regulation under Section 205 or any other applicable provision of the Federal Power Act and FERC's rules and regulations thereunder, and Transmission Owner and Interconnection Customer shall have the right to make a unilateral filing with FERC to modify this GIA pursuant to Section 206 or any other applicable provision of the Federal Power Act and FERC's rules and regulations thereunder; provided that each Party shall have the right to protest any such filing and to participate fully in any proceeding before FERC in which such modifications may be considered. Nothing in this GIA shall limit the rights of the Parties or of FERC under Sections 205 or 206 of the Federal Power Act and FERC's rules and regulations thereunder, except to the extent that the Parties otherwise mutually agree as provided herein.

30.12 No Partnership. This GIA shall not be interpreted or construed to create an association, joint venture, agency relationship, or partnership among or between the Parties or to impose any partnership obligation or partnership liability upon any Party. No Party shall have any right, power or authority to enter into any agreement or undertaking for, or act on behalf of, or to act as or be an agent or representative of, or to otherwise bind, the other Parties.

IN WITNESS WHEREOF, the Parties have executed this GIA in multiple originals; each of which shall constitute and be an original GIA among the Parties.

Transmission Provider
Midcontinent Independent System Operator, Inc.

By: Jennifer Curran AAR 1/8/2020
Name: Jennifer Curran
Title: Vice President, System Planning & Chief Compliance Officer

Transmission Owner
Ameren Services Company, as agent for
Ameren Illinois Company d/b/a **Ameren Illinois**

By: Shawn E. Schukar
Name: Shawn E. Schukar
Title: Senior Vice President - Transmission

Interconnection Customer
Cass County Solar Project, LLC

By: Chad Craven
Name: Chad Craven
Title: Authorized Agent

By: Derek Sunderman
Name: Derek Sunderman
Title: Authorized Agent

APPENDICES TO GIA

Appendix A	Interconnection Customer's Project No. J859, which includes a Generating Facility, Interconnection Facilities, and Network Upgrades, and may include System Protection Facilities, Distribution Upgrades, Generator Upgrades, Affected System Upgrades and Common Use Upgrades
Appendix B	Milestones
Appendix B-1	Pre-Certification Generation Test Notification Form
Appendix C	Interconnection Details
Appendix D	Security Arrangements Details
Appendix E	Commercial Operation Date
Appendix F	Addresses for Delivery of Notices and Billings
Appendix G	Interconnection Requirements for a Wind Generating Plant
Appendix H	Interconnection Requirements for Provisional GIA
Appendix I	Requirements Applicable to Net Zero Interconnection Service

Appendix A To GIA

Interconnection Customer's Project No. J859, which includes a Generating Facility, Interconnection Facilities, and Network Upgrades, and may include System Protection Facilities, Distribution Upgrades, Generator Upgrades, Affected System Upgrades and Common Use Upgrades

1. Description of Generating Facility

Interconnection Customer shall install a 160 MVA facility, rated at 149.94 MW gross and 149.94 MW net, with all studies performed at or below these outputs. The Generating Facility is composed of fifty (50) TMEIC PVH-L3200GR solar inverter units rated at 3.2 MVA each. Interconnection Service provided under this agreement is 149.94 MW of conditional ERIS that will become 149.94 MW of ERIS and/or NRIS upon completion of all Network Upgrades, Common Use Upgrades, and Affected System Upgrades under this GIA, and the transmission assumptions listed in Table A10-1 of Exhibit A10.

Interconnection Customer shall install a collector substation with the appropriate protection equipment coordinated per Appendix C to this GIA. The Interconnection Customer's collector substation shall contain one (1) main step-up transformer 34.5/138 kV, 105/140/175 MVA, Z=7 %, X/R=34.1, MVA Base One Hundred and Five (105), one (1) 138 kV, 1200 A circuit breaker, associated line surge arrestors and disconnect switches, nine (9) 34.5 kV feeders with associated circuit breakers, disconnect switches, and associated auxiliary systems, instrument transformers, and electric relay protection. The collector substation will include a SCADA system and a data concentrator as required to manage the project and to send the required status and output data to the Transmission Owner and the Transmission Provider. The collector substation will include an 18 MVAR capacitor bank at the 34.5 kV bus, or as required to meet FERC Order 827.

These facilities are shown in Exhibit A1-1.

2. Interconnection Facilities

The J859 Generating Facility will interconnect with the Transmission System via an estimated 0.094 mile-long 138 kV leadline running from the Interconnection Customer's collector substation to the Transmission Owner's Flanigan switching station in Cass County, Illinois.

(a) Point of Interconnection

i. The Point of Interconnection shall be at the point where the Transmission Owner Interconnection Facilities connect to the bus at the Flanigan switching station.

ii. The Point of Change of Ownership between the Interconnection Customer and Transmission Owner occurs at the arbor connection for hardware and shield wire, the 4-hole pad for conductor, and the splice point at the base of

the arbor for OPGW. Transmission Owner will provide hardware to secure OPGW to the arbor leg and splicing of fiber optic cables inside the Transmission Owner's substation.

iii. The metering point will be at the 138 kV leadline terminal in the new Flanigan switching station.

(b) Interconnection Customer Interconnection Facilities to be constructed by Interconnection Customer

Interconnection Customer shall construct, own, and maintain the Interconnection Customer Interconnection Facilities. These facilities shall include

- Approximately 0.094 miles of 954 kcmil ACSR 138 kV generator lead line.
- Interconnection Customer shall provide all connection hardware up to the arbor, OPGW, shield wire, and conductor, including a downward pointing NEMA four-hole terminal pad(s) (finished on both sides) for Transmission Owner connections at the Point of Change of Ownership.
- The Interconnection Customer OPGW shall comply with the Transmission Owner's requirements during the design phase of the work.
- Customer shall install and maintain conductor, hardware, shield wire, and OPGW with prearranged escorted substation access provided by the Transmission Owner.
- Interconnection Customer shall coordinate with Transmission Owner on final physical connection logistics following GIA execution.

(c) Transmission Owner Interconnection Facilities (including metering equipment) to be constructed by Transmission Owner

The Transmission Owner Interconnection Facilities will consist of one 138 kV terminal in the Flanigan switching station. The terminal will consist of all necessary terminal equipment to connect the J859 leadline to the Flanigan switching station bus. See Exhibit A2.

Major Items

- One (1) 138 kV steel dead-end arbor structure
- One (1) 138kV Motor Operated Disconnect Switch, 2000A
- Three (3) 138 kV Surge Arresters
- Three (3) 138 kV Potential/Voltage Transformers
- Three (3) 138 kV Current Transformers
- One (1) Breaker Control and Relay Panel (SEL 351S)
- One (1) Line Relay panel (SEL 411L and SEL 311C)
- One Fiber Patch Panel Housing, fiber splice box, and fiber termination in the control house
- Revenue Metering

- Bus and Fittings: five inch aluminum tube and portions of 1590 AAC (2) wire conductor with bolted aluminum bus connectors, fittings, and terminals
- Insulators: High strength porcelain station post insulators
- Foundations: Designed per Transmission Owner standard design criteria
- Structures: Steel tapered tube style

Total Estimated Cost: $ 775,000 *

* Estimated costs are in 2019 dollars, do not include tax gross-up or escalation, and are accurate to ±20%. The J859 project may be required to document that it satisfies the 'safe harbor' requirements for tax gross-up under IRS Notice 2016-36.

3. Network Upgrades

(a) Stand-Alone Network Upgrades to be installed by Transmission Owner Flanigan Switching Station

The new Flanigan switching station will be located in Cass County, Illinois. It will be on the south side of Edgewood Drive adjacent to the west side of the Meredosia East – Frederick North segment of the Ipava-Meredosia East 138 kV transmission line right-of-way. The approximate GPS coordinates are 39º58'41" North, 90º27'55" West.

The switching station will be a ring bus arrangement with three line terminal positions and provisions for one additional future terminal position. The future terminal position is not included in the scope or cost listed in this GIA, will be funded by whatever entity drives the need for the future installation. The existing Ipava-Meredosia East 138 kV transmission line will be cut and the new ends terminated at two line terminal positions in the switching station. The J859 Generating Facility will interconnect at the third terminal position.

The Flanigan switching station will be constructed adjacent to and on the west side of the Meredosia East – Frederick North segment of the Ipava Meredosia East 138 kV transmission line. The property for the site will be purchased by the Interconnection Customer and quit claimed to the Transmission Owner. The Interconnection Customer will bear the full cost and responsibility for property acquisition, site grading to Transmission Owner specifications, constructing and furnishing an access road, permitting, right of way, and all other costs associated with acquiring the necessary real estate for the station.

A minimum of 10 acres must be provided to the Transmission Owner. All Interconnection Customer facilities must be constructed outside of this area.

Major Items:

- Two (2) 138 kV steel dead-end arbor structures

- Three (3) 138 kV Gas Circuit Breakers, 3000A, 40kA interrupting capability
- Two (2) 138 kV Motor Operated Disconnect Switches, 2000A
- Seven (7) 138 kV Disconnect Switches, 3000A
- Six (6) 138 kV Coupling Capacitor Voltage Transformers
- Nine (9) 138 kV Surge Arresters
- AC Station Service: Two (2) station service voltage transformers
- Bus and Fittings: Five inch aluminum tube with portions of 2500AAC (2) wire and 1590AAC (2) wire conductor with bolted aluminum bus connectors, fittings, and terminals
- Insulators: High strength porcelain station post insulators
- Ground Grid: Designed per Transmission Owner standards utilizing buried copper wire and exothermic welds
- Fence: Standard chain link fencing with seven foot fabric, three strands of barbed wire, and reinforcement cables
- Prefabricated Steel Control Enclosure containing:
  - Relaying and Control: Two (2) line protection relay panels, three (3) breaker control panels, one (1) RTU panel, one (1) communications panel, one (1) fiber panel, and one (1) network panel
  - DC Station Service: One (1) 125 volt battery, two (2) battery chargers, and two (2) DC distribution panels
  - AC Station Service Equipment: One (1) automatic AC transfer switch and three (3) AC distribution panels

Total Estimated Cost: $ 6,441,000 *

* Estimated costs are in 2019 dollars, do not include tax gross-up or escalation, and are accurate to ±20%.

(b) Network Upgrades to be installed by Transmission Owner

Transmission Owner shall construct the following Network Upgrades:

i. Split and Terminate the Ipava-Meredosia East 138 kV Transmission Line

Split the existing Ipava-Meredosia East 138 kV transmission line and terminate at the new Flanigan switching station.

Transmission Owner will install two wood heavy angle transmission structures in-line with the existing line. The existing conductor will be dead-ended on these structures and new conductor will be run from these structures to Flanigan switching station arbor structures. Jumpers will be installed at the dead-end structures to connect the existing line conductor to the new tapping conductor.

Major Items:

- Two (2) 138 kV wood heavy-angle structures
- Conductor, shield wire, and OPGW
- Typical 138 kV insulators
- Compression type connectors

Total Estimated Cost: **$ 266,000 ***

* Estimated costs are in 2019 dollars, do not include tax gross-up or escalation, and are accurate to ±20%.

ii. Upgrade Relaying at Meredosia East Substation

Replace incompatible equipment with new equipment that will protect the new line created between the new Flanigan switching station and the Meredosia East substation. Transmission Owner will install a new 138 kV relay and control panel at the Meredosia East substation for the line to the Flannigan Switching Station.

Major Items:

- One (1) Relay and Control Panel

Total Estimated Cost: **$ 261,000 ***

* Estimated costs are in 2019 dollars, do not include tax gross-up or escalation, and are accurate to ±20%.

(c) Shared Network Upgrade(s) to be funded by Interconnection Customer

None

4. System Protection Facilities

(a) System Protection Facilities not listed in Section 2 or 3 to be constructed by Interconnection Customer

None

(b) System Protection Facilities not listed in 2 or 3 to be constructed by Transmission Owner

None

5. Distribution Upgrades

None

6. Generator Upgrades

None

7. Contingency List

See Exhibit A10.

8. Affected System Upgrades

Interconnection Customer is responsible to enter into Facilities Construction Agreement(s) and/or Multi-Party Facilities Construction Agreement(s) with Affected System Owner(s) for the following upgrades:

Ameren Transmission Company of Illinois (ATXI)

- ATXI will install a new 138 kV relay and control panel at the Ipava substation for the line to the Flanigan switching station.

9. Common Use Upgrades

None

10. Additional Approvals

Construction of the Transmission Owner's Interconnection Facilities is conditioned on receipt by Transmission Owner of approval from any jurisdiction having authority over the construction. No approvals, except approvals for outages, are contemplated at this time.

11. Cost Responsibility:

Interconnection Customer and Transmission Owner hereby acknowledge and agree that the costs listed in this appendix are only estimates. Interconnection Customer shall pay Transmission Owner for all actual costs associated with Transmission Owner's installation of Transmission Owner's Interconnection Facilities, including any applicable direct or indirect taxes or tax-related gross-up.

11.1 Cost Estimates

11.1.1 Interconnection Customer's total estimated cost for the installation of Interconnection Customer's Interconnection Facilities under this GIA has not been provided by the Interconnection Customer.

11.1.2 Interconnection Customer's total estimated cost for the installation of Transmission Owner's Interconnection Facilities under this GIA is $775,000.

11.1.3 Interconnection Customer's total estimated cost for the installation of Network Upgrades and Stand Alone Network Upgrades under this GIA is $ 6,968,000.

11.1.4 Interconnection Customer's total estimated cost for the installation of System Protection Facilities under this GIA is $0.

11.1.5 Interconnection Customer's total estimated cost for the installation of Distribution Upgrades under this GIA is $0.

11.1.6 Interconnection Customer's total estimated cost for the installation of Generator Upgrades under this GIA is $0.

11.2 Transmission Owner Election to Fund the Capital for the Network Upgrades.

As provided under Article 11.3 of this GIA, Transmission Owner has elected to fund the capital for the Network Upgrades to be constructed under this GIA. Pursuant to the Tariff, Interconnection Customer remains ultimately responsible for the costs of Network Upgrades and pursuant to Article 11.6 of the GIA, Interconnection Customer remains responsible for providing security to Transmission Owner.

In accordance with the milestones set forth in Appendix B, Transmission Owner and Interconnection Customer will establish a service agreement between the Interconnection Customer and the Transmission Owner, pursuant to which the Interconnection Customer will pay the Transmission Owner's revenue requirement associated with Network Upgrades as identified in Exhibit A9 to this GIA (the "Revenue Requirement"). The service agreement shall be filed with FERC for FERC's acceptance, either on an executed or unexecuted basis, as set forth in the milestones.

12. Exhibits

The following exhibits are included:

A1 Interconnection Customer One-Line Diagram and Site-Map
A1-1: Interconnection Customer One-Line Diagram
A1-2: Interconnection Customer Generating Facility Site Map

A2 Transmission Owner Flanigan Switching Station One-Line Diagram

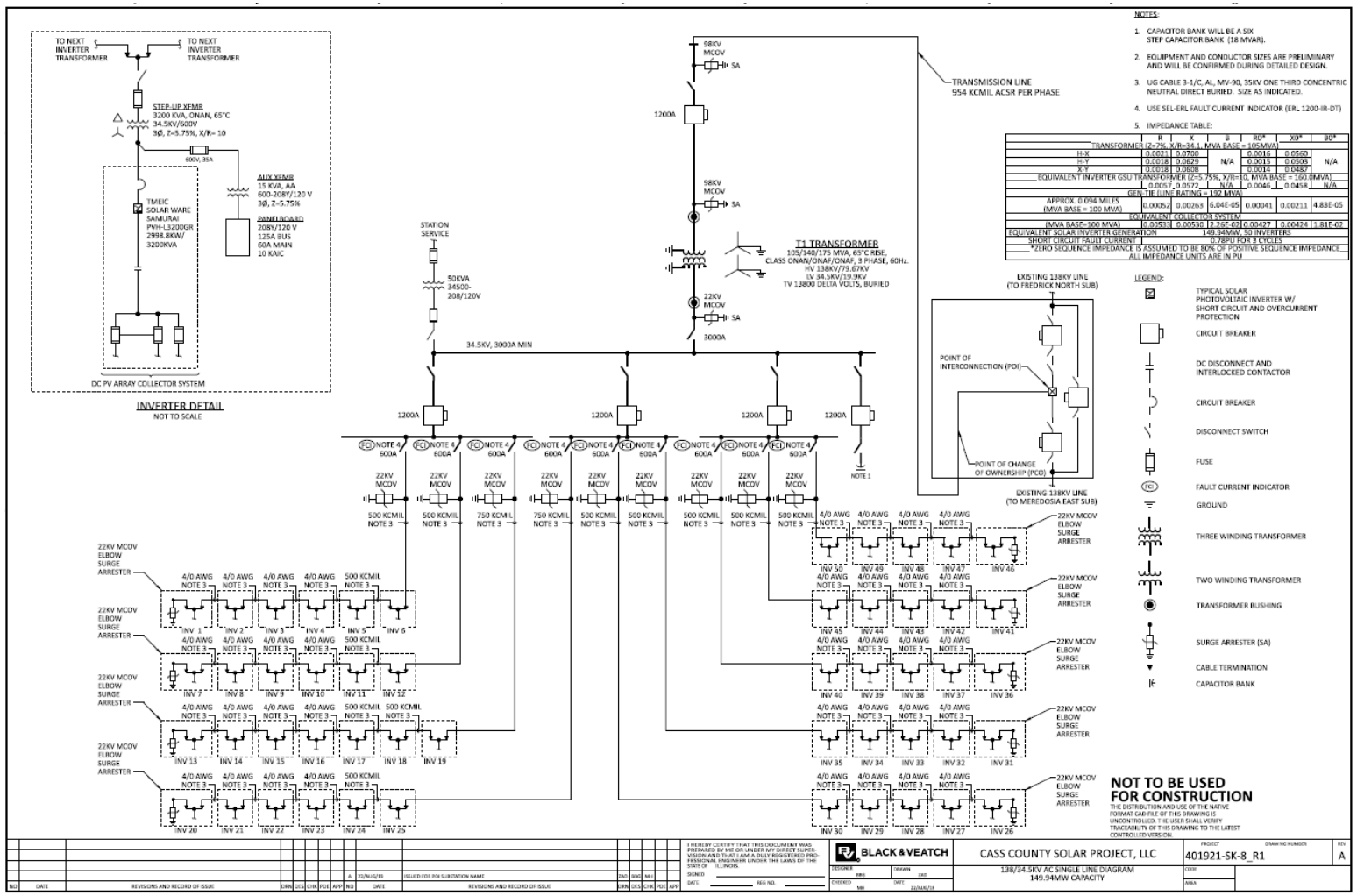
A3 Transmission Owner Flanigan Switching Station Arrangement Drawing

A4 {Reserved}

A5 Cost of Facilities to be Constructed by Transmission Owner

Exhibit A1: Interconnection Customer One-Line Diagram and Site Map

A1-1: Interconnection Customer One-Line Diagram



	R	X	B	RD*	XD*	BD*
TRANSFORMER (Z=7%, X/R=34.1, MVA BASE = 105MVA)						
H-X	0.0021	0.0700		0.0016	0.0560	
H-Y	0.0018	0.0629	N/A	0.0015	0.0503	N/A
X-Y	0.0018	0.0608		0.0014	0.0487	
EQUIVALENT INVERTER GSU TRANSFORMER (Z=5.75%, X/R=10, MVA BASE = 160.0MVA)						
	0.0057	0.0572	N/A	0.0046	0.0458	N/A
GEN-TIE LINE RATING = 192 MVA:						
APPROX. 0.094 MILES (MVA BASE = 100 MVA)	0.00052	0.00263	6.04E-05	0.00041	0.00211	4.83E-05
EQUIVALENT COLLECTOR SYSTEM						
(MVA BASE=100 MVA)	0.00533	0.00530	2.26E-03	0.00427	0.00424	1.81E-02
EQUIVALENT SOLAR INVERTER GENERATION	149.94MW_50 INVERTERS					
SHORT CIRCUIT FAULT CURRENT	0.78PU FOR 3 CYCLES					

*ZERO SEQUENCE IMPEDANCE IS ASSUMED TO BE 80% OF POSITIVE SEQUENCE IMPEDANCE
ALL IMPEDANCE UNITS ARE IN PU

A1-2: Interconnection Customer Generating Facility Site Map

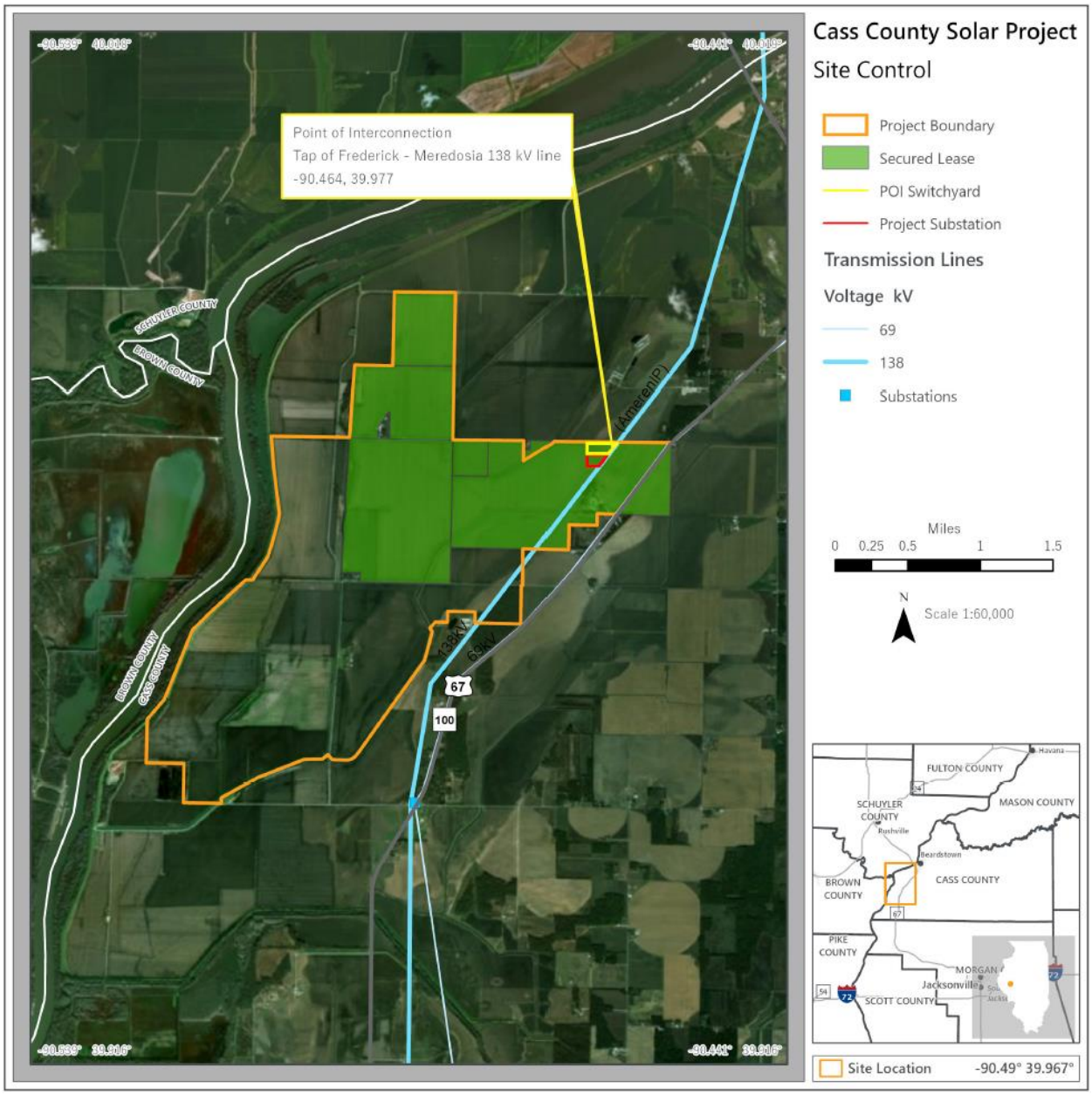


Exhibit A2: Transmission Owner Flanigan Switching Station One Line Diagram

CUI//CEII MATERIAL – DO NOT RELEASE

Exhibit A3: Transmission Owner Flanigan Switching Station Arrangement Drawing

CUI//CEII MATERIAL – DO NOT RELEASE

Exhibit A4: {Reserved}

Exhibit A5: Cost of Facilities to be Constructed by Transmission Owner

Type	Facilities to be Constructed by the Transmission Owner	Cost Estimate *
Interconnection Facilities	Construct Transmission Owner's Interconnection Facilities at the Flanigan switching station	$ 775,000**
Stand Alone Network Upgrade	Construct the Flanigan switching station	$ 6,441,000
Network Upgrade	Split the Ipava-Meredosia East 138 kV transmission line to connect the Flanigan switching station	$ 266,000
Network Upgrade	Upgrade relaying at the Meredosia East substation	$ 261,000
	TOTAL	**$ 7,743,000**

* Estimated costs are in 2019 dollars, do not include tax gross-up or escalation, and are accurate to ±20%.

** The J859 project may be required to document that it satisfies the 'safe harbor' requirements for tax gross-up under IRS Notice 2016-36.

Exhibit A6: Detailed Cost of Facilities to be Constructed by Transmission Owner

Table A6-1: Construct Transmission Owner's Interconnection Facilities *

Engineering, Drafting, & Project Management	$ 196,000
Material	$ 223,000
Construction & Construction Oversight	$ 267,000
Indirect Overheads	$ 89,000
Total	**$ 775,000**

* Estimated costs are in 2019 dollars, do not include tax gross-up or escalation, and are accurate to ±20%. The J859 project is required to document that it satisfies the 'safe harbor' requirements for tax gross-up under IRS Notice 2016-36.

Table A6-2: Construct the Flanigan Switching Station **

Engineering, Drafting, & Project Management	$ 744,000
Material	$ 2,468,000
Construction & Construction Oversight	$ 2,315,000
Indirect Overheads	$ 914,000
Total	**$ 6,441,000**

Table A6-3: Split the Ipava-Meredosia East 138 kV line to connect the Flanigan Switching Station **

Engineering, Drafting, & Project Management	$ 58,000
Material	$ 71,000
Construction & Construction Oversight	$ 98,000
Indirect Overheads	$ 39,000
Total	**$ 266,000**

Table A6-4: Upgrade Relaying at Meredosia East Substation **

Engineering, Drafting, & Project Management	$ 18,000
Material	$ 132,000
Construction & Construction Oversight	$ 83,000
Indirect Overheads	$ 28,000
Total	**$ 261,000**

** Estimated costs are in 2019 dollars, do not include tax gross-up or escalation, and are accurate to ±20%.

Exhibit A7: Cost of Facilities to be Constructed by Interconnection Customer

Type	Facilities to be Constructed by Interconnection Customer	Cost Estimate
Interconnection Customer Interconnection Facilities	No information about Interconnection Customer's Interconnection Facilities have been provided by the Interconnection Customer.	Not Available
Generating Facility Collector Substation	New 34.5/138 kV collector substation for collection of solar farm generation.	Not Available
Network Upgrades	No Network Upgrades are to be constructed by the Interconnection Customer.	Not Applicable
Stand Alone Network Upgrades	No Stand Alone Network Upgrades are to be constructed by the Interconnection Customer.	Not Applicable

Exhibit A8: Detailed Cost of Facilities to be Constructed by Interconnection Customer

The Interconnection Customer has not provided cost estimates for Interconnection Facilities to be constructed by the Interconnection Customer for inclusion in this report.

No Network Upgrades or Stand Alone Network Upgrades are to be constructed by the Interconnection Customer.

Exhibit A9: Network Upgrades to be Financed by Transmission Owner

Type	**Facilities to be Constructed by the Transmission Owner**	**Cost Estimate ***
Stand Alone Network Upgrade	Construct the Flanigan switching station	$ 6,441,000
Network Upgrade	Split the Ipava-Meredosia East 138 kV transmission line to connect the Flanigan switching station	$ 266,000
Network Upgrade	Upgrade relaying at Meredosia East substation	$ 261,000
	TOTAL	**$ 6,968,000**

* Estimated costs are in 2019 dollars, do not include tax gross-up or escalation, and are accurate to ±20%.

Exhibit A10: Contingent Facilities

Higher queue and/or same DPP group study Interconnection Requests that may create contingencies pursuant to Article 11.3.1 are listed in tables below. Table A10-1 describes transmission assumptions modeled in the studies that were deemed necessary to allow for the Interconnection Service as described in Appendix A of this GIA and is not related to Article 11.3.1, i.e., does not describe projects associated with a higher queued and/or same DPP group study Interconnection Request. Nevertheless, if the transmission assumptions are not completed or are significantly modified, the Interconnection Service granted under this GIA may be restricted until such time as the Interconnection Customer funds a study to determine the applicable ERIS and NRIS level that results due to the changes in Table A10-1.

The list of higher-queued and/or same DPP group study projects in Tables A10-2 and A10-3, not yet in service, were included in the interconnection study for queue project J859. However, a project's inclusion in the System Impact Study does not necessarily mean that these facilities would be contingencies for the Interconnection Customer's Generating Facility. In the event that any of the higher queued and/or same DPP group study generators were to drop out, then the Interconnection Customer may be subject to restudy pursuant to Article 11.3.2.

Table A10-1 Transmission Assumptions

None

Table A10-2 Higher Queued Projects

DPP Cycle	Current Status	Project	Fuel	Request	Capacity MW
DPP-2016-FEB-Central	Under Construction	J351	Gas	NRIS	715
DPP-2016-AUG-Central	Under Construction	J446	Wind	NRIS	200
DPP-2016-AUG-Central	Under Construction	J456	Wind	NRIS	150
DPP-2016-FEB-Central	Under Construction	J468	Wind	NRIS	202
DPP-2016-AUG-Central	Under Construction	J474	Wind	NRIS	144
DPP-2016-AUG-Central	Under Construction	J513	Wind	NRIS	100.05
DPP-2016-FEB-Central	Under Construction	J515	Wind	ERIS	400
DPP-2016-AUG-Central	Under Construction	J641	Solar	NRIS	140
DPP-2016-AUG-Central	Under Construction	J643	Solar	NRIS	175
DPP-2016-AUG-Central	Under Construction	J644	Solar	NRIS	110
DPP-2017-FEB-Central	Under Construction	J740	Wind	NRIS	200
DPP-2017-FEB-Central	Under Construction	J753	Solar	NRIS	100
DPP-2017-FEB-Central	Under Construction	J754	Wind	NRIS	303.6
DPP-2017-FEB-Central	Under Construction	J756	Wind	NRIS	202.4

DPP Cycle	Current Status	Project	Fuel	Request	Capacity MW
DPP-2017-FEB-Central	Under Construction	J757	Wind	NRIS	303.6
DPP-2017-FEB-Central	Under Construction	J759	Solar	NRIS	70
DPP-2017-FEB-Central	Under Construction	J762	Solar	NRIS	200
DPP-2017-FEB-Central	Under Construction	J783	Solar	NRIS	70

Table A10-3 Similar Queued Projects

DPP Cycle	Current Status	Project	Fuel	Request	Capacity (MW)	ERIS/NRIS (MW)
DPP-2017-AUG-Central	Phase 3	J715	Wind	NRIS	98	98
DPP-2017-AUG-Central	Phase 3	J750	Wind	NRIS	150	150
DPP-2017-AUG-Central	Phase 3	J800	Solar	NRIS	250	250
DPP-2017-AUG-Central	Phase 3	J805	Solar	NRIS	199	199
DPP-2017-AUG-Central	Phase 3	J808	Solar	NRIS	99	99
DPP-2017-AUG-Central	Phase 3	J811	Solar	NRIS	99	99
DPP-2017-AUG-Central	Phase 3	J813	Solar	NRIS	250	250
DPP-2017-AUG-Central	Phase 3	J815	Solar	NRIS	250	250
DPP-2017-AUG-Central	Phase 3	J817	Solar	NRIS	139	139
DPP-2017-AUG-Central	Phase 3	J826	Wind	NRIS	100	100
DPP-2017-AUG-Central	Phase 3	J829	Solar	NRIS	250	250
DPP-2017-AUG-Central	Phase 3	J837	Wind	NRIS	200.1	200.1/80
DPP-2017-AUG-Central	Phase 3	J838	Wind	NRIS	100	100/40
DPP-2017-AUG-Central	Phase 3	J842	Wind	NRIS	200	200
DPP-2017-AUG-Central	Phase 3	J843	Wind	NRIS	200	200
DPP-2017-AUG-Central	Phase 3	J844	Wind	ERIS	147	147/0
DPP-2017-AUG-Central	Phase 3	J845	Wind	NRIS	120	120/52
DPP-2017-AUG-Central	Phase 3	J847	Solar	NRIS	90	90
DPP-2017-AUG-Central	Phase 3	J848	Wind	NRIS	235	235
DPP-2017-AUG-Central	Phase 3	J853	Solar	NRIS	149	149
DPP-2017-AUG-Central	Phase 3	J856	Solar	NRIS	80	80
DPP-2017-AUG-Central	Phase 3	J883	Wind	NRIS	80	80
DPP-2017-AUG-Central	Phase 3	J884	Solar	NRIS	100	100
DPP-2017-AUG-Central	Phase 3	J903	Solar	NRIS	100	100
DPP-2017-AUG-Central	Phase 3	J912	Solar	NRIS	100	100
DPP-2017-AUG-Central	Phase 3	J913	Solar	NRIS	200	200/160
DPP-2017-AUG-Central	Phase 3	J949	Solar	NRIS	200	200/170

Exhibit A11: Interconnection Customer Milestones

See Appendix B.

Exhibit A12: Construction and Coordination Schedules

See Appendix B.

Exhibit A13: Permits, Licenses, Regulatory Approvals and Authorization

Permits required for the construction of the Flanigan switching station shall be the responsibility of the Interconnection Customer. This includes, but is not limited to, building permits, roadway access, wetlands permit, storm water run-off permit, Department of Transportation permits, and county zoning permits.

Permits required for the transmission line and remote terminal Network Upgrades shall be the responsibility of the Transmission Owner.

Exhibit A14: Interconnection and Operating Guidelines

Power Factor Range
FERC requires that an interconnecting generator must be able to operate over a power factor range of 0.95 lagging (supplying VARs to the system) to 0.95 leading (absorbing VARs from the system) at the high-voltage side of the Generating Facility step-up transformer.

Low Voltage Ride Through
All Solar PV generators must conform to the IEEE 1547 standard for Low Voltage Ride Through.

Dynamic Reactive Power Capability
The solar PV generators chosen for the J859 project are expected to provide dynamic reactive capability. The reactive capability of a solar PV generator is a function of the active power and terminal voltage.

Operating to a Specified Voltage or VAR Schedule
The J859 solar generation facility will be required to operate to a voltage schedule estimated to be 142 kV to 145 kV (1.029 to 1.05 PU) at the POI. The specific voltage schedule applicable to J859 will be provided at the time of startup by the Transmission Owner's Transmission Operations group.

NERC Reporting Standards
Complete and accurate modeling data is essential to the planning process. The following items are critical for the accuracy of data and are addressed by these requirements:

- field verifications of modeling parameters
- clear statement of data requirements
- protection system settings that impact system studies

In accordance with the periodicity established within the current NERC standards, the J859 solar generating facility will ensure that compliance with all applicable NERC Modelling Standards has been met. Applicability of these standards to the J859 solar generating facility will be determined based on the applicability criteria in the current version of the NERC standards. These standards are subject to change. For reference, at the time of signing, the current System Modelling Standards that may be applicable to the J859 solar generating facility include:

- MOD-025 Verification and Data Reporting of Generator Real and Reactive Power Capability and Synchronous Condenser Reactive Power Capability
- MOD-026 Verification of Models and Data for Generator Excitation Control System or Plant Volt/Var Control Functions
- MOD-027 Verification of Models and Data for Turbine/Governor and Load Control or Active Power/Frequency Control Functions
- MOD-032 Data for Power System Modeling and Analysis
- PRC-024 Generator Frequency and Voltage Protective Relay Settings

Harmonic Requirements
The harmonic content of the voltage and current waveforms injected into the Transmission Owner's electric system by the Interconnection Customer's Generating Facility shall be limited to levels that are in accordance with the latest version of IEEE Standard 519 or its replacement, and which will not cause excessive distortion of Transmission Owner's waveform, telephone interference, carrier interference, or equipment operating problems for Transmission Owner or other users of the transmission system. Interconnection Customer will, if required by Transmission Owner and/or Good Utility Practice, reduce or eliminate, at Interconnection Customer's expense, the existence of any excessive harmonics caused by the operation of the Interconnection Customer's Generating Facility.

Operating Guidelines
None required

Appendix B To GIA

Milestones

1. Resolution of Conflicts:
The Parties acknowledge that Section 30.2 provides that conflicts between the Appendices and the body of the GIA are to be resolved in favor of the body of the GIA. The Parties acknowledge that the items set forth below are intended to explain the provisions of the GIA and to set forth the specific agreement of the Interconnection Customer and Transmission Owner relating to certain aspects of the agreement that are not resolved by the terms of the GIA.

2. Selected Option pursuant to Article 5.1:
Interconnection Customer selects the Standard Option as described in Article 5.1.1. Articles 5.1.2, 5.1.3, and 5.1.4 shall not apply to this GIA.

3. Milestones:
The description and date entries listed in the following tables are provided solely for the convenience of the Parties in establishing their applicable Milestones consistent with the provisions of this GIA and the GIP. The failure of Transmission Owner to meet any date on this milestone schedule shall not result in any liability on the part of Transmission Owner if such failure is not the result of the negligence or willful misconduct of Transmission Owner.

4. Commercial Operation Date:
The Interconnection Customer's desired Commercial Operation Date for the Generating Facility is December 31, 2022, based on a desired In-Service Date of September 1, 2022, which is achievable for a GIA executed in the Definitive Planning Phase 3 completion window. The schedule provides for an In-Service Date of May 31, 2022.

A. Interconnection Customer and Transmission Owner Milestones

NO.	MILESTONES	SCHEDULE DATE	PAYMENT AMOUNT	SECURITY AMOUNT
1	Anticipated Effective Date of the GIA.	Estimated to be January 10, 2020.		
2	Transmission Owner to enter Network Upgrade information into Transmission Provider's MOD and MTEP databases.	Within ten (10) Business Days of the Effective Date of the GIA.		
3	Interconnection Customer to provide to Transmission Provider (a) evidence of continued Site Control after execution of	As may be agreed to by the Parties.		

NO.	MILESTONES	SCHEDULE DATE	PAYMENT AMOUNT	SECURITY AMOUNT
	this GIA (GIP 7.2.2) at Interconnection Customer's collection substation or (b) post $250,000 non-refundable additional security. (GIP Article 11.3)			
4	Interconnection Customer to provide to Transmission Provider evidence of one or more of the following milestones being achieved: (a) execution of contract for fuel supply transport, (b) execution of contract for cooling water supply, (c) execution of contract for engineering procurement of major equipment or construction, (d) execution of contract for sale of electric energy or capacity; or (e) documentation of application for air, water or land use permits. (GIP 11.3)	Within one hundred eighty (180) Calendar Days of the Effective Date of the GIA.		
5	Interconnection Customer will coordinate with the Transmission Provider to provide Transmission Owner an Initial Payment equal to 20% of the estimated cost of Transmission Owner Interconnection Facilities and Network Upgrades to be constructed under this GIA. The amount of the Initial Payment will be $1,548,600. Interconnection Customer to make payment of $461,770	Within the later of: (i) forty-five (45) Calendar Days of the execution of the GIA by all Parties, or (ii) forty-five (45) Calendar Days of acceptance by FERC if the GIA is filed unexecuted and the payment is being protested by Interconnection Customer.	$ 775,000	$ 773,600

NO.	MILESTONES	SCHEDULE DATE	PAYMENT AMOUNT	SECURITY AMOUNT
	and MISO to transfer milestone deposit balance of $1,086,830 to cover payment and security obligation of this milestone. (GIA Article 11.5, Option 1) Ameren will allocate $775,000 to the estimated cost of the Transmission Owner Interconnection Facilities and $773,600 to security for the Network Upgrades. Security provided will be in the form of cash, letter of credit acceptable to Transmission Owner, or acceptable guarantee from an investment grade guarantor. (GIA Article 11.6) The security will be reduced by the amount of subsequent progress payments for the Transmission Owner Interconnection Facilities at the time the progress payments are made. The remaining security will be released upon the earlier of: (i) the execution of a service agreement between Transmission Owner and Interconnection Customer, or (ii) acceptance by FERC of a service agreement between Transmission Owner and Interconnection Customer.	Estimated to be February 12, 2020.		

NO.	MILESTONES	SCHEDULE DATE	PAYMENT AMOUNT	SECURITY AMOUNT
6	Interconnection Customer to provide to Transmission Owner relaying design and specifications for the Interconnection Customer's Interconnection Facilities for review.	At least thirty (30) Calendar Days prior to Transmission Owner's start of engineering and design, Milestone 10. Estimated to be August 31, 2020.		
7	Transmission Owner to review and comment on Interconnection Customer's relaying design and specifications for Interconnection Customer's Interconnection Facilities.	Within twenty (20) Business Days of receipt of the Interconnection Customer's relaying design and specifications, Milestone 6.		
8	Transmission Owner to provide to Interconnection Customer a specification package for site preparation for the Flanigan switching station.	Provided in the J859 Interconnection Facilities Study report, Exhibit A16.		
9	Interconnection Customer to provide notification to Transmission Owner on desire to proceed with current Point of Interconnection or switch to alternative Ameren proposed Point of Interconnection.	August 31, 2020		
10	Interconnection Customer to provide to Transmission Owner additional security for the engineering and design, drafting, and project support (including associated overheads) of the Network Upgrades to be constructed by Transmission Owner under the GIA.	No later than five (5) Business Days prior to Transmission Owner's start of engineering and design, Milestone 11. Estimated to be no later than September 18, 2020, in order to meet the May 31, 2022, In Service Date, Milestone 30		$ 181,600
11	Interconnection Customer to provide to Transmission Owner a property survey showing physical benchmarks, a topographic survey, a	Prior to or concurrent with Transmission Owner's start of engineering and design, Milestone 11.		

NO.	MILESTONES	SCHEDULE DATE	PAYMENT AMOUNT	SECURITY AMOUNT
	grading package and civil design for the Flanigan switching station site for review, and access rights and a truck access route to the Flanigan switching station property for soil borings and ground resistance testing.	Estimated to be no later than September 21, 2020, in order to meet the May 31, 2022, In Service Date, Milestone 30.		
12	Transmission Owner to begin engineering and design of Transmission Owner's Interconnection Facilities and Network Upgrades to be constructed by Transmission Owner under this GIA.	Upon receipt of the additional security, Milestone 9, or the Flanigan switching station site boundary and topographic surveys, grading package and civil design, and access rights and a truck access route, Milestone 10, whichever occurs later. Estimated to be no later than September 28, 2020, in order to meet the May 31, 2022 In Service Date, Milestone 30.		
13	Transmission Owner to review and comment on Interconnection Customer's grading package and civil design for the Flanigan switching station.	Within twenty (20) Business Days of receipt of Interconnection Customer's grading package and civil design, Milestone 10.		
14	Interconnection Customer to provide to Transmission Owner initial design and specifications for Interconnection Customer's Interconnection Facilities for comment. (GIA Article 5.10.1)	At least one hundred eighty (180) Calendar Days prior to Initial Synchronization Date, Milestone 31.		
15	Transmission Owner to provide to Interconnection Customer comments on the initial design and	Within thirty (30) Calendar Days after submission of Interconnection		

NO.	MILESTONES	SCHEDULE DATE	PAYMENT AMOUNT	SECURITY AMOUNT
	specifications for Interconnection Customer's Interconnection Facilities. (GIA Article 5.10.1)	Customer's initial design and specifications, Milestone 14.		
16	Interconnection Customer to provide to Transmission Owner additional security for long lead material and equipment procurement (including associated overheads) for the Network Upgrades constructed by Transmission Owner under this GIA.	No later than five (5) Business Days prior to Transmission Owner's start of procurement, Milestone 17. Estimated to be no later than February 19, 2021, in order to meet the May 31, 2022, In Service Date, Milestone 30.		$ 3,107,200
17	Transmission Owner to begin procurement for long lead material and equipment for the facilities to be constructed by Transmission Owner under the GIA.	Upon receipt of the additional security from Interconnection Customer, Milestone 16. Estimated to be no later than February 26, 2021, in order to meet the May 31, 2022, In Service Date, Milestone 30.		
18	Interconnection Customer and Transmission Owner to each provide the other with all Certificates of Insurance required by the GIA. (GIA Article 18.4.9)	Initially thirty (30) Calendar Days prior to the start of construction of the facilities to be installed or modified under this GIA, Milestone 15, and thereafter within ninety (90) Calendar Days of end of fiscal year or insurance renewal date.		
19	Interconnection Customer to begin grading and site preparation for the Flanigan switching station.	Estimated to be June 1, 2021, in order to meet the site turnover date, Milestone 20.		
20	Interconnection Customer to furnish to Transmission Owner a fully graded site, the deed to the property, a usable entrance road, permits, and	Prior to or concurrent with Transmission Owner's start of construction, Milestone 22.		

NO.	MILESTONES	SCHEDULE DATE	PAYMENT AMOUNT	SECURITY AMOUNT
	permit approvals for the construction of the Flanigan switching station.	Estimated to be no later than September 3, 2021, in order to meet the May 31, 2022, In Service Date, Milestone 30.		
21	Interconnection Customer to provide to Transmission Owner additional security for construction (including associated overheads) of the Network Upgrades to be constructed under this GIA	No later than five (5) Business Days prior to Transmission Owner's start of construction, Milestone 22. Estimated to be no later than September 3, 2021, in order to meet the May 31, 2022, In Service Date, Milestone 30.		$ 2,905,600
22	Transmission Owner to begin construction of the facilities to be constructed by Transmission Owner under the GIA.	Upon transfer of the site, Milestone 19, or receipt of Interconnection Customer's additional security, Milestone 20, whichever occurs later. Estimated to be no later than September 10, 2021, in order to meet the May 31, 2022, In Service Date, Milestone 30.		
23	Interconnection Customer to install its 138 kV leadline connection to the Flanigan switching station arbor.	No later than May 13, 2022, in order to meet the May 31, 2022, In Service Date, Milestone 30.		
24	Interconnection Customer to provide to Transmission Owner final design and specifications for Interconnection Customer's Interconnection Facilities, protection design, SCADA, and communication equipment for comment. (GIA Article 5.10.1)	Not later than ninety (90) Calendar Days prior to the Initial Synchronization Date, Milestone 31.		
25	Transmission Owner to provide to Interconnection	Within thirty (30) Calendar Days of receipt		

NO.	MILESTONES	SCHEDULE DATE	PAYMENT AMOUNT	SECURITY AMOUNT
	Customer comments on the final design and specifications for Interconnection Customer's Interconnection Facilities, protection scheme, SCADA, and communication equipment. (GIA Article 5.10.1)	of Interconnection Customer's final design and specifications, Milestone 24.		
26	Interconnection Customer to provide to Transmission Owner and Transmission Provider updated Generating Facility information. (GIA Article 24.3)	Not later than one hundred eighty (180) Calendar Days prior to the Trial Operation Date, Milestone 32.		
27	Interconnection Customer to provide to Transmission Owner and Transmission Provider notification in writing of the Local Balancing Authority where Generating Facility is located. (GIA Article 9.2)	Not later than three (3) months prior to the Initial Synchronization Date, Milestone 31.		
28	Interconnection Customer to enter into an agreement with the applicable Balancing Authority for control area metering.	Not later than one hundred eighty (180) Calendar Days prior to Commercial Operation Date, Milestone 33. Not applicable if the Balancing Authority is Ameren Illinois		
29	Transmission Owner to connect the Flanigan switching station to the existing Ipava-Meredosia East 138 kV transmission line.	No later than May 2, 2022, in order to meet the May 31, 2022, In Service Date, Milestone 30.		
30	In Service Date Transmission Owner to complete Transmission Owner's Interconnection Facilities and commission the Flanigan switching station. Interconnection Customer to complete the	Estimated to be May 31, 2022. Interconnection Customer requests September 1, 2022.		

NO.	MILESTONES	SCHEDULE DATE	PAYMENT AMOUNT	SECURITY AMOUNT
	J859 wind farm facilities to the extent required to take backfeed from the Flanigan switching station.			
31	Initial Synchronization Date.	Not earlier than the In Service Date, Milestone 30. Interconnection Customer requests September 2, 2022.		
32	Trial Operation Date.	Not earlier than the Initial Synchronization Date, Milestone 31. Interconnection Customer requests September 2, 2022.		
33	Commercial Operation Date.	Not earlier than the Trial Operation Date, Milestone 32. Interconnection Customer requests December 31, 2022.*		
34	Interconnection Customer to provide Transmission Owner and Transmission Provider "as built" drawings, information, and documents regarding Interconnection Customer's Interconnection Facilities. (GIA Article 5.10.3)	Not later than one hundred twenty (120) Calendar Days following the Commercial Operation Date, Milestone 33.		
35	Transmission Owner to provide to Interconnection Customer and Transmission Provider "as built" drawings, information, and documents regarding Transmission Owner's Interconnection Facilities. (GIA Article 5.11)	Not later than one hundred twenty (120) Calendar Days following the Commercial Operation Date, Milestone 33.		
35	Transmission Owner to provide to Interconnection Customer final cost invoices. (GIA Article 12.2 et seq.)	Not later than six (6) months following the completion of all		

NO.	MILESTONES	SCHEDULE DATE	PAYMENT AMOUNT	SECURITY AMOUNT
		facilities to be constructed under the GIA, Milestone 30.		
36	In the event the Interconnection Customer makes any modifications to the design of the site layouts or interconnection facility routes after execution of this GIA, Interconnection Customer shall notify the Parties of such changes immediately upon identifying the need for such changes. After providing such notification, the Interconnection Customer shall provide to Transmission Provider evidence of continued Site Control for land sufficient to accommodate the changes in site layouts and/or interconnection facility routes (GIP 7.2.2).	90 Calendar Days after Interconnection Customer provides notice to Parties.		
		TOTAL	**$ 775,000**	**$ 6,968,000**

* Modified from the original Commercial Operation Date of September 1, 2020, contained in the Interconnection Request.

The schedule:

- is estimated and is not guaranteed.
- may be impacted by poor weather.
- is based on five business days per week instead of seven business days used for the milestone calendar.
- assumes Transmission Provider and Transmission Owner conditions allow transmission outages as required and without delay.
- assumes the Interconnection Customer will provide the necessary information to the Transmission Owner in a timely manner such that it does not cause delays. This information includes details concerning the incoming line to the switching station pull off structure, details on the fiber optics and terminations, relay coordination, and other information that maybe necessary.
- assumes material lead times will be similar to recent purchases of similar equipment.
- assumes the Interconnection Customer and the Transmission Owner, as appropriate, have resolved permit, jurisdictional and regulatory issues prior to the scheduled start of construction.

- assumes the Interconnection Customer will furnish a completed and Transmission Owner approved access road to the interconnection switching station site prior to the start of Transmission Owner field activities.
- assumes the Interconnection Customer will furnish the interconnection switching station site fully prepared to Transmission Owner specifications in accordance with the milestones. Any delay in meeting this milestone will lead to a corresponding delay in meeting the In Service Date milestone.
- assumes the Interconnection Customer will provide to the Transmission Owner all necessary funding and information in accordance with the milestones so as to prevent delays in the schedule. This information may include details concerning the incoming line to the substation pull-off structure, details on the fiber optics and terminations, relay coordination, and other required information

B. Affected System Owner Milestones

Interconnection Customer is responsible to enter into Facilities Construction Agreement(s) and/or Multi-Party Facilities Construction Agreement(s) with Affected System Owner(s) for the following upgrades:

Ameren Transmission Company of Illinois (ATXI)

- ATXI will install a new 138 kV relay and control panel at the Ipava substation for the line to the Flanigan switching station.

C. Transmission Provider Milestones

No.	Description	Date
1	Transmission Provider to determine conditional limit for interconnection service.	Prior to Commercial Operation
2	Transmission Provider to provide Notice to the Parties when unconditional interconnection service is achieved. Unconditional Service requires completion of MTEP Contingent Facilities listed in Exhibit A10 and all Interconnection Studies.	Within 30 Calendar days of unconditional service being achieved.
3	Provide initial payment to Transmission Owner (GIA 11.5) in the amount of $1,086,830 (Interconnection Customer to pay the remaining balance of $461,770 to Transmission Owner).	Within 45 Calendar Days of the execution of the GIA.

Appendix B-1 To GIA

Pre-Certification Generation Test Notification Form

The following form would need to be submitted to MISO Real Time Operations at least five (5) Business Days prior to the first date of testing.

Project Number:

Project Name:

Point of Interconnection:

Dispatcher Contact Information:

Date	Start Time (in EST)	End Time (in EST)	Expected MW Output	Expected MVAR Output (Only needed if beyond normal power factor)

Appendix C To GIA

Interconnection Details

1. The unique requirements of each generation interconnection will dictate the establishment of mutually agreeable Interconnection and/or Operating Guidelines that further define the requirements of this GIA. The Interconnection and/or Operating Guidelines applicable to this GIA consist of the following information. Additional detail may be provided through attachment to this Appendix C or through electronic means via the web address specified.

   (a) System Protection Facilities

   The Transmission Owner along with the Interconnection Customer will construct a protective relaying scheme to protect the Transmission System from faults on the Interconnection Customer's Interconnection Facilities and faults on the Transmission Owner's Interconnection Facilities. The Interconnection Customer will be responsible for providing appropriate System Protection Facilities for the Interconnection Customer's Interconnection Facilities compatible with System Protection Facilities to be provided by the Transmission Owner at the Point of Interconnection. This scheme will be coordinated with and approved by Transmission Owner prior to implementation.

   The 138 kV line position that will be connecting to the Interconnection Customer's leadline will have its own set of line protection relays. The line relay protection will consist of a SEL-311L and a SEL-321 both utilizing fiber optic communications for a line differential and permissive overreaching transfer trip scheme, respectively. Breaker failure relaying and reclosing will be accomplished with a SEL-351.

   The fiber optic cable required for the relaying will need to directly connect from the Transmission Owner's relays in the Flanigan Switching Station to identical Interconnection Customer owned relays at the Interconnection Customer's collector substation. The Interconnection Customer will supply and install the fiber optic cable.

   One new remote terminal unit (RTU) will be installed to provide the Transmission Owner with supervisory control and remote indication of the Interconnection Customer's collector substation.

   (b) Communication requirements

      i. The Interconnection Customer is responsible to install all necessary equipment to transfer all required SCADA points to the Transmission Owner system control center(s) for equipment installed at the Interconnection Customer's Generating Facility substation upon specification of such communication protocol to the Interconnection Customer by the Transmission Owner. The Interconnection Customer will be responsible to install all necessary equipment to transfer all

required data for the required telemetry information to the Transmission Owner's system control center(s).

ii. The Interconnection Customer is responsible for all operations and maintenance costs of all the required communications equipment located at the Interconnection Customer's Generating Facility substation required to transmit the required data to the Transmission Owner.

(c) Metering requirements

Interconnection revenue class metering equipment is installed for the Generation Facility by the Transmission Owner at the Transmission Owner's substation. Metering will be telemetered to the Interconnection Customer, Transmission Owner and Transmission Provider control centers via the SCADA system.

(d) Grounding requirements

Not used.

(e) Transmission Line and Substation Connection configurations

The Parties agree that the connections between the Interconnection Customer's Interconnection Facilities and Transmission Owner's Interconnection Facilities will be made in accordance with Transmission Owner's specifications.

(f) Unit Stability requirements

Not used;

(g) Equipment ratings

Transmission Owner will determine the individual equipment ratings for specific Transmission Owner's Interconnection Facilities. Interconnection Customer shall size the Interconnection Customer's Interconnection Facilities using Applicable Standards, Good Utility Practice and the information provided in the Transmission Owner design guide information, Interconnection Evaluation Study, or its equivalent, in order that the Interconnection Customer's Interconnection Facilities appropriately coordinates with the Transmission Owner's Interconnection Facilities.

(h) Short Circuit requirements

Transmission Owner will determine the required short circuit ratings for all Transmission Owner's Interconnection Facilities. Interconnection Customer agrees to provide appropriately sized or short circuit-rated Interconnection Customer's Interconnection Facilities comparable to those required by Transmission Owner using Applicable Standards, Good Utility Practice and the information provided in the

Transmission Owner design guide information document Interconnection Evaluation Study, or its equivalent.

(i) Synchronizing requirements

The Interconnection Customer's Interconnection Facilities will be backfed from the Transmission Owner's Interconnection Facilities utilizing the 138 kV breakers at the Interconnection Customer's Generating Facility substation. Transmission Owner may furnish transmission system bus potentials and bus voltage that may be used by the Interconnection Customer for synchronizing the Facility to Transmission Owner's transmission system. These potentials will be provide to the Interconnection Customer at the Transmission Owner's signal demarcation point.

(j) Generation and Operation Control requirements

The Interconnection Customer will install all necessary potential devices on its system to allow voltage control override to prevent high voltage conditions from occurring. Voltage control will override power factor in order to maintain safe and proper operation of the Transmission Owner's Transmission System as required by the standards of Transmission Owner, the Applicable Reliability Council and NERC, Good Utility Practice and documented in the Transmission Owner design guide information.

(k) Data provisions

Interconnection Customer will install all necessary equipment to monitor and send the required telemetry information to the Transmission Owner's and Transmission Provider's system control centers. The required data includes, but is not limited to: meter kW, kVAR, kWh, kVARh, breaker status. The Transmission Owner will provide detailed specifications to the Interconnection Customer for the appropriate communications protocol in the Transmission Owner design guide information.

(l) Energization inspection and testing requirements

Interconnection Customer will provide Transmission Owner with checkout records to document that Interconnection Customer has tested all protection systems and equipment for correct operation.

(m) Harmonic requirements

See Appendix A, Exhibit A14.

Appendix D To GIA

Security Arrangements Details

Infrastructure security of Transmission or Distribution System equipment and operations, as applicable, and control hardware and software is essential to ensure day-to-day Transmission and Distribution System reliability and operational security. The Commission will expect all Transmission Providers, market participants, and Interconnection Customers interconnected to the Transmission or Distribution System, as applicable, to comply with the recommendations provided by Governmental Authorities regarding Critical Energy Infrastructure Information ("CEII") as that term is defined in 18 C.F.R. Section 388.113(c) and best practice recommendations from the electric reliability authority. All public utilities will be expected to meet basic standards for system infrastructure and operational security, including physical, operational, and cyber-security practices.

Appendix E To GIA

Commercial Operation Date

[Date]

Midcontinent Independent System Operator, Inc.
Attn: Director, Transmission Access Planning
720 City Center Drive
Carmel, IN 46032

Re: _____ Generating Facility

Dear _____:

On **[Date] [Interconnection Customer]** has completed Trial Operation of Unit No. ___. This letter confirms that **[Interconnection Customer]** commenced commercial operation of Unit No. ___ at the Generating Facility, effective as of **[Date plus one Calendar Day]**.

Thank you.

[Signature]

[Interconnection Customer Representative]

cc: Transmission Owner

Appendix F To GIA

Addresses for Delivery of Notices and Billings

Notices:

Transmission Provider:

MISO
Attn: Director, Transmission Access Planning
720 City Center Drive
Carmel, IN 46032

Transmission Owner:

Senior Vice President – Transmission
Ameren Services Company
1901 Chouteau Avenue, MC 04
PO Box 66149
St. Louis, MO 63166-6149

Interconnection Customer:

Vice President Transmission
Cass County Solar Project, LLC
c/o Savion, LLC.
16105 West 113th Street, Suite 108
Lenexa KS, 66219
Phone: 785-766-7613
Email: dsunderman@savionenergy.com

And

Director of Transmission
Cass County Solar Project, LLC
c/o Savion, LLC.
16105 West 113th Street, Suite 108
Lenexa, KS 66219
Phone: 816-604-8458
Email: ccraven@savionenergy.com

Billings and Payments:

Transmission Provider:

MISO
Attn: Director, Transmission Access Planning
720 City Center Drive
Carmel, IN 46032

Transmission Owner:

Senior Vice President – Transmission
Ameren Services Company
1901 Chouteau Avenue, MC 04
PO Box 66149
St. Louis, MO 63166-6149

Interconnection Customer:

Accounts Payable
Cass County Solar Project, LLC
c/o Savion, LLC.
16105 West 113th Street, Suite 108
Lenexa KS, 66219
Phone: 816-213-3561
Email: malexander@savionenergy.com

And

Vice President Transmission
Cass County Solar Project, LLC
c/o Savion, LLC.
16105 West 113th Street, Suite 108
Lenexa KS, 66219
Phone: 785-766-7613
Email: dsunderman@savionenergy.com

Alternative Forms of Delivery of Notices (telephone, facsimile or email):

Transmission Provider:

Phone: (317) 249-5700
Email: misotap@misoenergy.org or
MISOTransmissionAccessPlanning@misoenergy.org

Transmission Owner:

Voice telephone – (314) 554-2981
Facsimile telephone – (314) 554-3066
Email address – SSchukar@ameren.com

Interconnection Customer:

Vice President Transmission
Cass County Solar Project, LLC
c/o Savion, LLC.
16105 West 113th Street, Suite 108
Lenexa KS, 66219
Phone: 785-766-7613
Email: dsunderman@savionenergy.com

And

Director of Transmission
Cass County Solar Project, LLC
c/o Savion, LLC.
16105 West 113th Street, Suite 108
Lenexa, KS 66219
Phone: 816-604-8458
Email: ccraven@savionenergy.com

Appendix G To GIA

Interconnection Requirements for a Wind Generating Plant

Not Applicable to This GIA

Appendix G sets forth requirements and provisions specific to a wind generating plant. All other requirements of this GIA continue to apply to wind generating plant interconnections.

A. Technical Standards Applicable to a Wind Generating Plant

i. Low Voltage Ride-Through (LVRT) Capability

A wind generating plant shall be able to remain online during voltage disturbances up to the time periods and associated voltage levels set forth in the standard below.

1. Wind generating plants are required to remain in-service during three-phase faults with normal clearing (which is a time period of approximately 4-9 cycles) and single line to ground faults with delayed clearing, and subsequent post-fault voltage recovery to prefault voltage unless clearing the fault effectively disconnects the generator from the system. The clearing time requirement for a three-phase fault will be specific to the wind generating plant substation location, as determined by and documented by the transmission provider. The maximum clearing time the wind generating plant shall be required to withstand for a three-phase fault shall be 9 cycles after which, if the fault remains following the location-specific normal clearing time for three-phase faults, the wind generating plant may disconnect from the transmission system. A wind generating plant shall remain interconnected during such a fault on the transmission system for a voltage level as low as zero volts, as measured at the high voltage side of the wind GSU.

2. This requirement does not apply to faults that would occur between the wind generator terminals and the high side of the GSU.

3. Wind generating plants may be tripped after the fault period if this action is intended as part of a special protection system.

4. Wind generating plants may meet the LVRT requirements of this standard by the performance of the generators or by installing additional equipment (*e.g.* Static VAr Compensator) within the wind generating plant or by a combination of generator performance and additional equipment.

5. Existing individual generator units that are, or have been, interconnected to the network at the same location at the effective date of the Appendix G LVRT Standard are exempt from meeting the Appendix G LVRT Standard for the remaining life of the existing generation equipment. Existing individual generator units that are replaced are required to meet the Appendix G LVRT Standard.

ii. Power Factor Design Criteria (Reactive Power)

The following reactive power requirements apply only to a newly interconnecting wind generating plant that has completed a System Impact Study as of the effective date of the Final Rule establishing the reactive power requirements for non-synchronous generators in section 9.6.1 of this GIA (Order No. 827). A wind generating plant to which this provision applies shall maintain a factor within the range of 0.95 leading to 0.95 lagging, unless Transmission Provider has established different requirements that apply to all Generating Facilities in the Local Balancing Authority on a comparable basis, measured at the Point of Interconnection as defined in this GIA, if the Transmission Provider's System Impact Study shows that such a requirement is necessary to ensure safety or reliability. The power factor range standard can be met by using, for example, power electronics designed to supply this level of reactive capability (taking into account any limitations due to voltage level, real power output, etc.) or fixed and switched capacitors if agreed to by Transmission Provider, or a combination of the two. Interconnection Customer shall not disable power factor equipment while the wind plant is in operation. Wind plants shall also be able to provide sufficient dynamic voltage support in lieu of the power system stabilizer and automatic voltage regulation at the generator excitation system if the System Impact Study shows this to be required for system safety or reliability.

iii. Supervisory Control and Data Acquisition (SCADA) Capability

The wind plant shall provide SCADA capability to transmit data and receive instructions from Transmission Provider to protect system reliability. Transmission Provider and Interconnection Customer shall determine what SCADA information is essential for the proposed wind plant, taking into account the size of the plant and its characteristics, location, and importance in maintaining generation resource adequacy and transmission system reliability in its area.

Appendix H To GIA

Interconnection Requirements for Provisional GIA

Not Applicable to This GIA

Provisional Agreement

This GIA is being provided in accordance with Section 11.5 of the Transmission Provider's GIP, which provides among other things, that an Interconnection Customer may request that Transmission Provider provide Interconnection Customer with a provisional GIA that limits the transfer of energy by Interconnection Customer commensurate with that allowed for Energy Resource Interconnection Service. Interconnection Customer requested Transmission Provider to provide a provisional GIA for limited operation at the discretion of Transmission Provider based upon the results of available studies (by Interconnection Customer and by Transmission Provider).

A Provisional Interconnection Study, the results of which are posted on the confidential portion of the Transmission Provider's internet website, was performed by Transmission Provider in order to confirm the facilities that are required for provisional Interconnection Service and to require them to be in place prior to commencement of service under the GIA.

Interconnection Customer represents that the Interconnection Customer facilities (including Network Upgrades, Interconnection Facilities, Distribution Upgrades, System Protection Upgrades and/or Generator Upgrades) that are necessary to commence provisional Interconnection Service and meet the requirements of NERC, or any applicable regional entity for the interconnection of a new generator are in place prior to the commencement of generation from the Generating Facility and will remain in place during the term of the service. The requisite Interconnection Studies were performed for the Generating Facility. Interconnection Customer shall meet any additional requirements (including reactive power requirements) pursuant to the results of applicable future Interconnection System Impact Studies. Until such time as the applicable Interconnection Studies and any identified facilities are completed, the output of the Generating Facility will operate within the output limit prescribed in a future, if applicable, operating guide.

The maximum permissible output of the Generating Facility under Appendix A will be updated by Transmission Provider on a quarterly basis, determined in accordance with Section 11.5 of the GIP, by finding the transfer limit of energy commensurate with the analysis for Energy Resource Interconnection Service ("ERIS"). This study shall be performed assuming the system topology represented by the base cases used to calculate Available Flowgate Capability, as described in Attachment C of the Tariff, with dispatch and optimization algorithms posted on the MISO internet site and operation above those limits will be deemed as unauthorized use of the Transmission System and subject to provisions in the Tariff surrounding that use.

Use of interim operating guide

Implementation of interim operating guide, if applicable, will constitute an interim solution that will permit Interconnection Customer to operate the Generating Facility under conditional Interconnection Service until planned Network Upgrades are constructed. Any interim operating guide will be subject to the approval of Transmission Owner and Transmission Provider. Minimum requirements for an interim operating guide are as indicated below.

* Transmission Operator will have control of breaker(s) dedicated to the Generating Facility and will be able to trip the Interconnection Customer's Generating Facility
* Protection schemes must be tested and operative
* Interconnection Customer will provide continuous communication capability with the Generator Operator
* Interconnection Customer and the owner of the existing Generating Facility will enter into an operating agreement or similar agreement which designates, among other things, the responsibilities and authorities of each of the parties and shall be subject to the acceptance of Transmission Provider and Transmission Owner.
* A termination date consistent with completion of construction of Network Upgrades will be included as part of all operating guides accepted by Transmission Owner and Transmission Provider.

Interconnection Customer assumes all risks and liabilities with respect to changes, which may impact the Generator Interconnection Agreement including, but not limited to, change in output limits and responsibilities for future Network Upgrade and cost responsibilities that have not yet been identified on the direct connect Transmission System as well as all affected Transmission, Distribution or Generation System(s) including non-Transmission Provider Systems. Such upgrades will be determined pursuant to the Tariff and Policies in effect at the time of the Interconnection Studies.

Appendix I To GIA

Requirements Applicable to Net Zero Interconnection Service

Not Applicable to This GIA

Where this GIA provides for Net Zero Interconnection Service, Interconnection Customer acknowledges, agrees to, and will be required to operate under the following conditions:

1) The combined Real-Time Offers, including Energy and Operating Reserves, of the Generating Facility and the existing generating facility with which Interconnection Customer has an executed Energy Displacement Agreement must be less than or equal to Interconnection Service limit (MW, MVAR, MVA output) provided in Exhibit I-1 (Monitoring and Consent Agreement) (hereinafter, "Interconnection Service limit"). In the event that the sum of the simultaneous energy output of the Generating Facility and the existing generating facility exceeds such Interconnection Service limit, MISO reserves the right to curtail and/or disconnect the Generating Facility immediately.

   In the event that the sum of the emergency and/or economic maximum offer limits of the Generating Facility and the existing generating facility exceeds the Interconnection Service limit, MISO reserves the right to curtail and/or disconnect the Generating Facility immediately.

2) The total MW, MVAR, MVA output at the Point of Interconnection resulting from the combined output of the Generating Facility and the existing generating facility with which Interconnection Customer has an executed Energy Displacement Agreement shall not at any time exceed the Interconnection Service limit.

3) The existing generating facility with which Interconnection Customer has an executed Energy Displacement Agreement is not relieved of any applicable requirements under the RAR of the Tariff.

4) The Interconnection Customer shall submit to the Transmission Provider a report by the seventh Calendar Day of each month showing the prior month's output, by 15 minute increment, the combined real-time offers and cleared energy injection. The existing generating facility and the Interconnection Customer shall cooperate consistent with other provisions in the Tariff to the extent necessary to ensure accuracy of the report. Transmission Provider shall provide a template for this report.

Exhibit I-1 (Completed Monitoring and Consent Agreement - Appendix 11 of the GIP)

Exhibit I-2 (Completed Energy Displacement Agreement - Appendix 12 of the GIP)

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FILED AND RECORDED IN
CASS COUNTY ILLINOIS
SHELLY WESSEL
RECORDED ON:
07/09/2018 10:35:59AM

RHSP FEE: 9.00
REC FEE: 59.00

MEMORANDUM OF SOLAR ENERGY LEASE

THIS MEMORANDUM OF SOLAR ENERGY LEASE (this "***Memorandum***") is dated as of March 8, 2018 (the "***Effective Date***") by and between Mark W. Wankel, as Trustee of the Neal A. Wankel Irrevocable Trust Agreement dated the 16th day of November, 2012 (a/k/a Neal A. Wankel Irrevocable Trust Agreement dated the 14th day of November 2012) ("***Lessor***"), whose address is 1001 North Market Street, Suite 209, Mount Carmel, Illinois 62863, and Cass County Solar Project, LLC, a Delaware limited liability company ("***Lessee***"), whose address is 16105 W. 113th Street, Suite 105, Lenexa, KS 66219, with reference to the following recitals:

A. Lessor owns that certain real property (including all air space thereof) described on Exhibit "A" attached hereto (the "***Property***"), which Property is located in the County of Cass, in the State of Illinois.

B. Lessor and Lessee (together, the "***Parties***" and each a "***Party***") have entered into that certain unrecorded Solar Energy Lease dated of even date herewith (the "***Lease***"), which affects the Property.

C. The Parties have executed and acknowledged this Memorandum and are recording the same for the purpose of providing constructive notice of the Lease and Lessee's rights thereunder. Capitalized terms used and not defined herein have the meaning given the same in the Lease.

NOW, THEREFORE, for and in consideration the promises, covenants and agreements of the Parties contained in the Lease and herein, and for other good and valuable consideration, the receipt and sufficiency of which is hereby acknowledged, the Parties hereby agree as follows:

1. Lessee shall have possession of the Property for the exclusive right for solar energy conversion, for the collection and transmission of electric power, and for related and incidental purposes and activities (collectively, "***Solar Operations***"), to be conducted in such locations on the Property as Lessee may determine, and whether accomplished by Lessee or a third party authorized by Lessee, including, without limitation:

1.1 Determining the feasibility of solar energy conversion on the Property or on neighboring lands, including conducting studies of solar radiation, soils, and other meteorological and geotechnical data;

1.2 Developing, constructing, reconstructing, erecting, enlarging, installing, improving, replacing, relocating and removing from time to time, and maintaining, using, monitoring and operating, existing, additional or new (i) individual units or arrays of solar energy collection cells/panels and related facilities necessary to harness sunlight for photovoltaic energy generation, including without limitation, existing and/or future technologies used or useful in connection with the generation of electricity from sunlight, and associated support structure, braces, wiring, plumbing, and related equipment ("***Solar Energy Facilities***"), (ii) facilities for the storage, collection, distribution, step-up, step-down, wheeling, transmission and sale of electricity and for communications in connection with the Solar Energy Facilities, including, without limitation, the following, at such locations as Lessee shall determine that are developed, constructed and/or operated on the Property and/or on property to be acquired by leasehold or by fee purchase, by or on behalf of Lessee: underground and/or overhead distribution, collection and transmission lines; underground and/or overhead control, communications and radio relay systems and telecommunications equipment; energy storage facilities; interconnection and/or switching facilities, circuit breakers, transformers; cables, wires, fiber, conduit, footings, foundations, towers, poles, crossarms, guy lines and anchors, and any related or associated improvements, fixtures, facilities, appliances, machinery and equipment (collectively, the "Transmission Facilities"), (iii) meteorological masts and solar energy measurement equipment, (iv) control buildings, control boxes and computer monitoring hardware, (v) utility lines and installations, (vi) safety protection facilities, (vii) laydown areas and maintenance yards, (viii) roads, bridges, culverts, and erosion control facilities, (ix) signs, fences, and gates, (x) maintenance, operations and administration buildings, and (xi) other improvements, fixtures, facilities, machinery and equipment associated or connected with the generation, conversion, storage, switching, metering, step-up, step-down, transmission, distribution, conducting, wheeling, sale or other use or conveyance of electricity (all of the foregoing, including the Solar Energy Facilities and Transmission Facilities, collectively a "***Solar Energy System***");

1.3 Subject to certain stipulations set forth in the Lease, drilling, digging and excavating one or more wells on the Extended Term Property for the purposes of servicing, operating and maintaining the Solar Energy System that is located on the Extended Term Property, including the right to tap into (at Lessee's sole cost and expense under a separate meter) any municipal, township, county, or other public water service; provided that, notwithstanding anything in the Lease to the contrary, Lessor has the right to develop, produce and use groundwater from the Property for any purpose, including drilling, producing or transporting groundwater from water wells, for use on or near the Property so long as such development, drilling and related activities and uses do not interfere with the development and operation of the Solar Energy System;

1.4 During the Extended Term, removing, trimming, pruning, topping, clearing or otherwise controlling the growth of any tree, shrub, plant or other vegetation; dismantling, demolishing, and removing any improvement, Structure, embankment, impediment, berm, wall, fence, engineering works, or other object, on or that intrudes (or upon maturity could intrude) into the Property that could obstruct, interfere with or impair the Solar Energy System or the use of the Property intended by Lessee hereunder, provided, however, that the overall drainage of the Property remain

materially unaffected if any portion of the Property is utilized for agricultural purposes, and provided further that, Lessee's removal of any such improvements or Structures having salvage value (as reasonably determined by Lessee) shall be coordinated with Lessor, and if so elected by Lessor in writing within ten (10) days after written notice from Lessee that any such improvement or Structure must be removed, Lessor shall have a fifteen (15) day period to remove any such improvement or Structure at Lessor's expense. In the event Lessor fails to respond in writing to Lessee within such ten (10) day period, or Lessor elects not to remove or fails to remove any such improvements or Structures within such fifteen (15) day period, Lessee may remove and dispose of such improvements or Structures at Lessee's expense, and Lessee shall have no liability to Lessor relating to the removal and disposal thereof;

1.5 A non-exclusive easement for vehicular and pedestrian access, ingress and egress to, from and over the Property, at such locations as Lessee shall determine, for purposes related to or associated with the Solar Energy System installed or to be installed on the Property, which, without limiting the generality of the foregoing, shall entitle Lessee to use, improve and widen any existing and future roads and access routes or construct such roads as Lessee may determine necessary from time to time located on or providing access to the Property;

1.6 Undertaking any other lawful activities, whether accomplished by Lessee or a third party authorized by Lessee, that Lessee determines are necessary, helpful, appropriate, convenient or cost-effective in connection with, incidental to or to accomplish any of the foregoing purposes, including conducting surveys and soils, environmental, biological, cultural and other tests and studies.

2. Among other things, this Lease includes the exclusive right and easement on, over and across the Property for the free and unobstructed flow of sunlight resources, together with the exclusive right to (i) develop, use, convert, maintain and capture such sunlight, (ii) convert solar energy into electrical energy and (iii) derive and keep all credits and income therefrom (subject to the payment of Rent to Lessor, as set forth below).

3. The Lease shall initially be for a term of five (5) years commencing on the Effective Date and ending on March 8, 2023. Lessee shall have the right and option to extend the term of the Lease for one additional period of thirty (30) years, upon the terms set forth in the Lease. Additionally, Lessee shall have the right to renew the Extended Term for two (2) additional five (5) year periods.

4. Any Solar Energy System constructed on the Property shall at all times remain the property of Lessee and shall not be deemed to be fixtures and Lessor shall have no ownership, lien, security or other interest (including any lien that might otherwise be implied by law) in any Solar Energy System installed on the Property, or in any profits or income derived therefrom.

5. Neither Lessor nor any of its tenants, licensees, contractors, invitees, agents, assigns or anyone else obtaining rights from Lessor shall, currently or prospectively, interfere with, impair, delay or materially increase the cost of any of Lessee's Solar Operations (whether conducted on the Property or adjacent or nearby property), or the undertaking of any other activities or the free enjoyment or exercise of any other rights or benefits given to or permitted Lessee hereunder. Without limiting the generality of the foregoing, neither Lessor nor anyone obtaining rights from or acting with the permission of Lessor shall (a) interfere with or impair the

free, unobstructed and natural availability of sunlight over or across the Property (whether by planting trees, constructing structures, or otherwise), or the lateral or subjacent support for the Solar Energy System or (b) engage in any other activity on the Property or adjacent or nearby property that might cause a decrease in the output, efficiency or longevity of the Solar Energy System.

6. The Lease is for the additional purposes, is of the nature, and is subject to the requirements and limitations, set forth therein. The Lease also contains various other covenants, obligations and rights of the Parties, including, without limitation, provisions relating to Rent, termination of the Lease, quiet enjoyment, restoration of the Property, assignment and lender protections.

7. The terms, conditions and covenants of the Lease are incorporated herein by reference as though fully set forth herein. This Memorandum does not supersede, modify, amend or otherwise change the terms, conditions or covenants of the Lease, and this Memorandum shall not be used in interpreting the terms, conditions or covenants of the Lease. In the event of any conflict between this Memorandum and the Lease, the Lease shall control.

8. The Property shall be held, conveyed, hypothecated, encumbered, leased, used and occupied subject to the covenants, terms and provisions set forth in the Lease and herein, which shall run with the Property and each portion thereof and interest therein as equitable servitudes, and shall be binding upon and inure to the benefit of the Parties and each sublessee and any other person and entity having any interest therein during their ownership thereof, and their respective sublessees, grantees, heirs, executors, administrators, successors and assigns, and all persons claiming under them.

9. This Memorandum may be executed with counterpart signature pages and in duplicate originals, each of which shall be deemed an original, and all of which shall collectively constitute a single instrument.

[REST OF PAGE LEFT BLANK; SIGNATURES ON SEPARATE SHEETS]

IN WITNESS WHEREOF, the Parties have executed and delivered this Memorandum as of the Effective Date.

LESSEE:

CASS COUNTY SOLAR PROJECT, LLC,
a Delaware limited liability company

By: _____

Name: Aaron Weigel

Title: Vice President

STATE OF Kansas)
) ss.
COUNTY OF Johnson)

Be it remembered that on this 15th day of March, 2018, before me, the undersigned, a Notary Public in and for the County and State aforesaid, came Aaron Weigel, to me personally known, who being by me duly sworn did say that he is Vice President of Cass County Solar Project, LLC, a Delaware limited liability company, and that the within instrument was signed and delivered on behalf of said Cass County Solar Project, LLC by authority thereof, and acknowledged said instrument to be the free act and deed of said limited liability company for the purposes therein expressed.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed my Notarial Seal in the date herein last above written.

My Commission Expires:

1-15-2019

[SEAL]

GAIL CROOKS
Notary Public - State of Kansas
My Appt. Expires 1-15-2019

_____
Notary Public in and for said County and State

Print Name: Gail Crooks

LESSOR:

NEAL A. WANKEL IRREVOCABLE TRUST AGREEMENT DATED THE 16TH DAY OF NOVEMBER, 2012 (A/K/A NEAL A. WANKEL IRREVOCABLE TRUST AGREEMENT DATED THE 14TH DAY OF NOVEMBER, 2012)

Trustee

By: Mark W. Wankel, Trustee

1001 North Market Street, Suite 209
Mount Carmel, Illinois 62863

STATE OF Illinois)
) ss.
COUNTY OF Wabash)

Be it remembered that on this 22 day of March, 2018, before me, the undersigned, a Notary Public in and for the County and State aforesaid, came Mark W. Wankel, to me personally known, who being by me duly sworn did say that he is the Trustee of the Neal A. Wankel Irrevocable Trust Agreement dated the 16th day of November, 2012 (a/k/a Neal A. Wankel Irrevocable Trust Agreement dated the 14th day of November 2012) and that said instrument was signed and delivered not in his individual capacity, but on behalf of said trust and that said Trustee acknowledged said instrument to be his free act and deed.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed my official seal the day and year LAST above written.

Katrina G. Saltsgaver
Notary Public in and for said County and State

Print Name: Katrina G. Saltsgaver

My Commission Expires:
04/23/2019
[SEAL]

OFFICIAL SEAL
KATRINA G SALTSGAVER
Notary Public - State of Illinois
My Commission Expires Apr 23, 2019

Q#3993800

EXHIBIT "A"

DESCRIPTION OF THE PROPERTY

THE FOLLOWING REAL PROPERTY LOCATED IN THE COUNTY OF CASS, STATE OF ILLINOIS:

The part of the South Half of Section 30 which lies West of the East line of the Fish Lake Ditch and East of the West Line of the North Lake Ditch right of way; Situated in Section 30, Township 18N, Range 12W, Cass County, Illinois.

EXCEPT the following described Tract of land, to-wit:

A part of the South Half of Section 30, Township 18 North, Range 12 West of the Third Principal Meridian, Cass County, Illinois, described as follows using bearings referenced to the Illinois State Plane Coordinate System NAD-83(2007) - West Zone:

Beginning at a 5/8" iron pin at the southwest corner of the Southeast Quarter of said Section 30; thence North 88 degrees 38 minutes 40 seconds West 85.38 feet along the south line of the South half of said Section 30 to an iron rod; thence North 01 degrees 20 minutes 20 seconds East 426 .07 feet to an iron rod; thence North 33 degrees 49 minutes 41 seconds East 661.41 feet to an iron rod; thence south 82 degrees 25 minutes 30 seconds East 74.19 feet to an iron rod; thence south 01 degrees 20 minutes 20 seconds West 976.03 feet to an iron rod on the south line of the South Half of said Section 30; thence North 88 degrees 38 minutes 40 seconds West 343.64 feet along the south line of said Section 30 to the Point of the Beginning, containing 7.41 acres, more or less, of which 0.20 acre, more or less, is within the existing public road right of way.

181367

FILED AND RECORDED IN
CASS COUNTY ILLINOIS
SHELLY WESSEL
RECORDED ON:
04/07/2021 12:02:31PM

RHSP FEE: $9.00
REC FEE: $61.00

MEMORANDUM OF OPTION AND SOLAR ENERGY LEASE

THIS MEMORANDUM OF OPTION AND SOLAR ENERGY LEASE (this "***Memorandum***") is dated as of March 25th, 2021 (the "***Effective Date***") by and between Brock D. Rohn (a/k/a Brock Rohn and d/b/a Fertile Valley Farms, an Illinois sole proprietorship), a married person ("***Lessor***"), whose address is 6873 Rohn Lane, Beardstown, IL 62618, and Cass County Solar Project, LLC, a Delaware limited liability company ("***Lessee***"), whose address is 422 Admiral Boulevard, Kansas City, MO 64106, with reference to the following recitals:

A. Lessor owns that certain real property (including all air space thereof) described on Exhibit "A" attached hereto (the "***Property***"), which Property is located in the County of Cass, in the State of Illinois.

B. Lessor and Lessee (together, the "***Parties***" and each a "***Party***") have entered into that certain unrecorded Option and Solar Energy Lease dated of even date herewith (the "***Lease***"), which affects the Property.

C. The Parties have executed and acknowledged this Memorandum and are recording the same for the purpose of providing constructive notice of the Lease and Lessee's rights thereunder. Capitalized terms used and not defined herein have the meaning given the same in the Lease.

NOW, THEREFORE, for and in consideration the promises, covenants and agreements of the Parties contained in the Lease and herein, and for other good and valuable consideration, the receipt and sufficiency of which is hereby acknowledged, the Parties hereby agree as follows:

1. Lessee shall have a right of access during the Development Term (defined in the Lease) for performing certain due diligence, as set forth below, and possession of the Property during the Extended Term (defined in the Lease) for the exclusive right for solar energy conversion, for the collection and transmission of electric power, and for related and incidental purposes and activities (collectively, "***Solar Operations***"), to be conducted in such locations on the Property as Lessee may determine, and whether accomplished by Lessee or a third party authorized by Lessee, including, without limitation:

1.1 During the Development Term, determining the feasibility of solar energy conversion on the Property or on neighboring lands, including conducting studies of solar radiation, soils, and other meteorological and geotechnical data, and installing temporary meteorological masts and solar energy measurement equipment;

1.2 During the Extended Term, developing, constructing, reconstructing, erecting, enlarging, installing, improving, replacing, relocating and removing from time to time, and maintaining, using, monitoring and operating, existing, additional or new (i) individual units or arrays of solar energy collection cells/panels and related facilities necessary to harness sunlight for photovoltaic energy generation, including without limitation, existing and/or future technologies used or useful in connection with the generation of electricity from sunlight, and associated support structure, braces, wiring, plumbing, and related equipment ("***Solar Energy Facilities***"), (ii) facilities for the storage, collection, distribution, step-up, step-down, wheeling, transmission and sale of electricity and for communications in connection with the Solar Energy Facilities, including, without limitation, the following, at such locations as Lessee shall determine that are developed, constructed and/or operated on the Property and/or on property to be acquired by leasehold or by fee purchase, by or on behalf of Lessee: underground and/or overhead distribution, collection and transmission lines; underground and/or overhead control, communications and radio relay systems and telecommunications equipment; energy storage facilities; interconnection and/or switching facilities, circuit breakers, transformers; cables, wires, fiber, conduit, footings, foundations, towers, poles, crossarms, guy lines and anchors, and any related or associated improvements, fixtures, facilities, appliances, machinery and equipment (collectively, the "Transmission Facilities"), (iii) meteorological masts and solar energy measurement equipment, (iv) control buildings, control boxes and computer monitoring hardware, (v) utility lines and installations, (vi) safety protection facilities, (vii) laydown areas and maintenance yards, (viii) roads, bridges, culverts, and erosion control facilities, (ix) signs, fences, and gates, (x) maintenance, operations and administration buildings, and (xi) other improvements, fixtures, facilities, machinery and equipment associated or connected with the generation, conversion, storage, switching, metering, step-up, step-down, transmission, distribution, conducting, wheeling, sale or other use or conveyance of electricity (all of the foregoing, including the Solar Energy Facilities and Transmission Facilities, collectively a "***Solar Energy System***");

1.3 Subject to certain stipulations set forth in the Lease, during the Extended Term, drilling, digging and excavating one or more wells on the Extended Term Property for the purposes of servicing, operating and maintaining the Solar Energy System that is located on the Extended Term Property, including the right to tap into (at Lessee's sole cost and expense under a separate meter) any municipal, township, county, or other public water service; provided that, notwithstanding anything in the Lease to the contrary, Lessor has the right to develop, produce and use groundwater from the Property for any purpose, including drilling, producing or transporting groundwater from water wells, for use on or near the Property so long as such development, drilling and related activities and uses do not interfere with the development and operation of the Solar Energy System;

1.4 During the Extended Term, removing, trimming, pruning, topping, clearing or otherwise controlling the growth of any tree, shrub, plant or other vegetation; dismantling, demolishing, and removing any improvement, Structure, embankment, impediment, berm, wall, fence, engineering works, or other object, on or that intrudes (or upon maturity could intrude) into the Property that could obstruct, interfere with or impair the Solar Energy System or the use of the Property intended by Lessee hereunder,

provided, however, that the overall drainage of the Property remain materially unaffected if any portion of the Property is utilized for agricultural purposes, and provided further that, Lessee's removal of any such improvements or Structures having salvage value (as reasonably determined by Lessee) shall be coordinated with Lessor, and if so elected by Lessor in writing within ten (10) days after written notice from Lessee that any such improvement or Structure must be removed, Lessor shall have a fifteen (15) day period to remove any such improvement or Structure at Lessor's expense. In the event Lessor fails to respond in writing to Lessee within such ten (10) day period, or Lessor elects not to remove or fails to remove any such improvements or Structures within such fifteen (15) day period, Lessee may remove and dispose of such improvements or Structures at Lessee's expense, and Lessee shall have no liability to Lessor relating to the removal and disposal thereof;

1.5 A non-exclusive easement for vehicular and pedestrian access, ingress and egress to, from and over the Property, at such locations as Lessee shall determine, for purposes related to or associated with the Solar Energy System installed or to be installed on the Property, which, without limiting the generality of the foregoing, shall entitle Lessee to use, improve and widen any existing and future roads and access routes or construct such roads as Lessee may determine necessary from time to time located on or providing access to the Property;

1.6 Undertaking any other lawful activities, whether accomplished by Lessee or a third party authorized by Lessee, that Lessee determines are necessary, helpful, appropriate, convenient or cost-effective in connection with, incidental to or to accomplish any of the foregoing purposes, including conducting surveys and soils, environmental, biological, cultural and other tests and studies.

Notwithstanding the foregoing in this Section 1, during the Development Term (defined in the Lease), Lessee's rights with respect to the Property are limited to those rights necessary for Lessee to conduct feasibility and other due diligence analysis and studies with respect to the Property, including access to the Property for purposes thereof, and Lessee shall not be permitted to commence construction of any Solar Energy System on any portion of the Property (other than meteorological and solar and radiation measurement, monitoring and recording equipment and facilities) unless and until Lessee has exercised the Lease Extension Option (defined in the Lease) with respect to such portion of the Property. Lessee's exercise of the Lease Extension Option shall memorialize the end of the Development Term and the execution of the Option to enter into the commencement of the Extended Term (as defined in the Lease), upon which Lessee shall be conferred the right, but not the obligation, for Lessee to construct and operate the Solar Energy System.

2. Among other things, this Lease includes the exclusive right and easement on, over and across the Property for the free and unobstructed flow of sunlight resources, together with the exclusive right to (i) develop, use, convert, maintain and capture such sunlight, (ii) convert solar energy into electrical energy and (iii) derive and keep all credits and income therefrom (subject to the payment of Rent to Lessor, as set forth below).

3. The Lease shall initially be for a term of five (5) years commencing on the Effective Date and ending on 3/12, 2026. Lessee shall have the right and option to extend the term of the Lease for one additional period of thirty (30) years, upon the terms set forth in the Lease. Additionally, Lessee shall have the right to renew the Extended Term for two (2) additional five (5) year periods.

4. Any Solar Energy System constructed on the Property shall at all times remain the property of Lessee and shall not be deemed to be fixtures and Lessor shall have no ownership, lien, security or other interest (including any lien that might otherwise be implied by law) in any Solar Energy System installed on the Property, or in any profits or income derived therefrom.

5. Neither Lessor nor any of its tenants, licensees, contractors, invitees, agents, assigns or anyone else obtaining rights from Lessor shall, currently or prospectively, interfere with, impair, delay or materially increase the cost of any of Lessee's Solar Operations (whether conducted on the Property or adjacent or nearby property), or the undertaking of any other activities or the free enjoyment or exercise of any other rights or benefits given to or permitted Lessee hereunder. Without limiting the generality of the foregoing, neither Lessor nor anyone obtaining rights from or acting with the permission of Lessor shall (a) interfere with or impair the free, unobstructed and natural availability of sunlight over or across the Property (whether by planting trees, constructing structures, or otherwise), or the lateral or subjacent support for the Solar Energy System or (b) engage in any other activity on the Property or adjacent or nearby property that might cause a decrease in the output, efficiency or longevity of the Solar Energy System.

6. The Lease is for the additional purposes, is of the nature, and is subject to the requirements and limitations, set forth therein. The Lease also contains various other covenants, obligations and rights of the Parties, including, without limitation, provisions relating to Rent, termination of the Lease, quiet enjoyment, restoration of the Property, assignment and lender protections.

7. The terms, conditions and covenants of the Lease are incorporated herein by reference as though fully set forth herein. This Memorandum does not supersede, modify, amend or otherwise change the terms, conditions or covenants of the Lease, and this Memorandum shall not be used in interpreting the terms, conditions or covenants of the Lease. In the event of any conflict between this Memorandum and the Lease, the Lease shall control.

8. The Property shall be held, conveyed, hypothecated, encumbered, leased, used and occupied subject to the covenants, terms and provisions set forth in the Lease and herein, which shall run with the Property and each portion thereof and interest therein as equitable servitudes, and shall be binding upon and inure to the benefit of the Parties and each sublessee and any other person and entity having any interest therein during their ownership thereof, and their respective sublessees, grantees, heirs, executors, administrators, successors and assigns, and all persons claiming under them.

9. This Memorandum may be executed with counterpart signature pages and in duplicate originals, each of which shall be deemed an original, and all of which shall collectively constitute a single instrument.

[REST OF PAGE LEFT BLANK; SIGNATURES ON SEPARATE SHEETS]

IN WITNESS WHEREOF, the Parties have executed and delivered this Memorandum as of the Effective Date.

LESSEE:

CASS COUNTY SOLAR PROJECT, LLC,
a Delaware limited liability company

By: _____

Name: Aaron Lipscomb

Title: Authorized Person

STATE OF Missouri)
) ss.
COUNTY OF Jackson)

Be it remembered that on this 25th day of March, 2021, before me, the undersigned, a Notary Public in and for the County and State aforesaid, came Aaron Lipscomb, to me personally known, who being by me duly sworn did say that he is Authorized Person of Cass County Solar Project, LLC, a Delaware limited liability company, and that the within instrument was signed and sealed on behalf of said Cass County Solar Project, LLC by authority thereof, and acknowledged said instrument to be the free act and deed of said limited liability company for the purposes therein expressed.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed my Notarial Seal in the date herein last above written.

My Commission Expires:

10/07/2023
[SEAL]

_____
Notary Public in and for said County and State

Print Name: Suzanne Ripley

SUZANNE RIPLEY
Comm. Exp. 10/07/2023
NOTARY PUBLIC NOTARY SEAL
19927343
Jackson County
STATE OF MISSOURI

LESSEE: CASS COUNTY SOLAR PROJECT, LLC,
a Delaware limited liability company

By: _____

Name: Scott Zeimetz

Title: Authorized Person

STATE OF Missouri)
) ss.
COUNTY OF Jackson)

Be it remembered that on this 25th day of March, 2021, before me, the undersigned, a Notary Public in and for the County and State aforesaid, came Scott Zeimetz, to me personally known, who being by me duly sworn did say that he is Authorized Person of Cass County Solar Project, LLC, a Delaware limited liability company, and that the within instrument was signed and sealed on behalf of said Cass County Solar Project, LLC by authority thereof, and acknowledged said instrument to be the free act and deed of said limited liability company for the purposes therein expressed.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed my Notarial Seal in the date herein last above written.

My Commission Expires:

10/07/2023
[SEAL]

Suzanne Ripley
Notary Public in and for said County and State

Print Name: Suzanne Ripley

SUZANNE RIPLEY
Comm. Exp. 10/07/2023
NOTARY PUBLIC NOTARY SEAL 19927343
Jackson County
STATE OF MISSOURI

LESSOR:

Brock D. Rohn
d/b/a Fertile Valley Farms, an Illinois sole proprietorship

Joinder of Spouse

Angie Rohn, the spouse of Lessor, joins herein for the purpose of releasing dower, homestead, and other marital rights, all of which are waived with respect to this Lease.

(Signature)

STATE OF Illinois)
) ss.
COUNTY OF Cass)

BE IT REMEMBERED, that on this 12 day of March, 2021, before me, the undersigned, a Notary Public in and for said County and State aforesaid, came Brock D. Rohn (a/k/a Brock Rohn and d/b/a Fertile Valley Farms, an Illinois sole proprietorship) and Angie Rohn, husband and wife, to me known to be the persons who executed the foregoing instrument, and acknowledged that they executed the same as their free act and deed and for the purposes therein stated.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed my official seal the day and year LAST above written.

My Commission Expires:

5-13-2021
[SEAL]

Notary Public in and for said County and State

Print Name: Joseph R Horabik

OFFICIAL SEAL
JOSEPH R HORABIK
NOTARY PUBLIC - STATE OF ILLINOIS
MY COMMISSION EXPIRES:05/13/21

EXHIBIT "A"

DESCRIPTION OF THE PROPERTY

THE FOLLOWING REAL PROPERTY LOCATED IN THE COUNTY OF CASS, STATE OF ILLINOIS:

The West Half (W½) of the Southwest Quarter (SW¼) of the Southeast Quarter (SE¼) of Section Twenty-nine (29), in Township Eighteen (18) North, Range Twelve (12) West of the Third Principal Meridian, Cass County, Illinois.

Cass County Tax Parcel #03-019-014-00

181368

FILED AND RECORDED IN
CASS COUNTY ILLINOIS
SHELLY WESSEL
RECORDED ON:
04/07/2021 12:02:31PM

RHSP FEE: $9.00
REC FEE: $61.00

MEMORANDUM OF OPTION AND SOLAR ENERGY LEASE

THIS MEMORANDUM OF OPTION AND SOLAR ENERGY LEASE (this "***Memorandum***") is dated as of MARCH 26TH, 2021 (the "***Effective Date***") by and between Brock D. Rohn (a/k/a Brock Rohn and d/b/a Fertile Valley Farms, an Illinois sole proprietorship), a married person (as to an undivided one-half (1/2) interest) whose address is 6873 Rohn Lane, Beardstown, IL 62618 and Thomas R. Rohn and Patricia A. Rohn, as Trustees of the Rohn December 2016 Living Trust, created by Declaration of Living Trust dated December 8, 2016 (as to an undivided one-half (1/2) interest) whose address 6873 ROHN LN. BEARDSTOWN, IL 62618 (collectively, "***Lessor***"), and Cass County Solar Project, LLC, a Delaware limited liability company ("***Lessee***"), whose address is 422 Admiral Boulevard, Kansas City, MO 64106, with reference to the following recitals:

A. Lessor owns that certain real property (including all air space thereof) described on Exhibit "A" attached hereto (the "***Property***"), which Property is located in the County of Cass, in the State of Illinois.

B. Lessor and Lessee (together, the "***Parties***" and each a "***Party***") have entered into that certain unrecorded Option and Solar Energy Lease dated of even date herewith (the "***Lease***"), which affects the Property.

C. The Parties have executed and acknowledged this Memorandum and are recording the same for the purpose of providing constructive notice of the Lease and Lessee's rights thereunder. Capitalized terms used and not defined herein have the meaning given the same in the Lease.

NOW, THEREFORE, for and in consideration the promises, covenants and agreements of the Parties contained in the Lease and herein, and for other good and valuable consideration, the receipt and sufficiency of which is hereby acknowledged, the Parties hereby agree as follows:

1. Lessee shall have a right of access during the Development Term (defined in the Lease) for performing certain due diligence, as set forth below, and possession of the Property during the Extended Term (defined in the Lease) for the exclusive right for solar energy conversion, for the collection and transmission of electric power, and for related and incidental

purposes and activities (collectively, "***Solar Operations***"), to be conducted in such locations on the Property as Lessee may determine, and whether accomplished by Lessee or a third party authorized by Lessee, including, without limitation:

1.1 During the Development Term, determining the feasibility of solar energy conversion on the Property or on neighboring lands, including conducting studies of solar radiation, soils, and other meteorological and geotechnical data, and installing temporary meteorological masts and solar energy measurement equipment;

1.2 During the Extended Term, developing, constructing, reconstructing, erecting, enlarging, installing, improving, replacing, relocating and removing from time to time, and maintaining, using, monitoring and operating, existing, additional or new (i) individual units or arrays of solar energy collection cells/panels and related facilities necessary to harness sunlight for photovoltaic energy generation, including without limitation, existing and/or future technologies used or useful in connection with the generation of electricity from sunlight, and associated support structure, braces, wiring, plumbing, and related equipment ("***Solar Energy Facilities***"), (ii) facilities for the storage, collection, distribution, step-up, step-down, wheeling, transmission and sale of electricity and for communications in connection with the Solar Energy Facilities, including, without limitation, the following, at such locations as Lessee shall determine that are developed, constructed and/or operated on the Property and/or on property to be acquired by leasehold or by fee purchase, by or on behalf of Lessee: underground and/or overhead distribution, collection and transmission lines; underground and/or overhead control, communications and radio relay systems and telecommunications equipment; energy storage facilities; interconnection and/or switching facilities, circuit breakers, transformers; cables, wires, fiber, conduit, footings, foundations, towers, poles, crossarms, guy lines and anchors, and any related or associated improvements, fixtures, facilities, appliances, machinery and equipment (collectively, the "Transmission Facilities"), (iii) meteorological masts and solar energy measurement equipment, (iv) control buildings, control boxes and computer monitoring hardware, (v) utility lines and installations, (vi) safety protection facilities, (vii) laydown areas and maintenance yards, (viii) roads, bridges, culverts, and erosion control facilities, (ix) signs, fences, and gates, (x) maintenance, operations and administration buildings, and (xi) other improvements, fixtures, facilities, machinery and equipment associated or connected with the generation, conversion, storage, switching, metering, step-up, step-down, transmission, distribution, conducting, wheeling, sale or other use or conveyance of electricity (all of the foregoing, including the Solar Energy Facilities and Transmission Facilities, collectively a "***Solar Energy System***");

1.3 Subject to certain stipulations set forth in the Lease, during the Extended Term, drilling, digging and excavating one or more wells on the Extended Term Property for the purposes of servicing, operating and maintaining the Solar Energy System that is located on the Extended Term Property, including the right to tap into (at Lessee's sole cost and expense under a separate meter) any municipal, township, county, or other public water service; provided that, notwithstanding anything in the Lease to the contrary, Lessor has the right to develop, produce and use groundwater from the Property for any purpose, including drilling, producing or transporting groundwater from water wells, for use on or near the Property so long as such development, drilling and related activities and uses do not interfere with the development and operation of the Solar Energy System;

1.4 During the Extended Term, removing, trimming, pruning, topping, clearing or otherwise controlling the growth of any tree, shrub, plant or other vegetation;

dismantling, demolishing, and removing any improvement, Structure, embankment, impediment, berm, wall, fence, engineering works, or other object, on or that intrudes (or upon maturity could intrude) into the Property that could obstruct, interfere with or impair the Solar Energy System or the use of the Property intended by Lessee hereunder, provided, however, that the overall drainage of the Property remain materially unaffected if any portion of the Property is utilized for agricultural purposes, and provided further that, Lessee's removal of any such improvements or Structures having salvage value (as reasonably determined by Lessee) shall be coordinated with Lessor, and if so elected by Lessor in writing within ten (10) days after written notice from Lessee that any such improvement or Structure must be removed, Lessor shall have a fifteen (15) day period to remove any such improvement or Structure at Lessor's expense. In the event Lessor fails to respond in writing to Lessee within such ten (10) day period, or Lessor elects not to remove or fails to remove any such improvements or Structures within such fifteen (15) day period, Lessee may remove and dispose of such improvements or Structures at Lessee's expense, and Lessee shall have no liability to Lessor relating to the removal and disposal thereof;

1.5 A non-exclusive easement for vehicular and pedestrian access, ingress and egress to, from and over the Property, at such locations as Lessee shall determine, for purposes related to or associated with the Solar Energy System installed or to be installed on the Property, which, without limiting the generality of the foregoing, shall entitle Lessee to use, improve and widen any existing and future roads and access routes or construct such roads as Lessee may determine necessary from time to time located on or providing access to the Property;

1.6 Undertaking any other lawful activities, whether accomplished by Lessee or a third party authorized by Lessee, that Lessee determines are necessary, helpful, appropriate, convenient or cost-effective in connection with, incidental to or to accomplish any of the foregoing purposes, including conducting surveys and soils, environmental, biological, cultural and other tests and studies.

Notwithstanding the foregoing in this Section 1, during the Development Term (defined in the Lease), Lessee's rights with respect to the Property are limited to those rights necessary for Lessee to conduct feasibility and other due diligence analysis and studies with respect to the Property, including access to the Property for purposes thereof, and Lessee shall not be permitted to commence construction of any Solar Energy System on any portion of the Property (other than meteorological and solar and radiation measurement, monitoring and recording equipment and facilities) unless and until Lessee has exercised the Lease Extension Option (defined in the Lease) with respect to such portion of the Property. Lessee's exercise of the Lease Extension Option shall memorialize the end of the Development Term and the execution of the Option to enter into the commencement of the Extended Term (as defined in the Lease), upon which Lessee shall be conferred the right, but not the obligation, for Lessee to construct and operate the Solar Energy System.

2. Among other things, this Lease includes the exclusive right and easement on, over and across the Property for the free and unobstructed flow of sunlight resources, together with the exclusive right to (i) develop, use, convert, maintain and capture such sunlight, (ii) convert solar energy into electrical energy and (iii) derive and keep all credits and income therefrom (subject to the payment of Rent to Lessor, as set forth below).

3. The Lease shall initially be for a term of five (5) years commencing on the Effective Date and ending on MARCH 26TH, 2026. Lessee shall have the right and option to extend the term of the Lease for one additional period of thirty (30) years, upon the terms set forth in the Lease. Additionally, Lessee shall have the right to renew the Extended Term for two (2) additional five (5) year periods.

4. Any Solar Energy System constructed on the Property shall at all times remain the property of Lessee and shall not be deemed to be fixtures and Lessor shall have no ownership, lien, security or other interest (including any lien that might otherwise be implied by law) in any Solar Energy System installed on the Property, or in any profits or income derived therefrom.

5. Neither Lessor nor any of its tenants, licensees, contractors, invitees, agents, assigns or anyone else obtaining rights from Lessor shall, currently or prospectively, interfere with, impair, delay or materially increase the cost of any of Lessee's Solar Operations (whether conducted on the Property or adjacent or nearby property), or the undertaking of any other activities or the free enjoyment or exercise of any other rights or benefits given to or permitted Lessee hereunder. Without limiting the generality of the foregoing, neither Lessor nor anyone obtaining rights from or acting with the permission of Lessor shall (a) interfere with or impair the free, unobstructed and natural availability of sunlight over or across the Property (whether by planting trees, constructing structures, or otherwise), or the lateral or subjacent support for the Solar Energy System or (b) engage in any other activity on the Property or adjacent or nearby property that might cause a decrease in the output, efficiency or longevity of the Solar Energy System.

6. The Lease is for the additional purposes, is of the nature, and is subject to the requirements and limitations, set forth therein. The Lease also contains various other covenants, obligations and rights of the Parties, including, without limitation, provisions relating to Rent, termination of the Lease, quiet enjoyment, restoration of the Property, assignment and lender protections.

7. The terms, conditions and covenants of the Lease are incorporated herein by reference as though fully set forth herein. This Memorandum does not supersede, modify, amend or otherwise change the terms, conditions or covenants of the Lease, and this Memorandum shall not be used in interpreting the terms, conditions or covenants of the Lease. In the event of any conflict between this Memorandum and the Lease, the Lease shall control.

8. The Property shall be held, conveyed, hypothecated, encumbered, leased, used and occupied subject to the covenants, terms and provisions set forth in the Lease and herein, which shall run with the Property and each portion thereof and interest therein as equitable servitudes, and shall be binding upon and inure to the benefit of the Parties and each sublessee and any other person and entity having any interest therein during their ownership thereof, and their respective sublessees, grantees, heirs, executors, administrators, successors and assigns, and all persons claiming under them.

9. This Memorandum may be executed with counterpart signature pages and in duplicate originals, each of which shall be deemed an original, and all of which shall collectively constitute a single instrument.

[REST OF PAGE LEFT BLANK; SIGNATURES ON SEPARATE SHEETS]

IN WITNESS WHEREOF, the Parties have executed and delivered this Memorandum as of the Effective Date.

LESSEE:

CASS COUNTY SOLAR PROJECT, LLC,
a Delaware limited liability company

By: _____

Name: AARON LIPSCOMB

Title: AUTHORIZED PERSON

STATE OF Missouri)
) ss.
COUNTY OF Jackson)

Be it remembered that on this 26th day of March, 2021, before me, the undersigned, a Notary Public in and for the County and State aforesaid, came Aaron Lipscomb, to me personally known, who being by me duly sworn did say that he is Authorized Person of Cass County Solar Project, LLC, a Delaware limited liability company, and that the within instrument was signed and sealed on behalf of said Cass County Solar Project, LLC by authority thereof, and acknowledged said instrument to be the free act and deed of said limited liability company for the purposes therein expressed.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed my Notarial Seal in the date herein last above written.

My Commission Expires:

10/07/2023
[SEAL]

_____
Notary Public in and for said County and State

Print Name: Suzanne Ripley

SUZANNE RIPLEY
Comm. Exp. 10/07/2023
NOTARY PUBLIC NOTARY SEAL 19927343
Jackson County
STATE OF MISSOURI

LESSEE: CASS COUNTY SOLAR PROJECT, LLC,
a Delaware limited liability company

By: _____

Name: Scott Zeimetz

Title: Authorized Person

STATE OF Missouri)
) ss.
COUNTY OF Jackson)

Be it remembered that on this 26th day of March, 2021, before me, the undersigned, a Notary Public in and for the County and State aforesaid, came Scott Zeimetz, to me personally known, who being by me duly sworn did say that he is Authorized Person of Cass County Solar Project, LLC, a Delaware limited liability company, and that the within instrument was signed and sealed on behalf of said Cass County Solar Project, LLC by authority thereof, and acknowledged said instrument to be the free act and deed of said limited liability company for the purposes therein expressed.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed my Notarial Seal in the date herein last above written.

My Commission Expires:

10/07/2023
[SEAL]

Suzanne Ripley
Notary Public in and for said County and State

Print Name: Suzanne Ripley

SUZANNE RIPLEY
Comm. Exp. 10/07/2023
NOTARY PUBLIC NOTARY SEAL 19327543
Jackson County
STATE OF MISSOURI

LESSOR:

Brock D. Rohn
d/b/a Fertile Valley Farms, an Illinois sole proprietorship

Joinder of Spouse

Angie Rohn, the spouse of Lessor, joins herein for the purpose of releasing dower, homestead, and other marital rights, all of which are waived with respect to this Lease.

(Signature)

STATE OF Illinois)
) ss.
COUNTY OF Cass)

BE IT REMEMBERED, that on this 12 day of March, 2021, before me, the undersigned, a Notary Public in and for said County and State aforesaid, came Brock D. Rohn (a/k/a Brock Rohn and d/b/a Fertile Valley Farms, an Illinois sole proprietorship) and Angie Rohn, husband and wife, to me known to be the persons who executed the foregoing instrument, and acknowledged that they executed the same as their free act and deed and for the purposes therein stated.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed my official seal the day and year LAST above written.

My Commission Expires:

5-13-2021
[SEAL]

Notary Public in and for said County and State

Print Name: Joseph R Horabik

OFFICIAL SEAL
JOSEPH R HORABIK
NOTARY PUBLIC - STATE OF ILLINOIS
MY COMMISSION EXPIRES:05/13/21

LESSOR:

ROHN DECEMBER 2016 LIVING TRUST, created by Declaration of Living Trust dated December 8, 2016

Thomas R. Rohn, Trustee

Patricia A. Rohn, Trustee

IN WITNESS WHEREOF, Lessor has executed and delivered this Lease as of MARCH 12th, 2021.

STATE OF Illinois)
) ss.
COUNTY OF Cass)

BE IT REMEMBERED, that on this 12 day of March, 2021, before me, the undersigned, a Notary Public in and for said County and State aforesaid, came Thomas R. Rohn and Patricia A. Rohn, as Trustees of the Rohn December 2016 Living Trust, created by Declaration of Living Trust dated December 8, 2016, to me known to be the persons who executed the foregoing instrument, and acknowledged that they executed the same as their free act and deed and for the purposes therein stated.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed my official seal the day and year LAST above written.

My Commission Expires:

5-13-2021

[SEAL]

Notary Public in and for said County and State

Print Name: Joseph R Horabik

OFFICIAL SEAL
JOSEPH R HORABIK
NOTARY PUBLIC - STATE OF ILLINOIS
MY COMMISSION EXPIRES:05/13/21

EXHIBIT "A"

DESCRIPTION OF THE PROPERTY

THE FOLLOWING REAL PROPERTY LOCATED IN THE COUNTY OF CASS, STATE OF ILLINOIS:

The West Half (W½) of the Northeast Quarter (NE¼) of Section Twenty-nine (29);

The Northwest Quarter (NW¼) of said Section Twenty-nine (29), and

All that part of the Northwest Quarter (NW¼) of the Southwest Quarter (SW¼) of said Section Twenty-nine (29) lying North and West of the center line of the existing drainage ditch,

All in Township Eighteen (18) North, Range Twelve (12) West of the Third Principal Meridian, situated in the County of Cass, in the State of Illinois.

AND

The East Half (E½) of the Northeast Quarter (NE¼) of Section Twenty-nine (29), Township Eighteen (18) North, Range Twelve (12) West of the Third Principal Meridian, situated in the County of Cass, in the State of Illinois.

AND

Approximately One Hundred Eighteen (118) acres of real estate located in Sections Twenty-eight (28) and Twenty-nine (29), Township Eighteen (18) North, Range Twelve (12) West of the Third Principal Meridian in Cass County, Illinois described as follows:

All that part of the following described real estate which lies West of the centerline of the presently existing drainage ditch used by the South Beardstown Drainage and Levee District and commonly known as the South Beardstown Drainage Ditch to-wit:

The West Half of the Southwest Quarter of the Northeast Quarter of Section 28; the South Half of the Northwest Quarter of Section 28; the Southwest Quarter of Section 28; the Northwest Quarter of the Southeast Quarter of Section 28, excepting that part described as beginning at a point in the Northeast corner thereof, running thence South 285 feet, thence West 385 feet, thence North 285 feet, thence East 385 feet to the place of beginning; the East Half of the Southwest Quarter of the Southeast Quarter of Section 29; the North Half of the Southeast Quarter of Section 29; the Southeast Quarter of the Southeast Quarter of Section 29; all in Township 18 North, Range 12 West of the Third Principal Meridian, except a tract of land 200 feet square out of the Southeast corner of the Southwest Quarter of said Section 28 and also except 2 acres, more or less, conveyed to South Beardstown Drainage and Levee District more particularly described in Quit Claim Deed dated 24, 1945, and recorded in the Recorder's Office in Deed Record Book 106, at Page 165, and further excepting a tract described as follows: Part of the West Half of said Section 28 described as beginning at a point on the North boundary of the South Half of the Northwest Quarter of said Section 28, said point being 1641.8 feet West of a stone at the Southwest corner of the Northeast Quarter of the Northeast Quarter of said Section 28, thence South 0 degrees 51 minutes 49 seconds West 605.3 feet, thence South 48 degrees 42 minutes 58 seconds West 1373.7 feet, thence South 33 degrees 14 minutes 00 seconds West 568.8 feet, thence North 77 degrees 09 minutes 59 seconds West 219.0 feet,

thence North 08 degrees 30 minutes 39 seconds East 280.2 feet, thence South 88 degrees 36 minutes 12 seconds West 335.3 feet, thence North 09 degrees 45 minutes 37 seconds East 138.6 feet, thence North 62 degrees 29 minutes 54 seconds West 82.0 feet, thence North 22 degrees 51 minutes 14 seconds East 1622.7 feet to a point on the North boundary of the South Half of the Northwest Quarter of said Section 28, thence East along said North boundary 1279.5 feet to the point of beginning.

AND

The Northwest Quarter (NW 1/4) of the Northwest Quarter (NW 1/4) of Section Twenty-eight (28).

All in Township Eighteen (18) North, Range Twelve (12) West of the Third Principal Meridian, situated in the County of Cass, in the State of Illinois.

The above described land is assessed under the following Tax I.D. Number(s):

#03-019-007-00

#03-019-006-00

#03-019-009-00

#03-019-008-00

#03-019-013-01

#03-018-006-01

#03-017-012-01

#03-017-010-00

* 1 7 5 6 3 3 7 *
175633

FILED AND RECORDED IN
CASS COUNTY ILLINOIS
SHELLY WESSEL
RECORDED ON:
04/13/2018 09:50:31AM

RHSP FEE: 9.00
REC FEE: 59.00

MEMORANDUM OF SOLAR ENERGY LEASE

THIS MEMORANDUM OF SOLAR ENERGY LEASE (this "***Memorandum***") is dated as of April 1, 2018 (the "***Effective Date***") by and between Bradley D. Wankel ("***Lessor***"), whose address is 16900 Spillers Lane, Rushville, Illinois 62681, and Cass County Solar Project, LLC, a Delaware limited liability company ("***Lessee***"), whose address is 16105 W. 113th Street, Suite 105, Lenexa, KS 66219, with reference to the following recitals:

A. Lessor owns that certain real property (including all air space thereof) described on Exhibit "A" attached hereto (the "***Property***"), which Property is located in the County of Cass, in the State of Illinois.

B. Lessor and Lessee (together, the "***Parties***" and each a "***Party***") have entered into that certain unrecorded Solar Energy Lease dated of even date herewith (the "***Lease***"), which affects the Property.

C. The Parties have executed and acknowledged this Memorandum and are recording the same for the purpose of providing constructive notice of the Lease and Lessee's rights thereunder. Capitalized terms used and not defined herein have the meaning given the same in the Lease.

NOW, THEREFORE, for and in consideration the promises, covenants and agreements of the Parties contained in the Lease and herein, and for other good and valuable consideration, the receipt and sufficiency of which is hereby acknowledged, the Parties hereby agree as follows:

1. Lessee shall have possession of the Property for the exclusive right for solar energy conversion, for the collection and transmission of electric power, and for related and incidental purposes and activities (collectively, "***Solar Operations***"), to be conducted in such locations on the Property as Lessee may determine, and whether accomplished by Lessee or a third party authorized by Lessee, including, without limitation:

1.1 Determining the feasibility of solar energy conversion on the Property or on neighboring lands, including conducting studies of solar radiation, soils, and other meteorological and geotechnical data;

1.2 Developing, constructing, reconstructing, erecting, enlarging, installing, improving, replacing, relocating and removing from time to time, and maintaining, using, monitoring and operating, existing, additional or new (i) individual units or arrays of solar energy collection cells/panels and related facilities necessary to harness sunlight for photovoltaic energy generation, including without limitation, existing and/or future technologies used or useful in connection with the generation of electricity from sunlight, and associated support structure, braces, wiring, plumbing, and related equipment ("***Solar Energy Facilities***"), (ii) facilities for the storage, collection, distribution, step-up, step-down, wheeling, transmission and sale of electricity and for communications in connection with the Solar Energy Facilities, including, without limitation, the following, at such locations as Lessee shall determine that are developed, constructed and/or operated on the Property and/or on property to be acquired by leasehold or by fee purchase, by or on behalf of Lessee: underground and/or overhead distribution, collection and transmission lines; underground and/or overhead control, communications and radio relay systems and telecommunications equipment; energy storage facilities; interconnection and/or switching facilities, circuit breakers, transformers; cables, wires, fiber, conduit, footings, foundations, towers, poles, crossarms, guy lines and anchors, and any related or associated improvements, fixtures, facilities, appliances, machinery and equipment (collectively, the "Transmission Facilities"), (iii) meteorological masts and solar energy measurement equipment, (iv) control buildings, control boxes and computer monitoring hardware, (v) utility lines and installations, (vi) safety protection facilities, (vii) laydown areas and maintenance yards, (viii) roads, bridges, culverts, and erosion control facilities, (ix) signs, fences, and gates, (x) maintenance, operations and administration buildings, and (xi) other improvements, fixtures, facilities, machinery and equipment associated or connected with the generation, conversion, storage, switching, metering, step-up, step-down, transmission, distribution, conducting, wheeling, sale or other use or conveyance of electricity (all of the foregoing, including the Solar Energy Facilities and Transmission Facilities, collectively a "***Solar Energy System***");

1.3 Subject to certain stipulations set forth in the Lease, drilling, digging and excavating one or more wells on the Extended Term Property for the purposes of servicing, operating and maintaining the Solar Energy System that is located on the Extended Term Property, including the right to tap into (at Lessee's sole cost and expense under a separate meter) any municipal, township, county, or other public water service; provided that, notwithstanding anything in the Lease to the contrary, Lessor has the right to develop, produce and use groundwater from the Property for any purpose, including drilling, producing or transporting groundwater from water wells, for use on or near the Property so long as such development, drilling and related activities and uses do not interfere with the development and operation of the Solar Energy System;

1.4 During the Extended Term, removing, trimming, pruning, topping, clearing or otherwise controlling the growth of any tree, shrub, plant or other vegetation; dismantling, demolishing, and removing any improvement, Structure, embankment, impediment, berm, wall, fence, engineering works, or other object, on or that intrudes (or upon maturity could intrude) into the Property that could obstruct, interfere with or

impair the Solar Energy System or the use of the Property intended by Lessee hereunder, provided, however, that the overall drainage of the Property remain materially unaffected if any portion of the Property is utilized for agricultural purposes, and provided further that, Lessee's removal of any such improvements or Structures having salvage value (as reasonably determined by Lessee) shall be coordinated with Lessor, and if so elected by Lessor in writing within ten (10) days after written notice from Lessee that any such improvement or Structure must be removed, Lessor shall have a fifteen (15) day period to remove any such improvement or Structure at Lessor's expense. In the event Lessor fails to respond in writing to Lessee within such ten (10) day period, or Lessor elects not to remove or fails to remove any such improvements or Structures within such fifteen (15) day period, Lessee may remove and dispose of such improvements or Structures at Lessee's expense, and Lessee shall have no liability to Lessor relating to the removal and disposal thereof;

1.5 A non-exclusive easement for vehicular and pedestrian access, ingress and egress to, from and over the Property, at such locations as Lessee shall determine, for purposes related to or associated with the Solar Energy System installed or to be installed on the Property, which, without limiting the generality of the foregoing, shall entitle Lessee to use, improve and widen any existing and future roads and access routes or construct such roads as Lessee may determine necessary from time to time located on or providing access to the Property;

1.6 Undertaking any other lawful activities, whether accomplished by Lessee or a third party authorized by Lessee, that Lessee determines are necessary, helpful, appropriate, convenient or cost-effective in connection with, incidental to or to accomplish any of the foregoing purposes, including conducting surveys and soils, environmental, biological, cultural and other tests and studies.

2. Among other things, this Lease includes the exclusive right and easement on, over and across the Property for the free and unobstructed flow of sunlight resources, together with the exclusive right to (i) develop, use, convert, maintain and capture such sunlight, (ii) convert solar energy into electrical energy and (iii) derive and keep all credits and income therefrom (subject to the payment of Rent to Lessor, as set forth below).

3. The Lease shall initially be for a term of five (5) years commencing on the Effective Date and ending on April 1, 2023. Lessee shall have the right and option to extend the term of the Lease for one additional period of thirty (30) years, upon the terms set forth in the Lease. Additionally, Lessee shall have the right to renew the Extended Term for two (2) additional five (5) year periods.

4. Any Solar Energy System constructed on the Property shall at all times remain the property of Lessee and shall not be deemed to be fixtures and Lessor shall have no ownership, lien, security or other interest (including any lien that might otherwise be implied by law) in any Solar Energy System installed on the Property, or in any profits or income derived therefrom.

5. Neither Lessor nor any of its tenants, licensees, contractors, invitees, agents, assigns or anyone else obtaining rights from Lessor shall, currently or prospectively, interfere with, impair, delay or materially increase the cost of any of Lessee's Solar Operations (whether conducted on the Property or adjacent or nearby property), or the undertaking of any other activities or the free enjoyment or exercise of any other rights or benefits given to or permitted

Lessee hereunder. Without limiting the generality of the foregoing, neither Lessor nor anyone obtaining rights from or acting with the permission of Lessor shall (a) interfere with or impair the free, unobstructed and natural availability of sunlight over or across the Property (whether by planting trees, constructing structures, or otherwise), or the lateral or subjacent support for the Solar Energy System or (b) engage in any other activity on the Property or adjacent or nearby property that might cause a decrease in the output, efficiency or longevity of the Solar Energy System.

6. The Lease is for the additional purposes, is of the nature, and is subject to the requirements and limitations, set forth therein. The Lease also contains various other covenants, obligations and rights of the Parties, including, without limitation, provisions relating to Rent, termination of the Lease, quiet enjoyment, restoration of the Property, assignment and lender protections.

7. The terms, conditions and covenants of the Lease are incorporated herein by reference as though fully set forth herein. This Memorandum does not supersede, modify, amend or otherwise change the terms, conditions or covenants of the Lease, and this Memorandum shall not be used in interpreting the terms, conditions or covenants of the Lease. In the event of any conflict between this Memorandum and the Lease, the Lease shall control.

8. The Property shall be held, conveyed, hypothecated, encumbered, leased, used and occupied subject to the covenants, terms and provisions set forth in the Lease and herein, which shall run with the Property and each portion thereof and interest therein as equitable servitudes, and shall be binding upon and inure to the benefit of the Parties and each sublessee and any other person and entity having any interest therein during their ownership thereof, and their respective sublessees, grantees, heirs, executors, administrators, successors and assigns, and all persons claiming under them.

9. This Memorandum may be executed with counterpart signature pages and in duplicate originals, each of which shall be deemed an original, and all of which shall collectively constitute a single instrument.

[REST OF PAGE LEFT BLANK; SIGNATURES ON SEPARATE SHEETS]

IN WITNESS WHEREOF, the Parties have executed and delivered this Memorandum as of the Effective Date.

LESSEE:

CASS COUNTY SOLAR PROJECT, LLC,
a Delaware limited liability company

By: Vicki Schumacher

Name: VICKI SCHUMACHER

Title: VICE PRESIDENT

STATE OF Kansas)
) ss.
COUNTY OF Johnson)

Be it remembered that on this 26th day of March, 2018, before me, the undersigned, a Notary Public in and for the County and State aforesaid, came Vicki Schumacher, to me personally known, who being by me duly sworn did say that she is Vice President of Cass County Solar Project, LLC, a Delaware limited liability company, and that the within instrument was signed and delivered on behalf of said Cass County Solar Project, LLC by authority thereof, and acknowledged said instrument to be the free act and deed of said limited liability company for the purposes therein expressed.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed my Notarial Seal in the date herein last above written.

My Commission Expires:

11-16-2020
[SEAL]

Nancy Martin
Notary Public in and for said County and State

Print Name: Nancy Martin

NANCY MARTIN
Notary Public, State of Kansas
My Appointment Expires
11-16-2020

LESSOR:

Bradley D. Wankel

STATE OF Illinois)
) ss.
COUNTY OF Cass)

BE IT REMEMBERED, that on this 3rd day of April, 2018, before me, the undersigned, a Notary Public in and for said County and State aforesaid, came Bradley D. Wankel, to me known to be the person who executed the foregoing instrument, and acknowledged that he executed the same as his free act and deed and for the purposes therein stated.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed my Notarial Seal in the date herein last above written.

My Commission Expires:

Oct 16 2021

[SEAL]

Notary Public in and for said County and State

Print Name: M. Dale Krohe

"OFFICIAL SEAL"
M DALE KROHE
Notary Public, State of Illinois
My Commission Expires Oct. 16, 2021

EXHIBIT "A"

DESCRIPTION OF THE PROPERTY

THE FOLLOWING REAL PROPERTY LOCATED IN THE COUNTY OF CASS, STATE OF ILLINOIS:

The Northwest Quarter (NW ¼) of the Northwest Quarter ((NW ¼) of Section Thirty-two (32), Township Eighteen (18) North, Range Twelve (12) West of the Third Principal Meridian, Cass County, Illinois.

175631

FILED AND RECORDED IN
CASS COUNTY ILLINOIS
SHELLY WESSEL
RECORDED ON:
04/12/2018 10:47:17AM

RHSP FEE: 9.00
REC FEE: 60.00

MEMORANDUM OF SOLAR ENERGY LEASE

THIS MEMORANDUM OF SOLAR ENERGY LEASE (this "***Memorandum***") is dated as of March 8, 2018 (the "***Effective Date***") by and between David R. Wankel and Carlette L. Wankel, husband and wife ("***Lessor***"), whose address is 7245 US Highway 67, Beardstown, Illinois 62618, and Cass County Solar Project, LLC, a Delaware limited liability company ("***Lessee***"), whose address is 16105 W. 113th Street, Suite 105, Lenexa, KS 66219, with reference to the following recitals:

A. Lessor owns that certain real property (including all air space thereof) described on Exhibit "A" attached hereto (the "***Property***"), which Property is located in the County of Cass, in the State of Illinois.

B. Lessor and Lessee (together, the "***Parties***" and each a "***Party***") have entered into that certain unrecorded Solar Energy Lease dated of even date herewith (the "***Lease***"), which affects the Property.

C. The Parties have executed and acknowledged this Memorandum and are recording the same for the purpose of providing constructive notice of the Lease and Lessee's rights thereunder. Capitalized terms used and not defined herein have the meaning given the same in the Lease.

NOW, THEREFORE, for and in consideration the promises, covenants and agreements of the Parties contained in the Lease and herein, and for other good and valuable consideration, the receipt and sufficiency of which is hereby acknowledged, the Parties hereby agree as follows:

1. Lessee shall have possession of the Property for the exclusive right for solar energy conversion, for the collection and transmission of electric power, and for related and incidental purposes and activities (collectively, "***Solar Operations***"), to be conducted in such locations on the Property as Lessee may determine, and whether accomplished by Lessee or a third party authorized by Lessee, including, without limitation:

Q#3993500

6

1.1 Determining the feasibility of solar energy conversion on the Property or on neighboring lands, including conducting studies of solar radiation, soils, and other meteorological and geotechnical data;

1.2 Developing, constructing, reconstructing, erecting, enlarging, installing, improving, replacing, relocating and removing from time to time, and maintaining, using, monitoring and operating, existing, additional or new (i) individual units or arrays of solar energy collection cells/panels and related facilities necessary to harness sunlight for photovoltaic energy generation, including without limitation, existing and/or future technologies used or useful in connection with the generation of electricity from sunlight, and associated support structure, braces, wiring, plumbing, and related equipment ("***Solar Energy Facilities***"), (ii) facilities for the storage, collection, distribution, step-up, step-down, wheeling, transmission and sale of electricity and for communications in connection with the Solar Energy Facilities, including, without limitation, the following, at such locations as Lessee shall determine that are developed, constructed and/or operated on the Property and/or on property to be acquired by leasehold or by fee purchase, by or on behalf of Lessee: underground and/or overhead distribution, collection and transmission lines; underground and/or overhead control, communications and radio relay systems and telecommunications equipment; energy storage facilities; interconnection and/or switching facilities, circuit breakers, transformers; cables, wires, fiber, conduit, footings, foundations, towers, poles, crossarms, guy lines and anchors, and any related or associated improvements, fixtures, facilities, appliances, machinery and equipment (collectively, the "Transmission Facilities"), (iii) meteorological masts and solar energy measurement equipment, (iv) control buildings, control boxes and computer monitoring hardware, (v) utility lines and installations, (vi) safety protection facilities, (vii) laydown areas and maintenance yards, (viii) roads, bridges, culverts, and erosion control facilities, (ix) signs, fences, and gates, (x) maintenance, operations and administration buildings, and (xi) other improvements, fixtures, facilities, machinery and equipment associated or connected with the generation, conversion, storage, switching, metering, step-up, step-down, transmission, distribution, conducting, wheeling, sale or other use or conveyance of electricity (all of the foregoing, including the Solar Energy Facilities and Transmission Facilities, collectively a "***Solar Energy System***");

1.3 Subject to certain stipulations set forth in the Lease, drilling, digging and excavating one or more wells on the Extended Term Property for the purposes of servicing, operating and maintaining the Solar Energy System that is located on the Extended Term Property, including the right to tap into (at Lessee's sole cost and expense under a separate meter) any municipal, township, county, or other public water service; provided that, notwithstanding anything in the Lease to the contrary, Lessor has the right to develop, produce and use groundwater from the Property for any purpose, including drilling, producing or transporting groundwater from water wells, for use on or near the Property so long as such development, drilling and related activities and uses do not interfere with the development and operation of the Solar Energy System;

1.4 During the Extended Term, removing, trimming, pruning, topping, clearing or otherwise controlling the growth of any tree, shrub, plant or other vegetation; dismantling, demolishing, and removing any improvement, Structure, embankment, impediment, berm, wall, fence, engineering works, or other object, on or that intrudes (or upon maturity could intrude) into the Property that could obstruct, interfere with or

impair the Solar Energy System or the use of the Property intended by Lessee hereunder, provided, however, that the overall drainage of the Property remain materially unaffected if any portion of the Property is utilized for agricultural purposes, and provided further that, Lessee's removal of any such improvements or Structures having salvage value (as reasonably determined by Lessee) shall be coordinated with Lessor, and if so elected by Lessor in writing within ten (10) days after written notice from Lessee that any such improvement or Structure must be removed, Lessor shall have a fifteen (15) day period to remove any such improvement or Structure at Lessor's expense. In the event Lessor fails to respond in writing to Lessee within such ten (10) day period, or Lessor elects not to remove or fails to remove any such improvements or Structures within such fifteen (15) day period, Lessee may remove and dispose of such improvements or Structures at Lessee's expense, and Lessee shall have no liability to Lessor relating to the removal and disposal thereof;

1.5 A non-exclusive easement for vehicular and pedestrian access, ingress and egress to, from and over the Property, at such locations as Lessee shall determine, for purposes related to or associated with the Solar Energy System installed or to be installed on the Property, which, without limiting the generality of the foregoing, shall entitle Lessee to use, improve and widen any existing and future roads and access routes or construct such roads as Lessee may determine necessary from time to time located on or providing access to the Property;

1.6 Undertaking any other lawful activities, whether accomplished by Lessee or a third party authorized by Lessee, that Lessee determines are necessary, helpful, appropriate, convenient or cost-effective in connection with, incidental to or to accomplish any of the foregoing purposes, including conducting surveys and soils, environmental, biological, cultural and other tests and studies.

2. Among other things, this Lease includes the exclusive right and easement on, over and across the Property for the free and unobstructed flow of sunlight resources, together with the exclusive right to (i) develop, use, convert, maintain and capture such sunlight, (ii) convert solar energy into electrical energy and (iii) derive and keep all credits and income therefrom (subject to the payment of Rent to Lessor, as set forth below).

3. The Lease shall initially be for a term of five (5) years commencing on the Effective Date and ending on March 8, 2023. Lessee shall have the right and option to extend the term of the Lease for one additional period of thirty (30) years, upon the terms set forth in the Lease. Additionally, Lessee shall have the right to renew the Extended Term for two (2) additional five (5) year periods.

4. Any Solar Energy System constructed on the Property shall at all times remain the property of Lessee and shall not be deemed to be fixtures and Lessor shall have no ownership, lien, security or other interest (including any lien that might otherwise be implied by law) in any Solar Energy System installed on the Property, or in any profits or income derived therefrom.

5. Neither Lessor nor any of its tenants, licensees, contractors, invitees, agents, assigns or anyone else obtaining rights from Lessor shall, currently or prospectively, interfere with, impair, delay or materially increase the cost of any of Lessee's Solar Operations (whether conducted on the Property or adjacent or nearby property), or the undertaking of any other activities or the free enjoyment or exercise of any other rights or benefits given to or permitted

Lessee hereunder. Without limiting the generality of the foregoing, neither Lessor nor anyone obtaining rights from or acting with the permission of Lessor shall (a) interfere with or impair the free, unobstructed and natural availability of sunlight over or across the Property (whether by planting trees, constructing structures, or otherwise), or the lateral or subjacent support for the Solar Energy System or (b) engage in any other activity on the Property or adjacent or nearby property that might cause a decrease in the output, efficiency or longevity of the Solar Energy System.

6. The Lease is for the additional purposes, is of the nature, and is subject to the requirements and limitations, set forth therein. The Lease also contains various other covenants, obligations and rights of the Parties, including, without limitation, provisions relating to Rent, termination of the Lease, quiet enjoyment, restoration of the Property, assignment and lender protections.

7. The terms, conditions and covenants of the Lease are incorporated herein by reference as though fully set forth herein. This Memorandum does not supersede, modify, amend or otherwise change the terms, conditions or covenants of the Lease, and this Memorandum shall not be used in interpreting the terms, conditions or covenants of the Lease. In the event of any conflict between this Memorandum and the Lease, the Lease shall control.

8. The Property shall be held, conveyed, hypothecated, encumbered, leased, used and occupied subject to the covenants, terms and provisions set forth in the Lease and herein, which shall run with the Property and each portion thereof and interest therein as equitable servitudes, and shall be binding upon and inure to the benefit of the Parties and each sublessee and any other person and entity having any interest therein during their ownership thereof, and their respective sublessees, grantees, heirs, executors, administrators, successors and assigns, and all persons claiming under them.

9. This Memorandum may be executed with counterpart signature pages and in duplicate originals, each of which shall be deemed an original, and all of which shall collectively constitute a single instrument.

[REST OF PAGE LEFT BLANK; SIGNATURES ON SEPARATE SHEETS]

IN WITNESS WHEREOF, the Parties have executed and delivered this Memorandum as of the Effective Date.

LESSEE:

CASS COUNTY SOLAR PROJECT, LLC,
a Delaware limited liability company

By: _____

Name: Matt Gilhousen

Title: Vice President

STATE OF Kansas)
) ss.
COUNTY OF Johnson)

Be it remembered that on this 15th day of March, 2018, before me, the undersigned, a Notary Public in and for the County and State aforesaid, came Matt Gilhousen, to me personally known, who being by me duly sworn did say that he is Vice President of Cass County Solar Project, LLC, a Delaware limited liability company, and that the within instrument was signed and delivered on behalf of said Cass County Solar Project, LLC by authority thereof, and acknowledged said instrument to be the free act and deed of said limited liability company for the purposes therein expressed.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed my Notarial Seal in the date herein last above written.

My Commission Expires:

11-16-2020
[SEAL]

Nancy Martin
Notary Public in and for said County and State

Print Name: Nancy Martin

NANCY MARTIN
Notary Public, State of Kansas
My Appointment Expires
11-16-2020

LESSOR:

David R. Wankel

Carlette L. Wankel

STATE OF Illinois)
) ss.
COUNTY OF Coss)

BE IT REMEMBERED, that on this 24th day of March, 2018, before me, the undersigned, a Notary Public in and for said County and State aforesaid, came David R. Wankel and Carlette L. Wankel, husband and wife, to me known to be the persons who executed the foregoing instrument, and acknowledged that they executed the same as their free act and deed and for the purposes therein stated.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed my Notarial Seal in the date herein last above written.

My Commission Expires:

Oct 16, 2021

[SEAL]

Notary Public in and for said County and State

Print Name: M. Dale Krohe

"OFFICIAL SEAL"
M DALE KROHE
Notary Public, State of Illinois
My Commission Expires Oct. 16, 2021

"OFFICIAL SEAL"
M DALE KROHE
Notary Public, State of Illinois
My Commission Expires Oct. 16, 2021

Q#3993500

EXHIBIT "A"

DESCRIPTION OF THE PROPERTY

THE FOLLOWING REAL PROPERTY LOCATED IN THE COUNTY OF CASS, STATE OF ILLINOIS:

The Southwest Quarter (SW ¼) of the Northwest Quarter (NW ¼) of Section Thirty-two (32), The North Half (N ½) of the South Half (S ½) of said Section Thirty-two (32), EXCEPT THE FOLLOWING TWO PARCELS:

Parcel I: Beginning at the intersection of the South line of the North Half (N ½) of the Southeast Quarter (SE ¼) of said Section Thirty-two (32) and the West right of way line of Illinois State Highway Route 100; thence West along the South line of said North Half (N ½) of the Southeast Quarter (SE ¼) of said Section Thirty-two (32) a distance of 800 feet; thence North 900.7 feet; thence East to the East line of said Section Thirty-two (32); thence South along the East line of said Section Thirty-two (32) to the Westerly right of way line of said Route 100; thence in a Southwesterly direction along the Westerly right of way line of said Route 100 to the point of beginning, containing 20 acres, more or less.

Parcel II: All that part of the Northeast Quarter (NE ¼) of the Southeast Quarter (SE ¼) of Section Thirty-two (32), Township Eighteen (18) North, Range Twelve (12) West of the Third Principal Meridian, Cass County, Illinois, lying South and East of U.S. Route #67 as located on April 11, 1966, containing One (1) acre, more or less.

AND

The South half (S ½) of the Northeast Quarter (NE ¼) and the Southeast Quarter (SE ¼) of the Northwest Quarter (NW ¼) of Section Thirty-two (32); the Northwest Quarter (NW ¼) of Section Thirty-three (33) all in Township Eighteen (18) North , Range Twelve (12) West of the Third Principal Meridian, in Cass County, Illinois.

AND

The North One-half (N ½) of the Northeast Quarter (NE ¼) of Section Thirty-two (32) in Township Eighteen (18) North, Range Twelve (12) West of the Third Principal Meridian, Cass County, Illinois, EXCEPT the following :

Part of the Northwest Quarter (NW ¼) of the Northeast Quarter (NE ¼), Section Thirty-two (32), Township Eighteen (18) North, Range Twelve (12) West· of the Third Principal Meridian, Cass County, Illinois, described as follows:
Beginning at an iron pipe found at the Northwest corner of the NW ¼, NE ¼ Section 32, Township 18 North, Range 12 West of the Third Principal Meridian; thence East along the North boundary of said NW ¼, NE ¼ of Section 32, 229.0 feet; thence South 0°-01'-10" East 325.80 feet; thence South 89°-57'-40" West 223.28 feet; thence North 1°-10'-30" West 326.0 feet to the point of beginning, containing 1.69 acres, more or less , as surveyed by Robert F. Phelps, Registered Land Surveyor, on March 29 , 1977, said survey being recorded in Plat Cabinet File 132 as Instrument No . 62039, in the Office of the Recorder of Deeds, Cass County, Illinois, on May 18, 1977.

AND

The Northeast Quarter (NE 1/4) of the Northwest Quarter (NW 1/4) of Section Thirty-two (32), Township Eighteen (18) North, Range Twelve (12)
West of the Third Principal Meridian, situated in the County of Cass and State of Illinois.

AND

The Northeast Quarter (NE ¼) of the Northeast Quarter (NE ¼) of Section Thirty (30), Township Eighteen (18) North, Range Twelve (12) West of the Third Principal Meridian;

The Northwest Quarter (NW ¼) of the Northeast Quarter (NE ¼) of Section Thirty (30), Township Eighteen {18) North, Range Twelve (12) West of the Third Principal Meridian, EXCEPT 346.54 feet in even width off of the West side of said tract;

The Southwest Quarter (SW ¼) of the Northeast Quarter (NE ¼) of Section Thirty (30), Township Eighteen (18) North, Range Twelve (12) West of the Third Principal Meridian, EXCEPT 346.54 feet in even width off of the West side of said tract;

The Southeast Quarter (SE ¼) of the Northeast Quarter (NE ¼) of Section Thirty (30), Township Eighteen (18) North, Range Twelve (12) West of the Third Principal Meridian;

All situated in the County of Cass and State of Illinois, containing a total of 143.64 acres more or less, and shown by a plat which is made part of a deed recorded in Book 114 of Deeds at Pages 548 in the Office of the Recorder, Cass County, Illinois.

175631

FILED AND RECORDED IN
CASS COUNTY ILLINOIS
SHELLY WESSEL
RECORDED ON:
04/12/2018 10:47:17AM

RHSP FEE: 9.00
REC FEE: 60.00

MEMORANDUM OF SOLAR ENERGY LEASE

THIS MEMORANDUM OF SOLAR ENERGY LEASE (this "***Memorandum***") is dated as of March 8, 2018 (the "***Effective Date***") by and between David R. Wankel and Carlette L. Wankel, husband and wife ("***Lessor***"), whose address is 7245 US Highway 67, Beardstown, Illinois 62618, and Cass County Solar Project, LLC, a Delaware limited liability company ("***Lessee***"), whose address is 16105 W. 113th Street, Suite 105, Lenexa, KS 66219, with reference to the following recitals:

A. Lessor owns that certain real property (including all air space thereof) described on Exhibit "A" attached hereto (the "***Property***"), which Property is located in the County of Cass, in the State of Illinois.

B. Lessor and Lessee (together, the "***Parties***" and each a "***Party***") have entered into that certain unrecorded Solar Energy Lease dated of even date herewith (the "***Lease***"), which affects the Property.

C. The Parties have executed and acknowledged this Memorandum and are recording the same for the purpose of providing constructive notice of the Lease and Lessee's rights thereunder. Capitalized terms used and not defined herein have the meaning given the same in the Lease.

NOW, THEREFORE, for and in consideration the promises, covenants and agreements of the Parties contained in the Lease and herein, and for other good and valuable consideration, the receipt and sufficiency of which is hereby acknowledged, the Parties hereby agree as follows:

1. Lessee shall have possession of the Property for the exclusive right for solar energy conversion, for the collection and transmission of electric power, and for related and incidental purposes and activities (collectively, "***Solar Operations***"), to be conducted in such locations on the Property as Lessee may determine, and whether accomplished by Lessee or a third party authorized by Lessee, including, without limitation:

Q#3993500

6

1.1 Determining the feasibility of solar energy conversion on the Property or on neighboring lands, including conducting studies of solar radiation, soils, and other meteorological and geotechnical data;

1.2 Developing, constructing, reconstructing, erecting, enlarging, installing, improving, replacing, relocating and removing from time to time, and maintaining, using, monitoring and operating, existing, additional or new (i) individual units or arrays of solar energy collection cells/panels and related facilities necessary to harness sunlight for photovoltaic energy generation, including without limitation, existing and/or future technologies used or useful in connection with the generation of electricity from sunlight, and associated support structure, braces, wiring, plumbing, and related equipment ("***Solar Energy Facilities***"), (ii) facilities for the storage, collection, distribution, step-up, step-down, wheeling, transmission and sale of electricity and for communications in connection with the Solar Energy Facilities, including, without limitation, the following, at such locations as Lessee shall determine that are developed, constructed and/or operated on the Property and/or on property to be acquired by leasehold or by fee purchase, by or on behalf of Lessee: underground and/or overhead distribution, collection and transmission lines; underground and/or overhead control, communications and radio relay systems and telecommunications equipment; energy storage facilities; interconnection and/or switching facilities, circuit breakers, transformers; cables, wires, fiber, conduit, footings, foundations, towers, poles, crossarms, guy lines and anchors, and any related or associated improvements, fixtures, facilities, appliances, machinery and equipment (collectively, the "Transmission Facilities"), (iii) meteorological masts and solar energy measurement equipment, (iv) control buildings, control boxes and computer monitoring hardware, (v) utility lines and installations, (vi) safety protection facilities, (vii) laydown areas and maintenance yards, (viii) roads, bridges, culverts, and erosion control facilities, (ix) signs, fences, and gates, (x) maintenance, operations and administration buildings, and (xi) other improvements, fixtures, facilities, machinery and equipment associated or connected with the generation, conversion, storage, switching, metering, step-up, step-down, transmission, distribution, conducting, wheeling, sale or other use or conveyance of electricity (all of the foregoing, including the Solar Energy Facilities and Transmission Facilities, collectively a "***Solar Energy System***");

1.3 Subject to certain stipulations set forth in the Lease, drilling, digging and excavating one or more wells on the Extended Term Property for the purposes of servicing, operating and maintaining the Solar Energy System that is located on the Extended Term Property, including the right to tap into (at Lessee's sole cost and expense under a separate meter) any municipal, township, county, or other public water service; provided that, notwithstanding anything in the Lease to the contrary, Lessor has the right to develop, produce and use groundwater from the Property for any purpose, including drilling, producing or transporting groundwater from water wells, for use on or near the Property so long as such development, drilling and related activities and uses do not interfere with the development and operation of the Solar Energy System;

1.4 During the Extended Term, removing, trimming, pruning, topping, clearing or otherwise controlling the growth of any tree, shrub, plant or other vegetation; dismantling, demolishing, and removing any improvement, Structure, embankment, impediment, berm, wall, fence, engineering works, or other object, on or that intrudes (or upon maturity could intrude) into the Property that could obstruct, interfere with or

impair the Solar Energy System or the use of the Property intended by Lessee hereunder, provided, however, that the overall drainage of the Property remain materially unaffected if any portion of the Property is utilized for agricultural purposes, and provided further that, Lessee's removal of any such improvements or Structures having salvage value (as reasonably determined by Lessee) shall be coordinated with Lessor, and if so elected by Lessor in writing within ten (10) days after written notice from Lessee that any such improvement or Structure must be removed, Lessor shall have a fifteen (15) day period to remove any such improvement or Structure at Lessor's expense. In the event Lessor fails to respond in writing to Lessee within such ten (10) day period, or Lessor elects not to remove or fails to remove any such improvements or Structures within such fifteen (15) day period, Lessee may remove and dispose of such improvements or Structures at Lessee's expense, and Lessee shall have no liability to Lessor relating to the removal and disposal thereof;

1.5 A non-exclusive easement for vehicular and pedestrian access, ingress and egress to, from and over the Property, at such locations as Lessee shall determine, for purposes related to or associated with the Solar Energy System installed or to be installed on the Property, which, without limiting the generality of the foregoing, shall entitle Lessee to use, improve and widen any existing and future roads and access routes or construct such roads as Lessee may determine necessary from time to time located on or providing access to the Property;

1.6 Undertaking any other lawful activities, whether accomplished by Lessee or a third party authorized by Lessee, that Lessee determines are necessary, helpful, appropriate, convenient or cost-effective in connection with, incidental to or to accomplish any of the foregoing purposes, including conducting surveys and soils, environmental, biological, cultural and other tests and studies.

2. Among other things, this Lease includes the exclusive right and easement on, over and across the Property for the free and unobstructed flow of sunlight resources, together with the exclusive right to (i) develop, use, convert, maintain and capture such sunlight, (ii) convert solar energy into electrical energy and (iii) derive and keep all credits and income therefrom (subject to the payment of Rent to Lessor, as set forth below).

3. The Lease shall initially be for a term of five (5) years commencing on the Effective Date and ending on March 8, 2023. Lessee shall have the right and option to extend the term of the Lease for one additional period of thirty (30) years, upon the terms set forth in the Lease. Additionally, Lessee shall have the right to renew the Extended Term for two (2) additional five (5) year periods.

4. Any Solar Energy System constructed on the Property shall at all times remain the property of Lessee and shall not be deemed to be fixtures and Lessor shall have no ownership, lien, security or other interest (including any lien that might otherwise be implied by law) in any Solar Energy System installed on the Property, or in any profits or income derived therefrom.

5. Neither Lessor nor any of its tenants, licensees, contractors, invitees, agents, assigns or anyone else obtaining rights from Lessor shall, currently or prospectively, interfere with, impair, delay or materially increase the cost of any of Lessee's Solar Operations (whether conducted on the Property or adjacent or nearby property), or the undertaking of any other activities or the free enjoyment or exercise of any other rights or benefits given to or permitted

Lessee hereunder. Without limiting the generality of the foregoing, neither Lessor nor anyone obtaining rights from or acting with the permission of Lessor shall (a) interfere with or impair the free, unobstructed and natural availability of sunlight over or across the Property (whether by planting trees, constructing structures, or otherwise), or the lateral or subjacent support for the Solar Energy System or (b) engage in any other activity on the Property or adjacent or nearby property that might cause a decrease in the output, efficiency or longevity of the Solar Energy System.

6. The Lease is for the additional purposes, is of the nature, and is subject to the requirements and limitations, set forth therein. The Lease also contains various other covenants, obligations and rights of the Parties, including, without limitation, provisions relating to Rent, termination of the Lease, quiet enjoyment, restoration of the Property, assignment and lender protections.

7. The terms, conditions and covenants of the Lease are incorporated herein by reference as though fully set forth herein. This Memorandum does not supersede, modify, amend or otherwise change the terms, conditions or covenants of the Lease, and this Memorandum shall not be used in interpreting the terms, conditions or covenants of the Lease. In the event of any conflict between this Memorandum and the Lease, the Lease shall control.

8. The Property shall be held, conveyed, hypothecated, encumbered, leased, used and occupied subject to the covenants, terms and provisions set forth in the Lease and herein, which shall run with the Property and each portion thereof and interest therein as equitable servitudes, and shall be binding upon and inure to the benefit of the Parties and each sublessee and any other person and entity having any interest therein during their ownership thereof, and their respective sublessees, grantees, heirs, executors, administrators, successors and assigns, and all persons claiming under them.

9. This Memorandum may be executed with counterpart signature pages and in duplicate originals, each of which shall be deemed an original, and all of which shall collectively constitute a single instrument.

[REST OF PAGE LEFT BLANK; SIGNATURES ON SEPARATE SHEETS]

IN WITNESS WHEREOF, the Parties have executed and delivered this Memorandum as of the Effective Date.

LESSEE:

CASS COUNTY SOLAR PROJECT, LLC,
a Delaware limited liability company

By: _____

Name: Matt Gilhousen

Title: Vice President

STATE OF Kansas)
) ss.
COUNTY OF Johnson)

Be it remembered that on this 15th day of March, 2018, before me, the undersigned, a Notary Public in and for the County and State aforesaid, came Matt Gilhousen, to me personally known, who being by me duly sworn did say that he is Vice President of Cass County Solar Project, LLC, a Delaware limited liability company, and that the within instrument was signed and delivered on behalf of said Cass County Solar Project, LLC by authority thereof, and acknowledged said instrument to be the free act and deed of said limited liability company for the purposes therein expressed.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed my Notarial Seal in the date herein last above written.

My Commission Expires:

11-16-2020
[SEAL]

Nancy Martin
Notary Public in and for said County and State

Print Name: Nancy Martin

NANCY MARTIN
Notary Public, State of Kansas
My Appointment Expires
11-16-2020

LESSOR:

David R. Wankel

Carlette L. Wankel

STATE OF Illinois)
) ss.
COUNTY OF Coss)

BE IT REMEMBERED, that on this 24th day of March, 2018, before me, the undersigned, a Notary Public in and for said County and State aforesaid, came David R. Wankel and Carlette L. Wankel, husband and wife, to me known to be the persons who executed the foregoing instrument, and acknowledged that they executed the same as their free act and deed and for the purposes therein stated.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed my Notarial Seal in the date herein last above written.

My Commission Expires:

Oct 16, 2021

[SEAL]

Notary Public in and for said County and State

Print Name: M. Dale Krohe

"OFFICIAL SEAL"
M DALE KROHE
Notary Public, State of Illinois
My Commission Expires Oct. 16, 2021

"OFFICIAL SEAL"
M DALE KROHE
Notary Public, State of Illinois
My Commission Expires Oct. 16, 2021

Q#3993500

EXHIBIT "A"

DESCRIPTION OF THE PROPERTY

THE FOLLOWING REAL PROPERTY LOCATED IN THE COUNTY OF CASS, STATE OF ILLINOIS:

The Southwest Quarter (SW ¼) of the Northwest Quarter (NW ¼) of Section Thirty-two (32), The North Half (N ½) of the South Half (S ½) of said Section Thirty-two (32), EXCEPT THE FOLLOWING TWO PARCELS:

Parcel I: Beginning at the intersection of the South line of the North Half (N ½) of the Southeast Quarter (SE ¼) of said Section Thirty-two (32) and the West right of way line of Illinois State Highway Route 100; thence West along the South line of said North Half (N ½) of the Southeast Quarter (SE ¼) of said Section Thirty-two (32) a distance of 800 feet; thence North 900.7 feet; thence East to the East line of said Section Thirty-two (32); thence South along the East line of said Section Thirty-two (32) to the Westerly right of way line of said Route 100; thence in a Southwesterly direction along the Westerly right of way line of said Route 100 to the point of beginning, containing 20 acres, more or less.

Parcel II: All that part of the Northeast Quarter (NE ¼) of the Southeast Quarter (SE ¼) of Section Thirty-two (32), Township Eighteen (18) North, Range Twelve (12) West of the Third Principal Meridian, Cass County, Illinois, lying South and East of U.S. Route #67 as located on April 11, 1966, containing One (1) acre, more or less.

AND

The South half (S ½) of the Northeast Quarter (NE ¼) and the Southeast Quarter (SE ¼) of the Northwest Quarter (NW ¼) of Section Thirty-two (32); the Northwest Quarter (NW ¼) of Section Thirty-three (33) all in Township Eighteen (18) North , Range Twelve (12) West of the Third Principal Meridian, in Cass County, Illinois.

AND

The North One-half (N ½) of the Northeast Quarter (NE ¼) of Section Thirty-two (32) in Township Eighteen (18) North, Range Twelve (12) West of the Third Principal Meridian, Cass County, Illinois, EXCEPT the following :

Part of the Northwest Quarter (NW ¼) of the Northeast Quarter (NE ¼), Section Thirty-two (32), Township Eighteen (18) North, Range Twelve (12) West· of the Third Principal Meridian, Cass County, Illinois, described as follows:
Beginning at an iron pipe found at the Northwest corner of the NW ¼, NE ¼ Section 32, Township 18 North, Range 12 West of the Third Principal Meridian; thence East along the North boundary of said NW ¼, NE ¼ of Section 32, 229.0 feet; thence South 0°-01'-10" East 325.80 feet; thence South 89°-57'-40" West 223.28 feet; thence North 1°-10'-30" West 326.0 feet to the point of beginning, containing 1.69 acres, more or less , as surveyed by Robert F. Phelps, Registered Land Surveyor, on March 29 , 1977, said survey being recorded in Plat Cabinet File 132 as Instrument No . 62039, in the Office of the Recorder of Deeds, Cass County, Illinois, on May 18, 1977.

AND

The Northeast Quarter (NE 1/4) of the Northwest Quarter (NW 1/4) of Section Thirty-two (32), Township Eighteen (18) North, Range Twelve (12)
West of the Third Principal Meridian, situated in the County of Cass and State of Illinois.

AND

The Northeast Quarter (NE ¼) of the Northeast Quarter (NE ¼) of Section Thirty (30), Township Eighteen (18) North, Range Twelve (12) West of the Third Principal Meridian;

The Northwest Quarter (NW ¼) of the Northeast Quarter (NE ¼) of Section Thirty (30), Township Eighteen {18) North, Range Twelve (12) West of the Third Principal Meridian, EXCEPT 346.54 feet in even width off of the West side of said tract;

The Southwest Quarter (SW ¼) of the Northeast Quarter (NE ¼) of Section Thirty (30), Township Eighteen (18) North, Range Twelve (12) West of the Third Principal Meridian, EXCEPT 346.54 feet in even width off of the West side of said tract;

The Southeast Quarter (SE ¼) of the Northeast Quarter (NE ¼) of Section Thirty (30), Township Eighteen (18) North, Range Twelve (12) West of the Third Principal Meridian;

All situated in the County of Cass and State of Illinois, containing a total of 143.64 acres more or less, and shown by a plat which is made part of a deed recorded in Book 114 of Deeds at Pages 548 in the Office of the Recorder, Cass County, Illinois.

175630

FILED AND RECORDED IN
CASS COUNTY ILLINOIS
SHELLY WESSEL
RECORDED ON:
04/12/2018 10:31:15AM

RHSP FEE: 9.00
REC FEE: 60.00

MEMORANDUM OF SOLAR ENERGY LEASE

THIS MEMORANDUM OF SOLAR ENERGY LEASE (this "***Memorandum***") is dated as of March 8, 2018 (the "***Effective Date***") by and between Wankel Bros, LLC an Illinois Limited Liability Company ("***Lessor***"), whose address is 1001 North Market Street, Suite 209, Mount Carmel, Illinois 62863, and Cass County Solar Project, LLC, a Delaware limited liability company ("***Lessee***"), whose address is 16105 W. 113th Street, Suite 105, Lenexa, KS 66219, with reference to the following recitals:

A. Lessor owns that certain real property (including all air space thereof) described on Exhibit "A" attached hereto (the "***Property***"), which Property is located in the County of Cass, in the State of Illinois.

B. Lessor and Lessee (together, the "***Parties***" and each a "***Party***") have entered into that certain unrecorded Solar Energy Lease dated of even date herewith (the "***Lease***"), which affects the Property.

C. The Parties have executed and acknowledged this Memorandum and are recording the same for the purpose of providing constructive notice of the Lease and Lessee's rights thereunder. Capitalized terms used and not defined herein have the meaning given the same in the Lease.

NOW, THEREFORE, for and in consideration the promises, covenants and agreements of the Parties contained in the Lease and herein, and for other good and valuable consideration, the receipt and sufficiency of which is hereby acknowledged, the Parties hereby agree as follows:

1. Lessee shall have possession of the Property for the exclusive right for solar energy conversion, for the collection and transmission of electric power, and for related and incidental purposes and activities (collectively, "***Solar Operations***"), to be conducted in such locations on the Property as Lessee may determine, and whether accomplished by Lessee or a third party authorized by Lessee, including, without limitation:

Q#3993600

1.1 Determining the feasibility of solar energy conversion on the Property or on neighboring lands, including conducting studies of solar radiation, soils, and other meteorological and geotechnical data;

1.2 Developing, constructing, reconstructing, erecting, enlarging, installing, improving, replacing, relocating and removing from time to time, and maintaining, using, monitoring and operating, existing, additional or new (i) individual units or arrays of solar energy collection cells/panels and related facilities necessary to harness sunlight for photovoltaic energy generation, including without limitation, existing and/or future technologies used or useful in connection with the generation of electricity from sunlight, and associated support structure, braces, wiring, plumbing, and related equipment ("***Solar Energy Facilities***"), (ii) facilities for the storage, collection, distribution, step-up, step-down, wheeling, transmission and sale of electricity and for communications in connection with the Solar Energy Facilities, including, without limitation, the following, at such locations as Lessee shall determine that are developed, constructed and/or operated on the Property and/or on property to be acquired by leasehold or by fee purchase, by or on behalf of Lessee: underground and/or overhead distribution, collection and transmission lines; underground and/or overhead control, communications and radio relay systems and telecommunications equipment; energy storage facilities; interconnection and/or switching facilities, circuit breakers, transformers; cables, wires, fiber, conduit, footings, foundations, towers, poles, crossarms, guy lines and anchors, and any related or associated improvements, fixtures, facilities, appliances, machinery and equipment (collectively, the "Transmission Facilities"), (iii) meteorological masts and solar energy measurement equipment, (iv) control buildings, control boxes and computer monitoring hardware, (v) utility lines and installations, (vi) safety protection facilities, (vii) laydown areas and maintenance yards, (viii) roads, bridges, culverts, and erosion control facilities, (ix) signs, fences, and gates, (x) maintenance, operations and administration buildings, and (xi) other improvements, fixtures, facilities, machinery and equipment associated or connected with the generation, conversion, storage, switching, metering, step-up, step-down, transmission, distribution, conducting, wheeling, sale or other use or conveyance of electricity (all of the foregoing, including the Solar Energy Facilities and Transmission Facilities, collectively a "***Solar Energy System***");

1.3 Subject to certain stipulations set forth in the Lease, drilling, digging and excavating one or more wells on the Extended Term Property for the purposes of servicing, operating and maintaining the Solar Energy System that is located on the Extended Term Property, including the right to tap into (at Lessee's sole cost and expense under a separate meter) any municipal, township, county, or other public water service; provided that, notwithstanding anything in the Lease to the contrary, Lessor has the right to develop, produce and use groundwater from the Property for any purpose, including drilling, producing or transporting groundwater from water wells, for use on or near the Property so long as such development, drilling and related activities and uses do not interfere with the development and operation of the Solar Energy System;

1.4 During the Extended Term, removing, trimming, pruning, topping, clearing or otherwise controlling the growth of any tree, shrub, plant or other vegetation; dismantling, demolishing, and removing any improvement, Structure, embankment, impediment, berm, wall, fence, engineering works, or other object, on or that intrudes (or upon maturity could intrude) into the Property that could obstruct, interfere with or

impair the Solar Energy System or the use of the Property intended by Lessee hereunder, provided, however, that the overall drainage of the Property remain materially unaffected if any portion of the Property is utilized for agricultural purposes, and provided further that, Lessee's removal of any such improvements or Structures having salvage value (as reasonably determined by Lessee) shall be coordinated with Lessor, and if so elected by Lessor in writing within ten (10) days after written notice from Lessee that any such improvement or Structure must be removed, Lessor shall have a fifteen (15) day period to remove any such improvement or Structure at Lessor's expense. In the event Lessor fails to respond in writing to Lessee within such ten (10) day period, or Lessor elects not to remove or fails to remove any such improvements or Structures within such fifteen (15) day period, Lessee may remove and dispose of such improvements or Structures at Lessee's expense, and Lessee shall have no liability to Lessor relating to the removal and disposal thereof;

1.5 A non-exclusive easement for vehicular and pedestrian access, ingress and egress to, from and over the Property, at such locations as Lessee shall determine, for purposes related to or associated with the Solar Energy System installed or to be installed on the Property, which, without limiting the generality of the foregoing, shall entitle Lessee to use, improve and widen any existing and future roads and access routes or construct such roads as Lessee may determine necessary from time to time located on or providing access to the Property;

1.6 Undertaking any other lawful activities, whether accomplished by Lessee or a third party authorized by Lessee, that Lessee determines are necessary, helpful, appropriate, convenient or cost-effective in connection with, incidental to or to accomplish any of the foregoing purposes, including conducting surveys and soils, environmental, biological, cultural and other tests and studies.

2. Among other things, this Lease includes the exclusive right and easement on, over and across the Property for the free and unobstructed flow of sunlight resources, together with the exclusive right to (i) develop, use, convert, maintain and capture such sunlight, (ii) convert solar energy into electrical energy and (iii) derive and keep all credits and income therefrom (subject to the payment of Rent to Lessor, as set forth below).

3. The Lease shall initially be for a term of five (5) years commencing on the Effective Date and ending on March 8, 2023. Lessee shall have the right and option to extend the term of the Lease for one additional period of thirty (30) years, upon the terms set forth in the Lease. Additionally, Lessee shall have the right to renew the Extended Term for two (2) additional five (5) year periods.

4. Any Solar Energy System constructed on the Property shall at all times remain the property of Lessee and shall not be deemed to be fixtures and Lessor shall have no ownership, lien, security or other interest (including any lien that might otherwise be implied by law) in any Solar Energy System installed on the Property, or in any profits or income derived therefrom.

5. Neither Lessor nor any of its tenants, licensees, contractors, invitees, agents, assigns or anyone else obtaining rights from Lessor shall, currently or prospectively, interfere with, impair, delay or materially increase the cost of any of Lessee's Solar Operations (whether conducted on the Property or adjacent or nearby property), or the undertaking of any other activities or the free enjoyment or exercise of any other rights or benefits given to or permitted

Lessee hereunder. Without limiting the generality of the foregoing, neither Lessor nor anyone obtaining rights from or acting with the permission of Lessor shall (a) interfere with or impair the free, unobstructed and natural availability of sunlight over or across the Property (whether by planting trees, constructing structures, or otherwise), or the lateral or subjacent support for the Solar Energy System or (b) engage in any other activity on the Property or adjacent or nearby property that might cause a decrease in the output, efficiency or longevity of the Solar Energy System.

6. The Lease is for the additional purposes, is of the nature, and is subject to the requirements and limitations, set forth therein. The Lease also contains various other covenants, obligations and rights of the Parties, including, without limitation, provisions relating to Rent, termination of the Lease, quiet enjoyment, restoration of the Property, assignment and lender protections.

7. The terms, conditions and covenants of the Lease are incorporated herein by reference as though fully set forth herein. This Memorandum does not supersede, modify, amend or otherwise change the terms, conditions or covenants of the Lease, and this Memorandum shall not be used in interpreting the terms, conditions or covenants of the Lease. In the event of any conflict between this Memorandum and the Lease, the Lease shall control.

8. The Property shall be held, conveyed, hypothecated, encumbered, leased, used and occupied subject to the covenants, terms and provisions set forth in the Lease and herein, which shall run with the Property and each portion thereof and interest therein as equitable servitudes, and shall be binding upon and inure to the benefit of the Parties and each sublessee and any other person and entity having any interest therein during their ownership thereof, and their respective sublessees, grantees, heirs, executors, administrators, successors and assigns, and all persons claiming under them.

9. This Memorandum may be executed with counterpart signature pages and in duplicate originals, each of which shall be deemed an original, and all of which shall collectively constitute a single instrument.

[REST OF PAGE LEFT BLANK; SIGNATURES ON SEPARATE SHEETS]

IN WITNESS WHEREOF, the Parties have executed and delivered this Memorandum as of the Effective Date.

LESSEE:

CASS COUNTY SOLAR PROJECT, LLC,
a Delaware limited liability company

By: _____

Name: Aaron Weigel

Title: Vice President

STATE OF Kansas)
) ss.
COUNTY OF Johnson)

Be it remembered that on this 15th day of March, 2018, before me, the undersigned, a Notary Public in and for the County and State aforesaid, came Aaron Weigel, to me personally known, who being by me duly sworn did say that he is Vice President of Cass County Solar Project, LLC, a Delaware limited liability company, and that the within instrument was signed and delivered on behalf of said Cass County Solar Project, LLC by authority thereof, and acknowledged said instrument to be the free act and deed of said limited liability company for the purposes therein expressed.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed my Notarial Seal in the date herein last above written.

My Commission Expires:

1-15-2019

[SEAL]

GAIL CROOKS
Notary Public - State of Kansas
My Appt. Expires 1-15-2019

_____
Notary Public in and for said County and State

Print Name: Gail Crooks

LESSOR:

WANKEL BROS, LLC, an Illinois limited liability company

Managing Member

By: Mark W. Wankel, Managing Member

STATE OF Illinois)
) ss.
COUNTY OF Wabash)

BE IT REMEMBERED, that on this 22 day of March, 2018, before me, the undersigned, a Notary Public in and for the County and State aforesaid, came Mark W. Wankel, to me personally known, who being by me duly sworn did say that he is a Managing Member of Wankel Bros, LLC, and that said instrument was signed and delivered on behalf of said limited liability company and that said Managing Member acknowledged said instrument to be the free act and deed of said limited liability company.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed my official seal the day and year LAST above written.

Katrina G. Saltsgaver

Notary Public in and for said County and State

Print Name: Katrina G. Saltsgaver

My Commission Expires:

04/23/2019

[SEAL]

OFFICIAL SEAL
KATRINA G SALTSGAVER
Notary Public - State of Illinois
My Commission Expires Apr 23, 2019

LESSOR:

WANKEL BROS, LLC, an Illinois limited liability company

Larry S. Wankel Managing Member

By: Larry S. Wankel, Managing Member

STATE OF Missouri)
) ss.
COUNTY OF St. Louis)

BE IT REMEMBERED, that on this 28 day of March, 2018, before me, the undersigned, a Notary Public in and for the County and State aforesaid, came Larry S. Wankel, to me personally known, who being by me duly sworn did say that he is a Managing Member of Wankel Bros, LLC, and that said instrument was signed and delivered on behalf of said limited liability company and that said Managing Member acknowledged said instrument to be the free act and deed of said limited liability company.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed my official seal the day and year LAST above written.

My Commission Expires: 11/26/2020

Charlotte Stahl

Notary Public in and for said County and State

[SEAL]

CHARLOTTE STAHL
Notary Public - Notary Seal
STATE OF MISSOURI
St. Louis County
My Commission Expires: Nov. 26, 2020
Commission #12673440

Print Name: CHARLOTTE STAHL

EXHIBIT "A"

DESCRIPTION OF THE PROPERTY

THE FOLLOWING REAL PROPERTY LOCATED IN THE COUNTY OF CASS, STATE OF ILLINOIS:

That part of the North Half of Section Thirty-one (31) which lies West of the East line of the Fish Lake Ditch right-of-way and East of the West line of the North Lake Ditch right-of-way, EXCEPT the South Ten (10) acres of the Southeast Quarter of the Northeast Quarter of said Section Thirty- one (31), Township Eighteen (18) North, Range Twelve (12) West, Cass County, Illinois; subject to all easements for drainage and roads.

The West Half of the Southeast Quarter EXCEPTING the East 15 acres thereof of Section 31, Township 18 North, Range 12 West of the Third Principal Meridian, and containing 65 Acres, more or less, situated in Cass County, Illinois, AND

All that part of the East one-half of the Southeast Quarter of Section 31, lying South and East of Fish Lake Ditch Right-of-Way, situated in Township 18 North, Range 12 West of the Third Principal Meridian, Cass County, Illinois, and containing 22.57 acres, more or less.

The South 10 acres of the Southeast Quarter of the Northeast Quarter; All that part of the East Half of the Southeast quarter lying West of Fish Lake Ditch Right-of-Way and North of Road Right-of-Way; Fifteen (15) acres off of the East side of the West Half of the Southeast Quarter; All in Section 31, Township 18 North, Range 12 West of the Third Principal Meridian, Cass County,
Illinois.

182544

FILED AND RECORDED IN
CASS COUNTY ILLINOIS
SHELLY WESSEL
RECORDED ON:
10/15/2021 11:43:36AM

RHSP FEE: $9.00
REC FEE: $61.00

AFTER RECORDING, RETURN TO:

Cass County Solar Project, LLC
422 Admiral Boulevard
Kansas City, Missouri 64106

MEMORANDUM OF OPTION

THIS MEMORANDUM OF OPTION ("**Memorandum**") dated for reference purposes October 8th, 2021, is by and between Ceres Farms Cropland Holdings LLC, an Indiana limited liability company, whose address is 806 Howard Street, Suite 200, South Bend, Indiana 46617 ("**Grantor**") and Cass County Solar Project, LLC, a Delaware limited liability company, its successors and assigns, whose address is 422 Admiral Boulevard, Kansas City, Missouri 64106 ("**Grantee**").

Grantor is the owner of that certain real property located in Cass County, State of Illinois more particularly described in the attached Exhibit A attached hereto and as generally depicted on the map attached hereto as Exhibit A-1 (the "**Property**").

Pursuant to that certain Real Estate Option Agreement dated Oct. 8th, 2021 (the "**Agreement**"), Grantee holds an option to purchase a portion of the Property on the terms therein stated (the "**Option**"). The term of the Option commenced on Oct. 8th, 2021 and shall expire March 8, 2025.

Grantor and Grantee have executed and recorded this Memorandum to provide record notice of the existence of the Option. This Memorandum of Option may be executed in counterparts.

[Signature Pages Follow]

IN WITNESS WHEREOF, the parties have executed this Memorandum as of the date first written above.

GRANTEE:

CASS COUNTY SOLAR PROJECT, LLC,
a Delaware limited liability company

By: _____
Name: AARON LIPSCOMB
Title: AUTHORIZED PERSON

STATE OF MO)
) ss.
COUNTY OF JACKSON)

Be it remembered that on this 8th day of October, 2021, before me, the undersigned, a Notary Public in and for the County and State aforesaid, came Aaron Lipscomb, to me personally known, who being by me duly sworn did say that he is the Authorized Person of Cass County Solar Project, LLC, a Delaware limited liability company, and that the within instrument was signed and delivered on behalf of said limited liability company by authority thereof, and acknowledged said instrument to be the free act and deed of said limited liability company for the purposes therein expressed.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed my Notarial seal in the date herein last above written.

My Commission Expires:

_____
[SEAL]

_____
Notary Public in and for said County and State

Print Name: Clifton Lee Nix II

CLIFTON LEE NIX II
Notary Public - Notary Seal
STATE OF MISSOURI
Jackson County
My Commission Expires: Jan. 10, 2025
Commission #21672121

Q#4946300

GRANTEE:

CASS COUNTY SOLAR PROJECT, LLC,
a Delaware limited liability company

By: _____
Name: Scott Zeimetz
Title: Authorized Person

STATE OF MO)
) ss.
COUNTY OF JACKSON)

Be it remembered that on this 8th day of October, 2021, before me, the undersigned, a Notary Public in and for the County and State aforesaid, came Scott Zeimetz, to me personally known, who being by me duly sworn did say that he is the Authorized Person of Cass County Solar Project, LLC, a Delaware limited liability company, and that the within instrument was signed and delivered on behalf of said limited liability company by authority thereof, and acknowledged said instrument to be the free act and deed of said limited liability company for the purposes therein expressed.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed my Notarial seal in the date herein last above written.

My Commission Expires:

_____
[SEAL]

_____
Notary Public in and for said County and State

Print Name: Clifton Lee Nix II

CLIFTON LEE NIX II
Notary Public - Notary Seal
STATE OF MISSOURI
Jackson County
My Commission Expires: Jan. 10, 2025
Commission #21672121

GRANTOR:

CERES FARMS CROPLAND HOLDINGS LLC,
an Indiana limited liability company

By: _____
Name: Perry J. Vieth
Title: Senior Managing Member

STATE OF Massachusetts)
)
COUNTY OF Plymouth)

Be it remembered that on this 30th day of September, 2021, before me, the undersigned, a Notary Public in and for the County and State aforesaid, came Perry Vieth, to me personally known, who being by me duly sworn did say that he/she is sr. managing member of Ceres Farms Cropland Holdings LLC, an Indiana limited liability company, and that the within instrument was signed and delivered on behalf of said limited liability company by authority thereof, and acknowledged said instrument to be the free act and deed of said limited liability company for the purposes therein expressed.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed my official seal the day and year last above written.

_____
Notary Public in and for said County and State

Print Name: Courtney Donovan

My Commission Expires:

April 22, 2022
[SEAL]

COURTNEY J DONOVAN
Notary Public
COMMONWEALTH OF MASSACHUSETTS
My Commission Expires
April 22, 2022

Q#4946300

EXHIBIT A

Legal Description

THE FOLLOWING REAL PROPERTY LOCATED IN THE COUNTY OF CASS, STATE OF ILLINOIS:

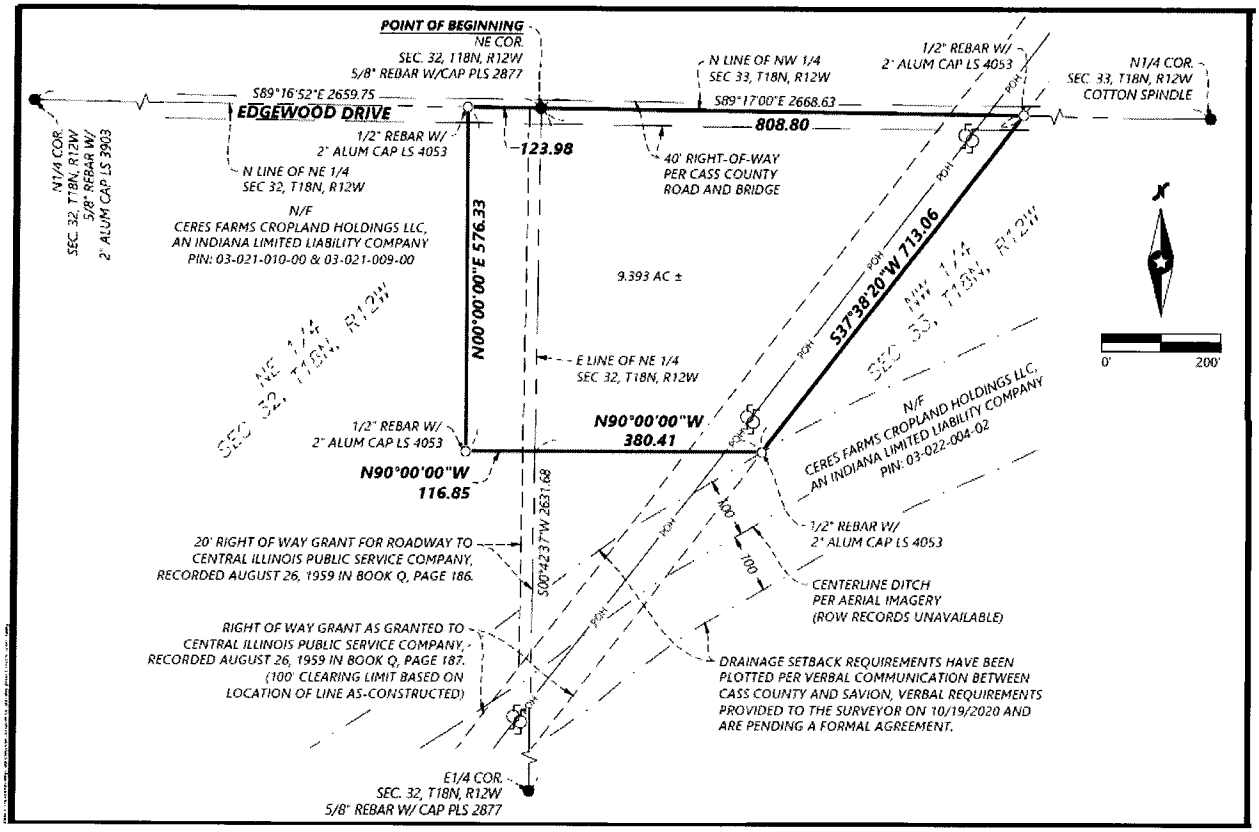
A PARCEL OF LAND LYING OVER, UNDER, AND ACROSS A PART OF THE NORTHEAST QUARTER OF SECTION 32 AND THE NORTHWEST QUARTER OF SECTION 33, TOWNSHIP 18 NORTH, RANGE 12 WEST OF THE THIRD PRINCIPAL MERIDIAN, COUNTY OF CASS, STATE OF ILLINOIS, MORE PARTICULARLY DESCRIBED AS FOLLOWS:

BEGINNING AT THE NORTHEAST CORNER OF SAID NORTHEAST QUARTER; THENCE SOUTH 89 DEGREES 17 MINUTES 00 SECONDS EAST, ALONG THE NORTH LINE OF SAID NORTHWEST QUARTER, A DISTANCE OF 808.80 FEET; THENCE SOUTH 37 DEGREES 38 MINUTES 20 SECONDS WEST, A DISTANCE OF 713.06 FEET; THENCE NORTH 90 DEGREES 00 MINUTES 00 SECONDS WEST, A DISTANCE OF 380.41 FEET TO THE EAST LINE OF SAID NORTHEAST QUARTER; THENCE CONTINUE NORTH 90 DEGREES 00 MINUTES 00 SECONDS WEST, A DISTANCE OF 116.85 FEET; THENCE NORTH 00 DEGREES 00 MINUTES 00 SECONDS EAST, A DISTANCE OF 576.33 FEET TO THE NORTH LINE OF SAID NORTHEAST QUARTER; THENCE SOUTH 89 DEGREES 16 MINUTES 52 SECONDS EAST, ALONG SAID NORTH LINE, A DISTANCE OF 123.98 FEET TO THE POINT OF BEGINNING.

SAID PARCEL CONTAINS 9.393 ACRES, MORE OR LESS, AND IS SUBJECT TO ALL EASEMENTS, RESTRICTIONS, RESERVATIONS AND RIGHTS-OF-WAY OF RECORD, IF ANY.

EXHIBIT A-1

Depiction of the Property



Q#4946300

AUTHORIZED AGENT

The undersigned property owner hereby authorizes Cass County Solar Project, LLC Representatives (see attached) to apply for a Special Use Permit, and/or be our representatives in connection with the Cass County Solar Project ("Project") either in person or by correspondence for the property described on Attachment A ("Property").

The undersigned property owner does not authorize Cass County Solar Project, LLC to obtain building or construction permits for the Property until Cass County Solar Project, LLC and the owner of the Property have executed a lease, easement, purchase option or other agreement ("Agreement") for the Property. At the time of application for construction permits for the Project, if such Agreement has not been executed, upon request from the Property owner, Cass County Solar Project, LLC will notify the County that the Property will not be included in the Project and use commercially reasonable efforts in its sole discretion to cause the County to release the Property from the Special Use Permit without risk to the Special Use Permit approval for the Project.

By my signature I/we swear or affirm these are true and correct statements. I/We are aware the law provides severe penalties for making false statements under oath.

KORSMEYER N FARMS, INC.

By: Alecia Crowe
Name: Alecia Crowe
Title: President

Address: 6925 US Hwy 67
Beardstown, IL 62618

STATE OF Illinois)
) ss.
COUNTY OF Cass)

BE IT REMEMBERED, that on this 19 day of February, 2020, before me, the undersigned, a Notary Public in and for said County and State aforesaid, came Alecia Crowe, President of Korsmeyer N Farms, Inc., known to me to be the person described in and who executed the within document in behalf of said corporation, and acknowledged to me that he/she executed the same for the purposes therein stated and that the foregoing instrument was authorized by the board of directors of said corporation, and he/she acknowledged execution thereof to be on behalf of and the free act and deed of said corporation.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed my Notarial Seal in the date herein last above written.

My Commission Expires:

9/20/2020

Amy C. Frick
Notary Public in and for said County and State

OFFICIAL SEAL
AMY C. FRICK
NOTARY PUBLIC, STATE OF ILLINOIS
MY COMMISSION EXPIRES 09-20-2020

[SEAL]

Print Name: Amy C. Frick

CASS COUNTY SOLAR PROJECT, LLC
REPRESENTATIVES

Courtney Timmons
Development Director
906-458-4350
422 Admiral Blvd
Kansas City, MO 64106

Emma Tajchman
Environmental Manager
620-381-3856
422 Admiral Blvd
Kansas City, MO 64106

Emily Truebner
Vice President Permitting & Environmental
303-898-8308
422 Admiral Blvd
Kansas City, MO 64106

Raviraj Poosarla
Solar Engineer
512-968-8209
422 Admiral Blvd
Kansas City, MO 64106

Greg Musil
Melissa Vancrum
Steven Lucas
Darren Neil
Legal Counsel
Rouse Frets White Goss Gentile Rhodes, P.C.
913-387-1600
5250 W. 116th Place, Suite 400
Leawood, KS 66211

Attachment A

That part of the Southwest Quarter (SW¼) of Section Twenty-nine (29), lying South and East of the Beardstown Drainage Ditch; All situated in Township Eighteen (18) North, Range Twelve West of the Third Principal Meridian, Cass County, Illinois.

Parcel No(s):

03-019-010-00

03-019-011-00

03-019-012-00

AUTHORIZED AGENT

I, the undersigned property owner, hereby authorize Cass County Solar Project, LLC Representatives (see attached) to apply for a Special Use Permit, and/or be my representatives in connection with the Cass County Solar Project ("Project") either in person or by correspondence for the property described on Attachment A ("Property").

The undersigned property owner does not authorize Cass County Solar Project, LLC to obtain building or construction permits for the Property until Cass County Solar Project, LLC and the owner of the Property have executed a lease, easement, purchase option or other agreement ("Agreement") for the Property. At the time of application for construction permits for the Project, if such Agreement has not been executed, upon request from the Property owner, Cass County Solar Project, LLC will notify the County that the Property will not be included in the Project and use commercially reasonable efforts in its sole discretion to cause the County to release the Property from the Special Use Permit without risk to the Special Use Permit approval for the Project.

By my signature I swear or affirm these are true and correct statements. I am aware the law provides severe penalties for making false statements under oath.

Betty J Korsmeyer Trustee
Norman R. Korsmeyer 2006 Trust
Betty J. Korsmeyer, Trustee

Address: 5200 Bell Hill Lane
Rushville, IL 62681

STATE OF Illinois)
) ss.
COUNTY OF Cass)

BE IT REMEMBERED, that on this 19 day of February, 2020, before me, the undersigned, a Notary Public in and for said County and State aforesaid, came Betty Korsmeyer, to me known to be the person who executed the foregoing instrument, and acknowledged that she executed the same as her free act and deed.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed my Notarial Seal in the date herein last above written.

My Commission Expires: 9/20/2020

Amy C. Frick
Notary Public in and for said County and State

[SEAL]

Print Name: Amy C. Frick

OFFICIAL SEAL
AMY C. FRICK
NOTARY PUBLIC, STATE OF ILLINOIS
MY COMMISSION EXPIRES 09-20-2020

CASS COUNTY SOLAR PROJECT, LLC
REPRESENTATIVES

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Development Director
906-458-4350
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Kansas City, MO 64106

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Darren Neil
Legal Counsel
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913-387-1600
5250 W. 116th Place, Suite 400
Leawood, KS 66211

Attachment A

The North half (N½) of the North half (N½) of Section Five (5), Township Seventeen (17) North, Range Twelve (12) West of the Third Principal Meridian in Cass County, Illinois;

EXCEPT the following described real estate: A part of the Northwest quarter (NW¼) of the Northwest quarter (NW¼) of Section Five (5), Township Seventeen (17) North, Range Twelve (12) West of the Third Principal Meridian in Cass County, Illinois, more particularly described as follows: Commencing at the Southwest corner of said quarter-quarter section; thence North along the West section line a distance of Four Hundred feet (400') to a point; thence East One Thousand feet (1,000') to a point; thence South and parallel with the West Section line a distance of Four Hundred feet (400') to the South quarter-quarter section line; thence West along said South quarter-quarter section line a distance of One Thousand feet (1,000') to the place of beginning.

AND

The South half (S½) of the South half (S½) of Section Thirty-two (32), Township Eighteen (18) North, Range Twelve (12) West of the Third Principal Meridian, Cass County, Illinois;

EXCEPT the following described real estate: Commencing at a point 660 feet West of that point where the North line of the South half (S½) of the South half (S½) of Section Thirty-two (32) intersects the Westerly right-of-way line of combined U.S. Route 67 and Illinois Route 100; thence East along the Northerly boundary line of the South half (S½) of the South half (S½) of said Section Thirty-two (32) a distance of 660 feet; thence in a Southwesterly direction along the Westerly right-of-way line of combined United States Route 67 and Illinois Route 100, a distance of 330 feet; thence in a Northwesterly direction to the point of beginning; all located in Section Thirty-two (32), Township Eighteen (18) North, Range Twelve (12) West of the Third Principal Meridian, Beardstown Township, Cass County, Illinois, containing Two (2) acres, more or less.

Parcel No(s):

03-022-002-00
03-021-014-00
06-003-013-00
06-003-015-00

AUTHORIZED AGENT

The undersigned property owner hereby authorizes Cass County Solar Project, LLC Representatives (see attached) to apply for a Special Use Permit, and/or be our representatives in connection with the Cass County Solar Project ("Project") either in person or by correspondence for the property described on Attachment A ("Property").

The undersigned property owner does not authorize Cass County Solar Project, LLC to obtain building or construction permits for the Property until Cass County Solar Project, LLC and the owner of the Property have executed a lease, easement, purchase option or other agreement ("Agreement") for the Property. At the time of application for construction permits for the Project, if such Agreement has not been executed, upon request from the Property owner, Cass County Solar Project, LLC will notify the County that the Property will not be included in the Project and use commercially reasonable efforts in its sole discretion to cause the County to release the Property from the Special Use Permit without risk to the Special Use Permit approval for the Project.

By my signature I/we swear or affirm these are true and correct statements. I/We are aware the law provides severe penalties for making false statements under oath.

KORSMEYER N FARMS, INC.

By: Alecia Crowe
Name: Alecia Crowe
Title: President

Address: 6925 US Hwy 67
Beardstown, IL 62618

STATE OF Illinois)
) ss.
COUNTY OF Cass)

BE IT REMEMBERED, that on this 19 day of February, 2020, before me, the undersigned, a Notary Public in and for said County and State aforesaid, came Alecia Crowe, President of Korsmeyer N Farms, Inc., known to me to be the person described in and who executed the within document in behalf of said corporation, and acknowledged to me that he/she executed the same for the purposes therein stated and that the foregoing instrument was authorized by the board of directors of said corporation, and he/she acknowledged execution thereof to be on behalf of and the free act and deed of said corporation.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed my Notarial Seal in the date herein last above written.

My Commission Expires:

9/20/2020

Amy C. Frick
Notary Public in and for said County and State

OFFICIAL SEAL
AMY C. FRICK
NOTARY PUBLIC, STATE OF ILLINOIS
MY COMMISSION EXPIRES 09-20-2020

[SEAL]

Print Name: Amy C. Frick

CASS COUNTY SOLAR PROJECT, LLC
REPRESENTATIVES

Courtney Timmons
Development Director
906-458-4350
422 Admiral Blvd
Kansas City, MO 64106

Emma Tajchman
Environmental Manager
620-381-3856
422 Admiral Blvd
Kansas City, MO 64106

Emily Truebner
Vice President Permitting & Environmental
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Steven Lucas
Darren Neil
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Rouse Frets White Goss Gentile Rhodes, P.C.
913-387-1600
5250 W. 116th Place, Suite 400
Leawood, KS 66211

Attachment A

Parcel No(s):

03-019-010-00

03-019-011-00

03-019-012-00

AUTHORIZED AGENT

I, the undersigned property owner, hereby authorize Cass County Solar Project, LLC Representatives (see attached) to apply for a Special Use Permit, and/or be my representatives in connection with the Cass County Solar Project ("Project") either in person or by correspondence for the property described on Attachment A ("Property").

The undersigned property owner does not authorize Cass County Solar Project, LLC to obtain building or construction permits for the Property until Cass County Solar Project, LLC and the owner of the Property have executed a lease, easement, purchase option or other agreement ("Agreement") for the Property. At the time of application for construction permits for the Project, if such Agreement has not been executed, upon request from the Property owner, Cass County Solar Project, LLC will notify the County that the Property will not be included in the Project and use commercially reasonable efforts in its sole discretion to cause the County to release the Property from the Special Use Permit without risk to the Special Use Permit approval for the Project.

By my signature I swear or affirm these are true and correct statements. I am aware the law provides severe penalties for making false statements under oath.

Betty J Korsmeyer Trustee
Norman R. Korsmeyer 2006 Trust
Betty J. Korsmeyer, Trustee

Address: 5200 Bell Hill Lane
Rushville, IL 62681

STATE OF Illinois)
) ss.
COUNTY OF Cass)

BE IT REMEMBERED, that on this 19 day of February, 2020, before me, the undersigned, a Notary Public in and for said County and State aforesaid, came Betty Korsmeyer, to me known to be the person who executed the foregoing instrument, and acknowledged that she executed the same as her free act and deed.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed my Notarial Seal in the date herein last above written.

My Commission Expires: 9/20/2020

Amy C. Frick
Notary Public in and for said County and State

[SEAL]

Print Name: Amy C. Frick

OFFICIAL SEAL
AMY C. FRICK
NOTARY PUBLIC, STATE OF ILLINOIS
MY COMMISSION EXPIRES 09-20-2020

CASS COUNTY SOLAR PROJECT, LLC
REPRESENTATIVES

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Darren Neil
Legal Counsel
Rouse Frets White Goss Gentile Rhodes, P.C.
913-387-1600
5250 W. 116th Place, Suite 400
Leawood, KS 66211

Attachment A

Parcel No(s):

03-022-002-00

03-021-014-00

06-003-013-00

06-003-015-00