

Conservation Plan

Big Sky Repowering Project
Lee and Bureau Counties,
Illinois

June 11, 2019

Prepared for:

BSW DevCo LLC
c/o Pattern Renewables
1201 Louisiana St, Suite 3200
Houston, TX 77002

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Illinois Department of Natural Resources CONSERVATION PLAN

(Application for an Incidental Take Authorization)

Per 520 ILCS 10/5.5 and 17 Ill. Adm. Code 1080

150-day minimum required for public review, biological and legal analysis, and permitting

PROJECT APPLICANT: **BSW DevCo LLC**

PROJECT NAME: **Big Sky Repowering Project**

COUNTY: **Lee and Bureau**

LOCATION: **Approximately 11 Miles North of Princeton, Illinois, surrounding Ohio, Illinois (Figure 1; Township 18N, Range 8E, Sections 1-2, 11-14, and 24; Township 18N, Range 9E, Sections 1-23; Township 18N, Range 10E, Sections 4-7; Township 19N, Range 9E, Sections 13, 22-28, and 31-36; Township 19N, Range 10E, Sections 2-4, and 8-35; Township 19N, Range 11E, Sections 5-9, and 15-30)**

Directions to the Project from Princeton, Illinois: Travel north along Highway 26

Directions to the Project from Ohio, Illinois: Travel north or south along Highway 26; travel west along Highway 92

1.0 INTRODUCTION

BSW DevCo LLC (Big Sky or the Applicant) is repowering the Big Sky Wind Farm in Lee and Bureau counties in Illinois.

This Conservation Plan was prepared in accordance with the Illinois Endangered Species Protection Act (520 ILCS 10/5.5 and 17 Ill. Adm. Code 1080) in support of an Incidental Take Authorization (ITA) application to the Illinois Department of Natural Resources (IDNR or Department). The purpose of this Conservation Plan is to review the proposed Big Sky Repowering Project (Project or Action) in sufficient detail to determine to what extent the proposed action may result in “incidental take” of the following state-listed species (Covered Species):

- Ornate Box Turtle (*Terrapene ornata*) – State Threatened
- Blanding’s Turtle (*Emydoidea blandingii*) – State Threatened

Based on review of the National Land Cover Database (NLCD), land use within the project area consists primarily of agricultural lands in rowcrop production (87.3%) and developed space (i.e., developed open spaces, low and high intensity; 5.2%). Deciduous forest makes up approximately 5.4% of the project area and is typically associated with homesteads, shelterbelts, large forested plots, and riparian areas throughout the Project (Homer et al. 2015).

2.0 DESCRIPTION OF THE PROPOSED ACTION

2.1 PROJECT DESCRIPTION

The Big Sky Wind Farm is a 239.4 megawatt (“MW”) operating wind farm located in Bureau and Lee counties in Illinois. The wind farm was developed by Edison Mission Energy and was awarded its Bureau County Conditional Use Permit in July 2006 and its Lee county Special Use Permit in April 2006. The wind farm was constructed in 2010 and 2011 and reached commercial operation in February of 2011. It currently consists of 114 Suzlon S88 2.1 MW wind turbine generators (WTGs) and is interconnected to the western PJM transmission system via the ComEd TSS 937 Lee County Energy Center Substation. The wind farm is owned by Big Sky Wind, LLC and is currently operated by E.ON Energy Services. Repowering of the Big Sky Wind Farm will consist of the following:

- Replacing the existing 114 Suzlon S88 WTGs with new, state of the art WTGs.
 - o A total of 97 of the 114 existing WTGs will be repowered. The remaining 17 WTGs will be decommissioned and not rebuilt.
 - o The 97 repowered WTGs will remain in the same locations as the existing WTGs, and the foundations will be reused, only replacing the towers, nacelles, and blades.
 - o The new WTGs will be either General Electric or Siemens Gamesa.
 - o The Project is evaluating multiple criteria when selecting which 17 WTGs will be decommissioned. These criteria include:
 - Setback requirements under wind ordinances in both Bureau and Lee counties
 - Minimizing impact on current participating landowners and their properties
 - Feedback from the Soil and Water Conservation District regarding WTGs near the Ryan Wetland & Sand Prairie Land and Water Reserve (RLWR)
 - Minimizing noise and shadow flicker at local residences
 - Feedback from the Village of Ohio
 - Balancing generation on each collection circuit to limit collection system upgrades
- Minor upgrades to the electrical collection system and WTG foundations as needed.
 - o Approximately 3,350 linear feet of collection line (representing less than 3% of the total collection system) will be upgraded. The remaining portions of the collection system will not be modified.
 - o Reinforcing up to 60 WTG foundations.
- Temporary widening of the access roads and foundation areas in order to facilitate the repowering construction.
 - o After repowering is complete, the access roads will be returned to their current width of 16 feet, and the foundation areas will be returned to their current width of 60 feet.
- Construction of up to four permanent meteorological (MET) towers. The MET towers will be either free standing or guyed with a maximum disturbance buffer of 262 feet around the base. If the towers are guyed, bird diverters will be placed on all guy wires. If guy wires are necessary, bird flight diverters or high-visibility marking devices will be used. Four potential sites have been identified for the MET towers (Figure 1).
- Temporary construction laydown yard is expected to be approximately four acres located on the west side of County Rd. 26, near Turbine 63 or will make use of an existing laydown yard from the

Mendota wind farm located in Lee County. The laydown yard will be used for construction management office trailers, vehicle parking, and material storage.

- No material changes or location movements of the project substation, transmission line, or Operations and Maintenance (O&M) facility. The only activity to be performed in these areas will be internal supervisory control and data acquisition (SCADA) and communication system upgrades.
- No material increases in the size of the Project. The number of WTGs will be reduced from 114 to 97, and the nameplate MW rating of the Project will increase from 239.4 MW to approximately 241.1 MW due to the larger MW nameplate rating of each repowered WTG.

Upon completion, areas temporarily disturbed by the repowering as a result of movement of construction equipment, miscellaneous excavation and trenching activities, access road widening, and crane paths will be returned to pre-construction conditions. Disturbed areas under active agricultural use would resume agricultural production. Non-cultivated areas would be reseeded with native vegetation (e.g., big bluestem, Indiangrass) or other suitable seed mix based on existing vegetation.

2.2 COVERED ACTIVITIES

Activities to be covered under the ITA include:

- Take coverage is requested for repowering and decommissioning of turbines, construction of MET towers and associated access roads and fiber, foundation reinforcements, crane paths, collection line upgrades, access road widening, and a laydown yard, as well as miscellaneous excavation and trenching activities. Although no impacts to the covered species are anticipated as a result of operation of the turbines, O&M vehicles traveling on project access roads and parking areas could result in mortality to the covered species (see Section 1.0); therefore, take coverage is requested for these species during project operations and maintenance, as well as repowering.

2.3 ACTION AREA

The Action Area is defined as follows:

- The disturbance limits around turbines, access roads, crane paths, and MET towers (Figure 1). The disturbance limits vary, being approximately 5.7 acres around each turbine location, up to 20 feet on either side of access roads, up to 40 feet wide for crane paths, up to 42 feet wide for collector lines, and up to 262 feet around each MET tower location along with associated access roads and fiber. The Action Area is approximately 912.4 acres in size and also includes approximately 3,350 linear feet of collector line updates located at Turbine T110, from Turbine T52 to T38, and from Turbine T61 to T62 (see Figures 2a, 2b, and 2c) and an approximately four-acre temporary laydown yard.

2.4 PERMITTING REVIEWS

Big Sky will comply with all federal, state, and local regulations. Below is a summary of the consultation and permitting that has taken place to-date or is anticipated:

1. Big Sky coordinated with Lee County to obtain a Special Use Permit and Bureau County to obtain a Conditional Use Permit for the Project. The Bureau County Board hearing for a Conditional Use

Permit for the Project was held during the March 21, 2019 Board meeting. The Lee County Board hearing for a Special Use Permit for the Project was held during the March 7, 2019 Board meeting.

2. If temporary stream crossings are needed, it is anticipated they will be covered under Nationwide Permit 33. Big Sky will coordinate with the U.S. Army Corp of Engineers (USACE) once temporary stream crossing locations have been determined.

2.5 TIMELINE OF PROJECT ACTIVITIES

Repowering of the wind farm is scheduled to begin in April 2020 and it is expected to resume operations by September 2020. The following schedule is planned:

- Exclusion fencing installation – January to April 2020 with continuous monitoring and upkeep through September 2020
- Turbine delivery and erection – April through September 2020
- Miscellaneous excavation and trenching activities (as necessary) – April through September 2020
- Collection line upgrades – April through September 2020
- Project completion and site restoration – September through October 2020
- Resume operations – September 2020

2.6 OWNERSHIP OF AFFECTED PROPERTIES

Big Sky has lease agreements or easements for ownership in place over each parcel where project infrastructure occurs. The terms of the individual lease agreements vary, but the agreements are valid through the anticipated lifespan of the repowered Project. The Project is anticipated to be operational for 30 years, after which it may be repowered again or decommissioned.

2.7 IMPLEMENTING AGREEMENT

An implementing agreement has been prepared for the Project that outlines the parties responsible for implementation of this Conservation Plan and the responsibilities of each party. The implementing agreement is found in Appendix A.

2.8 PROPOSED ACTION AND ALTERNATIVES CONSIDERED

2.8.1 Proposed Action

The Proposed Action will include repowering of the Project as described in Section 2.1. Under this alternative, the following conservation measures will be implemented to avoid and minimize effects to ornate box and Blanding's turtles:

- Installation of exclusion fences (i.e., silt fence) at turbine locations identified as posing potential risk to ornate box and Blanding's turtles (see Section 3.1.1; Figure 3). The fencing shall be installed with turn-back wings at each open end facing away from the construction area. The silt fence shall be buried six (6) inches in the ground and staked and maintained in an upright position.
- Once the silt fence is installed, and prior to further activities, a biological monitor shall conduct a sweep through the area inside the silt fence to locate any turtles within the isolation area and re-locate them outside the construction area.
- A biological monitor will monitor for turtles along the access roads at the turbine locations identified as posing potential risk to ornate box and Blanding's turtles (see Section 3.1.1; Figure 3) while repowering activities are taking place at those turbines. Any turtles found will be re-located to outside of the workspace.

- For construction of crane paths, if a crane will cross highly suitable habitat (i.e., non-cropped sandy soils), the biological monitor shall conduct a visual encounter search within the construction corridor immediately ahead of the construction crew to locate turtles within the construction corridor and re-locate them outside of the construction area.
- For collector line upgrades (Figures 2a, 2b, and 2c), the biological monitor shall accompany the collector line crew to re-locate turtles found during these activities. The biological monitor shall conduct a visual encounter search within the construction corridor immediately ahead of the installation crew to locate turtles within the construction corridor and re-locate them outside the construction area.
- Throughout the remaining project area, a biological monitor shall periodically check access roads and turbine construction areas for turtles and re-locate any turtles found out of harm's way.

Additional conservation measures proposed by the Applicant to avoid and minimize impacts to ornate box and Blanding's turtles are found in Section 5.2.

2.8.2 Alternatives Considered but Dismissed

No Action Alternative

The purpose of the Project is repowering the Big Sky Wind Farm. Under the No Action Alternative, the Project will not be repowered. Impacts associated with the Project will not occur. The No Action Alternative will not satisfy the project purpose and need; Big Sky therefore rejected this alternative and continued to develop the repowering alternative to satisfy the purpose and need in a manner that will result in minimal environmental impacts.

3.0 BIOLOGICAL DATA ON AFFECTED SPECIES

3.1.1 Ornate Box Turtle

Ornate box turtles are listed as threatened in the state of Illinois.

Species Description

Ornate box turtles are small terrestrial turtles with a high-domed, round or oval carapace with a dark brown color and yellow lines on each scale that radiate downward and forward. The strongly hinged plastron is similarly marked and may be closed completely. Males may be distinguished from females by the presence of an inwardly facing first toe on the hind legs, a concave plastron, and red eyes (Ernst and Lovich 2009).

The turtles are diurnal, and their daily activity cycle, as described by Ernst and Lovich (2009), consists of emerging from their night burrow (or form) and basking for a short time before beginning to forage. The turtles eat insects, such as beetles, caterpillars, and grasshoppers, which account for approximately 90% of their diet, as well as a variety of plants and berries (Ernst and Lovich 2009). Typically, foraging stops by late morning and the turtles seek shelter in day burrows or other shady spots, where they remain until mid- to late afternoon when they begin to forage again. Legler (1960) found the home range of an individual turtle to be approximately five acres. Females lay one or more clutches of eggs in May through June and abandon their nests to let the eggs incubate for approximately 80-90 days. Hatchlings emerge in the fall or may overwinter depending on conditions. In mid- to late October, the ornate box turtle burrows two to three feet into the ground to overwinter. They remain in their overwintering burrow until they emerge in late April or early May.

Habitat Requirements

Ornate box turtles are primarily a prairie species, but they also inhabit pastures, open woodland areas, and agricultural fields. This species is restricted to areas with soils that allow for easy burrowing. Legler (1960) reported that ornate box turtles prefer bare, well-drained, sloping areas protected from erosion by upslope

clumps of rocks or sod for nesting. Preferred hibernation sites are locations well suited to basking and burrowing, as well as protected from the wind (Ernst and Lovich 2009).

Status of Species in the Action Area

The 2018 EcoCAT review (IDNR Project Number 1906098) indicated ornate box turtle records in the vicinity of the Project.

Habitat Assessment

A desktop assessment was used to determine the existence and extent of suitable ornate box turtle habitat within the Action Area. The following steps were used for the desktop habitat assessment:

1. Using known records from the Illinois Natural Heritage Database (INHD), locations where ornate box turtles have been observed were mapped within the project area.
2. Using NRCS soil survey data, map units containing sandy soils were mapped within the project area.
3. Using recent aerial photographs, the suitability of the habitat in areas to be disturbed by the repower Project was rated as follows:

High Suitability

- Areas with sandy loam or pure sand soils
- Dry prairie, dry-mesic grassland, old field, or utility right-of-way
- Areas with widely spaced trees (e.g., oak savanna, open oak woods, or conifer plantations with large gaps)
- Sparse to moderate herbaceous vegetation
- Significant amount of ground cover (e.g., brush piles, downed logs, low-growing shrubby vegetation, etc.)

Moderate Suitability

- Areas with sandy loam or sand soils
- Some sod-forming grasses but still easy burrowing
- Lightly grazed pasture
- Forested areas with a moderate number of gaps in the canopy
- Some ground cover available

Low Suitability

- Areas with limited sandy loam or sandy soils
- Dense herbaceous vegetation with little or no bare spots
- Woodland habitat with sporadic openings in the canopy
- Current row-crop fields with adjacent suitable habitat
- Habitats with dense sod-forming grasses
- Areas with little ground cover
- Areas dominated mostly by wetlands, with small components of grassland, prairie, or meadow
- Areas isolated from other suitable habitat

Unsuitable

- Closed canopy forest/woodland and emergent wetland
- Current row-crop fields entirely surrounded by current row-crop fields

4. Areas rated as unsuitable were eliminated from consideration.

The desktop assessment found approximately 71.5 acres of sandy soils within the Action Area, of which approximately 63.7 acres are considered suitable. Approximately 45.6 acres are mapped as sand, and approximately 18.1 acres are mapped as loamy sand. No fine sands are mapped within the Action Area.

Although not within the Action Area, highly suitable habitat for the ornate box turtle is found within the Ryan Wetland and Sand Prairie INAI Site, located south of Todd Road between Carter Road and Van Orin Road (Lee County). Cultivated crops adjacent to the Ryan Site also provide moderately suitable habitat for the ornate box turtle. Twenty-two (22) turbines are located within 1 mile (T69, T71, T78, T79, T80, T81, T84, T86, T87, T89, T90, T92, T95, T96, T97, T98, T99, T100, T101, T102, T105, T124; Figure 3) of the Ryan Site and are potentially risky to the ornate box turtle. Two additional turbines (T111 and T125; Figure 3) are located in close proximity to known occurrences of ornate box turtles but more than 1 mile from the Ryan Site and are also potentially risky.

It was determined that risk is low to non-existent at eight turbines located to the east and southeast of the Ryan site (T79, T80, T89, T90, T92, T101, T102, T105; Figure 3), but within the 1-mile radius of the Ryan site, based on their location within large, active crop fields, absence of sandy soils, absence of known records, and field observations by the Stantec staff member who served as the on-site environmental monitor during construction of the original Big Sky Wind Farm, who indicated that no suitable habitat was observed in the vicinity of the turbines to the east and southeast of the Ryan site. At two additional turbines (T71 and T69; Figure 3), located to the southwest of the Ryan site at the limit of the 1-mile radius, it was determined that risk was low to non-existent due to their location within large, active crop fields and the lack of known records to the southwest of the Ryan site.

Based on the evaluation, 14 turbine locations (T78, T81, T84, T86, T87, T95, T96, T97, T98, T99, T100, T111, T124, T125; Figure 3) were identified as posing potential risk to ornate box turtles. Two of the 14 turbines (T84 and T86; Figure 3) will be decommissioned.

Although it is understood that turtles may be forced to use other areas that may be less than suitable, for the purposes of determining the impact areas in this section, it was necessary to have measurable criteria from which to start (see above). However, it is possible that this species could occasionally be found at other locations in the Action Area (i.e., non-sandy soils). Therefore, Big Sky is requesting take coverage for the ornate box turtle within the entire Action Area (i.e., not just the 14 turbines described above).

3.1.2 Blanding's Turtle

Blanding's turtles are listed as threatened in the state of Illinois.

Species Description

Blanding's turtles are large aquatic turtles with an elongated, smooth, high-domed carapace that is black and commonly marked with light colored spots or irregular lines. The plastron varies from yellow with dark black blotches to almost totally black. A movable hinge is present on the plastron. The top and sides of the head are gray to black, and the chin, throat, and neck are bright yellow. The legs are generally black and may contain some yellow scales. Males have dark upper jaws and a slightly concave plastron, and females have yellow upper jaws and a flat plastron.

Habitat Requirements

Blanding's turtles most commonly inhabit areas with clean, shallow, slow-moving water with silty or organic substrates and abundant aquatic vegetation (Ernst and Lovich 2009). In Wisconsin, Ross and Anderson (1990) reported that Blanding's turtles spend more time in marshes than in ponds and that ponds with sand bottoms and no aquatic vegetation are rarely used. In addition, they found that wetlands covered by cattail (*Typha* spp.) mats are not used either, but areas cleared of cattails by muskrats are used.

Habitat preferences appear to vary between juveniles and adults and between seasons. Small juveniles primarily use emergent sedge habitats and shrub hummocks, larger juveniles use sedge/water interfaces, and the largest juveniles are found in open water (Pappas and Brecke 1992). Blanding's turtles frequently bask on logs, rocks, banks, matted vegetation, stumps, and live trees to absorb heat from the sun (Oldfield and Moriarty 1994). Blanding's turtles hibernate partially buried in the deepest portions of wetlands, ponds, and streams (Ernst and Lovich 2009; Oldfield and Moriarty 1994). In Wisconsin, the turtles were found partially buried in the substrate at mean water depths of 3 feet (Ernst and Lovich 2009).

Suitable nest sites for Blanding's turtles are upland areas with well-drained, sandy loam or sandy soils (Ross and Anderson 1990; Ernst and Lovich 2009; Oldfield and Moriarty 1994). Most nests in Wisconsin and Minnesota are located in grasslands (Ross and Anderson 1990; Linck and Moriarty 1998); however, nesting has also been observed in agricultural fields (Linck et al. 1989; Casper 1998). Female Blanding's turtles may move a considerable distance in search of suitable nest sites (Congdon et al. 1983; Oldfield and Moriarty). However, most nests are located within a few hundred feet of water (Congdon et al. 1983; Linck et al. 1989; Ross and Anderson 1990).

Species Status in the Action Area

The 2018 EcoCAT review (IDNR Project Number 1906098) indicated Blanding's turtle records in the vicinity of the Project.

Habitat Assessment

The following steps were used for the desktop habitat assessment:

1. Using known records from the INHD, locations where Blanding's turtles have been observed were mapped within the project area.
2. Using NRCS soil survey data, map units containing sandy soils were mapped within the project area.
3. Using National Wetlands Inventory data, wetlands and waterways were mapped within the project area.
4. Using recent aerial photographs, the suitability of the habitat in areas to be disturbed by the repower Project was rated as follows:

Highly Suitable

The presence of suitable summer, winter, and nesting habitat within close proximity of a site.

- Summer Habitat – Shallow emergent marsh, lake bay, or slow-moving stream with a soft bottom and abundant aquatic vegetation. A complex of wetlands with varying depths is preferable.
- Winter Habitat – Marsh, stream, or lake bay with a water depth or flow sufficient to prevent freezing completely to the bottom and soft substrate to allow for burying up to 3 feet.
- Nesting Habitat – Sand or sandy loam soils with <75 percent vegetation cover within 0.25 mile of suitable summer habitat including agricultural fields.

Moderately Suitable

Less than suitable summer habitat with suitable winter and nesting habitat within close proximity of a site.

Low Potential

Suitable or less than suitable summer habitat and an absence of winter and/or nesting habitat within close proximity of a site.

Unsuitable

The absence of suitable summer habitat at a site.

5. Areas determined to be unsuitable were eliminated from consideration.

No suitable Blanding's turtle summer habitat is located within the Action Area. Within the project area, the Ryan Wetland and Sand Prairie INAI site (Figure 3) and some emergent wetlands and waterways provide suitable summer habitat and travel corridors for the Blanding's turtle; however, emergent wetlands within the project area do not provide suitable winter habitat for this species given the lack of nearly permanent inundation throughout the year in most areas. Several farm ponds are located within project area; however, Blanding's turtles have been reported to rarely use farm ponds (Christiansen and Bailey 1988).

The Ryan Wetland and Sand Prairie INAI Site (Figure 3), located south of Todd Road between Carter Road and Van Orin Road, provides suitable summer habitat for the Blanding's turtle and has known Blanding's turtle records; therefore, the 14 turbines identified as posing risk to ornate box turtles (see section 3.1.1) also pose a risk to Blanding's turtles due to the potential for Blanding's turtles to travel through the area of risk during repowering while traveling to and from the Ryan site.

4.0 EFFECTS OF THE PROPOSED ACTION ON LISTED SPECIES

4.1 ORNATE BOX TURTLE

4.1.1 Direct Effects

Direct mortality of the ornate box turtle may occur as a result of the repowering Project, including widening of access roads, miscellaneous excavation and trenching activities, collection cable upgrades, and movement of construction vehicles, including cranes, within the Action Area. Individual turtles or nests could be accidentally crushed and killed if they are struck by a vehicle or dug up during ground disturbance activities. Conservation measures will be implemented to exclude ornate box turtles from construction areas that pose a potential risk and thereby prevent direct take of ornate box turtles (see Section 5.2.2).

A discussion of criteria used to evaluate habitat suitability for the ornate box turtle is found in Section 3.1.1. Highly suitable habitat for the ornate box turtle is found within the Ryan Wetland and Sand Prairie INAI Site, located south of Todd Road between Carter Road and Van Orin Road (Lee County). Cultivated crops adjacent to the Ryan Site also provide moderately suitable habitat for the ornate box turtle. Fourteen (14) turbine locations (T78, T81, T84, T86, T87, T95, T96, T97, T98, T99, T100, T111, T124, T125; Figure 3) were identified as posing potential risk to ornate box turtles based on habitat suitability, proximity to the Ryan site, and proximity to known occurrences.

Amount of Suitable Ornate Box Turtle Habitat Affected by the Project

Take of individuals and impacts to suitable habitat will be minimized through a number of conservation measures as outlined in Section 5.2. Despite these best efforts, the number of ornate box turtles that could be impacted as a result of project activities is unknown and take of individuals may still occur (see take estimate in Section 4.1.3). Table 1 summarizes direct impacts to ornate box turtle habitat as a result of the Project. Since the Big Sky Wind Farm is already constructed and all permanent infrastructure is already in

place, with the exception of the four permanent MET towers which will not impact suitable ornate box turtle habitat (i.e., areas with sandy soils), the impacts will be temporary in nature, limited in time to the period when repowering is taking place, and all disturbed areas will be restored after construction.

Up to 63.7 acres of suitable ornate box turtle habitat will be temporarily disturbed as a result of project repowering (Table 1). Impacts will be short-term and limited to the duration required for miscellaneous excavation and trenching activities, movement of cranes, and repowering and decommissioning at turbine locations. Areas temporarily disturbed as a result of repowering will be restored to pre-construction conditions once repowering is complete, and the areas will again be available for use by ornate box turtles.

Table 1. Summary of impacts to suitable ornate box turtle habitat at the Big Sky Wind Farm Repower Project.

Infrastructure Type	Temporary Habitat Impacts^a (acres)	Permanent Habitat Impacts^b (acres)
Access Road Widening	4.8	0.0
Turbines	49.4	0.0
Crane Paths	9.5	0.0
Collection Line Upgrades	0.0	0.0
Laydown Yard	0.0	0.0
MET towers (4)	0.0	0.0
Total	63.7	0.0

^a No permanent loss of ornate box turtle habitat; disturbed areas will be restored after construction and will again be available for use by ornate box turtles

^b Permanent loss of ornate box turtle habitat

4.1.2 Indirect Effects

Following repowering, the risk of mortality as a result of vehicles will remain on project access roads and a parking area near the project O&M facility; however, this risk will be the same as currently exists at the project.

4.1.3 Take Estimate

Take of the ornate box turtle is estimated to range from one to five individuals but is not anticipated to reduce the survival or recovery of the species, the biotic community of which it is a part, or the habitat essential to its existence due to the implementation of conservation measures (see Section 5.2) and no permanent loss of habitat.

4.2 BLANDING’S TURTLE

4.2.1 Direct Effects

Big Sky is requesting take coverage for this species for the duration of the take permit because the risk to turtles exists anytime the turtles are above ground (i.e., not hibernating). Direct mortality of Blanding’s turtles may occur during access road crossings as a result of being hit by construction equipment or vehicles within the Action Area; however, conservation measures will be implemented at the 14 turbines that pose potential risk to Blanding’s turtles (see Section 3.1.2; Figure 3) to exclude Blanding’s turtles from the Action Area and thereby prevent direct take of Blanding’s turtles on land (see Section 5.2.2).

Amount of Suitable Habitat Affected by Project Activities

Within the Action Area, no suitable summer or winter Blanding’s turtle habitat is found; however, movement of Blanding’s turtles through the Action Area may occur as the turtles travel between patches of suitable habitat located in areas outside of the Action Area. Take of individuals will be minimized through a number of conservation measures outlined in Section 5.2. Despite these best efforts, the number of Blanding’s turtles that could be impacted as a result of project activities are unknown and take of individuals may still occur (take estimates provided in Section 4.2.3).

4.2.2 Indirect Effects

Following repowering, the movement of Blanding’s turtles within the Action Area could result in mortality as a result of vehicular traffic as they cross access roads. While this road mortality is an unlikely event, it cannot be ruled out; however, this risk will be the same as currently exists at the project.

4.2.3 Take Estimate

Take of the Blanding’s turtle is estimated to range from one to three individuals but is not anticipated to reduce the survival or recovery of the species, the biotic community of which it is a part, or the habitat essential to its existence due to the implementation of conservation measures (see Section 5.2).

5.0 MINIMIZATION MEASURES, MITIGATION, AND MONITORING

5.1 PLANS FOR MANAGEMENT OF THE AREA

Upon completion, areas temporarily disturbed by the repowering as a result of movement of construction equipment, miscellaneous excavation and trenching activities, access road widening, and crane paths will be returned to pre-construction conditions. Disturbed areas under active agricultural use would resume agricultural production. Non-cultivated areas would be reseeded with native vegetation (e.g., big bluestem, Indiangrass) or other suitable seed mix based on existing vegetation.

5.2 MEASURES TO AVOID AND MINIMIZE EFFECTS

5.2.1 Measures to Minimize Effects to the Ryan Wetland and Sand Prairie INAI Site

The following measures were implemented by Big Sky to reduce the Project’s impact to the Ryan Wetland and Sand Prairie INAI site:

- Obtained feedback from the Soil and Water Conservation District (SWCD) regarding turbines near the Ryan Wetland & Sand Prairie Land and Water Reserve (RLWR).
- The SWCD identified turbines T84, T86, and T96 as creating the most disruption to the RLWR, especially T84 and T86. As a result, Big Sky plans to decommission both T84 and T86.
- Big Sky will prohibit construction traffic on the portion of Morgan Road that bisects the Ryan Wetlands and Sand Prairie INAI Site (between Todd Road and St. Mary's Road), per the request of the SWCD.

5.2.2 Measures to Avoid and Minimize Effects to the Ornate Box and Blanding's Turtle

The following Conservation Measures will be implemented by Big Sky to avoid or minimize impacts to ornate box and Blanding's turtles during the turtles' active season (April 15 – October 30):

- During repowering activities, including turbine erection or decommissioning and any miscellaneous excavation or trenching that could be required, at turbine locations identified as posing risk to turtles (Turbines T78, T81, T84, T86, T87, T95, T96, T97, T98, T99, T100, T111, T124, T125; Figure 3), exclusion fence (i.e., silt fence) shall be installed around the perimeter of the work space to exclude turtles from the construction area. The fencing shall be installed with turn-back wings at each end facing away from the construction area. The silt fence shall be buried six (6) inches in the ground and staked and maintained in an upright position.
 - The biological monitor shall visually search the area in an attempt to locate turtles within the work space and re-locate them outside the work space. All applicable permits will be obtained.
 - Once the silt fence is installed and prior to further excavation activities, the biological monitor shall conduct a final pass through the area inside the silt fence to locate turtles within the isolation area and re-locate them outside the construction area.
- The biological monitor will monitor for turtles along the access roads to the 14 turbines (T78, T81, T84, T86, T87, T95, T96, T97, T98, T99, T100, T111, T124, T125; Figure 2) where fencing will be installed, while construction activities are taking place at those turbines. Any turtles found will be re-located to outside of the workspace.
- Throughout the remaining project area, the biological monitor shall periodically check access roads and turbine construction areas for turtles and re-locate any turtles found out of harm's way.
- If miscellaneous excavation or trenching is required at those turbines identified as posing risk to turtles (Figure 3; Turbines T78, T81, T84, T86, T87, T95, T96, T97, T98, T99, T100, T111, T124, T125), a biological monitor shall accompany the construction crew to re-locate turtles found during installation activities. The biological monitor shall conduct a visual encounter search within the construction corridor immediately ahead of the construction crew to locate turtles within the construction corridor and re-locate them outside the construction area. In the event that a turtle nest is unearthed by the trenching activities, trenching will cease at that location, and the biological monitor will report the observation to the Big Sky site manager.
- For collector line upgrades, the biological monitor shall accompany the collector line crew to re-locate turtles found during these activities. The biological monitor shall conduct a visual encounter search within the construction corridor immediately ahead of the installation crew to locate turtles within the construction corridor and re-locate them outside the construction area.
- For construction of crane paths, if a crane will cross highly suitable habitat (i.e., non-cropped sandy soils), the biological monitor shall conduct a visual encounter search within the construction corridor

immediately ahead of the construction crew to locate turtles within the construction corridor and re-locate them outside of the construction area.

- Once a crane path is no longer in use, if allowed by the landowner and if doing so will not damage environmentally sensitive areas, the area may be de-compacted to restore the loose soil conditions required by the turtles.
- In areas where silt fence is used for exclusion fencing, the fence shall be removed only after all repowering and restoration activities in that area have been completed or the active season (April 15 – October 30) ends.
- If temporary stream crossings are necessary, they will be removed following repowering, and each stream crossing will be returned to pre-construction conditions.

For repowering activities outside of the ornate box turtle's active season (October 30 – April 14):

- Although ornate box turtle habitat does include cropped areas, the turtles are less likely to use actively cropped areas for hibernation. Therefore, where excavation is occurring between October 30 and April 14 in areas field-verified as actively cropped the growing season prior to repowering, the presence of a biological monitor will not be required.

5.2.3 Additional Conservation Measures

- Big Sky will provide all contractors and employees with training and an environmental information package regarding threatened and endangered species with the potential to be affected by project repowering; this package will include, at a minimum, information on how to identify these species and the protocols to follow if these species are encountered within the Action Area during repowering, operation, or maintenance of the Project. Contractors and employees will also be informed of the turtle relocation plan, upon IDNR approval.
- Big Sky will post signage in construction areas (e.g., turbine access roads, construction access routes, laydown areas, etc.) alerting construction personnel to the presence of turtles in the area.
- Construction personnel shall be made aware of the possible presence of ornate box and Blanding's turtles in the vicinity of the Project and asked to watch for turtles within the construction zone or on access roads and adjacent public roadways.
- Once the applicable permits have been obtained, if turtles of any species are found in the construction area, they will simply be picked up and moved to a safer location outside of the construction area. If observed on public roads, contractors and staff will be instructed to avoid running the animal over. Any Blanding's turtle or ornate box turtle observations will be immediately reported to the Big Sky site manager. Prior to implementation of this measure, Big Sky will prepare a turtle relocation plan that will be submitted to the IDNR for approval.

5.3 MITIGATION

Big Sky will fund mitigation at a total cost of \$62,563, which will be split into two separate payments. A \$10,000 donation to the RLWR will be made to help protect the natural area that provides highly suitable habitat for the ornate box and Blanding's turtles and the remaining \$52,563 will be paid to Middle Rock Conservation Partners, a registered corporation with the state of Illinois that is designated as a 501(c)(3) non-profit organization. Middle Rock Conservation Partners is an organization that works to restore and manage habitat for species in greatest need of conservation.

5.4 MONITORING

- Biological monitoring for ornate box and Blanding's turtles will occur immediately prior to repowering activities at all turbines identified as posing risk to turtles (Turbines T78, T81, T84, T86, T87, T95, T96, T97, T98, T99, T100, T111, T124, and T125). The biological monitor shall conduct visual encounter searches immediately ahead of repowering activities to locate turtles within the construction corridor and re-locate them outside the construction area.
- Monitoring for turtle species during repowering will occur in the form of routine observations and reporting of road kills by the biological monitor and/or construction staff in conjunction with their normal duties. The Department shall be notified of any Blanding's turtle or ornate box turtle observations or road kills in the Action Area.
- Big Sky will fund a post-construction presence absence survey utilizing either turtle dogs or trapping surveys within the project area for ornate box and Blanding's turtle on private property that contains highly suitable habitat, at a cost of up to \$25,000. A study plan including specific survey methods will be submitted to IDNR prior to the start of the survey and the survey will be conducted once repowering is complete, but within the permit term.

5.5 FUNDING TO SUPPORT MITIGATION AND MONITORING

Funding for the implementation of the conservation measures and mitigation outlined in this conservation plan has been dedicated as part of Big Sky's overall budget for the Project.

6.0 ADAPTIVE MANAGEMENT PRACTICES

Adaptive management is a process that will allow Big Sky to adjust its actions to reflect new information or changing conditions to reach a goal, in this case, minimization of take and conservation of the ornate box and Blanding's turtle. Big Sky will use adaptive management processes to minimize take related to the Project. Adaptive-management measures include:

- An onsite biological monitor will be present at specific locations that provide suitable habitat for these species (see Section 5.4). By conducting monitoring during repowering, Big Sky will be able to quickly react to unforeseen circumstances that may occur.
- If changed or unforeseen circumstances arise that reduce the effectiveness of the minimization measures described in this Conservation Plan, Big Sky will coordinate with the Department to determine if additional measures are warranted.
- If turtles are injured as a result of project activities, Big Sky will immediately stop work in that area, contact the Big Sky site manager, and coordinate directly with the Department. Arrangements will be made to take the individual(s) to a licensed wildlife rehabilitator.

7.0 CONCLUSIONS AND EFFECTS DETERMINATION

7.1 ORNATE BOX TURTLE

The risk of take to the ornate box turtle is not likely to reduce the survival or recovery of the species in Illinois, the biotic community of which it is a part, or the habitat essential to its existence for the following reasons:

- For the purposes of this Illinois Conservation Plan, take of the ornate box turtle is estimated to range from one to five individuals.
- Approximately 63.7 acres of suitable ornate box turtle habitat are present within the Action Area and will be temporarily impacted by repowering of the Project as a result of collector line upgrades, widening of access roads, crane paths, and turbine repowering and decommissioning. All areas of temporary disturbance will be restored to pre-construction conditions once repowering is complete, and the areas will again be available for use by ornate box turtles.
- Construction and maintenance personnel will be informed of the possible presence of turtles in the construction work area and will be asked to avoid and report all turtle observations to the Big Sky site manager.
- Conservation measures will be implemented at Turbines T78, T81, T84, T86, T87, T95, T96, T97, T98, T99, T100, T111, T124, T125 to exclude ornate box turtles from the Action Area and thereby avoid direct take of ornate box turtles.
- Biological monitoring for ornate box turtles will occur immediately prior to repowering activities at Turbines T78, T81, T84, T86, T87, T95, T96, T97, T98, T99, T100, T111, T124, T125 (and associated infrastructure) and during collector line upgrades (trenching) between Turbines T38 and T52, T61 and T62, and at Turbine T110.
- After repowering, monitoring for turtle species will occur in the form of routine observations and reporting of road kills by operations staff in conjunction with their normal duties. The Department shall be notified of any ornate box turtle observations or road kills in the Action Area.
- Big Sky will fund a post-construction presence absence survey at a cost of up to \$25,000. See Section 5.4 for additional information on post-construction monitoring.
- Big Sky will fund mitigation to offset the unavoidable take of ornate box and Blanding's turtles at a total cost of \$62,563. See Section 5.3 for additional information on mitigation.

7.2 BLANDING'S TURTLE

The risk of take to the Blanding's turtle is not likely to reduce the survival or recovery of the species in Illinois, the biotic community of which it is a part, or the habitat essential to its existence for the following reasons:

- For the purposes of this Illinois Conservation Plan, take of the Blanding's turtle is estimated to range from one to three individuals.
- Conservation measures will be implemented at Turbines T78, T81, T84, T86, T87, T95, T96, T97, T98, T99, T100, T111, T124, T125 to exclude Blanding's turtles from the Action Area and thereby avoid direct take of Blanding's turtles on land.
- No suitable Blanding's turtle summer or winter habitat will be directly affected by the Project.
- Construction and maintenance personnel will be informed of the possible presence of turtles in the construction work area and will be asked to avoid and report all turtle observations to the Big Sky site manager.
- Biological monitoring for Blanding's turtles will occur immediately prior to repowering activities at Turbines T78, T81, T84, T86, T87, T95, T96, T97, T98, T99, T100, T111, T124, T125. The

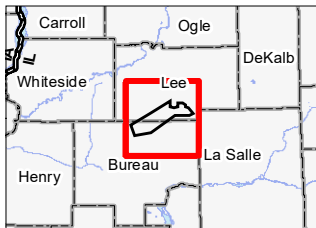
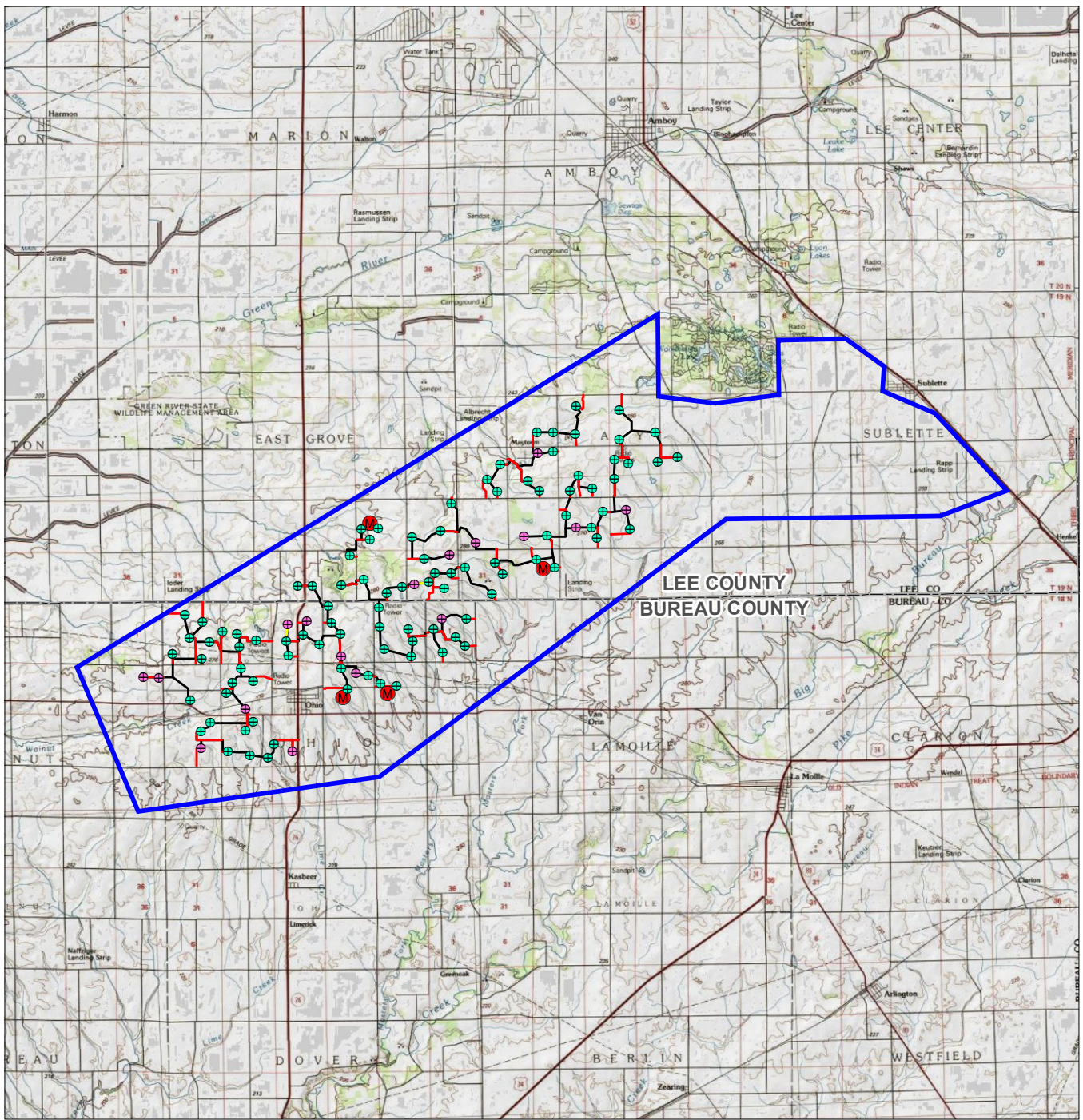
biological monitor shall conduct visual encounter searches immediately ahead of repowering activities to locate turtles within the construction corridor and re-locate them outside the construction area.

- Monitoring for turtle species will occur in the form of routine observations and reporting of road kills by operations staff in conjunction with their normal duties. The Department shall be notified of any Blanding's turtle or ornate box turtle observations or road kills in the Action Area.
- Big Sky will fund a post-construction presence absence survey at a cost of up to \$25,000. See Section 5.4 for additional information on post-construction monitoring.
- Big Sky will fund mitigation to offset the unavoidable take of ornate box and Blanding's turtles at a total cost of \$62,563. See Section 5.3 for additional information on mitigation.

8.0 REFERENCES

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Notes
 1. Coordinate System: NAD 1983 StatePlane Illinois West FIPS 1202 Feet
 2. Data Sources Include: Stantec, Pattern Renewables 2 LP, USGS
 3. Background: USGS 7.5' Topographic Quadrangles
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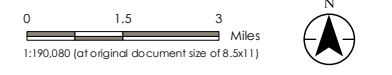
- Legend**
- Approximate Project Boundary
 - + Repowered Turbine
 - + Decommissioned Turbine
 - M MET Tower Location
 - ~ Collection Line
 - / Access Road
 - / Crane Path

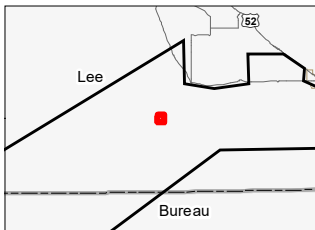
Figure No. **1**
 Title **Project Location and Project Components**

Client/Project
 BSW DevCo LLC
 Big Sky Wind Farm
 Repowering Project

Project Location
 Lee & Bureau
 Counties, IL

193706504
 Prepared by CA on 2018-11-15
 Technical Review by JH on 2018-11-16
 Independent Review by SE on 2019-04-17





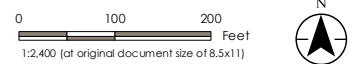
- Legend**
- Repowered Turbine
 - Access Road
 - Collection Line
 - Crane Path
 - Disturbance Limit

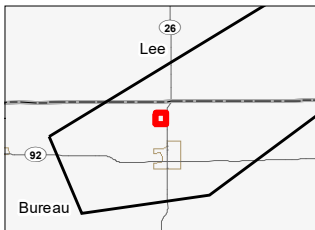
Notes

1. Coordinate System: NAD 1983 StatePlane Illinois West FIPS 1202 Feet
2. Data Sources Include: Stantec, Pattern Renewables 2 LP, USGS, NADS
3. Orthophotography: 2017 NAIP

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Figure No. **2a**
 Title **Collection Line Upgrades at Turbine 110**
 Client/Project **Pattern Renewables 2 LP
 Big Sky Wind Farm
 Repowering Project**
 Project Location **Lee & Bureau
 Counties, IL**
 Prepared by CA on 2019-01-31
 Technical Review by SF on 2019-01-31
 Independent Review by SE on 2019-04-17





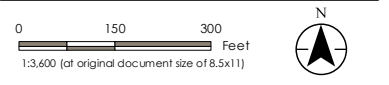
- Legend**
- ⊕ Repowered Turbine
 - ⊕ Decommissioned Turbine
 - Access Road
 - Collection Line
 - Crane Path
 - Disturbance Limit

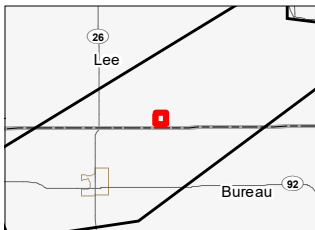
Notes

- Coordinate System: NAD 1983 StatePlane Illinois West FIPS 1202 Feet
- Data Sources Include: Stantec, Pattern Renewables 2 LP, USGS, NADS
- Orthophotography: 2017 NAIP

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Figure No. **2b**
 Title **Collection Line Upgrades from Turbine 38 to Turbine 52**
 Client/Project **Pattern Renewables 2 LP
 Big Sky Wind Farm
 Repowering Project**
 Project Location **Lee & Bureau
 Counties, IL**
 193706504
 Prepared by CA on 2019-01-31
 Technical Review by SF on 2019-01-31
 Independent Review by SE on 2019-04-17





- Legend**
- ⊕ Repowered Turbine
 - ⊕ Decommissioned Turbine
 - Access Road
 - Collection Line
 - Crane Path
 - Disturbance Limit

Notes

1. Coordinate System: NAD 1983 StatePlane Illinois West FIPS 1202 Feet
2. Data Sources Include: Stantec, Pattern Renewables 2 LP, USGS, NADS
3. Orthophotography: 2017 NAIP

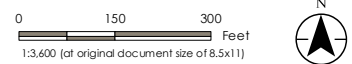
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Figure No. **2c**
 Title **Collection Line Upgrades from Turbine 61 to Turbine 62**

Client/Project
 Pattern Renewables 2 LP
 Big Sky Wind Farm
 Repowering Project

Project Location
 Lee & Bureau
 Counties, IL

193706504
 Prepared by CA on 2019-01-31
 Technical Review by SF on 2019-01-31
 Independent Review by SE on 2019-04-17



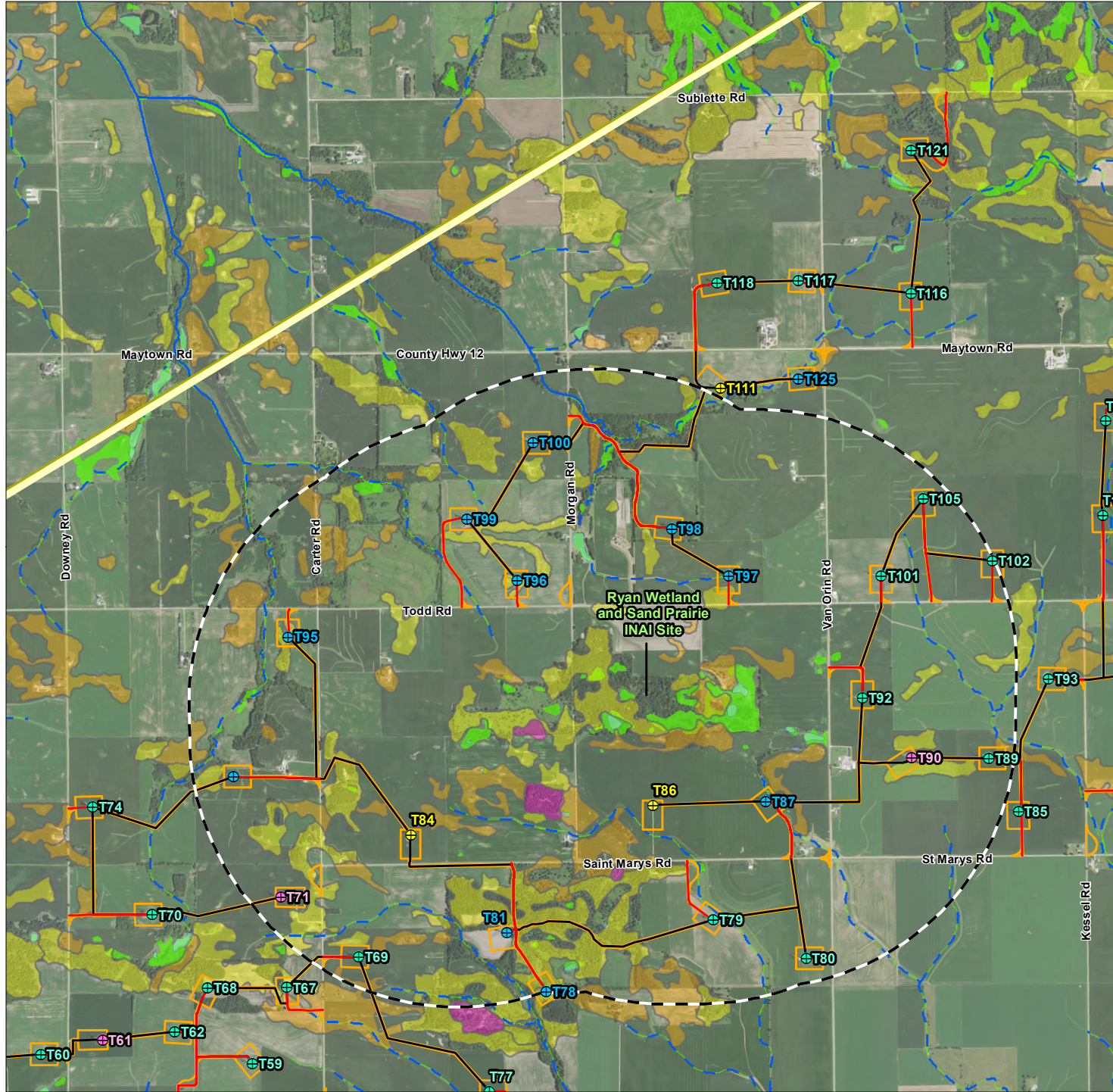
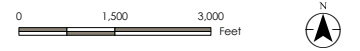


Figure No. **3**

Title
Turtle Impact Analysis Overview

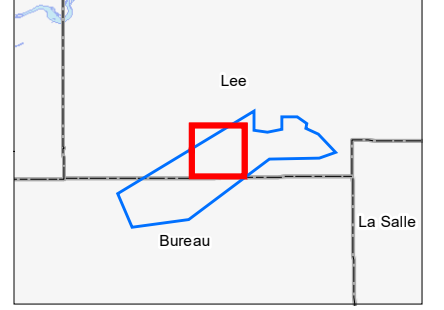
Client/Project
Pattern Renewables 2 LP
Big Sky Wind Farm
Repowering Project

Project Location
Lee & Bureau
Counties, IL



- Legend**
- Approximate Project Boundary
 - Repowered Turbine
 - Repowered Turbine with Fencing
 - Decommissioned Turbine
 - Decommissioned Turbine with Fencing
 - Access Road
 - Crane Path
 - Disturbance Limits
 - Ryan Wetland 1 Mile Buffer
 - National Wetlands Inventory Feature
 - NRCS Soil Survey Data
 - Surface Texture
 - Fine sand
 - Loamy fine sand
 - Loamy sand
 - Sand
 - National Hydrography Dataset
 - Perennial Stream
 - Intermittent Stream
 - Waterbody

1. Coordinate System: NAD 1983 StatePlane Illinois West FIPS 1202 Feet
 2. Data Sources Include: Stanlec, Pattern Renewables, IDNR, USGS, NRCS, USFWS
 3. Orthophotography: 2017 NAIP



APPENDIX A – IMPLEMENTING AGREEMENT

Implementing Agreement

Conservation Plan for Ornate Box Turtle and Blanding's Turtle

**BSW DevCo LLC
Lee and Bureau Counties, IL**

The Illinois Department of Natural Resources (IDNR) is responsible for the review of this Conservation Plan and for subsequent issuance of the Incidental Take Authorization (ITA). Upon approval of the Conservation Plan and issuance of the ITA, BSW DevCo LLC (Big Sky) will be responsible for meeting the terms and conditions of the ITA and will allocate sufficient personnel and resources to ensure the effective implementation of the plan. Big Sky will oversee all avoidance, minimization, and monitoring efforts identified within the Conservation Plan. Furthermore, Big Sky will be responsible for planning, contract execution, and construction supervision for the entire project.

Big Sky will implement this Conservation Plan in coordination with the IDNR as required in the ITA. Big Sky will be responsible for coordinating and overseeing any onsite work that requires knowledge, skills, and expertise related to the listed species. Big Sky shall designate personnel who will be Officers of Record for this Conservation Plan and Implementing Agreement and bear the corporate responsibility for compliance with the terms and conditions of the ITA.

The following schedule is planned for construction activities, monitoring, and progress reports to be provided to the IDNR:

- Exclusion fencing installation – January to April 2020 with continuous monitoring and upkeep through September 2020
- Turbine delivery and erection – April through September 2020
- Miscellaneous excavation and trenching activities (as necessary) – April through September 2020
- Collection line upgrades – April through September 2020
- Project completion and site restoration – September through October 2020
- Resume operations – September 2020

A monthly report summarizing construction activities within the monitored areas, and documentation of any observations of the target species, will be submitted to the IDNR.

Big Sky, subject to necessary project approvals, shall implement all proposed conservation measures included in this Conservation Plan for the two state-listed species covered by the ITA. Big Sky will oversee implementation of the Conservation Plan and assures that all applicable federal, state, and local laws will be adhered to during the completion of the project.

The individual who will oversee implementation of the onsite monitoring as required by the ITA is:

Terry VanDeWalle
Senior Ecologist
Stantec Consulting Services Inc.
2300 Swan Lake Boulevard, Suite 202
Independence IA 50644
319-334-3755
terry.vandewalle@stantec.com

As the Officer of BSW Devco, LLC, I, Matthew Ptak, am responsible for the implementation of this Conservation Plan and the terms and conditions of the ITA.

Signature:  Date: 6/4/19

Matthew Ptak Officer