Illinois Department of Natural Resources

Office of Resource Conservation

DRAFT CONSERVATION PLAN FOR THE INCIDENTAL TAKING OF THE STATE ENDANGERED KIRTLAND'S SNAKE (*Clonophis kirtlandii*) AND THE SMOOTH GREEN SNAKE (*Opheodrys vernalis*)

Forest Preserve District of Will County
Plum Creek Greenway Trail
Plum Valley Forest Preserve
Unincorporated, Will County, Illinois

Applicant: FOREST PRESERVE DISTRICT OF WILL COUNTY

JULY 2024

Introduction

The project undertaking described within this document is for the proposed improvements and extension of Plum Creek Greenway Trail located east of Illinois Route 394 (Calumet Expressway) within the Plum Valley Forest Preserve, a residential neighborhood southwest of Plum Valley Forest Preserve, and Goodenow Grove Nature Preserve located south of Crete within unincorporated Will County, Illinois. Drainage improvements are proposed to the southern portion of the existing Plum Creek Greenway Trail at Plum Valley Forest Preserve. In addition, the Forest Preserve District of Will County (FPDWC) is proposing to extend the trail on new alignment beginning at the southern terminus of the existing Plum Creek Greenway Trail and extending south through Plum Valley Forest Preserve where it will cross Plum Creek. From Plum Creek the trail will extend southwest through an agricultural field and a residential neighborhood, at which point the trail will connect to an existing multi-use trail within Goodenow Grove Nature Preserve. The project is proposed by the FPDWC.

Coordination with the Illinois Department of Transportation (IDOT) was completed for the proposed project in order to obtain the appropriate biological clearances as well as appropriate documentation regarding the Illinois Natural Areas Preservation Act (525 ILCS 30). As part of coordination, an Ecological Compliance Assessment Tool (EcoCAT) was submitted for the project on February 22, 2023 (EcoCAT Review Number 2310589). The Illinois Department of Natural Resources (IDNR) response to the EcoCAT review request dated March 22, 2023, states that, due to the location and scope of the proposed project, the IDNR recommends the applicant seek an incidental Take Authorization (ITA) for Kirtland's snake (*Clonophis kirtlandii*), **see Appendix A**. In addition, based on email correspondence with IDOT, due to the known presence of the smooth greensnake (*Opheodrys vernalis*) within Goodenow Grove Nature Preserve, which is a candidate species for listing under the state ESA in Illinois, this conservation plan includes this species.

Due to the density of snakes in the area, the IDNR recommends that information about the presence of snakes be implemented at the trailhead's kiosk. The IDNR states that the information should not mention the presence of Kirtland's snakes (or other listed species), but should caution visitors about the possibility of snakes on the trail. IDOT has also recommended that mitigation would also include providing funding to resurrect the Grassland Snake Monitoring Study at Goodenow Grove Nature Preserve.

It is estimated that there will be a take of three (3) individual Kirtland's snakes due the presence of this species at Plum Valley Forest Preserve based on the INHS surveys completed for the proposed project in 2022. Because the smooth greensnake was not captured during surveys completed by the INHS for the proposed project, the taking of this species and any other listed species as a result of the proposed project is not anticipated. Given the above conservation recommendations are adopted, the long-term viability of Kirtland's and other native snake populations present within the project vicinity are unlikely to be in jeopardy. The IDNR has determined impacts to other protected resources in the vicinity of the project location are also unlikely.

1. Description of Project Impact Assessment for Illinois State Threatened and Endangered Species

According to the database review completed by the INHS for the proposed project, there are records for three state-listed herptiles (eastern massasauga rattlesnake, *Sistrurus catenatus;* four-toed salamander, *Hemidactylium scutatum;* and Kirtland's snake) within a few miles of the project. In addition, according to the EcoCAT completed for the proposed project, there are also records of the Blanding's turtle (*Emydoidea blandingii*) within the project vicinity. Based on coordination with IDOT, the smooth greensnake is also known to be present at Goodenow Grove Nature Preserve.

The Illinois State endangered reptile species, the Kirtland's snake is known to be present within Goodenow Grove Nature Preserve and was captured by the INHS during surveys completed for the proposed project at Plum Creek Forest Preserve near the proposed trail alignment. **See Figure 1**, Site Location Map and **Figure 2**, Project Location Map.

Recent species surveys (within the last five years) were completed within the area of proposed construction, and anticipated take numbers for the above listed species have been estimated. Anticipated take numbers for each Illinois State listed species assessed for potential impacts as a result of the Plum Creek Greenway Trail Improvement Project are presented in **Table 1**.

This Incidental Take Authorization (ITA) Habitat Conservation Plan has been developed for the Kirtland's snake and the smooth greensnake, in case this species becomes officially listed by the State of Illinois before the completion of the project. The FPDWC is seeking approval to this plan to pursue the proposed trail project.

Figure 1: Site Location Map

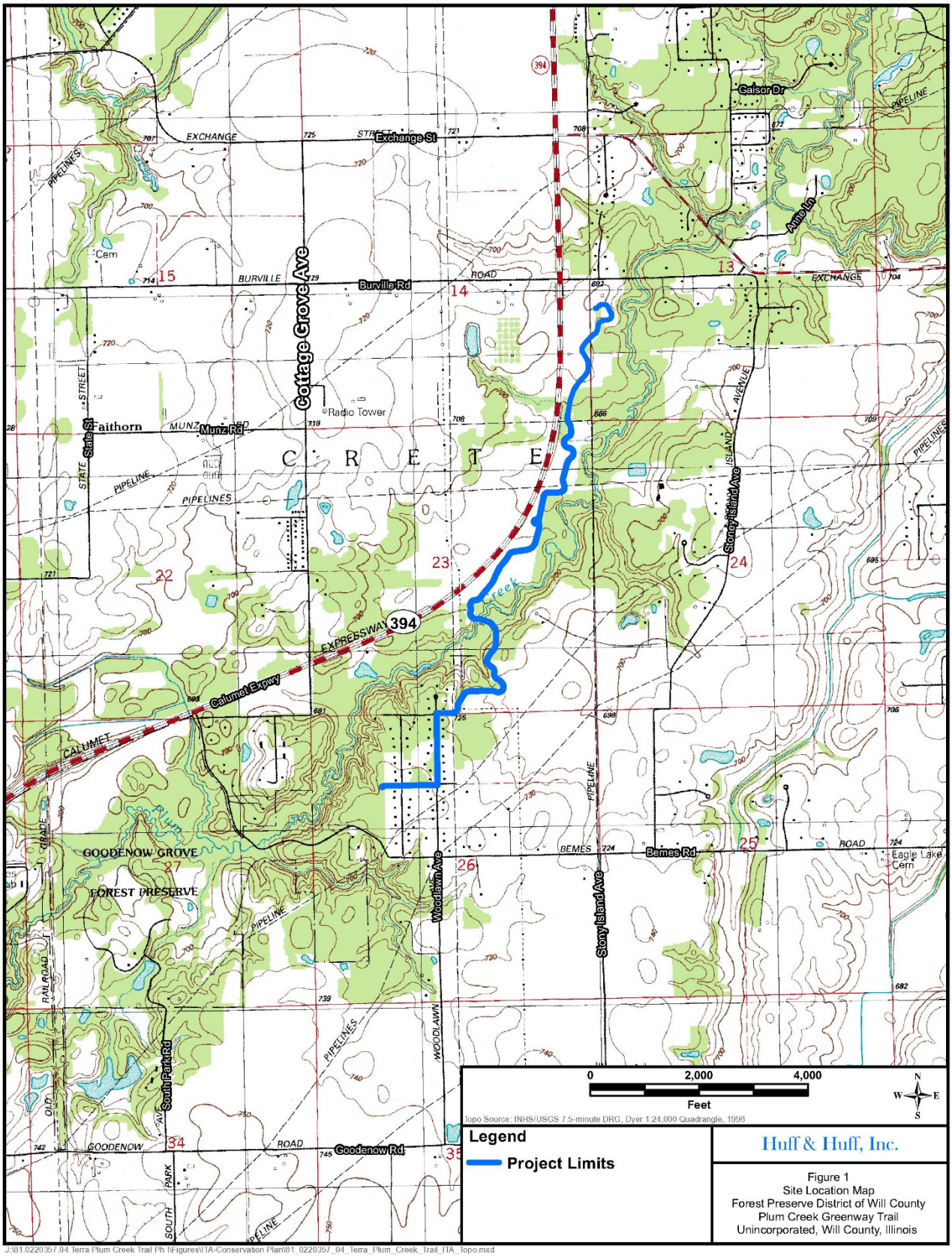

Figure 2: Site Location Map (Page 1 of 4)

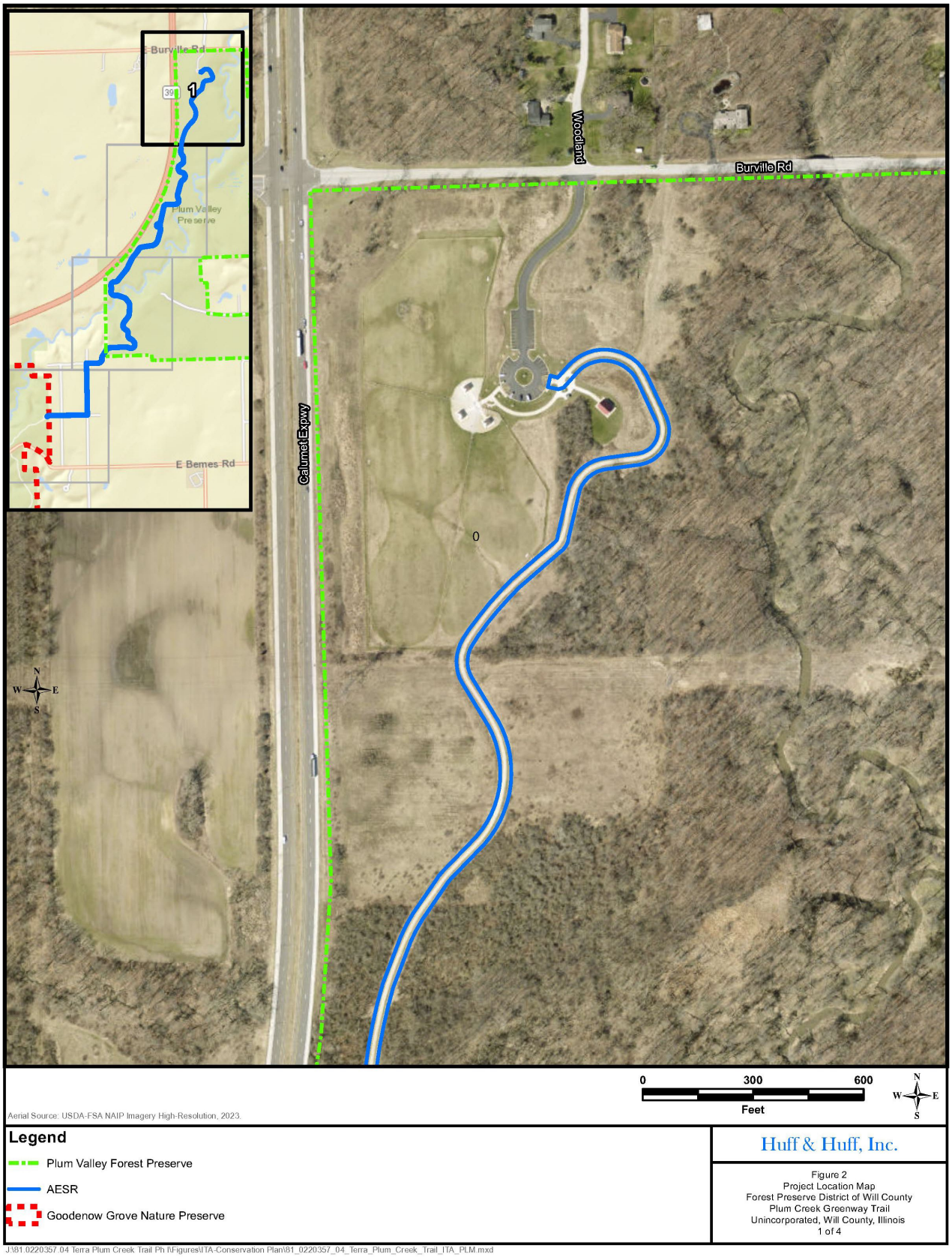

Figure 2: Site Location Map (Page 2 of 4)

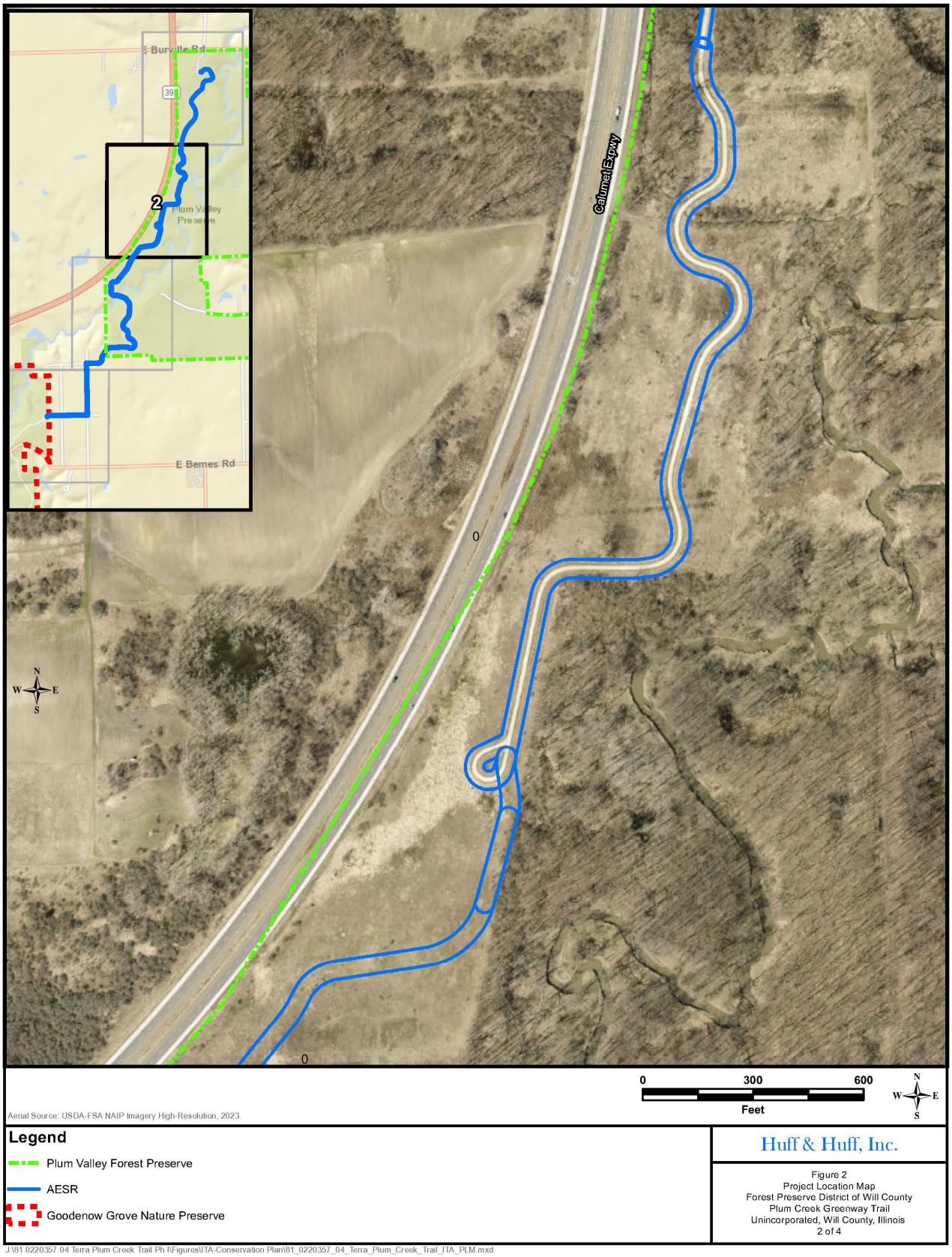

Figure 2: Site Location Map (Page 3 of 4)

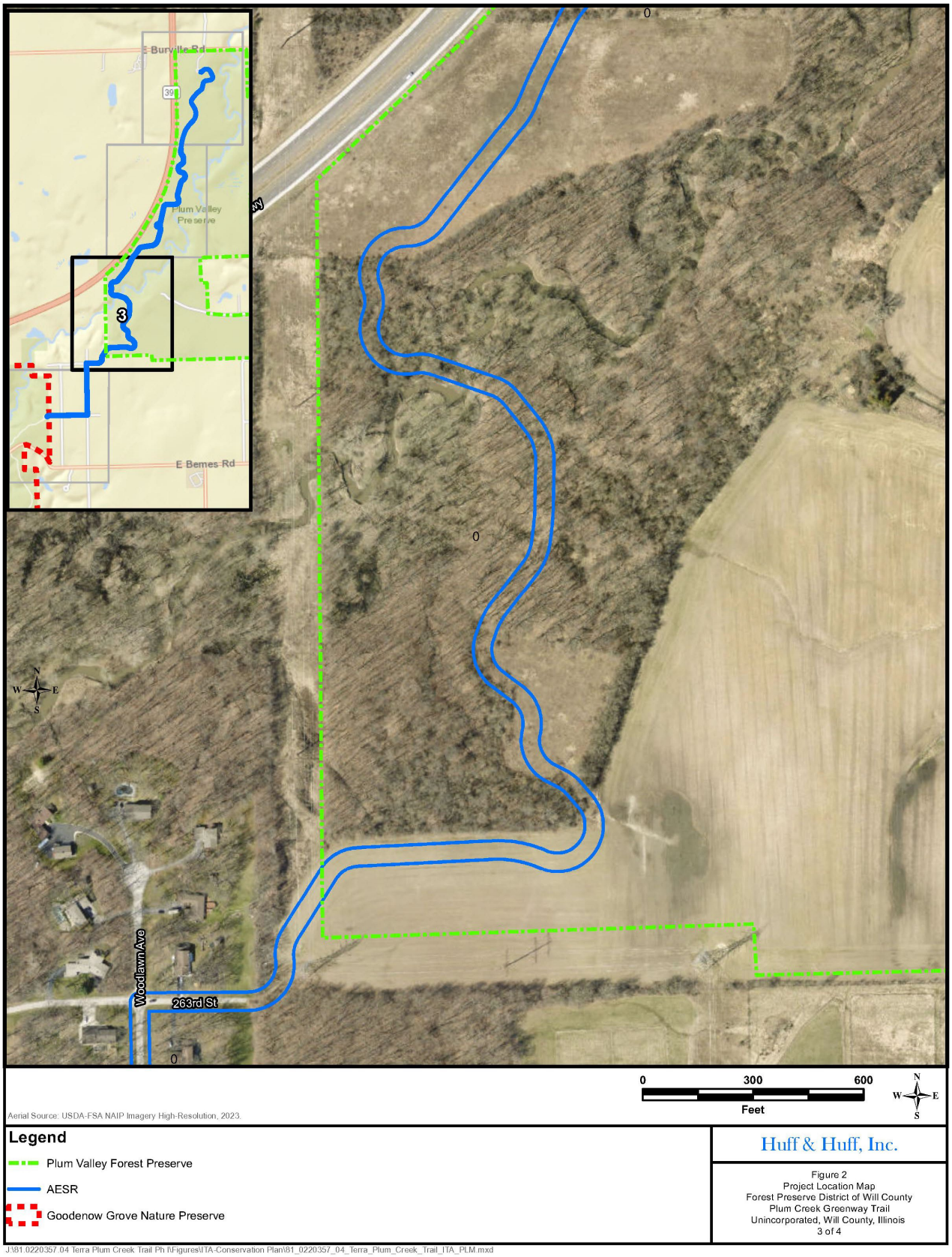

Figure 2: Site Location Map (Page 4 of 4)

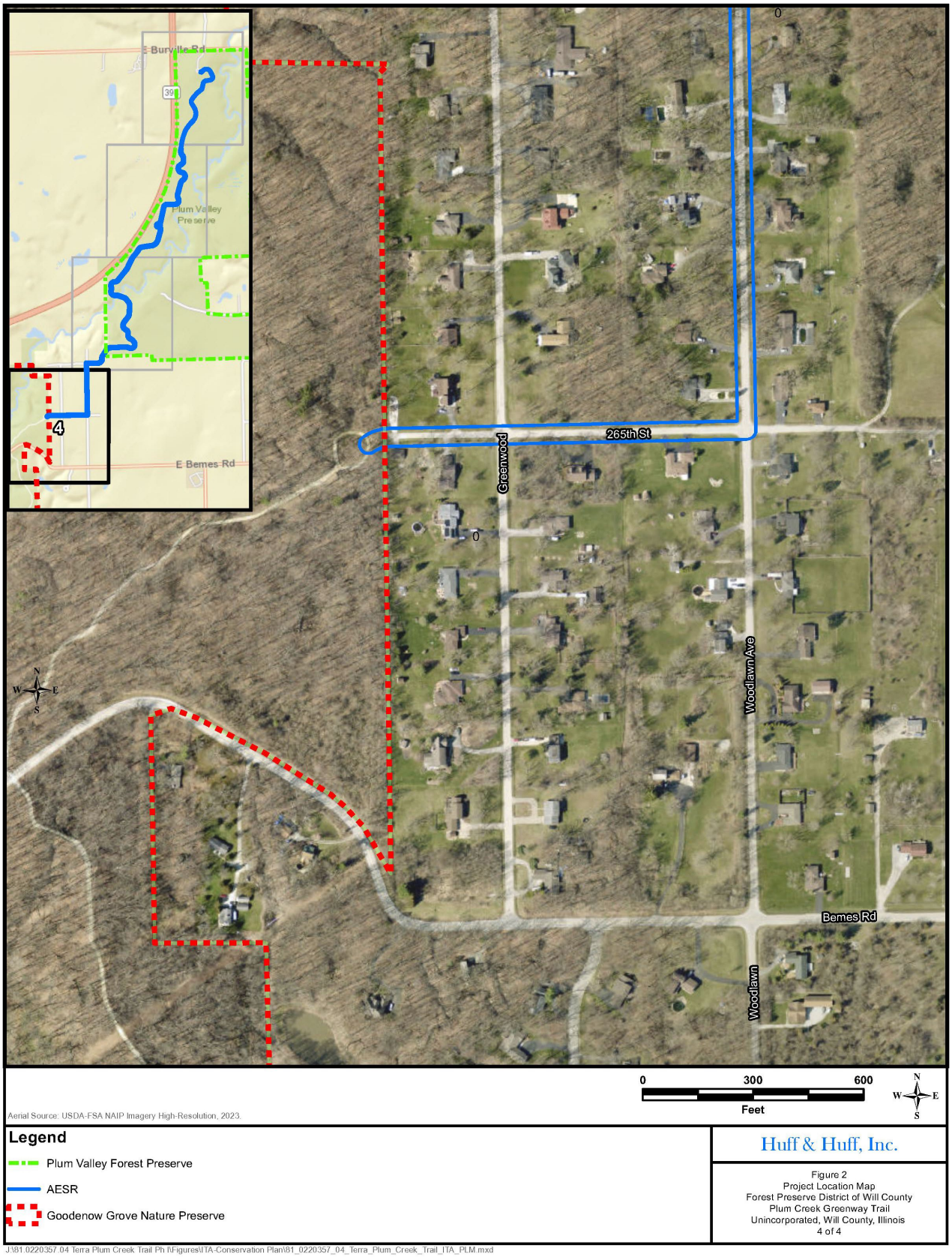

Table 1[1]

Anticipated Take Numbers for the Proposed Project

Common Name	Scientific Name	Anticipated Take Number (Individuals)
Kirtland's snake	*Clonophis kirtlandii*	3

[1]Table 1 presents the estimated take numbers for the project.

Field surveys were conducted for the Kirtland's snake by the Illinois Natural History Survey (INHS) in April of 2021 as well as April, May and June of 2022, as documented in the following reports (**see Appendix B**); Survey for Kirtland's Snake, *Clonophis kirtlandii,* for the Plum Creek Greenway Trail in Will County, Illinois (INHS, October 2022) and Survey for Kirtland's Snake, *Clonophis kirtlandii,* for the Plum Creek Greenway Trail in Will County, Illinois (INHS, August 2021). The INHS captured six different species of grassland snakes during the field surveys, including three (3) Kirtland's snakes within Plum Valley Forest Preserve and within the project vicinity. No other listed species were encountered during the field surveys completed by the INHS for the proposed project.

There are historic records of the Kirtland's snake along Plum Creek, both up and downstream of the proposed project (INHS, 2022). Goodenow Grove Forest Preserve, which is located one mile west-southwest of the Plum Valley Forest Preserve, has a known Kirtland's snake population, including captures of this species in 2021 (INHS, 2022). There are also records of this species from 1994 occurring approximately four miles upstream (northeast), near Steger Road in Bloom Township. According to the INHS, suitable habitat for the Kirtland's Snake is apparent adjacent to the trail throughout the project limits (INHS, 2022). In addition, three (3) Kirtland's snakes were captured within the location of the proposed trail alignment within Plum Valley Forest Preserve during field surveys completed by the INHS in 2022. Therefore, an ITA is being requested for the Kirtland's snake.

This conservation plan includes discussion of presence of the listed herptile species to examine the likelihood of their occurrence within the project area during construction.

According to the INHS, the eastern massasauga rattlesnake is likely extirpated in northeastern Illinois, as this species has not been observed in the project vicinity for over 20 years, although the INHS notes that their sampling method also allowed for the detection of the eastern massasauga, and none were captured or observed during field surveys. The INHS did not conduct field surveys for the listed four-toed salamander as there is no suitable habitat for this species within or adjacent to the ESR limits.

This Conservation Plan includes details for all listed species that could be present in the project vicinity.

A) Description of the area to be affected:

Habitats present within and surrounding the proposed work consist of residential neighborhoods, actively farmed agricultural land, a Commonwealth Edison (ComEd) utility easement, the existing Greenway (limestone) Trail within Plum Valley Forest Preserve, existing roadways and roadway rights-of-way (ROW)s, wet meadow wetlands, Plum Creek, mesic and upland forests, and old field habitat that has been converted to prairies. It should be noted that the FPDWC and ComEd have an easement agreement that has been approved and executed by both agencies.

The current Greenway Trail begins at the Plum Valley Preserve Parking lot, located immediately south of Burville Road, and extends south for approximately one (1) mile. Drainage improvements are proposed to the southern portion of the existing Plum Creek Greenway Trail at Plum Valley Forest Preserve. In addition, the existing aggregate trail located at the northern end of the project limits within Plum Valley Forest Preserve will be paved with asphalt and no excavation will occur within this section. Habitats present adjacent to the one-mile section of existing trail include degraded prairies, wet meadow wetlands, and

mesic and upland forests. After paving is complete, this section of the trail will serve as the construction access route to construct the new trail alignment from where the existing trail ends, extending south to the proposed bridge over Plum Creek.

The new 1.5-mile Plum Creek Greenway Trail addition will be a paved trail with an aggregate base, and will consist of an approximate 0.8 mile section (approximately 9.7 acres) that extends through Plum Valley Forest Preserve, 0.2 miles (approximately 2.4 acres) of which is active agricultural land, an additional 0.5 mile section (approximately 6.1 acres) that extends through a residential neighborhood, and a 0.01 mile section (approximately 0.12 acre) extends into Goodenow Grove Nature Preserve, as shown on **Figure 2**. The area of construction will be approximately 100-feet in width.

The new trail alignment will extend south/southwest from the southern terminus of the existing trail through a degraded wet meadow and prairie, and then will enter a mesic forest, cross Plum Creek, and extend south though a mesic forest and upland forest into a degraded meadow. At this point, the trail will extend east through an actively farmed agricultural field (soy and corn) located adjacent to a ComEd utility easement. The trail will then extend east and south within a residential neighborhood on existing roadway. At its southern terminus, the trail will extend west along 265th Street and connect to an existing trail within Goodenow Grove Nature Preserve. This 0.01-mile section of proposed trail within Goodenow Grove consists of degraded mesic forests and degraded wet and upland meadows.

As stated above, the trail is proposed to cross over Plum Creek, a perennial waterway, and the alignment will be approximately 100 feet in width. The final alignment for the new trail construction has been developed and is presented in **Appendix C, Engineering Plans**.

In order to construct the new trail segments, the top 12 inches of topsoil within the width of the construction limits of the trail will first be excavated, then suitable fill will be brought in to bring the proposed elevation up to the trail subgrade. The new trail will be asphalt. Dump trucks will utilize the trail corridor for earthwork and paving. Concrete trucks will need to also utilize the trail corridor to pour concrete for the bridge abutments. In addition, one or two cranes will be needed to bring in and place the new bridge over Plum Creek. In-stream work is not proposed.

The project is currently scheduled for an August 2024 letting, and final plans were submitted to IDOT on April 22, 2024. Although the project has an August Letting, because there is a tree clearing restriction for the project, construction is not anticipated to begin until November 1, 2024. The FPDWC anticipates that the concrete work for the bridge abutments and the placement of the bridge over Plum Creek may take place late winter or early spring (February and March of 2025).

Coordination with IDOT was completed in order to obtain biological clearances for the proposed project. As part of coordination, an EcoCAT was submitted for the project on February 22, 2023 (EcoCAT Review Number 2310589; **see Appendix A**). The IDNR response to the EcoCAT review request dated March 22, 2023, states that, due to the location and scope of the proposed project, the IDNR recommends the applicant seek an ITA for Kirtland's snake.

The IDNR is requesting that the FPDWC obtain an ITA prior to the commencement of construction activities. Other state protected herptiles known to occur within the project vicinity are included in the ITA.

B) Biological Data for Protected Herptiles Potentially Present in the Project Vicinity

1. Kirtland's Snake (*Clonophis kirtlandii*), Illinois State Endangered Species.

Kirtland's snake primarily inhabits the southern till plain in Illinois and extends north into the Chicago Region. It is absent from the sandy soil habitats in these areas. Suitable habitat for this species historically includes wet prairies, wet meadows, prairie fens, and associated wetlands, especially those that were seasonally flooded and adjacent to upland areas (Ernst and Ernst 2003). Suitable habitats for this species have been destroyed through agricultural practices and other development. Present day habitats for this snake consists of open, low, grassy areas, often at the margins of streams, ponds, or ditches (Minton, 1972; Ernst and Barbour 1989; Bavetz 1994). Crayfish burrows are used as shelter for this species, although Kirtland's snakes have been collected in vacant lots in urban areas where crayfish burrows are not present. When crayfish burrows are not present they hide under boards, trash, and other surface debris (Ernst and Ernst 2003).

Kirtland's snake is a small to medium-sized snake with numerous black or dark-brown blotches. The dorsal (upperside) ground color is reddish brown to grayish brown with two rows of round dark spots extending along the back, and a row of round dark spots running along each side. Taken together, these four rows of alternating dark spots create a somewhat checkerboard pattern if viewed from above. The head is black or brown with a cream to yellow chin and throat. A key identifying characteristic is the belly, which is pink to red, with dark stippling along each side. The dorsal scales are keeled, and the anal plate is divided (the anal plate is the last belly scale of a snake, which covers the anal opening). Like the other natricine snake species, the Kirtland's Snake has keeled scales and a divided anal plate. It is a small species that is distinguished by other snakes in Illinois, by its red or orange venter with contrasting black spots on each ventral scale.

The Illinois Natural History Survey (INHS) database contains 287 records of Kirtland's snake occurrences in Illinois, dating back to 1886. Recent reports (2000 onwards), of Kirtland's snake within Will County are all from Goodenow Grove Nature Preserve or areas immediately adjacent to this preserve. Three (3) Kirtland's snake individuals were found at the current terminus of the existing limestone Greenway Trail, within the direct path of the proposed trail alignment during field surveys completed by the INHS in 2022. The location of the captured Kirtland's snake is shown as Site A within the (**see Appendix B**); Survey for Kirtland's Snake, *Clonophis kirtlandii,* for the Plum Creek Greenway Trail in Will County, Illinois (INHS, October 2022).

In addition, according to the INHS, the existing Greenway Trail traverses potential Kirtland's snake habitat and one redbellied snake (*Storeria occipitomaculata*), a non-listed common snake species, was found deceased on the trail during a site visit conducted on June 3, 2022 (INHS, 2022). Areas of concern for the Kirtland's snake within the project vicinity include low lying areas with culverts that pass under the existing trail. These areas have crayfish burrows and riprap, which may be used as refugia for Kirtland's snakes (INHS, 2022). The INHS states that if the proposed construction can be limited to the trail surface, it should reduce the chance of take. However, drainage improvements are proposed to the existing trail. In addition, the section of the trail within Goodenow Grove Nature Preserve has reserved rights and was planned to be connected to Plum Creek Greenway Trail. The INHS states that suitable habitat for the Kirtland's snake is present throughout the project limits.

Other populations of Kirtland's snake are also known to occur within northeastern Illinois counties of Cook and DuPage. However, the Cook and DuPage County populations are over 25 miles away from the proposed project. A review of INHS historic records of Kirtland's snake in Will County was completed in

preparation of this plan. According to the INHS database accessed in January of 2024, there are 35 records of this species in Will County since the year 2000.

It is estimated that there will be a take of three (3) individual Kirtland's snakes due the presence of this species at Plum Valley Forest Preserve based on the INHS surveys completed for the proposed project in 2022. Given the conservation recommendations outlined within this plan are adopted, the long-term viability of Kirtland's snake populations present within the project vicinity are unlikely to be in jeopardy.

2. **Smooth Greensnake (*Opheodrys vernalis*), Illinois State Candidate Species.**

The smooth greensnake is a grassland snake that occurs in the northern half of Illinois and is identified as a Species in Greatest Need of Conservation in the Illinois Wildlife Action Plan. This species is likely to be officially listed at a future date by the Illinois Endangered Species Board. The decline of this species is due to habitat loss from anthropogenic uses (INHS, 2024).

A review of INHS historic records of the smooth greensnake was completed in preparation of this plan. The INHS database contains 108 records for the smooth greensnake in Illinois. There are 18 records of the smooth greensnake in Will County, Illinois, all of which are from 2002 or older, but of these, 13 are from Goodenow Grove Nature Preserve or other locations close to the project vicinity.

It is estimated that there will not be a take for the candidate species, the smooth greensnake as a result of the proposed project.

3. **Eastern Massasauga Snake (*Sisturus catenatus*), Federal and Illinois State Threatened Species.**

According to the INHS, the eastern massasauga rattlesnake is likely extirpated as none have been observed in Will County for over 20 years (INHS, October 2022).

It is estimated that there will not be a take for the listed eastern massasauga rattlesnake as a result of the proposed project.

4. **Blanding's Turtle (*Emydoidea blandingii*), Illinois State Endangered Species.**

The INHS database contains 316 records for the Blanding's turtle in 32 counties within Illinois, as of January 2024. Of these, 54 occurrences are from Will County, none are from Goodenow Grove Nature Preserve or Plum Creek Forest Preserve.

It is estimated that there will not be a take for the Blanding's turtle as a result of the proposed project.

5. **Four-Toed Salamander (*Hemidactylium scutatum*), Illinois State Threatened Species.**

The INHS database contains 62 records for the four-toed salamander in Illinois. There are six records of this species in Will County, Illinois, four of which are from after the year 2000 located a few miles north of the project. According to the INHS, suitable habitat for the four-toed salamander is not present within or near the project limits (INHS, October 2022).

It is estimated that there will not be a take for the listed four-toed salamander as a result of the proposed project.

C) Description of the activities that could result in the taking of a threatened or endangered species:

Direct impact by the placement of the new trail and by drainage improvements to the existing Greenway Trail are not likely to impact listed species. However, based on prior coordination for the proposed project as well as surveys completed by the INHS where three (3) Kirtland's snake were captured, it is estimated that there will be a take of three (3) individual Kirtland's snakes. Because the smooth greensnake was not captured during surveys completed by the INHS for the proposed project, the taking of this species and any other listed species as a result of the proposed project is not anticipated. It is anticipated that herptiles will likely avoid construction areas as snakes, turtles, and salamanders generally abandon areas of construction. Indirect impacts to herptiles may include habitat disturbance and/or alteration as well as potential temporary disruptions of predator/prey interactions. Artificial lighting will not be utilized during construction or during the future operation of the trail infrastructure to minimize predator/prey disruptions.

Drainage improvements are proposed to the southern portion of the existing Plum Creek Greenway Trail at Plum Valley Forest Preserve. The existing aggregate trail located at the northern end of the project limits within Plum Valley Forest Preserve will also be paved with asphalt and no excavation will occur within this section. In order to construct the new trail segments, the top 12 inches of topsoil within the width of the construction limits of the trail will first be excavated, then suitable fill will be brought in to bring the proposed elevation up to the trail subgrade. The new trail will be asphalt. Dump trucks will utilize the trail corridor for earthwork and paving. Concrete trucks will need to also utilize the trail corridor to pour concrete for the bridge abutments. In addition, one or two cranes will be needed to bring in and place the new bridge over Plum Creek. In-stream work is not proposed. The construction will begin on November 1, 2024, and will end in September of 2025.

D) Explanation of the anticipated adverse effects on the listed species:

Protected species will likely be visible during construction activities and avoidance of snakes, salamanders, and turtles will occur during construction. It is anticipated that a taking of three (3) individual Kirtland's snakes may occur as a result of construction activities; however, if Kirtland's snakes or other listed species are encountered during construction, all activities will cease immediately and the appropriate staff at the IDNR and IDOT will be contacted immediately.

Silt fencing will be placed for the project, and will be trenched into the earth as typically installed, which will also serve as an exclusion fencing to assist with keeping animals outside of the construction area during all phases of construction. Contractors will inspect the construction area within the silt fence limits each morning before construction occurs to ensure animals are not injured as a result of construction activities. It is anticipated that herptiles will likely avoid construction areas as snakes, turtles, and salamanders generally abandon areas of construction. Indirect impacts to herptiles may include habitat disturbance and/or alteration as well as potential temporary disruptions of predator/prey interactions. Artificial lighting will not be utilized during construction or during the future operation of the trail infrastructure to minimize predator/prey disruptions.

To reiterate, if listed species are encountered during construction, all activities will cease immediately and the appropriate staff at the IDNR and IDOT will be contacted immediately. Construction will not continue until the appropriate steps are taken as outlined by the appropriate authority. Adverse effects to the listed species are anticipated by the function and use of the proposed trail, as trails already exist within the vicinity of the proposed project and the general usage of land within the project vicinity will not change as a result of the project; however, one red-bellied snake (*Storeria occipitomaculata*) was encountered on the trail by the INHS during their surveys.

Appropriate best management practices (BMP)s will be utilized during construction to ensure that impacts do not occur to offsite habitats. Noise and vibration from construction activities (construction of trail and bridge) is not anticipated to have an effect on the life history stages of listed herptile species. Noise related impacts would only occur during construction activities.

2. Measures to minimize and mitigate impacts and funding available to undertake these measures.

A) Plans to minimize affected area, and estimated number of protected species that will be taken and amount of habitat affected.

Minimization of the area affected through the use of silt fencing, which will be trenched in at least six (6) inches to prevent burrowing, has been considered and the proposed temporary construction area is the smallest needed for safe construction practices.

Additionally, in order to avoid impacts from usage of the new trail and due to the density of snakes in the area, the IDNR recommends that information about the presence of snakes be implemented at the trailhead's kiosk. The IDNR states that the information should not mention the presence of Kirtland's snakes (and other listed species), but should caution visitors about the possibility of snakes on the trail. Signs will be provided by the FPDWC at multiple locations along the trail.

Silt fencing will be placed for the project, which will also serve as an exclusion fencing to assist with keeping animals outside of the construction area during all phases of construction. Contractors will inspect the construction area within the silt fence limits each morning before construction occurs to ensure animals are not injured as a result of construction activities. If listed species are encountered during construction, all activities will cease immediately and the appropriate staff at the IDNR and IDOT will be contacted immediately. Construction will not continue until the appropriate steps are taken as outlined by the appropriate authority.

During construction, land areas will be protected with the appropriate erosion and sediment control measures. Erosion and sediment control policy and specifications (Storm Water Pollution Prevention Plan (SWPP) contained in the bid specifications) will be followed and will be in compliance with U.S. Army Corps of Engineers (USACE) Section 404 and Illinois EPA water quality certification standards, as well as the requirements within the NPDES construction permit.

The FPDWC will also commit to a budget of $20,000 towards the continued enhancement and restoration of Kirtland's snake (wet prairie) habitat near Plum Creek at Plum Valley Forest Preserve as part of mitigation. Final mitigation measures and associated costs will be coordinated with the IDNR as part of the final ITA.

B) Plans for management of the affected area that will enable continued use by the listed species:

1. FPDWC will be responsible for management of the areas immediately adjacent to the newly constructed trail that are located on FPDWC properties and will continue to be native ecosystems that support native herptiles. The turf directly adjacent to the trail will be mowed at a continuous width of 3 feet from the edge of pavement without herbicide applications. Outside of the 3 foot turf shoulder, typical management activities including prescribed fire and localized/specific/spot herbicide applications for targeted invasive species will continue to occur. Hydrology of the existing project area will not be altered as a result of the trail construction. There are no berms proposed. The proposed trail profile closely matches the existing groundline in order to minimize earthwork. The subgrade will be graded including the shaping of the upslope ditches followed by the installation of the aggregate base followed by the hot-mix asphalt (HMA) paving.

2. Siltation during all phases of construction will be minimized through use of erosion control devices such as silt fences to prevent runoff from entering adjacent upland habitats, as well as wetlands and waterways. A designated crew will inspect and maintain silt fences/erosion structures.

3. It is anticipated that any listed species would not be trapped within the silt fenced construction area. However, if any listed are present, all activities will cease immediately and the appropriate staff at the IDNR and IDOT will be contacted immediately. Construction will not continue until the appropriate steps are taken as outlined by the appropriate authority.

4. After construction is completed, silt fencing will be removed and all areas that are not part of the new multi-use trail will be restored to approximate original condition and flow patterns, allowing for re-colonization of biota.

C) Description of all measures to be implemented to minimize or mitigate the effects of the proposed action on listed species:

1. Implementation and maintenance of the soil, erosion, and sedimentation control plan will prevent runoff from entering adjacent habitats; including uplands, wetlands, and Plum Creek.

2. Non-intrusion fencing shall be used to keep animals from entering the construction zone. In addition, no area outside of the designated construction limits shall be used for equipment storage, soil stockpiles, parking, laydown yards, etc.

3. Inspections for native and listed fauna species within the construction limits each day prior to commencing construction to ensure listed species are not present within or immediately adjacent to construction activities. If listed species are encountered, construction will be halted, and the IDNR and IDOT will be contacted immediately to determine the next appropriate steps. The FPDWC plans to contract the inspection work out to the Phase I Engineer or others, as needed.

4. In order to reduce impacts from usage of the new trail and due to the density of snakes in the project area, the IDNR recommends that information about the presence of snakes be implemented at the trailhead's kiosk. The IDNR states that the information should not mention the presence of Kirtland's snakes, but should caution visitors about the possibility of snakes on the trail.

D) Plans for monitoring the effects of measures implemented to minimize or mitigate the effects of the proposed action on endangered or threatened species.

1. Inspections for native and listed wildlife species within the construction limits will be completed each day prior to commencing construction to ensure listed species are not present within or immediately adjacent to construction activities. If listed species are encountered, construction will be halted, and the IDNR and IDOT will be contacted immediately to determine the next appropriate steps. Monitoring efforts will prevent Kirland's snakes and smooth green snakes from entering the construction site.

2. Post-construction surveys for the Kirtland's snake and the smooth green snake will be completed by the INHS and qualified FPDWC staff upon completion of the project. Two surveys will be completed, one will take place one to two years after construction and the second survey will take place five years after construction. The methodologies used for the post-construction surveys will be similar to those used by the INHS for the pre-construction surveys and will include documentation of suitable habitats for the two snake species as well as placement of cover objects during the appropriate time of year to collect data on the presence of the two species in the project vicinity. Detailed survey

methodologies utilized for this effort can be vetted through the IDNR prior to field work, if appropriate.

3. In order to reduce impacts from usage of the new trail and due to the density of snakes in the project area, the IDNR recommends that information about the presence of snakes be implemented at the trailhead's kiosk. The IDNR states that the information should not mention the presence of Kirtland's snakes, but should caution visitors about the possibility of snakes on the trail.

E) Adaptive management practices that will be used to deal with changed or unforeseen circumstances affecting the effectiveness of measures instituted:

1. Sediment/erosion control measures may be modified and supplemented to ensure maximum protection of offsite habitats as different phases of construction shift erosion points and channels. Erosion control measures/sediment structures will be evaluated and modified weekly or more often if weather events or shifts in construction area dictate modifications. Perimeter controls will protect trees and buffer areas located in the vicinity of the construction activities.

2. Permits from the USACE, IEPA, and IDNR-OWR are not required for the proposed project. A letter was received from the Chicago District USACE on April 6, 2023, that a no permit required determination was made for the proposed project. Work will not take place within any flowing water or floodwaters. A short, 50-foot long section of trail immediately west of the bridge is between the 10 and 100 year floodplain but no equipment storage is allowed in that area. A stormwater pollution prevention plan (SWPPP) has been developed for the proposed project. Perimeter erosion barrier and high visibility wetland fencing will be utilized and placed at the edge of the construction limits to prevent incursions beyond the work zone. The bridge over Plum Creek will span the entire valley with the bridge abutments being located at the top of each bank. Upstream and adjacent to Plum Creek, the Erosion and Sediment Control Plan includes perimeter erosion barrier, temporary ditch checks, erosion control blanket, and temporary seeding to protect the receiving waters. The staging areas on both sides of the creek are not located within a floodplain. If listed species are encountered, construction will be halted, and the IDNR and IDOT will be contacted immediately to determine the next appropriate steps.

F) Verification of adequate funding to support and implement all activities described in the conservation plan:

The monitoring costs during construction, the snake signage, and any mitigation costs related to obtaining the requested ITA will be borne by the FPDWC.

The project is funded by local, state, and federal funding for construction through Transportation Alternatives Program (TAP) money. The construction costs include adequate funding to support and implement all activities and commitments described in the conservation plan. It will be the responsibility of the selected contractor to comply with the environmental commitments of the plan – an allowance is included in the contract cost specifically for environmental project aspects and tasks. Also, as part of the FPDWC construction inspection and project oversite, the FPDWC construction management consultant will provide intermittent environmental inspections, reviews, and reporting.

3. Description of alternative actions the applicant considered that would not result in take and the reasons that each of those alternatives was not selected. A "no-action" alternative shall be included in this description of alternatives.

Various alternatives were analyzed to avoid or minimize impacts to wetlands. To avoid impacts the "No Action" alternative was considered. This alternative does not meet the project purpose and need and was disregarded. Because of the need to connect the existing Plum Creek Trail to the existing trail within Goodenow Grove Nature Preserve, no alternative avoids Goodenow Grove Nature Preserve, and the use of this preserve is unavoidable.

Various trail alignments were considered for the proposed project, all alternatives utilized the same termini in order to connect to an existing trail located within Plum Valley Forest Preserve at the northern end of the project, and to connect to an existing trail located within Goodenow Grove Nature Preserve, at the southern end of the project. A field meeting with the FPDWC, Terra Engineering, and Huff and Huff, Inc. (H&H) was held on June 23, 2020, to review the project area and to discuss proposed alignments. Areas reviewed during the field meeting include the area located south of the existing trail within Plum Valley Forest Preserve, the forested area east of the ComEd utility easement, Plum Creek, the area located south of Plum Creek, including the actively farmed agricultural field, and Goodenow Grove Nature Preserve at 265th Street. During the field review, the preferred alignment was selected to avoid high quality flora assemblages, wetlands, the forested area to the east of the alignment, as well as to minimize impacts to Plum Creek. The width of the creek and associated wetlands was a deciding factor for the determination of the bridged component of the trail. In addition, the avoidance of high-quality trees was a consideration for the alignment. The design reduces impacts to listed species and their habitats by reducing the construction limits. Avoidance and minimization measures include using the minimum trail width required to meet safety requirements.

Measures to avoid and/or minimize impacts to aquatic resources downstream of Plum Creek include the installation of ditch checks, silt fencing, and working during dry or no-flow conditions. Workspace associated with the proposed project was minimized to the extent practical.

BMPs will be incorporated into the final design to further minimize impacts. BMPs include permanent erosion and sedimentation control measures including post construction native seeding.

4. Data and information to indicate that the proposed taking will not reduce the likelihood of the survival of the endangered or threatened species in the wild within the State of Illinois, the biotic community of which the species is a part or the habitat essential to the species existence in Illinois.

It is anticipated that the proposed project, will not significantly reduce the population of protected snakes, turtles, or salamanders that occur near the project area. The objective of this Conservation Plan is to monitor the project during the life of the construction to ensure that listed species do not enter the construction zone and if listed species occur within the construction zone at any time, to halt construction and notify the IDNR and IDOT to determine the appropriate next steps before continuing construction.

In addition, in order to reduce impacts from usage of the new trail and due to the density of snakes in the project area, the FPDWC will post information about the presence of snakes at the trailhead's kiosk. The IDNR states that the information should not mention the presence of Kirtland's snakes, but should caution visitors about the possibility of snakes on the trail. Given the conservation recommendations outlined within this plan are adopted, the long-term viability of Kirtland's and other native snake populations present within the project vicinity are unlikely to be in jeopardy.

The information presented for each species presented in *Section B, Biological Data for Various Protected Herptiles,* illustrates that the species identified in this Conservation Plan are present in other ecosystems throughout the state. As a result, this project will not reduce the likelihood of survival of the species listed within the State of Illinois.

5. Implementing Agreement

A) The names and signatures of all participants in the execution of the conservation plan

Names and Signatures are provided at the end of this document.

The obligations and responsibilities of each of the identified participants with schedules and deadlines for completion of activities included in the conservation plan and a schedule for preparation of progress reports to be provided to the Department.

Applicant. Forest Preserve District of Will County
17540 West Laraway Road
Joliet, Illinois 60433

Conservation Plan Developers.
Huff & Huff Inc. (Lailah Reich / Jim Novak)

Conservation Plan Implementers.
Forest Preserve District of Will County (Matt Novander / Chief Landscape Architect)

Conservation Plan Monitors. Sedimentation/Erosion control monitors are yet to be determined by the FPDWC. Monitor will include INHS and qualified staff yet to be designated by the FPDWC.

Conservation Plan Funder/Enabler, include designees and sub-contractors. The FPDWC is the funder/enabler of the Conservation Plan. Mr. Matt Novander will be the representative for the FPDWC during this process.

B) Certification

The FPDWC certifies that their agency has the authority to complete the project and to address the issues proposed in the Incidental Take Application/Conservation Plan in the event state listed threatened or endangered species are encountered. The FPDWC is in charge of construction through its designated subcontractors. The FPDWC will assure that all applicable state laws will be adhered to during the completion of the project.

Anticipated Project Milestones Schedule

Project Milestone	Anticipated Completion
Project Letting	August 2024
Construction Begins	November 1, 2024
Bridge Construction	February and March 2025
Construction Ends	September 2025
Project Completion	February 2026

C) Assurance of compliance with all other federal, state, and local regulations pertinent to the proposed action and to execution of the conservation plan

The FPDWC is compliant with all other federal, state, and local regulations pertinent to the proposed action and execution of the Conservation Plan.

D) Copies of any final federal authorizations for a taking already issued to the applicant.

No federal authorization needed for the proposed project.

Signatories

Name: _____ **Date:** 7/10/24

Ralph Schultz
Executive Director
Forest Preserve District of Will County

WORKS CONSULTED

Anton, T.G.., D. Mauger, C.A. Phillips, M.J. Dreslik, J.E. Petzing, A.R. Kuhns and J.M. Mui, 2003. Clonophis kirtlandii; Aggregating Behavior and site fidelity. Herpetological Review 34(3):248-249.

Bavetz, M. 1994. Geographic variation, status, and distribution of Kirtland's Snake (*Clonophis kirtlandii* Kennicott) in Illinois. Transactions of the Illinois State Academy of Science 87(3-4): 151-163.

Ernst, C.H., and R.W. Barbour. 1989. Snakes of Eastern North America. George Mason University Press, Fairfax, Virginia. 282 pp.

Ernst, C.H., and E.M. Ernst. 2003. Snakes of the United States and Canada. Smithsonian Books. Washington and London.

Illinois Department of Natural Resources (Illinois DNR). 2023. Illinois Endangered Species Protection Board. Illinois Threatened and Endangered Species by County. https://dnr.illinois.gov/content/dam/soi/en/web/dnr/espb/documents/et-county-list-dec2023.pdf

Illinois Natural History Survey Collection, Herptiles. Published Date January 18, 2024. Accessed January 24, 2024. https://biocoll.inhs.illinois.edu/portalx/collections/datasets/datapublisher.php

Illinois Natural History Survey Collection, Herptiles. Published Date January 18, 2024. Accessed March 28, 2024. https://biocoll.inhs.illinois.edu/portalx/collections/datasets/datapublisher.php

Illinois Natural History Survey. 2021. The grassland snake community of the Plum Valley Preserve, Will County, Illinois.

Illinois Natural History Survey. 2022. Survey for Kirtland's Snake, *Clonophis kirtlandii,* for the Plum Creek Greenway Trail in Will County, Illinois. IDOT Sequence No. 23641A, Section No. 20-F3000-06-BT.

Illinois Natural History Survey. 2021. Survey for Kirtland's Snake, *Clonophis kirtlandii,* for the Plum Creek Greenway Trail in Will County, Illinois. IDOT Sequence No. 23641, Section No. 20-F3000-06-BT.

Minton, S.A. 1972. Amphibians and Reptiles of Indiana. Indiana Academy of Science Monograph No. 3: i-v + 346 pp.

Phillips, C.A., R.A. Brandon, and E.O. Moll. 1999. Field Guide to Amphibians and Reptiles of Illinois. Illinois Natural History Survey Manual 8: 1-282.

Stewart, T.M., et. el. 2023. Estimating the effort required to detect Kirtland's snakes (*Chlonophis kirtlandii*). Wildlife Society Bulletin. 2023;47:e1498.

U.S. Fish and Wildlife Service (USFWS). 2024. Endangered species website. U.S. Department of the Interior, Fish and Wildlife Service, Washington, D.C. https://www.fws.gov/species/eastern-massasauga-sistrurus-catenatus. Accessed 2/3/2024.

U.S. Fish and Wildlife Service (USFWS). 2024. Endangered species website. U.S. Department of the Interior, Fish and Wildlife Service, Washington, D.C. https://www.fws.gov/species/blandings-turtle-emydoidea-blandingii. Accessed 2/3/2024.

U.S. Geological Survey (USGS). 7.5-minute topographic map. Dyer Quadrangle.

APPENDIX A

Coordination Documentation

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Chicago Ecological Service Field Office
U.s. Fish And Wildlife Service Chicago Ecological Services Office
230 South Dearborn St., Suite 2938
Chicago, IL 60604-1507
Phone: (312) 485-9337

In Reply Refer To: February 21, 2023
Project Code: 2023-0047798
Project Name: IDOT - 23621 and 23621A - Plum Creek Greenway Extension

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

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, proposed and candidate species, as well as proposed and final designated critical habitat, that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*).

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the ECOS-IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the ECOS-IPaC system by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 *et seq.*), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

Additionally, please note that on March 23, 2022, the Service published a proposal to reclassify the northern long-eared bat (NLEB) as endangered under the Endangered Species Act. The U.S. District Court for the District of Columbia has ordered the Service to complete a new final listing

determination for the NLEB by November 2022 (Case 1:15-cv-00477, March 1, 2021). The bat, currently listed as threatened, faces extinction due to the range-wide impacts of white-nose syndrome (WNS), a deadly fungal disease affecting cave-dwelling bats across the continent. The proposed reclassification, if finalized, would remove the current 4(d) rule for the NLEB, as these rules may be applied only to threatened species. Depending on the type of effects a project has on NLEB, the change in the species' status may trigger the need to re-initiate consultation for any actions that are not completed and for which the Federal action agency retains discretion once the new listing determination becomes effective (anticipated to occur by December 30, 2022). If your project may result in incidental take of NLEB after the new listing goes into effect this will first need to addressed in an updated consultation that includes an Incidental Take Statement. If your project may require re-initiation of consultation, please contact our office for additional guidance.

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2)(c)). For projects other than major construction activities, the Service suggests that a biological evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at:

http://www.fws.gov/endangered/esa-library/pdf/TOC-GLOS.PDF

Migratory Birds: In addition to responsibilities to protect threatened and endangered species under the Endangered Species Act (ESA), there are additional responsibilities under the Migratory Bird Treaty Act (MBTA) and the Bald and Golden Eagle Protection Act (BGEPA) to protect native birds from project-related impacts. Any activity, intentional or unintentional, resulting in take of migratory birds, including eagles, is prohibited unless otherwise permitted by the U.S. Fish and Wildlife Service (50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)). For more information regarding these Acts see https://www.fws.gov/birds/policies-and-regulations.php.

The MBTA has no provision for allowing take of migratory birds that may be unintentionally killed or injured by otherwise lawful activities. It is the responsibility of the project proponent to comply with these Acts by identifying potential impacts to migratory birds and eagles within applicable NEPA documents (when there is a federal nexus) or a Bird/Eagle Conservation Plan (when there is no federal nexus). Proponents should implement conservation measures to avoid or minimize the production of project-related stressors or minimize the exposure of birds and their resources to the project-related stressors. For more information on avian stressors and

recommended conservation measures see https://www.fws.gov/birds/bird-enthusiasts/threats-to-birds.php.

In addition to MBTA and BGEPA, Executive Order 13186: *Responsibilities of Federal Agencies to Protect Migratory Birds*, obligates all Federal agencies that engage in or authorize activities that might affect migratory birds, to minimize those effects and encourage conservation measures that will improve bird populations. Executive Order 13186 provides for the protection of both migratory birds and migratory bird habitat. For information regarding the implementation of Executive Order 13186, please visit https://www.fws.gov/birds/policies-and-regulations/executive-orders/e0-13186.php.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Consultation Code in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

Attachment(s):

- Official Species List

OFFICIAL SPECIES LIST

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

This species list is provided by:

Chicago Ecological Service Field Office
U.s. Fish And Wildlife Service Chicago Ecological Services Office
230 South Dearborn St., Suite 2938
Chicago, IL 60604-1507
(312) 485-9337

PROJECT SUMMARY

Project Code: 2023-0047798
Project Name: IDOT - 23621 and 23621A - Plum Creek Greenway Extension
Project Type: Recreation - New Construction
Project Description: The proposed project involves the construction of pedestrian / bike trail from existing trail west of Greenwood Ave; along 265th St, Woodlawn Avenue & 263rd Street., then northeasterly thru Plum Valley Forest Preserve, to connect with an exiting trail, south of Burville Road within the Forest Preserve. The addendum covers the existing Plum Creek Greenway Trail, which will be paved as part of the full Plum Creek Greenway Trail extension project.

The project will require 0.06-acre of right-of-way (ROW) acquisition or easements. There will be instream work within a tributary to Plum Creek. There will be two acres of trees to be removed. The land cover in the vicinity of the project is Forest Preserve throughout the corridor. Construction is unknown.

Project Location:

The approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/@41.4221812,-87.57847681326862,14z

Counties: Will County, Illinois

ENDANGERED SPECIES ACT SPECIES

There is a total of 7 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species. Note that 1 of these species should be considered only under certain conditions.

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

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

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

MAMMALS

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

REPTILES

NAME	STATUS
Eastern Massasauga (=rattlesnake) *Sistrurus catenatus* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/2202	Threatened

INSECTS

NAME	STATUS
Hine's Emerald Dragonfly *Somatochlora hineana* There is **final** critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/7877	Endangered
Monarch Butterfly *Danaus plexippus* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/9743	Candidate

FLOWERING PLANTS

NAME	STATUS
Eastern Prairie Fringed Orchid *Platanthera leucophaea*	Threatened
No critical habitat has been designated for this species.	
This species only needs to be considered under the following conditions:	
▪ Follow the guidance provided at https://www.fws.gov/midwest/endangered/section7/s7process/plants/epfos7guide.html	
Species profile: https://ecos.fws.gov/ecp/species/601	
Lakeside Daisy *Hymenoxys herbacea*	Threatened
No critical habitat has been designated for this species.	
Species profile: https://ecos.fws.gov/ecp/species/3615	
Leafy Prairie-clover *Dalea foliosa*	Endangered
Population:	
No critical habitat has been designated for this species.	
Species profile: https://ecos.fws.gov/ecp/species/5498	

CRITICAL HABITATS

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

IPAC USER CONTACT INFORMATION

Agency: Illinois Department of Transportation
Name: Joe Bartletti
Address: 2300 S. Dirksen Parkway
City: Springfield
State: IL
Zip: 62764
Email joe.bartletti@illinois.gov
Phone: 2174157157

LEAD AGENCY CONTACT INFORMATION

Lead Agency: Federal Highway Administration

EcoCAT
Ecological Compliance Assessment Tool

ILLINOIS DEPARTMENT OF NATURAL RESOURCES

Applicant:	Illinois Department of Transportation	*IDNR Project Number:*	2310589
Contact:	Joe Bartletti	*Date:*	02/22/2023
Address:	Bureau of Design and Environment 2300 South Dirksen Parkway Springfield, IL 62764		

Project: IDOT - 23621 /23621 A - Plum Creek Greenway Extension
Address: Burville Road, Crete

Description: The proposed project involves the construction of pedestrian / bike trail from existing trail west of Greenwood Ave; along 265th St, Woodlawn Avenue & 263rd Street., then northeasterly thru Plum Valley Forest Preserve, to connect with an existing trail, south of Burville Road within the Forest Preserve. The addendum covers the existing Plum Creek Greenway Trail, which will be paved as part of the full Plum Creek Greenway Trail extension project.

The project will require 0.06-acre of right-of-way (ROW) acquisition or easements. There will be instream work within a tributary to Plum Creek. There will be two acres of trees to be removed. The land cover in the vicinity of the project is Forest Preserve throughout the corridor.

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:

Goodenow Grove INAI Site
Moeller Woods INAI Site
Goodenow Grove Nature Preserve
Blanding's Turtle *(Emydoidea blandingii)*
Eastern Massasauga *(Sistrurus catenatus catenatus)*
Kirtland's Snake *(Clonophis kirtlandi)*

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: Will

Township, Range, Section:
34N, 14E, 13
34N, 14E, 14
34N, 14E, 23
34N, 14E, 26

EXHIBIT A-12.2

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

Government Jurisdiction
IL Department of Transportation
Joe Bartletti
2300 South Dirksen Pkwy
Springfield, Illinois 62764

Disclaimer

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

Terms of Use

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

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

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

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

Security

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

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

Privacy

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

EXHIBIT A-12.2

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

March 22, 2023

Mr. Joe Bartletti
2300 South Dirksen Parkway
Springfield, IL 62764

RE: IDOT - 23621 /23621 A - Plum Creek Greenway Extension
Consultation Program
EcoCAT Review #2310589
Will County

Dear Mr. Bartletti:

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], Title 17 *Illinois Administrative Code* Part 1075, and Title 17 *Illinois Administrative Code* Part 1090.

The proposed action consists of construction of pedestrian / bike trail from existing trail west of Greenwood Ave; along 265th St, Woodlawn Avenue & 263rd Street., then northeasterly thru Plum Valley Forest Preserve, to connect with an existing trail, south of Burville Road within the Forest Preserve. The addendum covers the existing Plum Creek Greenway Trail, which will be paved as part of the full Plum Creek Greenway Trail extension project.

The project will require 0.06-acre of right-of-way (ROW) acquisition or easements. There will be instream work within a tributary to Plum Creek. There will be two acres of trees to be removed. The land cover in the vicinity of the project is Forest Preserve throughout the corridor.

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

Illinois Natural Areas Inventory
Goodenow Grove
Moeller Woods

Illinois Nature Preserves Commission Lands
Goodenow Grove Nature Preserve

State Threatened or Endangered Species
Blanding's Turtle (*Emydoidea blandingii*)
Eastern Massasauga (*Sistrurus catenatus*)
Kirtland's Snake (*Clonophis kirtlandii*)

Due to the project scope and proximity to protected resources the Department offers the following comments and recommends the following actions be taken to avoid adversely impacting listed species and protected natural areas in the vicinity of the project:

Goodenow Grove INAI & Goodenow Grove Nature Preserve
The applicant should be aware that they may be liable for any adverse impact to an Illinois Nature Preserve or Illinois Land and Water Reserve pursuant to the *Illinois Natural Areas Preservation Act [525 ILCS 30/21-23]*. Violations under this Act can carry significant penalties. Coordination with the Illinois Nature Preserves Commission should continue through project completion.
Due to the location of the proposed project, the Department recommends avoiding or minimizing impacts to Goodenow Grove INAI and Goodenow Grove Nature Preserve where feasible. The Department also recommends:

- All equipment should be power washed offsite prior to entering the work site to remove exotic/invasive seed or propagules.
- No equipment should be stored in Goodenow Grove Nature Preserve.
- Soil erosion and sediment control BMPs should be implemented and properly maintained.
- Disturbed areas should be reseeded with an appropriate native seed mix that contains forbs as well as grasses (such as IDOT Class 5, 5A, or 5B seed mix), where feasible.
- Work should be completed during dry conditions, preferably between August and September.
- If work must be completed during wet conditions, matting or low ground pressure (<7 psi) equipment should be used to avoid rutting.
- The Department requests that temporary and permanent lighting be avoided. If lighting is required, the Department recommends:
    - All lighting should be fully shielded fixtures that emit no upward light.
    - Only "warm-white" or filtered LEDs (CCT < 3,000 K; S/P ratio < 1.2) should be used to minimized blue emission.
    - Based on the higher luminous efficiency of LEDs, do not over-light area.
    - Only light the exact space with the amount (lumens) needed to meet highway or industry safety requirement.
- Good housekeeping practices should be implemented and maintained during and after construction to prevent trash and other debris from inadvertently blowing or washing into nearby natural areas.

If disturbance to Goodenow Grove Nature Preserve is anticipated, further coordination with the Illinois Nature Preserves Commission is required.

Blanding's Turtle & Eastern Massasauga
Due to the location of the proposed project, the Department has determined that impacts to these listed species are unlikely.

Kirtland's Snake

Due to the location and scope of the proposed project, the Department recommends the applicant seek an incidental Take Authorization (ITA) from the Department. Be advised, an ITA can take at least four months to complete. All questions pertaining to ITA should be directed to the ITA coordinator, Heather Osborn (Heather.Osborn@Illinois.gov). Visit the link below for information on the ITA process:
Incidental Take Authorizations - Species Conservation (illinois.gov)

Additionally, due to the density of snakes in the area, the Department recommends that information about the presence of snakes be implemented at the trailhead's kiosk. Information should not mention the presence of Kirtland's snakes but should caution visitors about the possibility of snakes on the trail.

Given the above recommendations are adopted, the Department has determined that impacts to these protected resources are unlikely. The Department has determined impacts to other protected resources in the vicinity of the project location are also unlikely.

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

Interagency Wetland Policy Act

The Department has reviewed for wetland impacts and proposed mitigation and has no objections. The Department concurs with your assessment that the amount of mitigation required under IWPA is 0.398 acres; and has no concerns with mitigation occurring out of basin a Squaw Creek wetland mitigation bank in the Fox River IWPA drainage basin.

This project was reviewed for compliance with Title 17 *Illinois Administrative Code* Part 1090 of the *Interagency Wetland Policy Act* and was determined to be in compliance. Consultation for Part 1090 is valid for three years.

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.

This letter does not serve as permission to take any listed or endangered species. As a reminder, no take of an endangered species is permitted without an Incidental Take Authorization or the required permits. Anyone who takes a listed or endangered species without an Incidental Take Authorization or required permit may be subject to criminal and/or civil penalties pursuant to the *Illinois Endangered Species Act*, the *Fish and Aquatic Life Act*, the *Wildlife Code* and other applicable authority.

The Department also offers the following conservation measures be considered to help protect native wildlife and enhance natural areas in the project area:

If erosion control blanket is to be used, the Department also recommends that wildlife-friendly plastic-free blanket be used around wetlands and adjacent to natural areas, if not feasible to implement project wide, to prevent the entanglement of native wildlife.

Please contact me with any questions about this review.
Sincerely,

Bradley Hayes
Manager, Impact Assessment Section
Division of Real Estate Services and Consultation
Office of Realty & Capital Planning
Illinois Department of Natural Resources
One Natural Resources Way
Springfield, IL 62702
Bradley.Hayes@Illinois.gov
Phone: (217) 782-0031

Cc Heather Osborn – Incidental Take Authorization Coordinator

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Chicago Ecological Service Field Office
U.s. Fish And Wildlife Service Chicago Ecological Services Office
230 South Dearborn St., Suite 2938
Chicago, IL 60604-1507
Phone: (312) 485-9337

In Reply Refer To: March 27, 2023
Project code: 2023-0047798
Project Name: IDOT - 23621 and 23621A - Plum Creek Greenway Extension

Federal Nexus: yes
Federal Action Agency (if applicable): Federal Highway Administration

Subject: Federal agency coordination under the Endangered Species Act, Section 7 for 'IDOT - 23621 and 23621A - Plum Creek Greenway Extension'

Dear Joe Bartletti:

This letter records your determination using the Information for Planning and Consultation (IPaC) system provided to the U.S. Fish and Wildlife Service (Service) on March 27, 2023, for 'IDOT - 23621 and 23621A - Plum Creek Greenway Extension' (here forward, Project). This project has been assigned Project Code 2023-0047798 and all future correspondence should clearly reference this number. **Please carefully review this letter. Your Endangered Species Act (Act) requirements may not be complete.**

Ensuring Accurate Determinations When Using IPaC

The Service developed the IPaC system and associated species' determination keys in accordance with the Endangered Species Act of 1973 (ESA; 87 Stat. 884, as amended; 16 U.S.C. 1531 et seq.) and based on a standing analysis. All information submitted by the Project proponent into the IPaC must accurately represent the full scope and details of the Project. Failure to accurately represent or implement the Project as detailed in IPaC or the Northern Long-eared Bat Rangewide Determination Key (DKey), invalidates this letter.

Determination for the Northern Long-Eared Bat

Based upon your IPaC submission and a standing analysis completed by the Service, your project has reached the determination of “May Affect, Not Likely to Adversely Affect” the northern long-eared bat. Unless the Service advises you within 15 days of the date of this letter that your IPaC-assisted determination was incorrect, this letter verifies that consultation on the Action is complete and no further action is necessary unless either of the following occurs:

- new information reveals effects of the action that may affect the northern long-eared bat in a manner or to an extent not previously considered; or,
- the identified action is subsequently modified in a manner that causes an effect to the northern long-eared bat that was not considered when completing the determination key.

15-Day Review Period

As indicated above, the Service will notify you within 15 calendar days if we determine that this proposed Action does not meet the criteria for a “may affect, not likely to adversely affect” (NLAA) determination for the northern long-eared bat. If we do not notify you within that timeframe, you may proceed with the Action under the terms of the NLAA concurrence provided here. This verification period allows the identified Ecological Services Field Office to apply local knowledge to evaluation of the Action, as we may identify a small subset of actions having impacts that we did not anticipate when developing the key. In such cases, the identified Ecological Services Field Office may request additional information to verify the effects determination reached through the Northern Long-eared Bat DKey.

Other Species and Critical Habitat that May be Present in the Action Area

The IPaC-assisted determination for the northern long-eared bat does not apply to the following ESA-protected species and/or critical habitat that also may occur in your Action area:

- Eastern Massasauga (=rattlesnake) *Sistrurus catenatus* Threatened
- Eastern Prairie Fringed Orchid *Platanthera leucophaea* Threatened
- Hine's Emerald Dragonfly *Somatochlora hineana* Endangered
- Lakeside Daisy *Hymenoxys herbacea* Threatened
- Leafy Prairie-clover *Dalea foliosa* Endangered
- Monarch Butterfly *Danaus plexippus* Candidate
- Whooping Crane *Grus americana* Experimental Population, Non-Essential

You may coordinate with our Office to determine whether the Action may affect the species and/or critical habitat listed above. Note that reinitiation of consultation would be necessary if a new species is listed or critical habitat designated that may be affected by the identified action before it is complete.

If you have any questions regarding this letter or need further assistance, please contact the Chicago Ecological Service Field Office and reference Project Code 2023-0047798 associated with this Project.

Action Description
You provided to IPaC the following name and description for the subject Action.

1. Name

IDOT - 23621 and 23621A - Plum Creek Greenway Extension

2. Description

The following description was provided for the project 'IDOT - 23621 and 23621A - Plum Creek Greenway Extension':

> The proposed project involves the construction of pedestrian / bike trail from existing trail west of Greenwood Ave; along 265th St, Woodlawn Avenue & 263rd Street., then northeasterly thru Plum Valley Forest Preserve, to connect with an existing trail, south of Burville Road within the Forest Preserve. The addendum covers the existing Plum Creek Greenway Trail, which will be paved as part of the full Plum Creek Greenway Trail extension project.
>
> The project will require 0.06-acre of right-of-way (ROW) acquisition or easements. There will be instream work within a tributary to Plum Creek. There will be two acres of trees to be removed. The land cover in the vicinity of the project is Forest Preserve throughout the corridor. Construction is unknown.

The approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/@41.4221812,-87.57847681326862,14z

DETERMINATION KEY RESULT

Based on the answers provided, the proposed Action is consistent with a determination of “may affect, but not likely to adversely affect” for the Endangered northern long-eared bat (*Myotis septentrionalis*).

QUALIFICATION INTERVIEW

1. Does the proposed project include, or is it reasonably certain to cause, intentional take of the northern long-eared bat or any other listed species?

   Note: Intentional take is defined as take that is the intended result of a project. Intentional take could refer to research, direct species management, surveys, and/or studies that include intentional handling/encountering, harassment, collection, or capturing of any individual of a federally listed threatened, endangered or proposed species?

   No

2. Do you have data that indicates that northern long-eared bats may be present in the action area?

   No

3. Does any component of the action involve construction or operation of wind turbines?

   Note: For federal actions, answer ‘yes’ if the construction or operation of wind power facilities is either (1) part of the federal action or (2) would not occur but for a federal agency action (federal permit, funding, etc.).

   No

4. Is the proposed action authorized, permitted, licensed, funded, or being carried out by a Federal agency in whole or in part?

   Yes

5. Is the Federal Highway Administration (FHWA), Federal Railroad Administration (FRA), or Federal Transit Administration (FTA) funding or authorizing the proposed action, in whole or in part?

   Yes

6. FHWA, FRA, and FTA have completed a range-wide programmatic consultation for transportation- related actions within the range of the Indiana bat and northern long-eared bat.

   Does your proposed action fall within the scope of this programmatic consultation?

   Note:If you have **previously consulted** on your proposed action with the Service under the NLEB 4dRule, answer 'no' to this question and proceed with using this key. If you have **not yet consulted** with the Service on your proposed action and are unsure whether your proposed action falls within the scope of the FHWA, FRA, FTA range-wide programmatic consultation, please select "Yes" and use the FHWA, FRA, FTA Assisted Determination Key in IPaC to determine if the programmatic consultation is applicable to your action. Return to this key and answer ‘no’ to this question if it is not.

   No

7. Are you an employee of the federal action agency or have you been officially designated in writing by the agency as its designated non-federal representative for the purposes of Endangered Species Act Section 7 informal consultation per 50 CFR § 402.08?

   Note: This key may be used for federal actions and for non-federal actions to facilitate section 7 consultation and to help determine whether an incidental take permit may be needed, respectively. This question is for information purposes only.

   Yes

8. Is the lead federal action agency the Environmental Protection Agency (EPA) or Federal Communications Commission (FCC)? Is the Environmental Protection Agency (EPA) or Federal Communications Commission (FCC) funding or authorizing the proposed action, in whole or in part?

   No

9. Have you determined that your proposed action will have no effect on the northern long-eared bat? Remember to consider the effects of any activities that would not occur but for the proposed action.

   If you think that the northern long-eared bat may be affected by your project or if you would like assistance in deciding, answer “No” below and continue through the key. If you have determined that the northern long-eared bat does not occur in your project’s action area and/or that your project will have no effects whatsoever on the species despite the potential for it to occur in the action area, you may make a “no effect” determination for the northern long-eared bat.

   Note: Federal agencies (or their designated non-federal representatives) must consult with USFWS on federal agency actions that may affect listed species [50 CFR 402.14(a)]. Consultation is not required for actions that will not affect listed species or critical habitat. Therefore, this determination key will not provide a consistency or verification letter for actions that will not affect listed species. If you believe that the northern long-eared bat may be affected by your project or if you would like assistance in deciding, please answer “No” and continue through the key. Remember that this key addresses only effects to the northern long-eared bat. Consultation with USFWS would be required if your action may affect another listed species or critical habitat. The definition of Effects of the Action can be found here: https://www.fws.gov/media/northern-long-eared-bat-assisted-determination-key-selected-definitions

   No

10. Does the action area contain any caves (or associated sinkholes, fissures, or other karst features), mines, rocky outcroppings, or tunnels that could provide habitat for hibernating northern long-eared bats?

    No

11. Does the action area contain or occur within 0.5 miles of (1) talus or (2) anthropogenic or naturally formed rock crevices in rocky outcrops, rock faces or cliffs?

    No

12. Is suitable summer habitat for the northern long-eared bat present within 1000 feet of project activities?
    (If unsure, answer "Yes.")

    Note: If there are trees within the action area that are of a sufficient size to be potential roosts for bats (i.e., live trees and/or snags ≥3 inches (12.7 centimeter) dbh), answer "Yes". If unsure, additional information defining suitable summer habitat for the northern long-eared bat can be found at: https://www.fws.gov/media/northern-long-eared-bat-assisted-determination-key-selected-definitions

    Yes

13. Will the action cause effects to a bridge?

    No

14. Will the action result in effects to a culvert or tunnel?

    No

15. Does the action include the intentional exclusion of northern long-eared bats from a building or structure?

    Note: Exclusion is conducted to deny bats' entry or reentry into a building. To be effective and to avoid harming bats, it should be done according to established standards. If your action includes bat exclusion and you are unsure whether northern long-eared bats are present, answer "Yes." Answer "No" if there are no signs of bat use in the building/structure. If unsure, contact your local U.S. Fish and Wildlife Services Ecological Services Field Office to help assess whether northern long-eared bats may be present. Contact a Nuisance Wildlife Control Operator (NWCO) for help in how to exclude bats from a structure safely without causing harm to the bats (to find a NWCO certified in bat standards, search the Internet using the search term "National Wildlife Control Operators Association bats"). Also see the White-Nose Syndrome Response Team's guide for bat control in structures

    No

16. Does the action involve removal, modification, or maintenance of a human-made structure (barn, house, or other building) **known or suspected to contain roosting bats?**

    No

17. Will the action cause construction of one or more new roads open to the public?

    For federal actions, answer 'yes' when the construction or operation of these facilities is either (1) part of the federal action or (2) would not occur but for an action taken by a federal agency (federal permit, funding, etc.).

    No

18. Will the action include or cause any construction or other activity that is reasonably certain to increase average daily traffic on one or more existing roads?

    Note: For federal actions, answer 'yes' when the construction or operation of these facilities is either (1) part of the federal action or (2) would not occur but for an action taken by a federal agency (federal permit, funding, etc.). .

    No

19. Will the action include or cause any construction or other activity that is reasonably certain to increase the number of travel lanes on an existing thoroughfare?

    For federal actions, answer 'yes' when the construction or operation of these facilities is either (1) part of the federal action or (2) would not occur but for an action taken by a federal agency (federal permit, funding, etc.).

    No

20. Will the proposed action involve the creation of a new water-borne contaminant source (e.g., leachate pond pits containing chemicals that are not NSF/ANSI 60 compliant)?

    No

21. Will the proposed action involve the creation of a new point source discharge from a facility other than a water treatment plant or storm water system?

    No

22. Will the action include drilling or blasting?

    No

23. Will the action involve military training (e.g., smoke operations, obscurant operations, exploding munitions, artillery fire, range use, helicopter or fixed wing aircraft use)?

    No

24. Will the proposed action involve the use of herbicides or pesticides other than herbicides (e.g., fungicides, insecticides, or rodenticides)?

    No

25. Will the action include or cause activities that are reasonably certain to cause chronic nighttime noise in suitable summer habitat for the northern long-eared bat? Chronic noise is noise that is continuous or occurs repeatedly again and again for a long time.

    Note: Additional information defining suitable summer habitat for the northern long-eared bat can be found at: https://www.fws.gov/media/northern-long-eared-bat-assisted-determination-key-selected-definitions

    No

26. Does the action include, or is it reasonably certain to cause, the use of artificial lighting within 1000 feet of suitable northern long-eared bat roosting habitat?

    Note: Additional information defining suitable roosting habitat for the northern long-eared bat can be found at: https://www.fws.gov/media/northern-long-eared-bat-assisted-determination-key-selected-definitions

    No

27. Will the action include tree cutting or other means of knocking down or bringing down trees, tree topping, or tree trimming?

    Yes

28. Has a presence/probable absence summer bat survey targeting the northern long-eared bat following the Service's Range-wide Indiana Bat and Northern Long-Eared Bat Survey Guidelines been conducted within the project area? If unsure, answer "No."

    No

29. Does the action include emergency cutting or trimming of hazard trees in order to remove an imminent threat to human safety or property? See hazard tree note at the bottom of the key for text that will be added to response letters

    Note: A "hazard tree" is a tree that is an immediate threat to lives, public health and safety, or improved property and has a diameter breast height of six inches or greater.

    No

30. Are any of the trees proposed for cutting or other means of knocking down, bringing down, topping, or trimming suitable for northern long-eared bat roosting (i.e., live trees and/or snags ≥3 inches dbh that have exfoliating bark, cracks, crevices, and/or cavities)?

    Yes

31. [Semantic] Does your project intersect a known sensitive area for the northern long-eared bat?

    Note: The map queried for this question contains proprietary information and cannot be displayed. If you need additional information, please contact your state agency or USFWS field office

    Automatically answered
    No

32. Will all tree cutting/trimming or other knocking or bringing down of trees be restricted to the inactive season for the northern long-eared bat?

    Note: Inactive Season dates for summer habitat outside of staging and swarming areas can be found here: https://www.fws.gov/media/inactive-season-dates-swarming-and-staging-areas.

    Yes

33. Will the action cause trees to be cut, knocked down, or otherwise brought down across an area greater than 10 acres?

    No

34. Will the action cause trees to be cut, knocked down, or otherwise brought down in a way that would fragment a forested connection (e.g., tree line) between two or more forest patches of at least 5 acres?

    The forest patches may consist of entirely contiguous forest or multiple forested areas that are separated by less than 1000’ of non-forested area. A project will fragment a forested connection if it creates an unforested gap of greater than 1000’.

    No

35. Will the action result in the use of prescribed fire?

    No

36. Will the action cause noises that are louder than ambient baseline noises within the action area?

    No

PROJECT QUESTIONNAIRE

Enter the extent of the action area (in acres) from which trees will be removed - round up to the nearest tenth of an acre. For this question, include the entire area where tree removal will take place, even if some live or dead trees will be left standing.

57

In what extent of the area (in acres) will trees be cut, knocked down, or trimmed during the inactive (hibernation) season for northern long-eared bat? **Note:** Inactive Season dates for spring staging/fall swarming areas can be found here: https://www.fws.gov/media/inactive-season-dates-swarming-and-staging-areas

2

In what extent of the area (in acres) will trees be cut, knocked down, or trimmed during the active (non-hibernation) season for northern long-eared bat? **Note:** Inactive Season dates for spring staging/fall swarming areas can be found here: https://www.fws.gov/media/inactive-season-dates-swarming-and-staging-areas

0

Will all potential northern long-eared bat (NLEB) roost trees (trees ≥3 inches diameter at breast height, dbh) be cut, knocked, or brought down from any portion of the action area greater than or equal to 0.1 acre? If all NLEB roost trees will be removed from multiple areas, select 'Yes' if the cumulative extent of those areas meets or exceeds 0.1 acre.

Yes

Enter the extent of the action area (in acres) from which all potential NLEB roost trees will be removed. If all NLEB roost trees will be removed from multiple areas, entire the total extent of those areas. Round up to the nearest tenth of an acre.

2

For the area from which all potential northern long-eared bat (NLEB) roost trees will be removed, on how many acres (round to the nearest tenth of an acre) will trees be allowed to regrow? Enter '0' if the entire area from which all potential NLEB roost trees are removed will be developed or otherwise converted to non-forest for the foreseeable future.

2

Will any snags (standing dead trees) ≥3 inches dbh be left standing in the area(s) in which all northern long-eared bat roost trees will be cut, knocked down, or otherwise brought down?

No

Will all project activities by completed by April 1, 2024?

No

IPAC USER CONTACT INFORMATION

Agency: Illinois Department of Transportation
Name: Joe Bartletti
Address: 2300 S. Dirksen Parkway
City: Springfield
State: IL
Zip: 62764
Email joe.bartletti@illinois.gov
Phone: 2174157157

LEAD AGENCY CONTACT INFORMATION

Lead Agency: Federal Highway Administration

Wetlands

Submittal Date: 11/11/2020 **Sequence No:** 23621
District: 1 **Requesting Agency:** Local Will Co FPD **Project No:**
Contract #: **Job No.:**
Counties: Will
Route: Plum Creek Greenway Trail **Marked:**
Street: On & Off-road **Section:** 20-F3000-06-BT
Municipality(ies): 2 1/2 miles SE Crete **Project Length:** 2.4140 **km** 1.5 **miles**
FromTo (At): South of Burville Road to 265th Street
Quadrangle: Dyer **Township-Range-Section:** T34N R14E S 23 and 26
Anticipated Design Approval: 09/01/2021 **Cleared for Design Approval:** 03/27/2023
Cleared for Letting: **Mitigation:** Yes **Mitigation Completed:**

Wetland Impacts Evaluation

Submittal Date: 06/30/2021 **Submitted By:**

Does the project have wetland impacts? Yes **Type:** Permanent

Briefly describe the measures considered to avoid and minimize adverse impacts to the wetlands: The trail was routed to avoid or minimize impacts as much as possible. A bridge will be utilized to span several wetlands along with Plum Creek.

Summarize briefly why there are no practicable alternatives to the use of the wetland(s): The impacts as shown cannot be avoided due to the linear nature of the existing wetlands and the need to meet geometric design criteria of the proposed trail.

Wetland mitigation is being proposed: wetland bank site ☐ **Reviewed**

Memo Date: 03/27/2023 **Memo By:** Joe Bartletti - BDE

Memo: The proposed improvement was surveyed for wetlands. We reviewed the wetland survey report and the Wetlands Impact Evaluation (WIE) form and approve both. None of the delineated wetlands had an FQI or mean c-value greater than or equal to 20.0 or 4.0 respectively, thus none of the features are considered high quality. The WIE indicates, there will be permanent impacts to six wetland sites for the new alignment portion of the project, totaling 0.185-acre. Because a portion of this project occurs on new alignment, it is considered a Standard Review Action in accordance with the Interagency Wetland Policy Act (IWPA) and requires concurrence from IDNR before this project can be cleared for letting regarding wetlands. Mitigation for permanent impacts is proposed at Squaw Creek wetland mitigation bank in the out of basin Fox River IWPA drainage basin. The project is in the Des Plaines River and Lake Michigan Tributaries IWPA drainage basin. Therefore, the out-of-basin mitigation replacement ratio of 2:1 shall apply to permanent impacts to Wetland Sites 6-9 and 13. Wetland Site 15 occurs within the boundaries Goodenow Grove Natural Areas Inventory (INAI) / Nature Preserve thus it requires a replacement ratio of 5.5:1.0 for permanent impacts. There are 0.008 ac of permanent impact to this site requiring 0.044-acre of mitigation. Total wetland mitigation credits required for the entire project total 0.398- acre.

This project was submitted to IDNR on 02-22-2023 for their review. The Department has reviewed for wetland impacts and proposed mitigation and has no objections. The Department concurs with your assessment that the amount of mitigation required under IWPA is 0.398 acres; and has no concerns with mitigation occurring out of basin a Squaw Creek wetland mitigation bank in the Fox River IWPA drainage basin.
This project is cleared with respect to wetlands

Memo Date: 06/30/2021 **Memo By:** Huff & Huff, Inc.

Memo: Because Goodenow Grove Nature Preserve falls within a portion of the proposed project, threatened and endangered species may be present. However, it is unknown at this time whether or not threatened and endangered species are present within the immediate project vicinity.

Wetland Impacts and Mitigation Required

Site No.	Type	T&E	Nature Preserve	Natural Area	Essential Habitat	Size (acres)	Acres of Impact	Ratio	Acres of Compensation
W3	Open Water	No	No	No	No	.001	.000		

Basin 07120003 **Quadrangle** Dyer **FQI** NA
Describe the work:

EXHIBIT A-12.2

W2	Open Water	No	No	No	No	.06	.000		
Basin	07120003	**Quadrangle**	Dyer			**FQI**	NA		
Describe the work:									
W1	Open Water	No	No	No	No	.004	.000		
Basin	07120003	**Quadrangle**	Dyer			**FQI**	NA		
Describe the work:									
1	Wet Mead	No	No	No	No	0.09	.000		
Basin	07120003	**Quadrangle**	Dyer			**FQI**	20.1		
Describe the work:									
3	Wet Mead	No	No	No	No	.02	.000		
Basin	07120003	**Quadrangle**	Dyer			**FQI**	13.3		
Describe the work:									
4	Wet Mead	No	No	No	No	.03	.000		
Basin	07120003	**Quadrangle**	Dyer			**FQI**	13.1		
Describe the work:									
5	Wet Mead	No	No	No	No	.09	.000		
Basin	07120003	**Quadrangle**	Dyer			**FQI**	17.8		
Describe the work:									
6	Wet Mead	No	No	No	No	.10	.028	2.0	.056
Basin	07120003	**Quadrangle**	Dyer			**FQI**	14.8		
Describe the work:		Fill							
7	Wet Shrub	No	No	No	No	.02	.013	2.0	.026
Basin	07120003	**Quadrangle**	Dyer			**FQI**	14.3		
Describe the work:		Fill							
8	Forested	No	No	No	No	.13	.064	2.0	.128
Basin	07120003	**Quadrangle**	Dyer			**FQI**	16.4		
Describe the work:		Fill							
9	Forested	No	No	No	No	.10	.057	2.0	.114
Basin	07120003	**Quadrangle**	Dyer			**FQI**	14.8		
Describe the work:		Fill							
10	Forested	No	No	No	No	.01	.000		
Basin	07120003	**Quadrangle**	Dyer			**FQI**	14		
Describe the work:									
11	Forested	No	No	No	No	.05	.000		
Basin	07120003	**Quadrangle**	Dyer			**FQI**	18.7		
Describe the work:									
13	Wet Mead	No	No	No	No	.03	.015	2.0	.030
Basin	07120003	**Quadrangle**	Dyer			**FQI**	13.1		
Describe the work:		Fill							
15	Wet Shrub	No	Yes	Yes	No	.02	.008	5.5	.044
Basin	07120003	**Quadrangle**	Dyer			**FQI**			
Describe the work:		Fill							
						Total	.185		.398

APPENDIX B

INHS Survey Reports

ILLINOIS NATURAL HISTORY SURVEY
PRAIRIE RESEARCH INSTITUTE

AQUATIC SURVEY REPORT

Survey for Kirtland's Snake, *Clonophis kirtlandii*, for the Plum Creek Greenway Trail in Will County, Illinois

IDOT Sequence No. 23641, Section No. 20-F3000-06-BT

Prepared by:
Andrew R. Kuhns

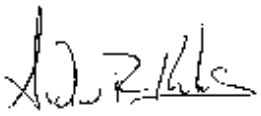
INHS/IDOT Statewide Biological Survey & Assessment Program

2021: 34

August 2021

PROJECT SUMMARY

This report details results of a habitat assessment and a herpetological survey for the Kirtland's Snake, *Clonophis kirtlandii*, in preparation for the continuation of the Plum Creek Greenway Trail from south of Burville Road to 265th Street in Will County, Illinois (IDOT sequence No. 23621, Section No. 20-F3000-06-BT). Information on the natural history and ecology of the Kirtland's Snake, the only herptile listed as threatened or endangered in Illinois that is known to occur near the project area, can be found in **Appendix A**. Coverboard arrays were set in two low lying areas along the proposed path on 01 April 2021. Surveys were conducted by INHS personnel A.R. Kuhns and T. Stewart under Illinois Department of Natural Resources (IDNR) State Threatened and Endangered Species Permit 10812 as required under the Illinois Endangered Species Protection Act (520 ILCS 10/4), Illinois Herptile Scientific and Research Collecting Permit (HCSP) 19-04, and Will County Forest Preserve District Special Use Permit 21-10. Coverboard arrays are mapped in **Appendix C** and images are included in **Appendix D**. The spatial data shown in **Figure C.1** of **Appendix C** were digitally uploaded to the Further Studies Illinois Site Assessment Tracking System (https://isats.dot.illinois.gov/), and are herein referenced as **Appendix E.** We made 155 captures of four different species of grassland snakes, but no Kirtland's Snake were encountered.



Report by: Andrew R. Kuhns, Herpetologist
Further Studies Aquatics Group

Fieldwork by: Andrew R. Kuhns
Tyler Stewart- Graduate Research Assistant

Edited by: Mark J. Wetzel, Oligochaetologist — Emeritus

GIS Layers: Janet L. Jarvis, GIS and Remote Sensing Specialist

University of Illinois
Prairie Research Institute
Illinois Natural History Survey
Statewide Biological Survey and Assessment Program
2204 Griffith Drive
Champaign, Illinois 61820

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Cover Photo: Kirtland's Snake found 17 July 2018 in Coles County, Illinois. Photo by A. R. Kuhns, INHS.

INTRODUCTION

In a transmittal dated 05 January 2021, Susan Hargrove of the Illinois Department of Transportation (IDOT) Bureau of Design and Environment tasked the Illinois Natural History Survey (INHS) to conduct a habitat assessment and a herpetological survey for the presence of the state threatened Kirtland's Snake in Plum Valley Preserve along the proposed path of the continuation of the Plum Creek Greenway Trail from South of Burville Road to 265th Street in Will County, Illinois (IDOT sequence No. 23621, Section No. 20-F3000-06-BT). The natural history and ecology of the Kirtland's Snake, listed as a state threatened species in Illinois (IESPB 2020) can be found in **Appendix A**.

PROJECT AREA

The site occurs on the Dyer, Illinois, U.S. Geological Survey 7.5' topographic quadrangle map in Township 34 North, Range 14 East, Sections 23 and 26, in Will County, Illinois. The 1.5-mile Plum Creek Greenway Trail addition will extend from the existing trail west of Greenwood Avenue, along 256th Street, Woodlawn Avenue, and 263rd Street then northeasterly through Plum Valley Preserve to connect with the existing trail south of Burville Road (**Appendix C: Figure C.1**). The habitat surrounding the proposed work consists of residential neighborhoods, wooded riparian areas, and native grassland prairies.

METHODS

Database Review

The Illinois Natural Heritage Database maintained by the Illinois Department of Natural Resources (IDNR) was queried for Element Occurrence Records (EOR) of threatened and endangered amphibians and reptiles within a mile of the project boundary. Each EOR may be subdivided into multiple Element of Occurrence Identification numbers (EOID) to record separate identification events or sub-locations. Additionally, a search of both vouchered and un-vouchered (photo only) specimens in the Illinois Natural History Survey (INHS), University of Illinois Museum of Natural History (UIMNH), and non-INHS Illinois Amphibian and Reptile databases maintained by the Illinois Natural History Survey was conducted. Together these databases are merged and accessed through the All_IL_Herps database at INHS and are updated semi-annually. The locations of any results were plotted onto aerial photographs of the Environmental Survey Request (ESR) corridor and examined to search for suitable habitat for the species.

Field Methods

On 01 April 2021 INHS Herpetologist A.R. Kuhns and INHS Graduate Research Assistant Tyler Stewart conducted a visual encounter survey at the project area (**Appendix C: Figure C.1; Appendix D: Plates 1-2)** for 0.5 person-hours. Specifically, we looked for low-lying areas in native prairie habitats with an abundance of crayfish burrows in or near the proposed trail (crayfish burrows are used as refugia by Kirtland's Snake). We documented two low-lying areas along the proposed trail that had suitable habitat for the Kirtland's Snake and deployed cover objects. Cover objects were 19.7 x 19.7" vinyl-backed carpet tiles (**Appendix D: Plate 1**). Tiles were set with the vinyl size up (ie. upside down) at approximately 5-meter intervals. Grid A

occurs near the current terminus of the Plum Creek Greenway trail south of Burville Road and consists of 40 carpet tiles (20" X 20") set in a 4 x 10 pattern. Grid B is approximately 750' southwest of grid A and is set in a 6 x 10 grid pattern. Survey methods are detailed in **Appendix B** and were approved under Protocol 19057 of the University of Illinois Institutional Animal Care and Use Committee, as required by the Federal Animal Welfare Act (CFR Title 9 Parts 1, 2, and 3).

RESULTS

Database Review

There are records for three state-listed herptiles (Eastern Massasauga Rattlesnake, *Sistrurus catenatus;* Four-Toed Salamander, *Hemidactylium scutatum;* and Kirtland's Snake, *Clonophis kirtlandii*) within a few miles of the project (**Appendix C: Figure C.1**, IESPB 2020). The Eastern Massasauga Rattlesnake is likely extirpated as none have been observed in the region for over 20 years, although our sampling method would also allow for their detection. We did not sample for the Four-Toed Salamander as there is no suitable habitat for them in or near the ESR area.

Kirtland's Snake occurs along Plum Creek both up and downstream from the proposed addition to the Plum Creek Greenway Trail (**Appendix C: Figure C.1**). Goodenow Grove Forest Preserve, 1 mile west-southwest of the in Plum Valley Preserve, has a known population of the species including captures in 2021. There are also records from 1994 approximately 4 miles upstream (northeast) near Sterger Road in Bloom Township.

Field Surveys

Coverboards were set on 01 April and checked nine times from 09 April through 30 June. Late April and early May checks produced the greatest numbers of Snakes (**Table 1**). Kirtland's Snake was not detected in the Plum Creek Greenway Trail ESR area. However, we made 155 captures of grassland snakes from the two coverboard arrays. Species Richness was 4 and included by order of abundance Common Gartersnake (52), Red-bellied Snake (44), Dekays' Brownsnake (40), and Plains Gartersnake (19) (**Table 1)**.

Table 1. Snake captures by species and date for coverboard arrays set in Plum Valley Preserve in Will County, Illinois from 09 April through 30 June 2021.

	Dekay's Brownsnake		**Red-bellied Snake**		**Plains Gartersnake**		**Common Gartersnake**		
Date	***Storeria dekayi***		***Storeria occipitomaculata***		***Thamnophis radix***		***Thamnophis sirtalis***		**Sum**
Grid	**A**	**B**	**A**	**B**	**A**	**B**	**A**	**B**	
9-Apr	0	0	5	0	0	0	1	0	**6**
16-Apr	2	0	6	0	1	0	1	0	**10**
23-Apr	1	0	3	0	1	0	0	0	**5**
30-Apr	7	3	7	2	2	1	6	1	**29**
7-May	4	2	10	3	0	4	12	0	**35**
14-May	5	0	1	0	1	3	8	0	**18**
26-May	5	0	2	2	0	1	6	2	**18**
3-Jun	1	0	1	0	0	4	7	1	**14**
30-Jun	7	3	2	0	0	1	7	0	**20**
Grand Total	**32**	**8**	**37**	**7**	**5**	**14**	**48**	**4**	**155**

Detection frequencies ranged from 0.01 for Plains Gartersnakes in Grid A, to 0.1 for Red-bellied Snake also in Grid A (**Table 2**). Shannon Diversity Index values (H) were 1.211 for Array A, 1.292 for Array B, and 1.331 combined indicating that the species and their abundances are evenly distributed throughout the sampled areas.

Table 2. Frequencies of detection of grassland snake species under coverboard arrays in Plum Valley Preserve in Will County, Illinois from 09 April through 30 June 2021.

	Array A			Array B			Overall		
Species	N	Occasions	Frequency	N	Occasions	Frequency	N	Occasions	Frequency
Storeria dekayi	32	360	0.09	8	540	0.01	40	900	0.04
S. occipitomaculata	37	360	0.10	7	540	0.01	44	900	0.05
Thamnophis radix	5	360	0.01	14	540	0.03	19	900	0.02
T. sirtalis	48	360	0.13	4	540	0.01	52	900	0.06

DISCUSSION

The Kirtland's Snake is a shy and secretive species and thus one of the most difficult snakes in Illinois to observe or capture during surveys (**Appendix A**). Their primarily subterranean existence results in few direct observations of the species. Deploying coverboards in potentially suitable habitat has proven to be one of the most effective means of documenting this species presence. However, it is not typically feasible to do so for most projects. Because this work was in a public preserve, it allowed a more thorough examination of the snake community using coverboards. Though no state listed herptiles were detected in this study of the area associated with the proposed addition (IDOT sequence No. 23621, Section No. 20-F3000-06-BT) to the Plum Creek Greenway Trail in Will County, Illinois, the community of other grassland snakes observed to be present during our surveys in April and June 2021 had a Shannon Diversity Index value of 1.331 indicating an abundant and evenly distributed snake community.

LITERATURE CITED

Illinois Endangered Species Protection Board (IESPB). 2020. Checklist of Endangered and Threatened Animals and Plants of Illinois. Illinois Endangered Species Protection Board, Springfield, Illinois. 10 pp. Published online at: https://www2.illinois.gov/dnr/ESPB/Documents/ET%20List%20Review%20and%20Revision/Illinois%20Endangered%20and%20Threatened%20Species.pdf

Appendix A.

Natural History of the Kirtland's Snake, *Clonophis kirtlandii*, Listed as Threatened in the State of Illinois.

SYNOPSIS

This appendix presents information on the Kirtland's Snake, *Clonophis kirtlandii*, listed as a threatened species in the State of Illinois, because there is some possibility of its occurrence within the project area. The species account includes diagnostic characters, range in Illinois, habitat requirements, spatial ecology and activity, reproduction, and the suitable sampling season in Illinois. Standard and scientific names follow Crother (2012).

Species range maps were created by Ethan J. Kessler. Maps were based upon data in the Illinois Natural History Survey's All_IL_Herps Database which contains records of vouchered and un-vouchered specimens in the Illinois Natural History Survey (INHS), University of Illinois Museum of Natural History (UIMNH), and amphibian and reptile specimens from ~30 other science museums. The database is maintained by INHS/UIMNH Amphibian and Reptile Curator, Christopher A. Phillips, with records from other institutions updated annually.

LITERATURE CITED

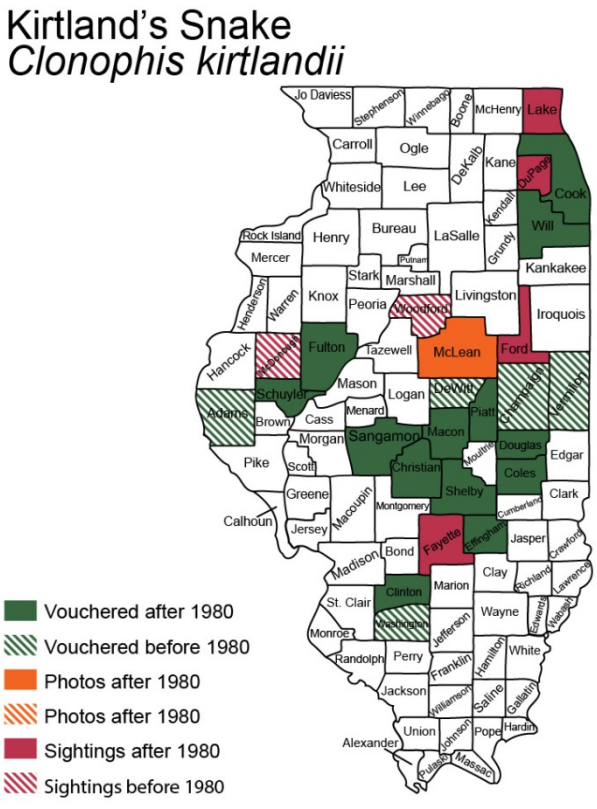
Crother, B.I. 2012. Scientific and standard English names of amphibians and reptiles of North America north of Mexico, with comments regarding confidence in our understanding. 7th Edition. SSAR Herpetological Circular. 39: 1–101.

KIRTLAND'S SNAKE, *CLONOPHIS KIRTLANDII*

General Description for Identification: Like the other natricine snake species, the Kirtland's Snake has keeled scales and a divided anal plate. It is a small species that is distinguished by other snakes in Illinois, by its red or orange venter with contrasting black spots on each ventral scale.

Range: Within Illinois, Kirtland's snake primarily inhabits the southern till plain and extends north in the Chicago Region. It is absent from the sandy soil habitats in these areas.

Suitable Habitat: Historically, wet prairies, wet meadows, prairie fens, and associated wetlands, especially those that were seasonally flooded and adjacent to upland areas, were the preferred habitats for Kirtland's Snakes (Ernst and Ernst 2003). Most of these habitats have long since been destroyed through agricultural practices and other development. Present habitat consists of open, low, grassy areas, often at the margins of streams, ponds, or ditches (Minton, 1972; Ernst and Barbour 1989; Bavetz 1994). Crayfish burrows are used as shelter although Kirtland's snakes have been collected in vacant lots in urban areas where crayfish burrows are not present. When crayfish burrows are not present they hide under boards, trash, and other surface debris (Ernst and Ernst 2003).



Reproduction: Little is known about the life history of the Kirtland's Snake due to its secretive nature. Courtship behavior has been observed in September in Illinois (Anton et al. 2003).

Activity: Kirtland's Snakes are reported to be most active in April and May (spring) and October (autumn) and enter hibernation in late October to early November (Ernst and Ernst 2003). Snakes may den communally (Anton et al 2003).

Suitable Sampling Seasons: This species is shy and secretive, spending most of its time below ground and under large cover objects. Anecdotal evidence suggests that they are most often surface-active when temperatures are below 70 F on overcast days in the spring and fall.

Illinois Status: Kirtland's Snake is listed as threatened in Illinois (Illinois Endangered Species Protection Board 2020). The primary threat to the species in Illinois is the destruction of habitat (Phillips et al. 1999).

Literature Cited

Anton, T.G., D. Mauger, C.A. Phillips, M.J. Dreslik, J.A. Petzing, A.R. Kuhns, and J.M. Mui. 2003. *Clonophis kirtlandii* (Kirtland's Snake) aggregating behavior and site fidelity. Herpetological Review 34:248-249.

Bavetz, M. 1994. Geographic variation, status, and distribution of Kirtland's Snake (*Clonophis kirtlandii* Kennicott) in Illinois. Transactions of the Illinois State Academy of Science 87(3-4): 151-163.

Ernst, C.H., and R.W. Barbour. 1989. Snakes of Eastern North America. George Mason University Press, Fairfax, Virginia. 282 pp.

Ernst, C.H., and E.M. Ernst. 2003. Snakes of the United States and Canada. Smithsonian Books. Washington and London.

Illinois Endangered Species Protection Board (IESPB). 2020. Checklist of Endangered and Threatened Animals and Plants of Illinois. Illinois Endangered Species Protection Board, Springfield, Illinois. 10 pp. Published online at: https://www2.illinois.gov/dnr/ESPB/Documents/ET%20List%20Review%20and%20Revision/Illinois%20Endangered%20and%20Threatened%20Species.pdf

Minton, S.A. 1972. Amphibians and Reptiles of Indiana. Indiana Academy of Science Monograph No. 3: i-v + 346 pp.

Phillips, C.A., R.A. Brandon, and E.O. Moll. 1999. Field Guide to Amphibians and Reptiles of Illinois. Illinois Natural History Survey Manual 8: 1-282.

APPENDIX B

Sampling methods appropriate for the detection of amphibians and reptiles listed as endangered or threatened in the state of Illinois.

Table B.1. Species of amphibians and reptiles listed as threatened or endangered in Illinois and potential sampling methods for their detection.

State Listed Herptiles			Threatened	Endangered	Dip-Net	Minnow Trap	Call Survey	Visual Encounter	Hoop Trap	Fyke Net	Seine	Drift Fence	Coverboard
AMPHIBIANS	SALIENTIA	*Ambystoma jeffersonianum*	X		■	■		■				■	
		Ambystoma platineum		X	■	■		■				■	
		Cryptobranchus alleganiensis		X				■					
		Desmognathus conanti		X	■			■					
		Hemidactylium scutatum	X					■				■	
		Necturus maculosus	X		■	■		■			■		
	ANURA	*Hyla avivoca*		X	■	■	■	■					
		Pseudacris streckerii		X	■	■	■	■				■	
		Gastrophryne carolinensis	X		■	■	■	■				■	
REPTILES	TESTUDINES	*Apalone mutica*		X				■	■	■			
		Clemmys guttata		X				■	■				
		Emydoidea blandingii		X				■	■				
		Kinosternon flavescens		X				■	■				
		Macrochelys temminckii		X					■				
		Pseudemys concinna		X				■		■			
		Terrapene ornata	X					■				■	
	SERPENTES	*Clonophis kirtlandii*	X					■				■	■
		Crotalus horridus	X					■				■	
		Pantherophis emoryi		X				■				■	■
		Heterodon nasicus	X					■				■	■
		Masticophis flagellum		X				■				■	■
		Nerodia fasciata		X				■				■	■
		Nerodia cyclopion	X					■				■	■
		Sistrurus catenatus		X				■				■	
		Tantilla gracilis	X					■				■	■
		Thamnophis sauritus	X					■				■	■
		Tropidoclonion lineatum	X					■				■	■

Sampling Methods for the Detection of State Listed Amphibians and Reptiles

ACTIVE SAMPLING METHODS

Call Survey**.** This method is only effective for anurans during the breeding season. The researcher either visits wetlands in the evening hours to listen to the frog chorus, or places an audio recording device at the wetland during the day and returns the following morning to retrieve the recording. In either case, the researcher must be familiar with the calls of frogs and toads in the area in order to identify the species based only upon the calls in the chorus. To be effective, the researcher must also be familiar with the ecology of the target species and sample during its breeding season in habitats where it is likely to reside.

Dip Netting. A dip net is useful for sampling aquatic animals and can be used to capture individuals observed or as a means of blindly sampling for aquatic organisms in vegetation choked or turbid water. Typically, a researcher will pull the net along the substrate and through the water column for approximately 3 feet, and then finish the net sweep by pulling the net up and out of the water with the net opening facing upward. The researcher can then remove any substrate or detritus from the net and search for captured animals.

Seine. A seine is a fishing net that hangs vertically in the water column suspended by floats with the bottom edge held down by weights. The net is dragged along the bottom of aquatic habitats and captures aquatic amphibians and reptiles when it is drawn onto shore or scooped out of the water. In many ways, it functions much like a large dip net when used for amphibian and reptile sampling.

Visual Encounter Survey (VES). Visual encounter surveys involve searching appropriate habitat (mainly turning cover items such as logs, rocks and miscellaneous debris and also visually scanning open habitats) and recording all species encountered. Surveys can be regimented such as by walking pre-defined grid patterns and time limits, or in a more haphazard wandering pattern. This method is most effective if the researcher is familiar with the target species ecology and can focus on habitat areas where the species is most likely to be encountered, as well as time of day and seasons when the species is most active. A thorough explanation of this technique can be found in Heyer et al. (1994).

PASSIVE SAMPLING METHODS

Drift Fence**.** A drift fence is any object that is placed perpendicular to the ground surface as a way to intercept animals that may be passing through. It is often constructed of hardware cloth or silt fencing buries a few inches into the ground to prevent burrowing; but natural cover items such as large logs or rock formations may also function as a drift fence. Animals are captured by travelling parallel to the fence until they fall into a receptacle, such as a bucket or coffee can,

which has been buried flush with the substrate. Similarly, funnel traps can be placed along the drift fence to capture animals that are walking along the fence. This technique is covered in Heyer et al. (1994) and McDairmid et al. (2012).

Coverboards**.** Coverboards are essentially any item sitting flush with the substrate under which an amphibian or reptile may seek refuge. Artificial coverboards are often made of plywood or corrugated tin and are placed in areas likely to harbor the species of interest. Coverboards often attract small mammals and invertebrates as well which may enhance their ability to attract amphibians and reptiles. Well-seasoned artificial cover objects with little vegetation underneath them seem to work better in attracting herptiles, therefore their use most effective for long term projects when they can be set out many months in advance of surveys.

Minnow Trap**.** Traps may be constructed of rope, monofilament, or steel and may have funnels or throats, at one or both ends which allow the animal to enter into the trap body but prevent them from easily exiting the trap. Minnow traps may be cylindrical or rectangular and can be baited or not depending on the target species. If baited, the bait is refreshed every 2 to 4 days. Traps are usually placed so that a portion of the trap placed in water is emergent so that captured animals have access to air and will not drown. However, in riverine environments, where there is little to no probability of capturing non-gilled species, the traps may be fully submerged. Effort is recorded in trap hours (i.e., number of traps multiplied by the number of hours the traps were deployed). Results are reported as the numbers of each species captured.

Hoop Trap**.** These traps work on the same principal as minnow traps but are larger in diameter and have larger throats to allow for the capture of larger animals such as turtles (Legler 1960). All hoop traps are placed such that at least 5cm of the trap is above the surface of the water to ensure captured turtles have access to air. Traps are tied via string or rope to surrounding vegetation to ensure that captured turtles do not roll traps into deeper water and drown. Traps are placed parallel to either the shoreline or potential basking sites. Traps are baited (usually with sardines canned in spring water or oil). Traps are checked daily and bait is changed every 2 to 4 days. Effort is recorded in trap hours (i.e., number of traps multiplied by the number of hours the traps were deployed). Results are reported as the numbers of each species captured.

Fyke Net**.** This trapping method is essentially a combination of a Drift Fence and a Hoop Trap. It consists of a hoop trap body with a single throat, and long wings and a lead that extend out from the throat in a double V formation (**Figure B.1**). Wings and leads have a lead-line that makes them hang vertically in the water column. This essentially extends the reach of the throat and works well for turtle species that are not attracted to readily available baits. It can be used to intercept turtles entering a cove or attempting to access a popular basking site, by funneling them into the trap body where the throat prevents them from escaping. A description of Fyke Nets can be found in Vogt (1980).

LITERATURE CITED

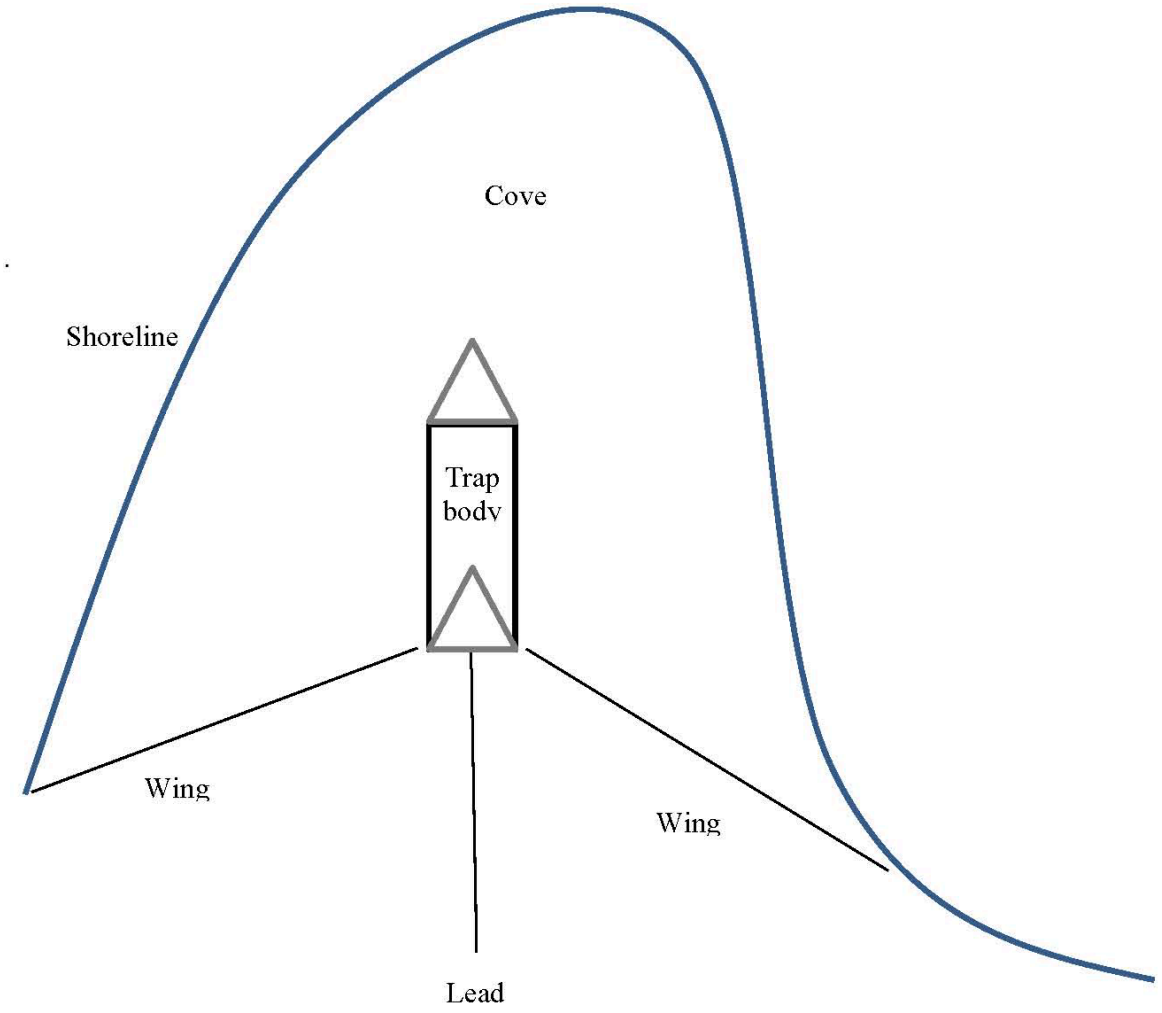
Heyer, W.R., M.A. Donnelly, R.W. McDiarmid, L.C. Hayek and M.S. Foster, eds. 1994. Measuring and Monitoring Biodiversity: Standard methods for amphibians. Smithsonian Institution Press, Washington D.C. 364 pp.

Legler, J.M. 1960. A simple and inexpensive device for trapping aquatic turtles. Proceedings of the Utah Academy of Sciences, Arts and Letters 37**:** 63-66.

McDairmid, R.W., M.S. Foster, C. Guyer, J.W. Gibbons, and N. Chernoff. Eds. 2012. Reptile Biodiversity: Standard Methods for Inventory and Monitoring. University of California Press. Berkeley. 412 pp.

Vogt, R.C. 1980. New methods for trapping aquatic turtles. Copeia 1980:368-371.

Figure B.1. Fyke Net set to capture turtles attempting to enter a cove (as viewed from above).



APPENDIX C

Figures relevant to the Plum Creek Greenway Trail project from South of Burville Road to 265th Street in Will County, Illinois (IDOT sequence No. 23621, Section No. 20-F3000-06-BT)

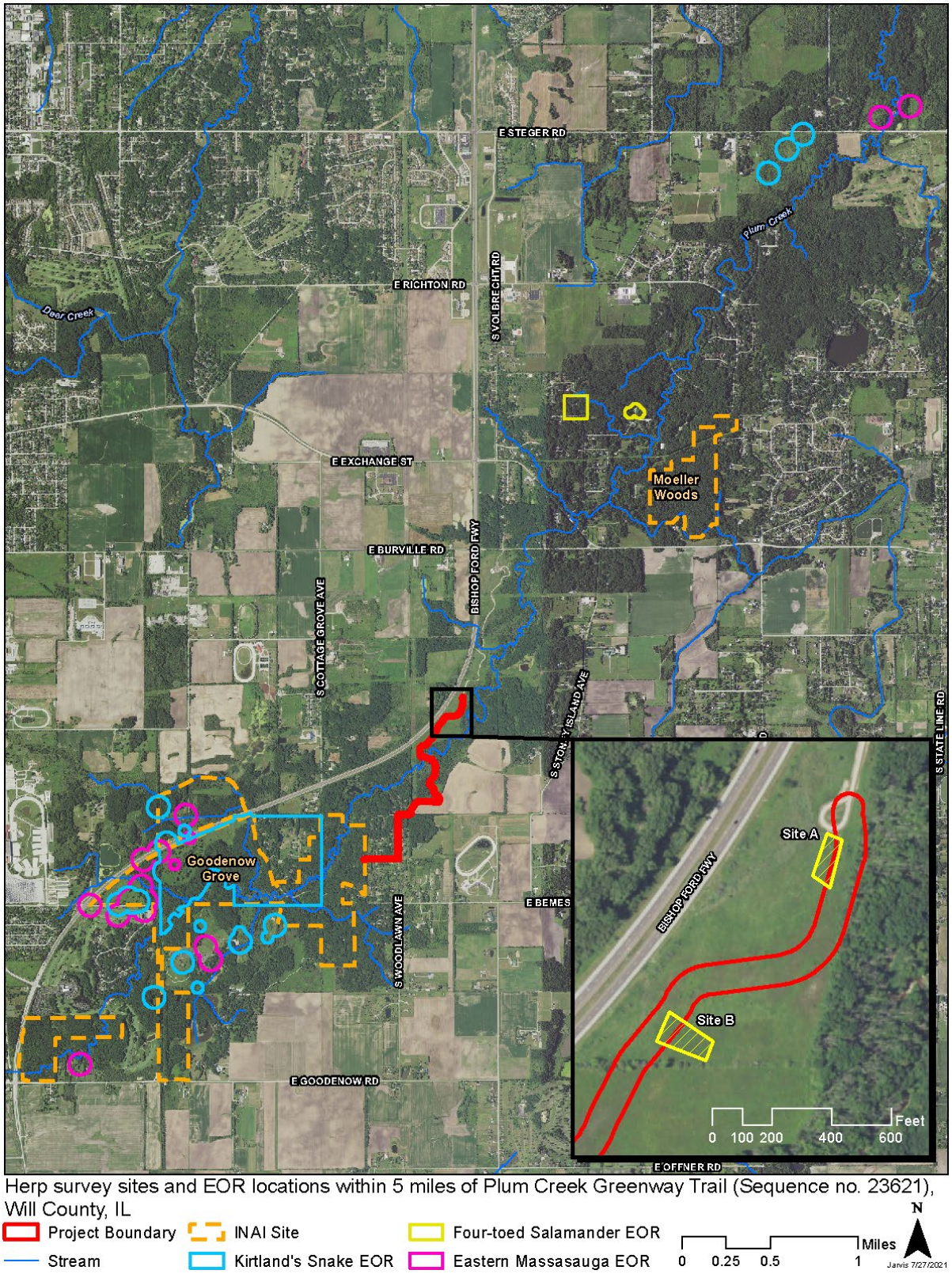


Figure C.1. Herpetile Element Occurrence Records relative to Plum Creek Greenway Trail project from south of Burville Road to 265th Street in Will County, Illinois (IDOT sequence No. 23621, Section No. 20-F3000-06-BT).

APPENDIX D

Photograph relative to the Plum Creek Greenway Trail project from South of Burville Road to 265th Street in Will County, Illinois (IDOT sequence No. 23621, Section No. 20-F3000-06-BT)

Plate 1. Cover object placed *in situ*. Photograph by Andrew R. Kuhns.

APPENDIX E

Arc-GIS Shapefiles

An ArcGIS folder < 23621_Herp_Survey_GIS.zip> containing an Arc-GIS shapefile of the sampled area constitutes this appendix. The ArcGIS shapefile and this report will be submitted to IDOT via the IDOT Site Assessment Tracking System extranet website.

ILLINOIS

PRAIRIE RESEARCH INSTITUTE

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Champaign, IL 61820

The grassland snake community of the Plum Valley Preserve, Will County, Illinois

Prepared by: Andrew R. Kuhns and Tyler Stewart

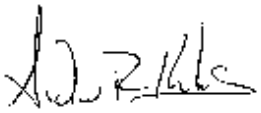
INHS Technical Report 2021 (20)

Prepared for:
Special Use Permit SUP 21-10
Forest Preserve District of Will County
17540 W. Laraway Road
Joliet, IL 60433

Issue Date: 18 November 2021
Restricted (no online release): Contains locality data of listed species

PROJECT SUMMARY

This report details results of a herpetological survey of the grassland snake community inhabiting the Plum Valley Preserve, Will County, Illinois. The primary impetus for the surveys was to search for endangered and threatened snake species that may occur in the preserve. We set coverboard arrays in two low-lying grassy areas in the preserve on 01 April 2021. Surveys were conducted by INHS personnel A.R. Kuhns and T. Stewart under Illinois Department of Natural Resources (IDNR) State Threatened and Endangered Species Permit 10812 as required under the Illinois Endangered Species Protection Act (520 ILCS 10/4), Illinois Herptile Scientific and Research Collecting Permit (HCSP) 19-04, and Will County Forest Preserve District Special Use Permit 21-10. Coverboard arrays are mapped in **Figure 1**. Arrays were checked 19 times between 09 April and 27 October 2021. We made 209 captures of five snake species, and report encounter frequency by species, two diversity metrics, and examine community similarity between the two arrays. No threatened or endangered snake species were encountered.



Submitted by: Andrew R. Kuhns, Herpetologist
Further Studies Aquatics Group
&
Tyler Stewart, Graduate Research Assistant

Map by: Janet L. Jarvis, GIS and Remote Sensing Specialist

University of Illinois
Prairie Research Institute
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Champaign, Illinois 61820

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TABLE OF CONTENTS

Cover Photo: Kirtland's Snake found 17 July 2018 in Coles County, Illinois. Photo by A. R. Kuhns, INHS.

INTRODUCTION

The Illinois Natural History Survey (INHS) conducted a herpetological survey of the grassland snake community inhabiting the Plum Valley Preserve in Will County, Illinois. The impetus of the study was to survey for the presence of threatened or endangered species that may occur in the preserve, specifically the Kirtland's Snake, *Clonophis kirtlandii*.

In Illinois, the Kirtland's Snake primarily inhabits the southern till plain but extends its range north into the Chicago Region (Phillips et al. 1999). Historically, wet prairies, wet meadows, prairie fens, and associated wetlands, especially those that were seasonally flooded and adjacent to upland areas, were the preferred habitats for Kirtland's Snakes (Ernst and Ernst 2003). Most of these habitats have long since been destroyed through agricultural practices and other development. Present habitat consists of open, low, grassy areas, often at the margins of streams, ponds, or ditches (Minton, 1972; Ernst and Barbour 1989; Bavetz 1994). This species is shy and secretive, spending most of its time below ground. Crayfish burrows are used as shelter, although Kirtland's snakes have been collected in vacant lots in urban areas where crayfish burrows are not present. When crayfish burrows are not present, they hide under boards, trash, and other surface debris (Ernst and Ernst 2003).

Kirtland's Snakes are reported to be most active in April and May (spring) and October (autumn) and enter hibernation in late October to early November (Ernst and Ernst 2003). Snakes may den communally (Anton et al. 2003). Anecdotal evidence suggests that they are most often surface-active when temperatures are below 70 F on overcast days in the spring and fall.

PROJECT AREA

The site occurs on the Dyer, Illinois, U.S. Geological Survey 7.5' topographic quadrangle map in Township 34 North, Range 14 East, Sections 23 and 26, in Will County, Illinois. The 455-acre Plum Valley Preserve has been managed by the Forest Preserve District of Will County since 2000. It consists of wooded riparian corridor along Plum Creek and grassland habitat along its western edge between the riparian zone and Illinois Route 394/Calumet Expressway, which serves as the western edge for most of the preserve. The habitat surrounding the preserve consists of residential neighborhoods, wooded riparian areas, and grassland/pasture. Our surveys were focused on the grasslands that form the western edge of the preserve, south of the current terminus of the Plum Valley Greenway Trail (**Figure 1**).

METHODS

<u>Database Review</u>

The Illinois Natural Heritage Database maintained by the Illinois Department of Natural Resources (IDNR) was queried for Element Occurrence Records (EOR) of threatened and endangered amphibians and reptiles within a mile of the project boundary. Each EOR may be subdivided into multiple Element of Occurrence Identification numbers (EOID) to record separate identification events or sub-locations. Additionally, a search of both vouchered and

un-vouchered (photo only) specimens in the Illinois Natural History Survey (INHS), University of Illinois Museum of Natural History (UIMNH), and non-INHS Illinois Amphibian and Reptile databases maintained by the Illinois Natural History Survey was conducted. Together these databases are merged and accessed through the All_IL_Herps database at INHS and are updated semi-annually. The locations of any results were plotted onto aerial photographs of the Environmental Survey Request (ESR) corridor and examined to search for suitable habitat for the species.

Field Methods

On 01 April 2021 INHS Herpetologist A.R. Kuhns and INHS Graduate Research Assistant Tyler Stewart conducted a visual encounter survey at the project area (**Figure 1)** for 0.5 person-hours. Specifically, we looked for low-lying areas in native prairie habitats with an abundance of crayfish burrows in or near the proposed trail (crayfish burrows are used as refugia by Kirtland's Snake). We documented two low-lying areas along the proposed trail that had suitable habitat for the Kirtland's Snake and deployed cover objects. Cover objects were 19.7 x 19.7" vinyl-backed carpet tiles (**Figure 2**). Tiles were set with the vinyl size up (i.e., upside down) at approximately 5-meter intervals. Grid A occurs near the current terminus of the Plum Creek Greenway trail south of Burville Road and consists of 40 carpet tiles set in a 4 x 10 pattern. Grid B is approximately 750' southwest of grid A and is set in a 6 x 10 grid pattern. Survey methods consisted of lifting each coverboard and capturing snakes sheltered underneath. Snakes were identified to species and immediately released at their capture location. We recorded date, species, coverboard array, and coverboard number for all captures. Survey methods were approved under Protocol 19057 of the University of Illinois Institutional Animal Care and Use Committee, as required by the Federal Animal Welfare Act (CFR Title 9 Parts 1, 2, and 3).

Analytical Methods

We generated detection frequencies per coverboard check for each species for each grid array and for both arrays combined. We also generated Shannon Diversity Indices (H) and the Simpson Diversity Index (D) for grid array A, grid array B, and combined. Finally, we calculated Sorensen's coefficient of similarity (CC) to look for differences between the two arrays. CC values range from 0 (no overlap) to 1 (complete overlap).

RESULTS

Database Review

There are records for two state-listed snakes (IESPB 2020) within a few miles of the project area: the Eastern Massasauga, *Sistrurus catenatus;* and the Kirtland's Snake, *Clonophis kirtlandii* (**Figure 1**). The Eastern Massasauga Rattlesnake is likely extirpated as none have been observed in the region for over 20 years, although our sampling method would also allow for their detection.

Kirtland's Snake occurs along Plum Creek both up and downstream from our study area (**Figure 1**). Goodenow Grove Forest Preserve, 1 mile west-southwest of the in Plum Valley Preserve, has a known population of the species including captures in 2021 (Stewart, *unpublished data*). There are also records from 1994 approximately 4 miles upstream (northeast) near Sterger Road in Bloom Township.

Field Surveys

Coverboards were set on 01 April and checked 19 times from 09 April through 27 October 2021. Late April and early May checks produced the greatest numbers of snakes and no snakes were detected after 01 September 2021 (**Table 1**). Kirtland's Snake was not detected in the Plum Valley Preserve. However, we made 209 captures of grassland snakes from the two coverboard arrays. Snake species richness was 5 and included 71 Common Gartersnake, *Thamnophis sirtalis;* 53 Red-bellied Snake, *Storeria occipitomaculata*; 53 Dekays' Brownsnake, *S. dekayi;* 31 Plains Gartersnake, *T. radix;* and one Common Watersnake, *Nerodia sipedon* (**Table 1**). We also captured one Blue-spotted Salamander, *Ambystoma laterale,* on 15 October 2021, which was excluded from all analyses.

Analytical Results

We excluded the October samples from our analysis as they were the second and third consecutive check with no snake detections, suggesting that snakes at the site were inactive and no longer available for detection. Detection frequencies ranged from a low of 0.001 for the Northern Watersnake in Grid A, to 0.087 for Common Gartersnake also in Grid A (**Table 2**). Shannon Diversity Index values (H) were 1.28 for Array A, 1.35 for Array B, and 1.37 combined indicating that the species and their abundances are evenly distributed throughout the sampled areas. Simpson Diversity Indices (D) were 0.71 for Array A, 0.74 for Array B, and 0.74 combined, indicating high species diversity at each site and overall. The Sorensen's coefficient of community similarity indicated nearly equal overlap of species (CC = 0.89)

DISCUSSION

The Kirtland's Snake is a shy and secretive species and thus one of the most difficult snakes in Illinois to observe or capture during surveys. Their primarily subterranean existence results in few direct observations of the species. Deploying coverboards in potentially suitable habitat has proven to be one of the most effective means of documenting this species' presence. For this report, we sampled for grassland snake species in Plum Valley Preserve, Will County, Illinois using two coverboard arrays placed in low lying areas of the preserve. No state-listed herptiles were detected in this study of the area. The community of other grassland snakes observed during our surveys had a Shannon Diversity Index value of 1.37; indicating an abundant and evenly distributed snake community. Similarly, the Simpson Diversity Index of 0.74 also indicates a diverse snake community. The snake communities sampled from the two grid arrays were very similar with a Sorensen Coefficient of Similarity of 0.89, which is not surprising considering the sites were within 300 m and likely represent the same population. Therefore, while no threatened or endangered herptiles were present, a diverse snake community is present in the Plum Valley Preserve.

LITERATURE CITED

Anton, T.G., D. Mauger, C.A. Phillips, M.J. Dreslik, J.A. Petzing, A.R. Kuhns, and J.M. Mui. 2003. *Clonophis kirtlandii* (Kirtland's Snake) aggregating behavior and site fidelity. Herpetological Review 34:248-249.

Bavetz, M. 1994. Geographic variation, status, and distribution of Kirtland's Snake (*Clonophis kirtlandii* Kennicott) in Illinois. Transactions of the Illinois State Academy of Science 87(3-4): 151-163.

Ernst, C.H., and R.W. Barbour. 1989. Snakes of Eastern North America. George Mason University Press, Fairfax, Virginia. 282 pp.

Ernst, C.H., and E.M. Ernst. 2003. Snakes of the United States and Canada. Smithsonian Books. Washington and London.

Illinois Endangered Species Protection Board (IESPB). 2020. Checklist of Endangered and Threatened Animals and Plants of Illinois. Illinois Endangered Species Protection Board, Springfield, Illinois. 10 pp. Published online at: https://www2.illinois.gov/dnr/ESPB/Documents/ET%20List%20Review%20and%20Revision/Illinois%20Endangered%20and%20Threatened%20Species.pdf

Minton, S.A. 1972. Amphibians and Reptiles of Indiana. Indiana Academy of Science Monograph No. 3: i-v + 346 pp.

Phillips, C.A., R.A. Brandon, and E.O. Moll. 1999. Field Guide to Amphibians and Reptiles of Illinois. Illinois Natural History Survey Manual 8: 1-282.

Table 1. Snake captures by species and date for coverboard arrays (A and B) set in Plum Valley Preserve in Will County, Illinois from 09 April through 15 October 2021.

	Common Watersnake		*Dekay's Brownsnake*		*Red-bellied Snake*		*Plains Gartersnake*		*Common Gartersnake*		
	Nerodia sipedon		*Storeria dekayi*		*S. occipitomaculata*		*Thamnophis radix*		*T. sirtalis*		
Date	**A**	**B**	**A**	**B**	**A**	**B**	**A**	**B**	**A**	**B**	**Daily Totals**
9-Apr	0	0	0	0	5	0	0	0	1	0	6
16-Apr	0	0	2	0	6	0	1	0	1	0	10
23-Apr	0	0	1	0	3	0	1	0	0	0	5
30-Apr	0	0	7	3	7	2	2	1	6	1	29
7-May	0	0	4	2	10	3	0	4	12	0	35
14-May	0	0	5	0	1	0	1	3	8	0	18
26-May	0	0	5	0	2	2	0	1	6	2	18
3-Jun	0	0	1	0	1	0	0	4	7	1	14
30-Jun	0	0	7	3	2	0	0	1	7	0	20
8-Jul	1	0	8	0	4	0	2	1	5	3	24
12-Jul	0	0	1	3	3	1	1	3	2	2	16
20-Jul	0	0	1	0	0	0	2	0	0	0	3
29-Jul	0	0	0	0	0	0	2	0	1	2	5
5-Aug	0	0	0	0	0	0	0	0	3	0	3
18-Aug	0	0	0	0	0	0	1	0	0	0	1
1-Sep	0	0	0	0	0	1	0	0	0	1	2
23-Sep	0	0	0	0	0	0	0	0	0	0	0
15-Oct	0	0	0	0	0	0	0	0	0	0	0
27-Oct	0	0	0	0	0	0	0	0	0	0	0
Species/Array Totals	**1**	**0**	**42**	**11**	**44**	**9**	**13**	**18**	**59**	**12**	**209**
Species Totals	**1**		**53**		**53**		**31**		**71**		**209**

Table 2. Frequencies of detection of grassland snake species under coverboard arrays in Plum Valley Preserve in Will County, Illinois from 09 April through 23 September 2021.

	Array A			*Array B*			*Overall*		
Species	**N**	**Occasions**	**Frequency**	**N**	**Occasions**	**Frequency**	**N**	**Occasions**	**Frequency**
Common Watersnake	1	680	0.001				1	1700	0.001
Dekay's Brownsnake	42	680	0.062	11	1020	0.011	53	1700	0.031
Red-bellied Snake	44	680	0.065	9	1020	0.009	53	1700	0.031
Plains Gartersnake	13	680	0.019	13	1020	0.013	31	1700	0.018
Common Gartersnake	59	680	0.087	12	1020	0.012	71	1700	0.042

Figure C.1. Herpetile Element Occurrence Records near the Plum Valley Preserve in Will County, Illinois. Inset depicts coverboard arrays labeled as Site A and Site B and a potential route for the extension of a multi-use trail.

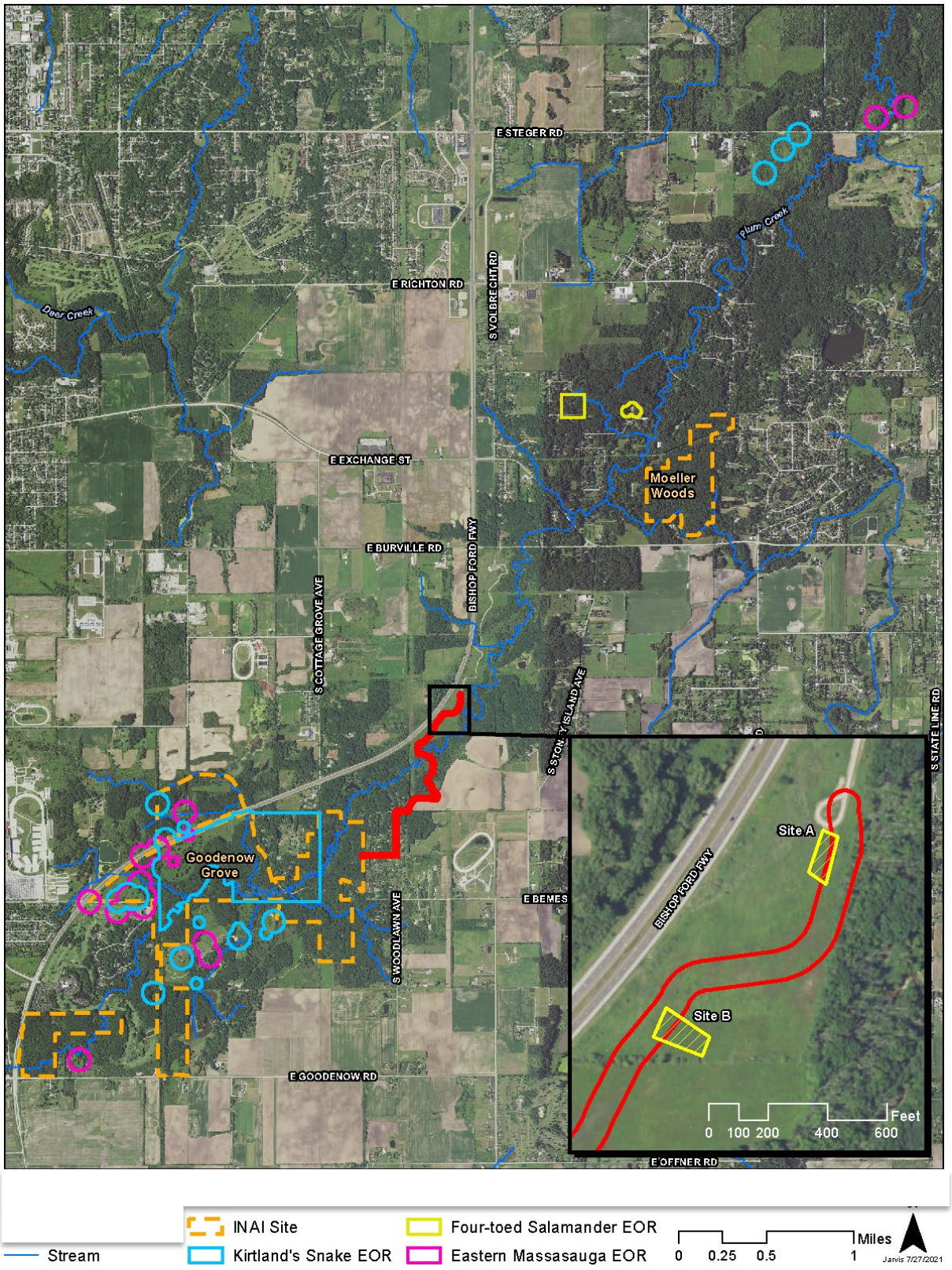


Figure 2. Cover object placed *in situ*. Photograph by Andrew R. Kuhns.

ILLINOIS NATURAL HISTORY SURVEY
PRAIRIE RESEARCH INSTITUTE

AQUATIC SURVEY REPORT

Survey for Kirtland's Snake, *Clonophis kirtlandii*, for the Plum Creek Greenway Trail in Will County, Illinois

IDOT Sequence No. 23621A

Prepared by:
Andrew R. Kuhns

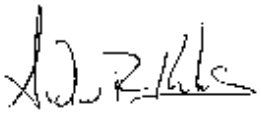
INHS/IDOT Statewide Biological Survey & Assessment Program

2022: 61

October 2022

PROJECT SUMMARY

This report details results of a habitat assessment and a herpetological survey for the Kirtland's Snake, *Clonophis kirtlandii*, in preparation for the continuation of the Plum Creek Greenway Trail from south of Burville Road to 265th Street in Will County, Illinois (IDOT sequence No. 23621A, Section No. 20-F3000-06-BT). Information on the natural history and ecology of the Kirtland's Snake, the only herptile listed as threatened or endangered in Illinois that is known to occur near the project area, can be found in **Appendix A**. Coverboard arrays were set in two low lying areas along the proposed path on 01 April 2021. Surveys were conducted by INHS personnel A.R. Kuhns and T. Stewart under Illinois Department of Natural Resources (IDNR) State Threatened and Endangered Species Permits 10812 (2021) and 14983 (2022) as required under the Illinois Endangered Species Protection Act (520 ILCS 10/4), Illinois Herptile Scientific and Research Collecting Permits (HCSP) 19-04 and 22-34, and Will County Forest Preserve District Special Use Permit 21-10. Coverboard sites are mapped in **Appendix C** and images are included in **Appendix D**. The spatial data shown in **Figure C.1** of **Appendix C** were digitally uploaded to the Further Studies Illinois Site Assessment Tracking System (https://isats.dot.illinois.gov/), and are herein referenced as **Appendix E.** We made 312 captures of six species of snakes, including three Kirtland's Snakes from Site A at the current terminus of the Plum Creek Greenway Trail.



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INTRODUCTION

In a transmittal dated 10 May 2022, Joe Bartletti of the Illinois Department of Transportation (IDOT) Bureau of Design and Environment tasked the Illinois Natural History Survey (INHS) to conduct a habitat assessment and a herpetological survey for the presence of the state threatened Kirtland's Snake in Plum Valley Preserve along the current Plum Creek Greenway Trail in Plum Valley Preserve, Will County, Illinois (IDOT sequence No. 23621A). The existing crushed limestone trail, slated to be paved with asphalt, currently extends from the Plum Valley Preserve parking lot south of Burville Road, south for approximately 1 mile. Prior surveys conducted during 2021 (Kuhns 2021) in response to the original tasking for this project area examined a proposed path for an extension of this trail from the current trail terminus to 265th Street in Will County, Illinois (IDOT Seq. No. 23641, IDOT section no. 20-F3000-06-BT).
This report includes data collected for both the original tasking (summarized in Kuhns 2021) and for this present addendum tasking. The natural history and ecology of the Kirtland's Snake, listed as a state threatened species in Illinois (Illinois Endangered Species Protection Board [IESPB] 2020) can be found in **Appendix A**.

PROJECT AREA

The site occurs on the Dyer, Illinois, U.S. Geological Survey 7.5' topographic quadrangle map in Township 34 North, Range 14 East, Sections 23 and 26, in Will County, Illinois. The current Greenway Trail runs from the Plum Valley Preserve Parking lot off Burville Road, south for approximately 1 mile. The 1.5-mile Plum Creek Greenway Trail addition will extend from the existing trail west of Greenwood Avenue, along-256th Street, Woodlawn Avenue, and 263rd Street, then northeasterly through Plum Valley Preserve – to connect with the existing trail south of Burville Road (**Appendix C: Figure C.1**). The habitat surrounding the proposed work consists of residential neighborhoods, wooded riparian areas, and old field habitat that has been reverted to prairie.

METHODS

Database Review

The Illinois Natural Heritage Database maintained by the Illinois Department of Natural Resources (IDNR) was queried for Element Occurrence Records (EOR) of threatened and endangered amphibians and reptiles within a mile of the project boundary. Each EOR may be subdivided into multiple Element of Occurrence Identification numbers (EOID) to record separate identification events or sub-locations. Additionally, a search of both vouchered and un-vouchered (photo only) specimens in the Illinois Natural History Survey (INHS), University of Illinois Museum of Natural History (UIMNH), and non-INHS Illinois Amphibian and Reptile databases maintained by the Illinois Natural History Survey was conducted. Together these databases are merged and accessed through the All_IL_Herps database at INHS and are updated semi-annually. The locations of any results were plotted onto aerial photographs of the Environmental Survey Request (ESR) corridor and examined to search for suitable habitat for the species.

Field Methods

On 01 April 2021 INHS Herpetologist A.R. Kuhns and INHS Graduate Research Assistant Tyler Stewart conducted a visual encounter survey at the project area (**Appendix C: Figure C.1; Appendix D: Plates 1-2)** for 0.5 person-hours. Specifically, we looked for low-lying areas in native prairie habitats with an abundance of crayfish burrows in or near the proposed trail (crayfish burrows are used as refugia by Kirtland's Snake). We documented two low-lying areas along the proposed trail that had suitable habitat for the Kirtland's Snake and deployed cover objects (**Appendix C: Figure C.1**). Cover objects were 19.7 x 19.7" vinyl-backed carpet tiles (**Appendix D: Plate 1**). Tiles were set with the vinyl size up (i.e., upside down) at approximately 5-meter intervals. Site A occurs near the current terminus of the Plum Creek Greenway trail south of Burville Road and consists of 40 carpet tiles (20" X 20") set in a 4 x 10 pattern **(Appendix C: Figure C.1)**. Site B is approximately 750' southwest of Site A and is set in a 6 x 10 grid pattern **(Appendix C: Figure C.1)**. On 03 June 2022, the existing Plum Creek Greenway Trail was walked by A.R. Kuhns to conduct a habitat assessment and Visual Encounter Survey for herpetofauna. Survey methods are detailed in **Appendix B** and were approved under Protocol 19057 of the University of Illinois Institutional Animal Care and Use Committee, as required by the Federal Animal Welfare Act (CFR Title 9 Parts 1, 2, and 3).

RESULTS

Database Review

There are records for three state-listed herptiles (Eastern Massasauga Rattlesnake, *Sistrurus catenatus;* Four-Toed Salamander, *Hemidactylium scutatum;* and Kirtland's Snake, *Clonophis kirtlandii*) within a few miles of the project (**Appendix C: Figure C.1**; IESPB 2020). The Eastern Massasauga Rattlesnake is likely extirpated as none have been observed in the region for over 20 years, although our sampling method would also allow for their detection. We did not sample for the Four-Toed Salamander as there is no suitable habitat for them in or near the ESR area.

Kirtland's Snake occurs along Plum Creek both up and downstream from the proposed addition to the Plum Creek Greenway Trail (**Appendix C: Figure C.1**). Goodenow Grove Forest Preserve, 1 mile west-southwest of the in Plum Valley Preserve, has a known population of the species including captures in 2021 and 2022. There are also records from 1994 approximately 4 miles upstream (northeast) near Sterger Road in Bloom Township.

Field Surveys

One Red-bellied Snake, *Storeria occipitomaculata* was found dead on the extant trail during the site visit on 03 June 2022 (**Appendix D: Plate 2**). Potentially suitable habitat for the Kirtland's Snake was apparent adjacent to the trail throughout.

Coverboards were set on 01 April and checked nine times from 09 April through 30 June 2021 and seven times from 29 April through 13 June 2022. We captured 331 snakes over 2600 coverboard checks of the two sites (**Table 1**). May coverboard checks produced the greatest numbers of snakes (**Table 1**). Species Richness was 6 for Site A and 4 for Site B. Total captures over both sites were by order of abundance Common Gartersnake, *Thamnophis sirtalis* (140), Dekay's Brownsnake, *Storeria dekayi* (65), Red-bellied Snake, *S. occipitomaculata* (63), Plains

Gartersnake *T. radix* (59), Kirtland's Snake, *Clonophis kirtlandii* (3), and Common Watersnake, *Nerodia sipedon* (1); (**Table 2**). Kirtland's Snake and Common Watersnake were not detected in Site B (**Tables 1** & **2**).

Detection frequencies ranged from >0.001 for Northern Watersnake to 0.05 for Common Gartersnake (**Table 2**). Shannon Diversity Index values (H) were 1.33 for Site A, 1.292 for Site B, and 1.49 combined– indicating that the species and their abundances are evenly distributed throughout the sampled areas.

Table 1. Snake captures by species and date for coverboard arrays set in Plum Valley Preserve in Will County, Illinois from 09 April through 13 June 2022.

	Species												
	Kirtland's Snake		**Common Watersnake**		**Dekay's Brownsnake**		**Red-bellied Snake**		**Plain's Gartersnake**		**Common Gartersnake**		
	C. kirtlandii		***N. sipedon***		***S. dekayi***		***S. occipitomaculata***		***T. radix***		***T. sirtalis***		**Sum**
	A	B	A	B	A	B	A	B	A	B	A	B	
2021													
April	0	0	0	0	10	3	21	2	4	1	8	1	50
May	0	0	0	0	14	2	13	5	1	8	26	2	71
June	0	0	0	0	8	3	3	0	0	5	14	1	34
July	0	0	1	0	10	3	7	1	7	4	8	7	48
August	0	0	0	0	0	0	0	0	1	0	3	0	4
September	0	0	0	0	0	0	0	1	0	0	0	1	2
2022													
April	0	0	0	0	2	1	1	0	0	7	3	1	15
May	2	0	0	0	6	2	3	5	2	13	26	23	82
June	1	0	0	0	1	0	0	1	2	4	5	11	25
Grand Total	**3**	**0**	**1**	**0**	**51**	**14**	**48**	**15**	**17**	**42**	**93**	**47**	**331**

Table 2. Frequencies of detection of grassland snake species under coverboard arrays in Plum Valley Preserve in Will County, Illinois from 09 April through 13 June 2022.

	Site A			**Site B**			**Overall**		
Species	N	Occasions	Frequency	N	Occasions	Frequency	N	Occasions	Frequency
Kirtland's Snake *Clonophis kirtlandii*	3	1040	0.0029	0	1560	0.0000	3	2600	0.0012
Common Watersnake *Nerodia sipedon*	1	1040	0.0010	0	1560	0.0000	1	2600	0.0004
Dekay's Brownsnake *Storeria dekayi*	51	1040	0.0490	14	1560	0.0090	65	2600	0.0250
Red-bellied Snake *S. occipitomaculata*	48	1040	0.0462	15	1560	0.0096	63	2600	0.0242
Plain's Gartersnake *Thamnophis radix*	17	1040	0.0164	42	1560	0.0269	59	2600	0.0227
Common Gartersnake *T. sirtalis*	93	1040	0.0894	47	1560	0.0301	140	2600	0.0538

DISCUSSION

The Kirtland's Snake is a shy and secretive species and thus one of the most difficult snakes in Illinois to observe or capture during surveys (**Appendix A**). Their primarily subterranean existence results in few direct observations of the species. Deploying coverboards in potentially suitable habitat has proven to be one of the most effective means of documenting this species presence. However, it is not typically feasible to do so for most projects. Because this work was in a public preserve, it allowed a more thorough examination of the snake community using coverboards. The community of grassland snakes observed to be present during our surveys in 2021 and 2022 had a Shannon Diversity Index value of 1.49 indicating an abundant and evenly distributed snake community. The current greenway trail does pass through potential Kirtland Snake habitat and one Redbellied Snake was found deceased on the trail during the site visit on 03 June 2022. Areas of concern are low lying areas with culverts that pass under the trail. These sites have crayfish burrows and rip rap present that may be used as refugia for Kirtland's Snakes. If work for the present trail can be limited to the trail surface, it should reduce the chance of take. Three state threatened Kirtland's Snake were found in Site A (**Appendix C: Figure C.1**) at the current terminus of the trail and in the direct path of the proposed addition (IDOT sequence No. 23621A, Section No. 20-F3000-06-BT) to the Plum Creek Greenway Trail in Will County, Illinois.

LITERATURE CITED

Illinois Endangered Species Protection Board (IESPB). 2020. Checklist of Endangered and Threatened Animals and Plants of Illinois. Illinois Endangered Species Protection Board, Springfield, Illinois. Effective May 28. 10 pp. A PDF of this checklist available here: https://www2.illinois.gov/dnr/education/CDIndex/ETListMay2020.pdf Accessed 02 August 2022.

Kuhns, A.R. 2021. Survey for Kirtland's Snake, *Clonophis kirtlandii*, for the Plum Creek Greenway Trail in Will County, Illinois. INHS/IDOT Statewide Biological Survey & Assessment Program 2022(34): 1–19.

Appendix A.

Natural History of the Kirtland's Snake, *Clonophis kirtlandii*, Listed as Threatened in the State of Illinois.

SYNOPSIS

This appendix presents information on the Kirtland's Snake, *Clonophis kirtlandii*, listed as a threatened species in the State of Illinois, because there is some possibility of its occurrence within the project area. The species account includes diagnostic characters, range in Illinois, habitat requirements, spatial ecology and activity, reproduction, and the suitable sampling season in Illinois. Standard and scientific names follow Crother (2012).

Species range maps were created by Ethan J. Kessler. Maps were based upon data in the Illinois Natural History Survey's All_IL_Herps Database which contains records of vouchered and un-vouchered specimens in the Illinois Natural History Survey (INHS), University of Illinois Museum of Natural History (UIMNH), and amphibian and reptile specimens from ~30 other science museums. The database is maintained by INHS/UIMNH Amphibian and Reptile Curator, Christopher A. Phillips, with records from other institutions updated annually.

LITERATURE CITED

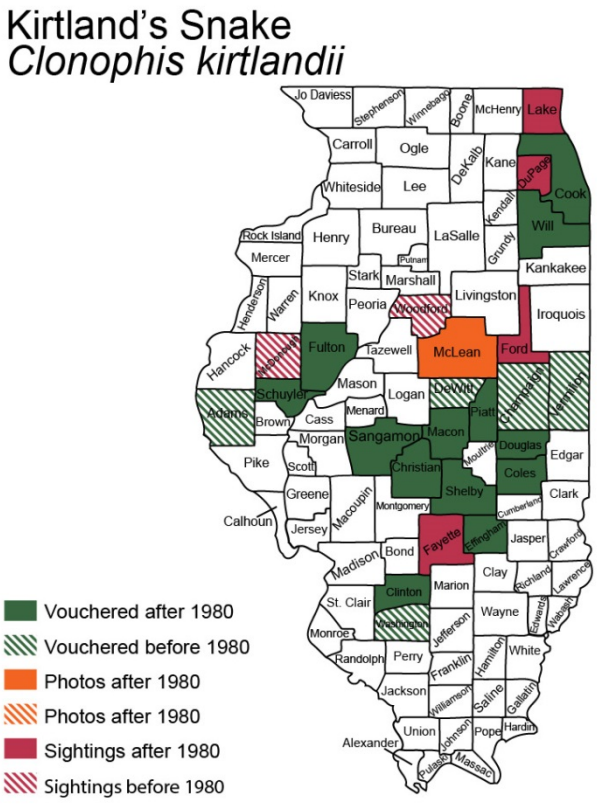
Crother, B.I. 2012. Scientific and standard English names of amphibians and reptiles of North America north of Mexico, with comments regarding confidence in our understanding. 7th Edition. SSAR Herpetological Circular. 39: 1–101.

KIRTLAND'S SNAKE, *CLONOPHIS KIRTLANDII*

General Description for Identification: Like the other natricine snake species, the Kirtland's Snake has keeled scales and a divided anal plate. It is a small species that is distinguished by other snakes in Illinois, by its red or orange venter with contrasting black spots on each ventral scale.

Range: Within Illinois, Kirtland's snake primarily inhabits the southern till plain and extends north in the Chicago Region. It is absent from the sandy soil habitats in these areas.

Suitable Habitat: Historically, wet prairies, wet meadows, prairie fens, and associated wetlands, especially those that were seasonally flooded and adjacent to upland areas, were the preferred habitats for Kirtland's Snakes (Ernst and Ernst 2003). Most of these habitats have long since been destroyed through agricultural practices and other development. Present habitat consists of open, low, grassy areas, often at the margins of streams, ponds, or ditches (Minton, 1972; Ernst and Barbour 1989; Bavetz 1994). Crayfish burrows are used as shelter although Kirtland's snakes have been collected in vacant lots in urban areas where crayfish burrows are not present. When crayfish burrows are not present they hide under boards, trash, and other surface debris (Ernst and Ernst 2003).



Reproduction: Little is known about the life history of the Kirtland's Snake due to its secretive nature. Courtship behavior has been observed in September in Illinois (Anton et al. 2003).

Activity: Kirtland's Snakes are reported to be most active in April and May (spring) and October (autumn) and enter hibernation in late October to early November (Ernst and Ernst 2003). Snakes may den communally (Anton et al. 2003).

Suitable Sampling Seasons: This species is shy and secretive, spending most of its time below ground and under large cover objects. Anecdotal evidence suggests that they are most often surface-active when temperatures are below 70 F on overcast days in the spring and fall.

Illinois Status: Kirtland's Snake is listed as threatened in Illinois (Illinois Endangered Species Protection Board 2020). The primary threat to the species in Illinois is the destruction of habitat (Phillips et al. 2022).

Literature Cited

Anton, T.G., D. Mauger, C.A. Phillips, M.J. Dreslik, J.A. Petzing, A.R. Kuhns, and J.M. Mui. 2003. *Clonophis kirtlandii* (Kirtland's Snake) aggregating behavior and site fidelity. Herpetological Review 34:248–249.

Bavetz, M. 1994. Geographic variation, status, and distribution of Kirtland's Snake (*Clonophis kirtlandii* Kennicott) in Illinois. Transactions of the Illinois State Academy of Science 87(3–4): 151-163.

Ernst, C.H., and R.W. Barbour. 1989. Snakes of Eastern North America. George Mason University Press, Fairfax, Virginia. 282 pp.

Ernst, C.H., and E.M. Ernst. 2003. Snakes of the United States and Canada. Smithsonian Books. Washington and London.

Illinois Endangered Species Protection Board (IESPB). 2020. Checklist of Endangered and Threatened Animals and Plants of Illinois. Illinois Endangered Species Protection Board, Springfield, Illinois. Effective May 28. 10 pp. A PDF of this checklist available here: https://www2.illinois.gov/dnr/education/CDIndex/ETListMay2020.pdf Accessed 02 August 2022.

Minton, S.A. 1972. Amphibians and Reptiles of Indiana. Indiana Academy of Science Monograph No. 3: i-v + 346 pp.

Phillips, C.A., J.A. Crawford, and A.R. Kuhns. 2022. Field Guide to Amphibians and Reptiles of Illinois. Second Edition. University of Illinois Press, Urbana, Chicago, Springfield. 277 pp.

APPENDIX B

Sampling methods appropriate for the detection of amphibians and reptiles listed as endangered or threatened in the state of Illinois.

Table B.1. Species of amphibians and reptiles listed as threatened or endangered in Illinois and potential sampling methods for their detection.

State Listed Herptiles			Threatened	Endangered	Dip-Net	Minnow Trap	Call Survey	Visual Encounter	Hoop Trap	Fyke Net	Seine	Drift Fence	Coverboard
AMPHIBIANS	SALIENTIA	*Ambystoma jeffersonianum*	X		■	■		■				■	
		Ambystoma platineum		X	■	■		■				■	
		Cryptobranchus alleganiensis		X				■					
		Desmognathus conanti		X	■			■					
		Hemidactylium scutatum	X					■				■	
		Necturus maculosus	X		■	■		■			■		
	ANURA	*Hyla avivoca*		X	■	■	■	■					
		Pseudacris streckerii		X	■	■	■	■				■	
		Gastrophryne carolinensis	X		■	■	■	■				■	
REPTILES	TESTUDINES	*Apalone mutica*		X				■	■	■			
		Clemmys guttata		X				■	■				
		Emydoidea blandingii		X				■	■				
		Kinosternon flavescens		X				■	■				
		Macrochelys temminckii		X					■				
		Pseudemys concinna		X				■		■			
		Terrapene ornata	X					■				■	
	SERPENTES	*Clonophis kirtlandii*	X					■				■	■
		Crotalus horridus	X					■				■	
		Pantherophis emoryi		X				■				■	■
		Heterodon nasicus	X					■				■	■
		Masticophis flagellum		X				■				■	■
		Nerodia fasciata		X				■				■	■
		Nerodia cyclopion	X					■				■	■
		Sistrurus catenatus		X				■				■	
		Tantilla gracilis	X					■				■	■
		Thamnophis sauritus	X					■				■	■
		Tropidoclonion lineatum	X					■				■	■

Sampling Methods for the Detection of State Listed Amphibians and Reptiles

ACTIVE SAMPLING METHODS

Call Survey**.** This method is only effective for anurans during the breeding season. The researcher either visits wetlands in the evening hours to listen to the frog chorus, or places an audio recording device at the wetland during the day and returns the following morning to retrieve the recording. In either case, the researcher must be familiar with the calls of frogs and toads in the area in order to identify the species based only upon the calls in the chorus. To be effective, the researcher must also be familiar with the ecology of the target species and sample during its breeding season in habitats where it is likely to reside.

Dip Netting. A dip net is useful for sampling aquatic animals and can be used to capture individuals observed or as a means of blindly sampling for aquatic organisms in vegetation choked or turbid water. Typically, a researcher will pull the net along the substrate and through the water column for approximately 3 feet, and then finish the net sweep by pulling the net up and out of the water with the net opening facing upward. The researcher can then remove any substrate or detritus from the net and search for captured animals.

Seine. A seine is a fishing net that hangs vertically in the water column suspended by floats with the bottom edge held down by weights. The net is dragged along the bottom of aquatic habitats and captures aquatic amphibians and reptiles when it is drawn onto shore or scooped out of the water. In many ways, it functions much like a large dip net when used for amphibian and reptile sampling.

Visual Encounter Survey (VES). Visual encounter surveys involve searching appropriate habitat (mainly turning cover items such as logs, rocks and miscellaneous debris and also visually scanning open habitats) and recording all species encountered. Surveys can be regimented such as by walking pre-defined grid patterns and time limits, or in a more haphazard wandering pattern. This method is most effective if the researcher is familiar with the target species ecology and can focus on habitat areas where the species is most likely to be encountered, as well as time of day and seasons when the species is most active. A thorough explanation of this technique can be found in Heyer et al. (1994).

PASSIVE SAMPLING METHODS

Drift Fence**.** A drift fence is any object that is placed perpendicular to the ground surface as a way to intercept animals that may be passing through. It is often constructed of hardware cloth or silt fencing buries a few inches into the ground to prevent burrowing; but natural cover items such as large logs or rock formations may also function as a drift fence. Animals are captured by travelling parallel to the fence until they fall into a receptacle, such as a bucket or coffee can,

which has been buried flush with the substrate. Similarly, funnel traps can be placed along the drift fence to capture animals that are walking along the fence. This technique is covered in Heyer et al. (1994) and McDiarmid et al. (2012).

Coverboards**.** Coverboards are essentially any item sitting flush with the substrate under which an amphibian or reptile may seek refuge. Artificial coverboards are often made of plywood or corrugated tin and are placed in areas likely to harbor the species of interest. Coverboards often attract small mammals and invertebrates as well which may enhance their ability to attract amphibians and reptiles. Well-seasoned artificial cover objects with little vegetation underneath them seem to work better in attracting herptiles, therefore their use most effective for long term projects when they can be set out many months in advance of surveys.

Minnow Trap**.** Traps may be constructed of rope, monofilament, or steel and may have funnels or throats, at one or both ends which allow the animal to enter into the trap body but prevent them from easily exiting the trap. Minnow traps may be cylindrical or rectangular and can be baited or not depending on the target species. If baited, the bait is refreshed every 2 to 4 days. Traps are usually placed so that a portion of the trap placed in water is emergent so that captured animals have access to air and will not drown. However, in riverine environments, where there is little to no probability of capturing non-gilled species, the traps may be fully submerged. Effort is recorded in trap hours (i.e., number of traps multiplied by the number of hours the traps were deployed). Results are reported as the numbers of each species captured.

Hoop Trap**.** These traps work on the same principal as minnow traps but are larger in diameter and have larger throats to allow for the capture of larger animals such as turtles (Legler 1960). All hoop traps are placed such that at least 5cm of the trap is above the surface of the water to ensure captured turtles have access to air. Traps are tied via string or rope to surrounding vegetation to ensure that captured turtles do not roll traps into deeper water and drown. Traps are placed parallel to either the shoreline or potential basking sites. Traps are baited (usually with sardines canned in spring water or oil). Traps are checked daily and bait is changed every 2 to 4 days. Effort is recorded in trap hours (i.e., number of traps multiplied by the number of hours the traps were deployed). Results are reported as the numbers of each species captured.

Fyke Net**.** This trapping method is essentially a combination of a Drift Fence and a Hoop Trap. It consists of a hoop trap body with a single throat, and long wings and a lead that extend out from the throat in a double V formation (**Figure B.1**). Wings and leads have a lead-line that makes them hang vertically in the water column. This essentially extends the reach of the throat and works well for turtle species that are not attracted to readily available baits. It can be used to intercept turtles entering a cove or attempting to access a popular basking site, by funneling them into the trap body where the throat prevents them from escaping. A description of Fyke Nets can be found in Vogt (1980).

LITERATURE CITED

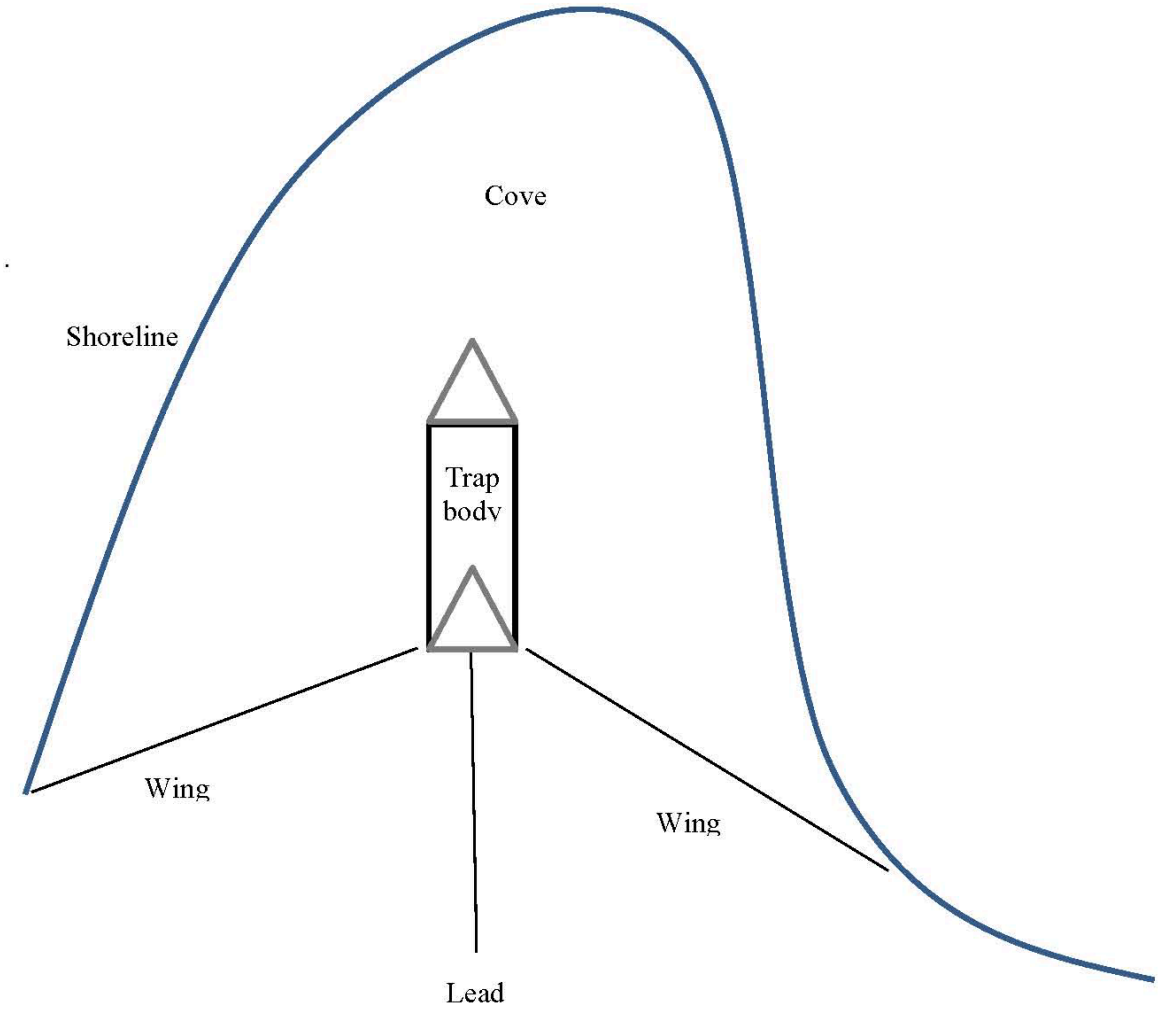
Heyer, W.R., M.A. Donnelly, R.W. McDiarmid, L.C. Hayek and M.S. Foster, eds. 1994. Measuring and Monitoring Biodiversity: Standard methods for amphibians. Smithsonian Institution Press, Washington D.C. 364 pp.

Legler, J.M. 1960. A simple and inexpensive device for trapping aquatic turtles. Proceedings of the Utah Academy of Sciences, Arts and Letters 37**:** 63–66.

McDiarmid, R.W., M.S. Foster, C. Guyer, J.W. Gibbons, and N. Chernoff. Eds. 2012. Reptile Biodiversity: Standard Methods for Inventory and Monitoring. University of California Press. Berkeley. 412 pp.

Vogt, R.C. 1980. New methods for trapping aquatic turtles. Copeia 1980:368–371.

Figure B.1. Fyke Net set to capture turtles attempting to enter a cove (as viewed from above).



APPENDIX C

Figures relevant to the Plum Creek Greenway Trail project from South of Burville Road to 265th Street in Will County, Illinois (IDOT sequence No. 23621A, Section No. 20-F3000-06-BT)

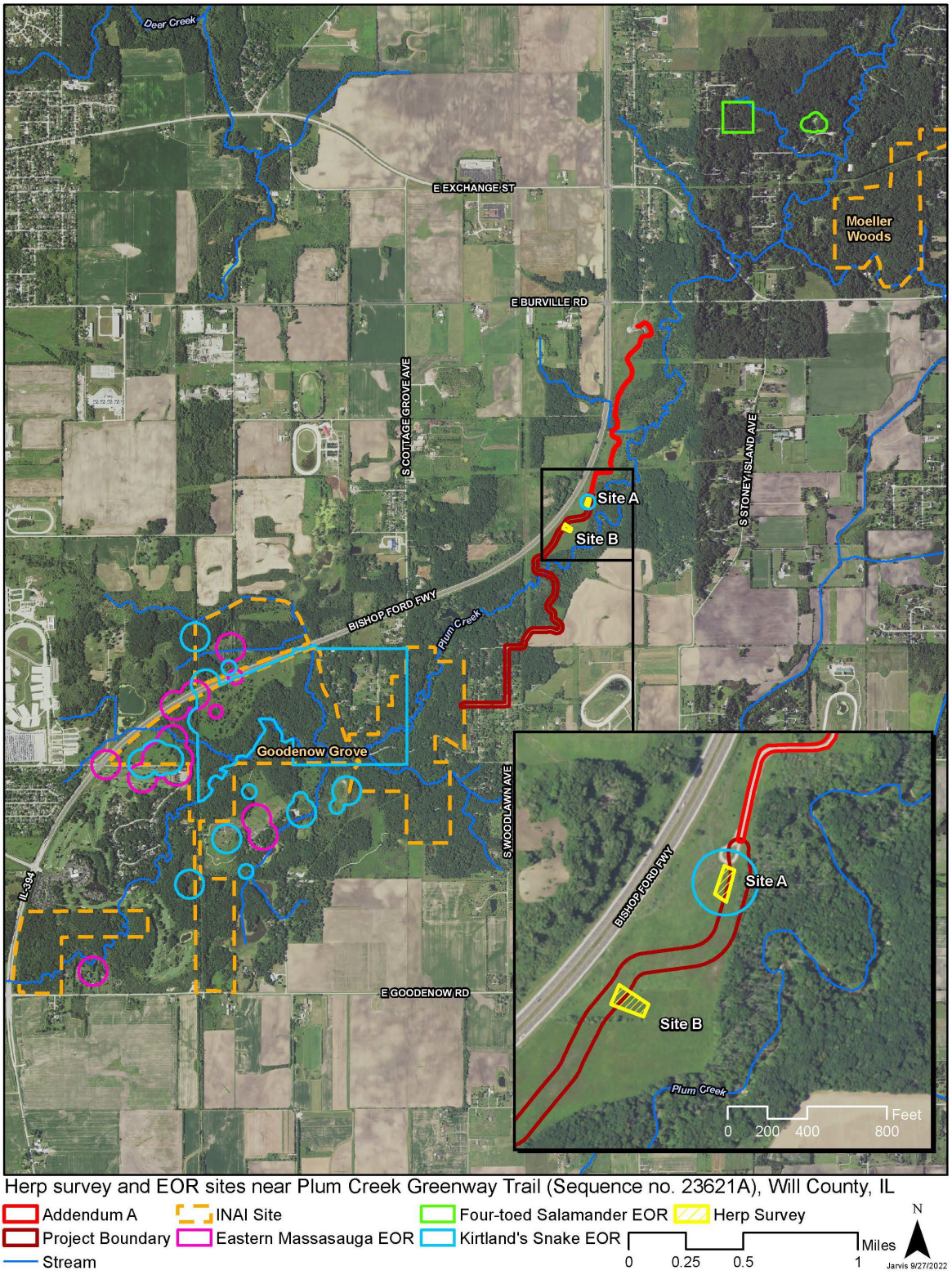


Figure C.1. Herptile Element Occurrence Records relative to Plum Creek Greenway Trail project from south of Burville Road to 265th Street in Will County, Illinois (IDOT sequence No. 23621A, Section No. 20-F3000-06-BT).

APPENDIX D

Photograph relative to the Plum Creek Greenway Trail project from South of Burville Road to 265th Street in Will County, Illinois (IDOT sequence No. 23621A, Section No. 20-F3000-06-BT)

Plate 1. Cover object placed *in situ*. Photograph by Andrew R. Kuhns.

Plate 2. Deceased Red-bellied Snake, *Storeria occipitomaculata,* found on Plum Creek Greenway Trail on 03 June 2022. While the exact cause of mortality is unknown the injuries appear consistent with being run over by a bicycle tire. Photograph by A.R. Kuhns.

APPENDIX E

Arc-GIS Shapefiles

An ArcGIS folder <23621A_Herp_Survey_GIS.zip> containing an Arc-GIS shapefile of the sampled area constitutes this appendix. The ArcGIS shapefile and this report will be submitted to IDOT via the IDOT Site Assessment Tracking System extranet website.

APPENDIX C

Engineering Plans

MATCHLINE STA 22+50

WETLAND SITE 15 AREA OF IMPACT = 0.008 AC

PROPOSED ASPHALT PATH HMA SURFACE COURSE, AGGREGATE BASE COURSE

PC Sta 9+98.28

PI Sta 10+29.42

PT Sta 10+58.67

END ASPHALT PATH BEGIN ON-STREET ROUTE STA. 10+58.7

PROPOSED BIKE PATH ON STREET

S WOODLAWN AVE

PI Sta 20+28.88

265th ST

15+00

20+00

66'

16'

2'

10'

BEGIN PROJECT STA 10+03.6 MEET EXISTING TRAIL

CURVE 1

GREENWOOD AVE

PROP. CURVE PR PLUMCREEK1
PI STA. = 10+29.42
Δ = 34° 35' 53" (RT)
D = 57° 17' 45"
R = 100.00'
T = 31.14'
L = 60.39'
E = 4.74'
e = ____
T.R. = ____
S.E. RUN = ____
P.C. STA. = 9+98.28
P.T. STA. = 10+58.67

N

0 50 100 150
SCALE IN FEET

PLAN
SURVEYED
PLOTTED
ALIGNMENT CHECKED
RT. OF WAY CHECKED
CADD FILE NAME
NOTE BOOK
NO.
BY
DATE

PROFILE
SURVEYED
PLOTTED
GRADE CHECKED
BAR. NOTED
STRUCTURE NOTATIONS CHKD
NOTE BOOK
NO.

745 740 735 730 725 720 715 710 705

738.20
739.20
739.04
+1.81%
PROPOSED PROFILE
EXISTING PROFILE

10+00 11+00 12+00 13+00 14+00 15+00 16+00 17+00 18+00 19+00 20+00 21+00 22+00

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STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

PLUM CREEK GREENWAY TRAIL
PLAN AND PROFILE

SCALE: 1" = 50' | SHEET 1 OF 10 SHEETS | STA. | TO STA.

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
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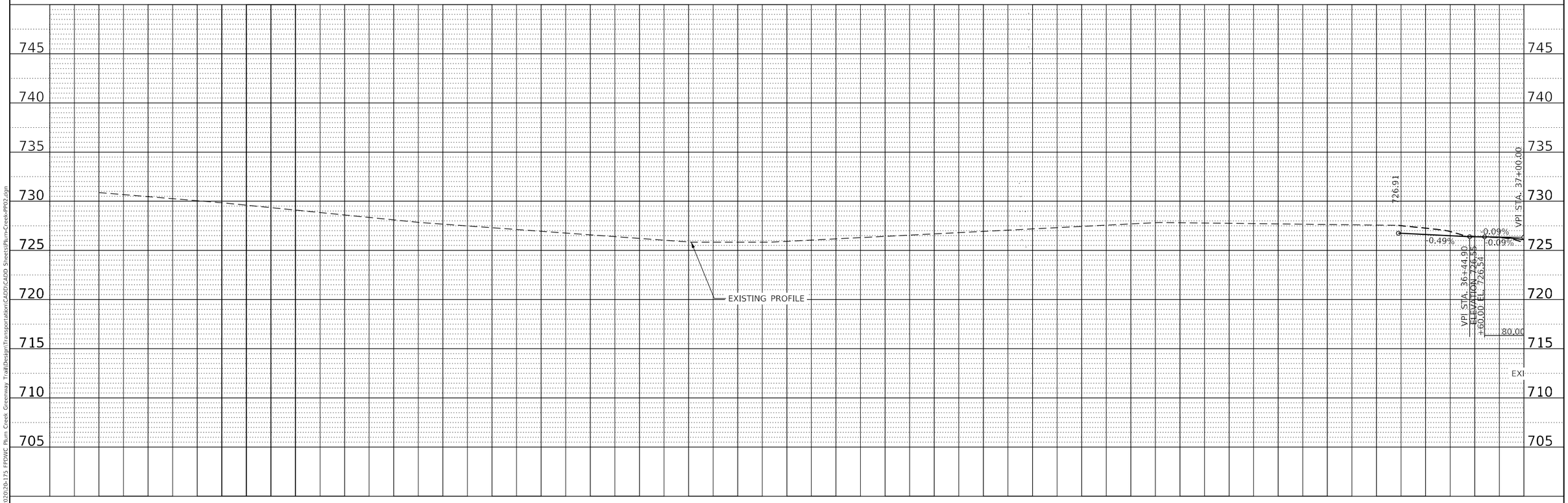
EXHIBIT A-3



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PROFILE: SURVEYED, PLOTTED, GRADES CHECKED, B.M. NOTED, STRUCTURE NOTATIONS CHKD, NOTE BOOK, NO., BY, DATE

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STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

PLUM CREEK GREENWAY TRAIL
PLAN AND PROFILE

SCALE: 1" = 50' | SHEET 2 OF 10 SHEETS | STA. | TO STA.

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
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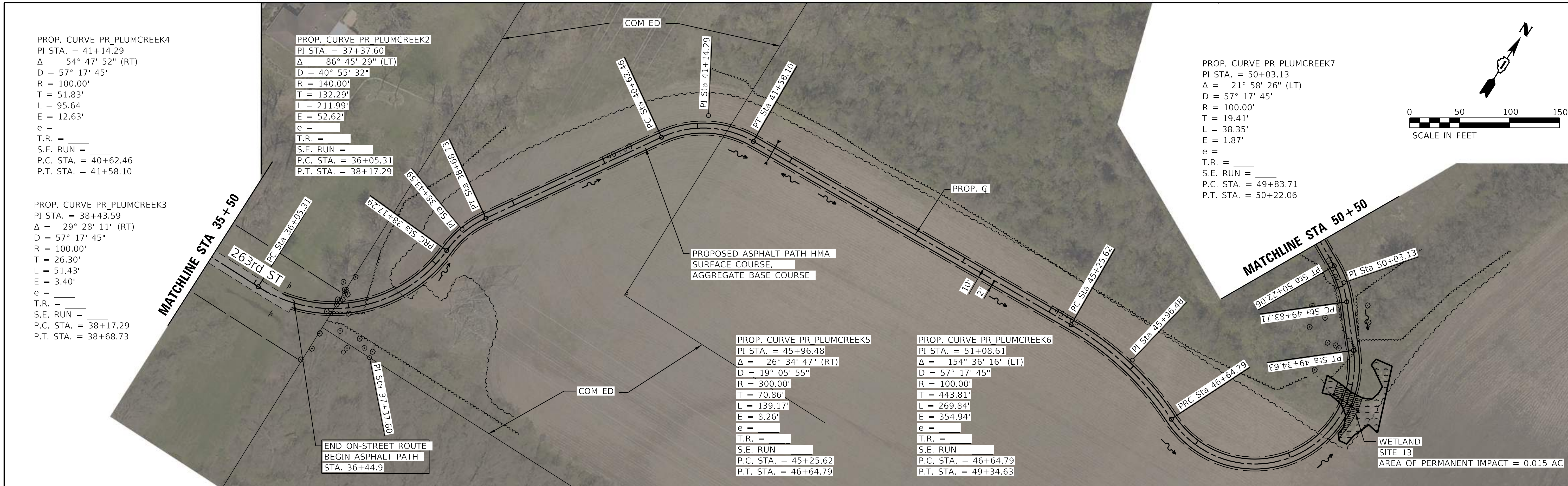
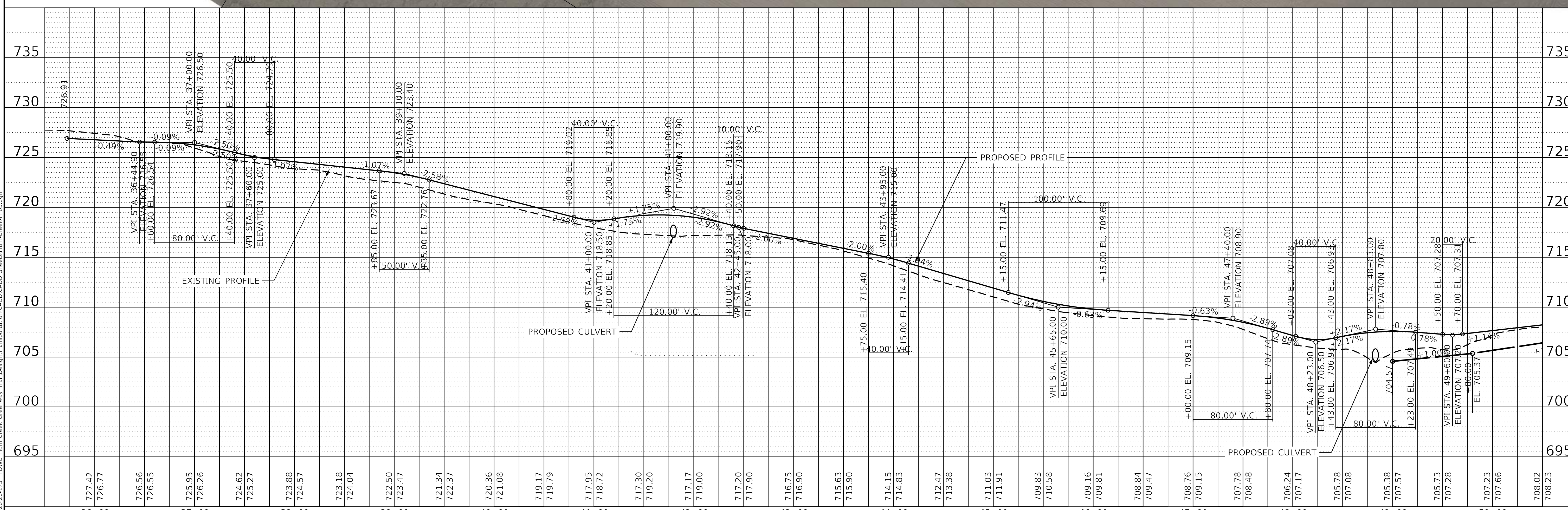
		CONTRACT NO.		
	ILLINOIS FED. AID PROJECT			

EXHIBIT A-3



PROP. CURVE PR_PLUMCREEK4
PI STA. = 41+14.29
Δ = 54° 47' 52" (RT)
D = 57° 17' 45"
R = 100.00'
T = 51.83'
L = 95.64'
E = 12.63'
e =
T.R. =
S.E. RUN =
P.C. STA. = 40+62.46
P.T. STA. = 41+58.10
PROP. CURVE PR_PLUMCREEK3
PI STA. = 38+43.59
Δ = 29° 28' 11" (RT)
D = 57° 17' 45"
R = 100.00'
T = 26.30'
L = 51.43'
E = 3.40'
e =
T.R. =
S.E. RUN =
P.C. STA. = 38+17.29
P.T. STA. = 38+68.73
PROP. CURVE PR_PLUMCREEK2
PI STA. = 37+37.60
Δ = 86° 45' 29" (LT)
D = 40° 55' 32"
R = 140.00'
T = 132.29'
L = 211.99'
E = 52.62'
e =
T.R. =
S.E. RUN =
P.C. STA. = 36+05.31
P.T. STA. = 38+17.29
COM ED
PC Sta 40+62.46
PI Sta 41+14.29
PT Sta 41+58.10
PC Sta 36+05.31
PRC Sta 38+17.29
PI Sta 38+43.59
PT Sta 38+68.73
PI Sta 37+37.60
MATCHLINE STA 35+50
263rd ST
END ON-STREET ROUTE
BEGIN ASPHALT PATH
STA. 36+44.9
PROPOSED ASPHALT PATH HMA
SURFACE COURSE,
AGGREGATE BASE COURSE
PROP. ℄
10'
2'
PROP. CURVE PR_PLUMCREEK5
PI STA. = 45+96.48
Δ = 26° 34' 47" (RT)
D = 19° 05' 55"
R = 300.00'
T = 70.86'
L = 139.17'
E = 8.26'
e =
T.R. =
S.E. RUN =
P.C. STA. = 45+25.62
P.T. STA. = 46+64.79
PROP. CURVE PR_PLUMCREEK6
PI STA. = 51+08.61
Δ = 154° 36' 16" (LT)
D = 57° 17' 45"
R = 100.00'
T = 443.81'
L = 269.84'
E = 354.94'
e =
T.R. =
S.E. RUN =
P.C. STA. = 46+64.79
P.T. STA. = 49+34.63
PC Sta 45+25.62
PI Sta 45+96.48
PRC Sta 46+64.79
PROP. CURVE PR_PLUMCREEK7
PI STA. = 50+03.13
Δ = 21° 58' 26" (LT)
D = 57° 17' 45"
R = 100.00'
T = 19.41'
L = 38.35'
E = 1.87'
e =
T.R. =
S.E. RUN =
P.C. STA. = 49+83.71
P.T. STA. = 50+22.06
N
0 50 100 150
SCALE IN FEET
MATCHLINE STA 50+50
PI Sta 50+03.13
PT Sta 50+22.06
PC Sta 49+83.71
PT Sta 49+34.63
WETLAND
SITE 13
AREA OF PERMANENT IMPACT = 0.015 AC



735
730
725
720
715
710
705
700
695
PROPOSED PROFILE
EXISTING PROFILE
PROPOSED CULVERT
VPI STA. 36+44.90
ELEVATION 726.55
VPI STA. 37+00.00
ELEVATION 726.50
VPI STA. 37+60.00
ELEVATION 725.00
VPI STA. 39+10.00
ELEVATION 723.40
VPI STA. 41+00.00
ELEVATION 718.50
VPI STA. 41+80.00
ELEVATION 719.90
VPI STA. 42+45.00
ELEVATION 718.00
VPI STA. 43+95.00
ELEVATION 715.00
VPI STA. 45+65.00
ELEVATION 710.00
VPI STA. 47+40.00
ELEVATION 708.90
VPI STA. 48+23.00
ELEVATION 706.50
VPI STA. 48+83.00
ELEVATION 707.80
VPI STA. 49+60.00
ELEVATION 707.20
80.00' V.C.
40.00' V.C.
50.00' V.C.
120.00' V.C.
10.00' V.C.
100.00' V.C.
40.00' V.C.
80.00' V.C.
80.00' V.C.
40.00' V.C.
20.00' V.C.
-0.49%
-0.09%
-2.50%
-1.07%
-2.58%
+1.75%
-2.92%
-2.00%
-2.94%
-0.63%
-2.89%
+2.17%
-0.78%
+1.14%
36+00
37+00
38+00
39+00
40+00
41+00
42+00
43+00
44+00
45+00
46+00
47+00
48+00
49+00
50+00

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STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

PLUM CREEK GREENWAY TRAIL
PLAN AND PROFILE

SCALE: 1" = 50' | SHEET 3 OF 10 SHEETS | STA. TO STA.

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
	20-F3000-06-BT	WILL	10	3
		CONTRACT NO.		
		ILLINOIS FED. AID PROJECT		

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PROP. CURVE PR_PLUMCREEK8
PI STA. = 51+36.19
Δ = 75° 51' 45" (RT)
D = 57° 17' 45"
R = 100.00'
T = 77.94'
L = 132.40'
E = 26.78'
e = ____
T.R. = ____
S.E. RUN = ____
P.C. STA. = 50+58.25
P.T. STA. = 51+90.65

PROP. CURVE PR_PLUMCREEK9
PI STA. = 52+55.85
Δ = 66° 12' 11" (LT)
D = 57° 17' 45"
R = 100.00'
T = 65.19'
L = 115.55'
E = 19.37'
e = ____
T.R. = ____
S.E. RUN = ____
P.C. STA. = 51+90.65
P.T. STA. = 53+06.20

PROP. CURVE PR_PLUMCREEK10
PI STA. = 54+78.22
Δ = 92° 09' 01" (RT)
D = 57° 17' 45"
R = 100.00'
T = 103.83'
L = 160.83'
E = 44.15'
e = ____
T.R. = ____
S.E. RUN = ____
P.C. STA. = 53+74.39
P.T. STA. = 55+35.23

PROP. CURVE PR_PLUMCREEK11
PI STA. = 57+83.95
Δ = 32° 51' 31" (LT)
D = 25° 27' 53"
R = 225.00'
T = 66.35'
L = 129.04'
E = 9.58'
e = ____
T.R. = ____
S.E. RUN = ____
P.C. STA. = 57+17.60
P.T. STA. = 58+46.64

PROP. CURVE PR_PLUMCREEK12
PI STA. = 60+08.64
Δ = 30° 34' 28" (LT)
D = 25° 27' 53"
R = 225.00'
T = 61.50'
L = 120.07'
E = 8.25'
e = ____
T.R. = ____
S.E. RUN = ____
P.C. STA. = 59+47.14
P.T. STA. = 60+67.20

PROP. CURVE PR_PLUMCREEK13
PI STA. = 62+30.02
Δ = 46° 35' 13" (LT)
D = 25° 27' 53"
R = 225.00'
T = 96.87'
L = 182.95'
E = 19.97'
e = ____
T.R. = ____
S.E. RUN = ____
P.C. STA. = 61+33.15
P.T. STA. = 63+16.10

PROP. CURVE PR_PLUMCREEK14
PI STA. = 65+04.40
Δ = 30° 22' 56" (LT)
D = 57° 17' 45"
R = 100.00'
T = 27.15'
L = 53.03'
E = 3.62'
e = ____
T.R. = ____
S.E. RUN = ____
P.C. STA. = 64+77.25
P.T. STA. = 65+30.28

PROPOSED ASPHALT PATH HMA SURFACE COURSE, AGGREGATE BASE COURSE

MATCHLINE STA 50+50

MATCHLINE STA 65+50

SEE STRUCTURAL PLANS FOR BRIDGE AND APPROACH PAVEMENT DETAILS

PLUM CREEK

WETLAND SITE 9 AREA OF PERMANENT IMPACT = 0.057 AC

WATERWAY SITE W2 AREA OF PERMANENT IMPACT = 0.0 AC

WETLAND SITE 10 AREA OF PERMANENT IMPACT = 0.0 AC

WETLAND SITE 11 AREA OF PERMANENT IMPACT = 0.0 A

0 50 100 150
SCALE IN FEET

PROPOSED DITCH RT

PROPOSED CULVERT

PROPOSED CULVERT

EXISTING PROFILE

PROPOSED PEDESTRIAN BRIDGE PREFAB 150'

FEMA FLOODPLAIN ELEVATION= 679.06

708.02 708.23 | 708.37 708.93 | 710.39 710.66 | 711.94 712.19 | 712.39 712.88 | 712.18 712.95 | 711.90 712.97 | 712.42 712.79 | 711.21 712.00 | 709.47 711.06 | 708.22 710.58 | 709.40 709.62 | 707.47 707.86 | 704.70 705.54 | 702.11 703.21 | 700.16 700.88 | 698.35 698.56 | 695.77 696.23 | 693.24 693.90 | 691.20 691.57 | 686.89 689.24 | 684.19 686.91 | 682.08 684.62 | 681.69 683.42 | 682.23 683.80 | 682.49 684.70 | 674.40 685.46 | 667.38 685.26 | 672.70 683.96 | 677.85 681.70 | 678.02

51+00 52+00 53+00 54+00 55+00 56+00 57+00 58+00 59+00 60+00 61+00 62+00 63+00 64+00 65+00

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	DRAWN -
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REVISED - | REVISED - | REVISED - | REVISED -

TERRA ENGINEERING LTD.

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

PLUM CREEK GREENWAY TRAIL
PLAN AND PROFILE

SCALE: 1" = 50' | SHEET 4 OF 10 SHEETS | STA. | TO STA.

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
	20-F3000-06-BT	WILL	10	4
		CONTRACT NO.		
	ILLINOIS FED. AID PROJECT			

PLAN
SURVEYED
PLOTTED
ALIGNMENT CHECKED
RT. OF WAY CHECKED
CADD FILE NAME
NOTE BOOK
NO.
BY
DATE

PROFILE
SURVEYED
PLOTTED
CROSS SECTIONS CHECKED
B.M. NOTED
STRUCTURE NOTATNS CHKD
NOTE BOOK
NO.
BY
DATE

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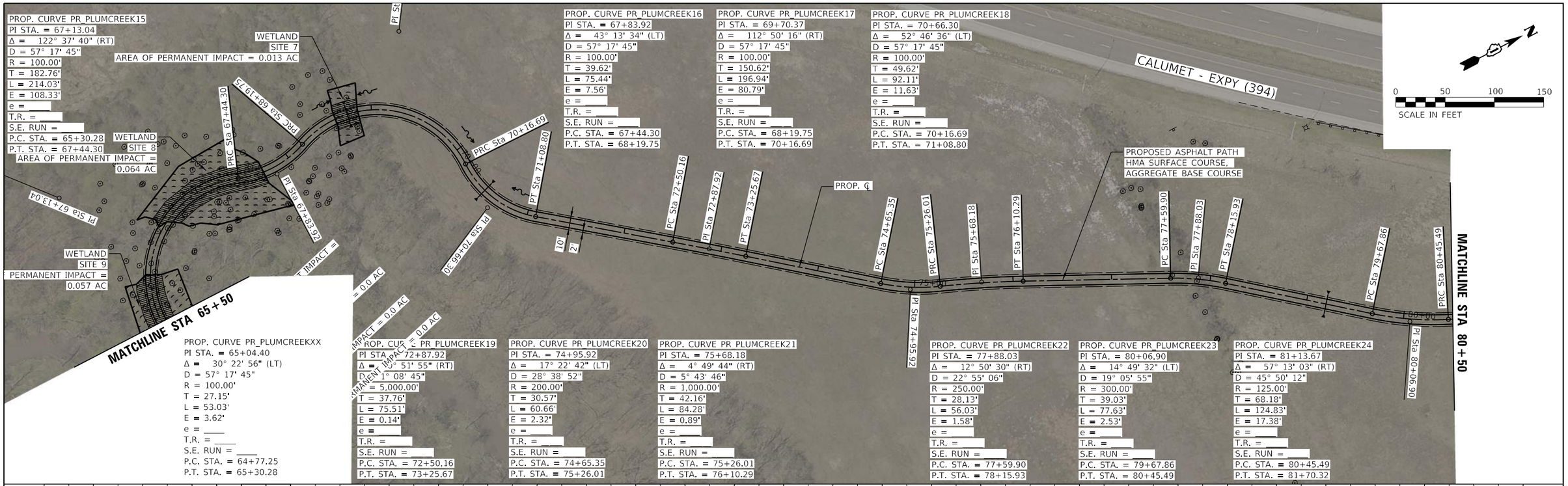


PLAN
SURVEYED
PLOTTED
ALIGNMENT CHECKED
RT. OF WAY CHECKED
CADD FILE NAME
NOTE BOOK
NO.
BY
DATE

PROFILE
SURVEYED
PLOTTED
GRADES CHECKED
BKA. NOTED
STRUCTURE NOTATNS CHKD
NOTE BOOK
NO.

MODEL: Default
FILE NAME: M:\2020\20-175 FPDWC Plum Creek Greenway Trail\Design\Transportation\CADD\CADD Sheets\Plum-Creek-PP05.dgn

TERRA ENGINEERING LTD.

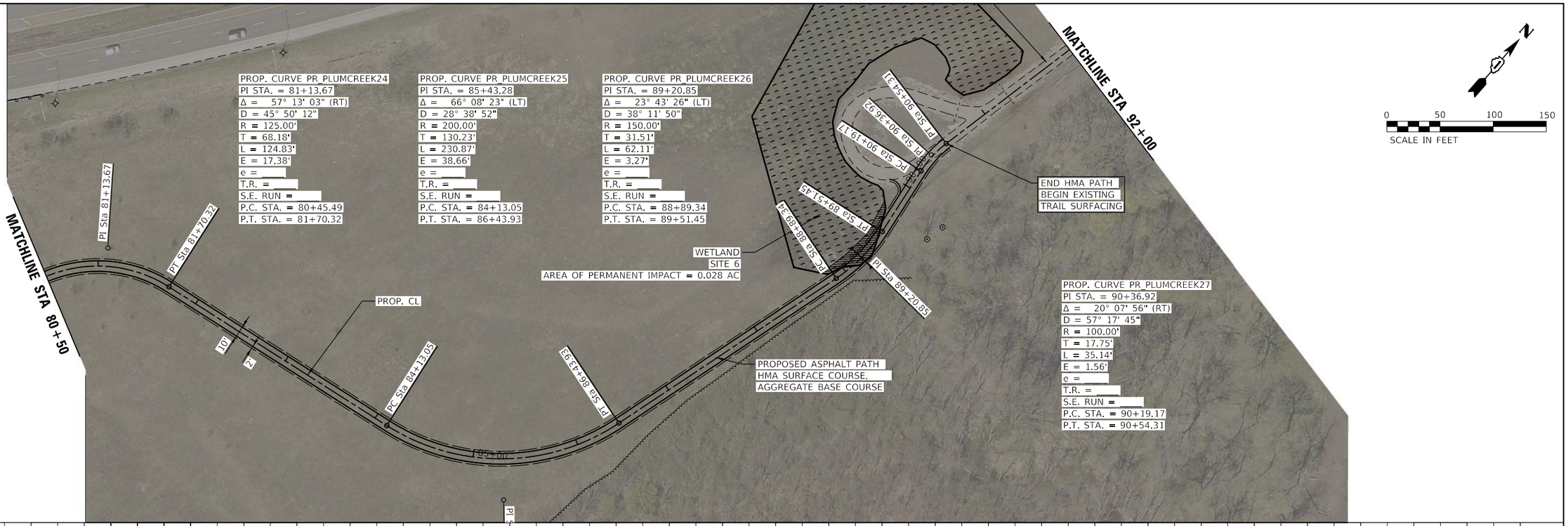
USER NAME = DavidL	DESIGNED -	REVISED -
	DRAWN -	REVISED -
PLOT SCALE = 100.0000 ' / in.	CHECKED -	REVISED -
PLOT DATE = 3/10/2023	DATE -	REVISED -

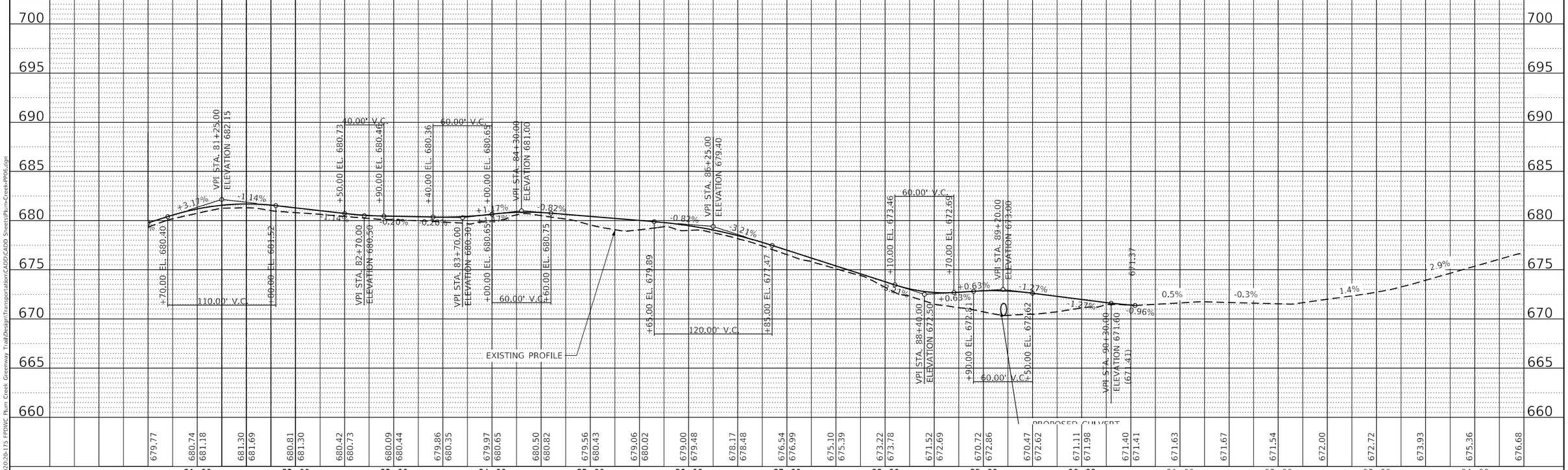
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

PLUM CREEK GREENWAY TRAIL
PLAN AND PROFILE

SCALE: 1" = 50' | SHEET 5 OF 10 SHEETS | STA. | TO STA.

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
	20-F3000-06-BT	WILL	10	5
		CONTRACT NO.		
		ILLINOIS	FED. AID PROJECT	





PLAN — SURVEYED — PLOTTED — ALIGNMENT CHECKED — RT. OF WAY CHECKED — CADD FILE NAME — NOTE BOOK — NO. — BY — DATE

PROFILE — SURVEYED — PLOTTED — GRADES CHECKED — B.M. NOTED — STRUCTURE NOTATNS CHKD — NOTE BOOK — NO. — BY — DATE

MODEL: Default
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USER NAME = DavidL	DESIGNED -	REVISED -
	DRAWN -	REVISED -
PLOT SCALE = 100.0000 ' / in.	CHECKED -	REVISED -
PLOT DATE = 3/10/2023	DATE -	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

PLUM CREEK GREENWAY TRAIL
PLAN AND PROFILE

SCALE: 1" = 50' | SHEET 6 OF 10 SHEETS | STA. | TO STA.

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
	20-F3000-06-BT	WILL	10	6
		CONTRACT NO.		
	ILLINOIS FED. AID PROJECT			

PROP. CURVE PR_PLUMCREEK28
PI STA. = 95+75.78
Δ = 78° 58' 17" (RT)
D = 63° 39' 43"
R = 90.00'
T = 74.15'
L = 124.05'
E = 26.61'
e = _____
T.R. = _____
S.E. RUN = _____
P.C. STA. = 95+01.63
P.T. STA. = 96+25.68

PC Sta 95+01.63
PI Sta 95+75.78
10'
105+00
CURVE 28
PT Sta 96+25.68
MATCHLINE STA 92+00

PROP. CURVE PR_PLUMCREEK29
PI STA. = 98+05.34
Δ = 11° 49' 40" (LT)
D = 14° 19' 26"
R = 400.00'
T = 41.43'
L = 82.57'
E = 2.14'
e = _____
T.R. = _____
S.E. RUN = _____
P.C. STA. = 97+63.91
P.T. STA. = 98+46.48

PROP. CURVE PR_PLUMCREEK30
PI STA. = 99+23.47
Δ = 81° 05' 06" (LT)
D = 63° 39' 43"
R = 90.00'
T = 76.98'
L = 127.37'
E = 28.43'
e = _____
T.R. = _____
S.E. RUN = _____
P.C. STA. = 98+46.48
P.T. STA. = 99+73.85

PROP. CURVE PR_PLUMCREEK31
PI STA. = 99+97.97
Δ = 17° 21' 17" (LT)
D = 36° 15' 47"
R = 158.00'
T = 24.11'
L = 47.86'
E = 1.83'
e = _____
T.R. = _____
S.E. RUN = _____
P.C. STA. = 99+73.85
P.T. STA. = 100+21.71

WETLAND SITE 5
AREA OF IMPACT = 0.0 AC

PC Sta 97+63.91
CURVE 29
PCC Sta 98+46.48
PI Sta 98+05.34
PI Sta 99+23.47
PCC Sta 99+73.85
PT Sta 100+21.71
PC Sta 100+51.06
PI Sta 101+07.85
PI Sta 101+61.08
CURVE 30
CURVE 31
CURVE 32
WETLAND SITE 4
AREA OF IMPACT = 0.0 AC

WETLAND SITE 3
AREA OF IMPACT = 0.0 AC
PROPOSED HMA SURFACE COURSE

PROP. CURVE PR_PLUMCREEK32
PI STA. = 101+07.85
Δ = 35° 01' 07" (RT)
D = 31° 49' 52"
R = 180.00'
T = 56.79'
L = 110.01'
E = 8.74'
e = _____
T.R. = _____
S.E. RUN = _____
P.C. STA. = 100+51.06
P.T. STA. = 101+61.08

PROP. CURVE PR_PLUMCREEK33
PI STA. = 104+71.68
Δ = 30° 43' 03" (RT)
D = 29° 22' 57"
R = 195.00'
T = 53.56'
L = 104.54'
E = 7.22'
e = _____
T.R. = _____
S.E. RUN = _____
P.C. STA. = 104+18.12
P.T. STA. = 105+22.66

PROP. CURVE PR_PLUMCREEK34
PI STA. = 107+42.77
Δ = 121° 15' 33" (LT)
D = 59° 40' 59"
R = 96.00'
T = 170.58'
L = 203.17'
E = 99.74'
e = _____
T.R. = _____
S.E. RUN = _____
P.C. STA. = 105+72.19
P.T. STA. = 107+75.36

PC Sta 104+18.12
PI Sta 104+71.68
PT Sta 105+22.66
PC Sta 105+72.19
105+00
CURVE 33
CURVE 34
PI Sta 107+42.77
MATCHLINE STA 107+00

N
0 50 100 150
SCALE IN FEET

PLAN
SURVEYED
PLOTTED
ALIGNMENT CHECKED
RT. OF WAY CHECKED
CADD FILE NAME
NOTE BOOK
NO.
BY
DATE

PROFILE
SURVEYED
PLOTTED
GRADES CHECKED
BKA. NOTED
STRUCTURE NOTATNS CHKD
NOTE BOOK
NO.

MODEL: Default
FILE NAME: M:\2020\20-175 FPDWC Plum Creek Greenway Trail\Design\Transportation\CADD\CADD Sheets\Plum-Creek-PP07.dgn

700 695 690 685 680 675 670 665 660

1.4% 2.9% -3.0% -0.3%
EXISTING PROFILE

92+00 93+00 94+00 95+00 96+00 97+00 98+00 99+00 100+00 101+00 102+00 103+00 104+00 105+00 106+00 107+00

TERRA ENGINEERING LTD.

USER NAME = DavidL	DESIGNED -	REVISED -
	DRAWN -	REVISED -
PLOT SCALE = 100.0000 ' / in.	CHECKED -	REVISED -
PLOT DATE = 2/6/2023	DATE -	REVISED -

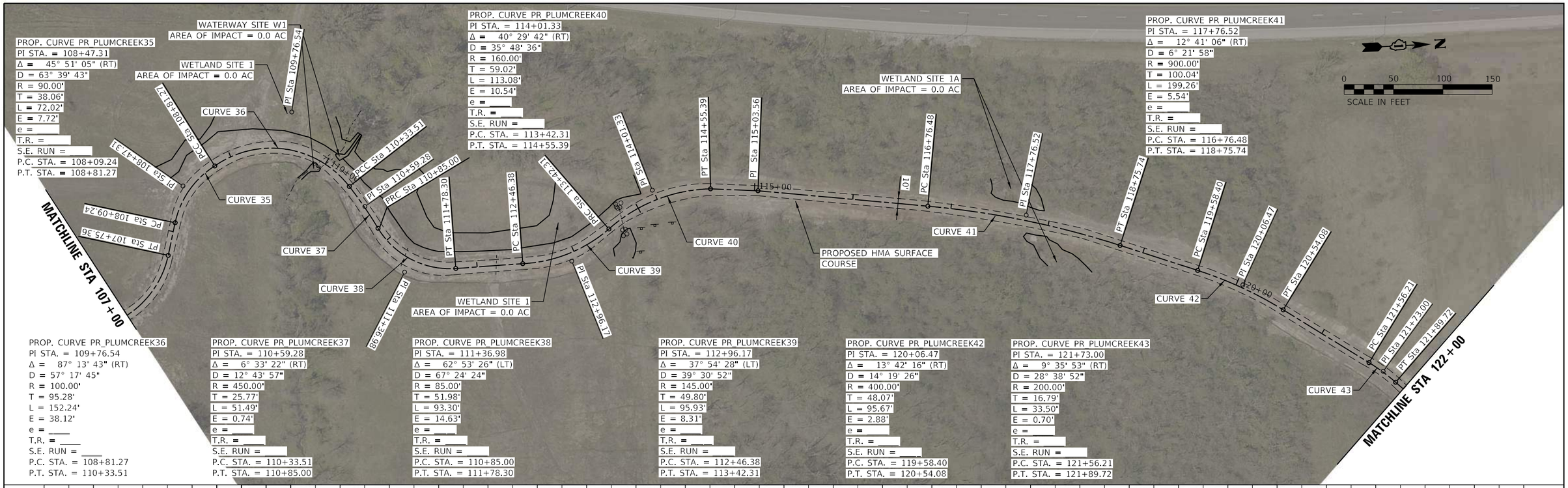
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

PLUM CREEK GREENWAY TRAIL
PLAN AND PROFILE

SCALE: 1" = 50' | SHEET 7 OF 10 SHEETS | STA. | TO STA.

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
	20-F3000-06-BT	WILL	10	7
		CONTRACT NO.		
		ILLINOIS FED. AID PROJECT		

EXHIBIT A-3



PROP. CURVE PR_PLUMCREEK36
PI STA. = 109+76.54
Δ = 87° 13' 43" (RT)
D = 57° 17' 45"
R = 100.00'
T = 95.28'
L = 152.24'
E = 38.12'
e =
T.R. =
S.E. RUN =
P.C. STA. = 108+81.27
P.T. STA. = 110+33.51

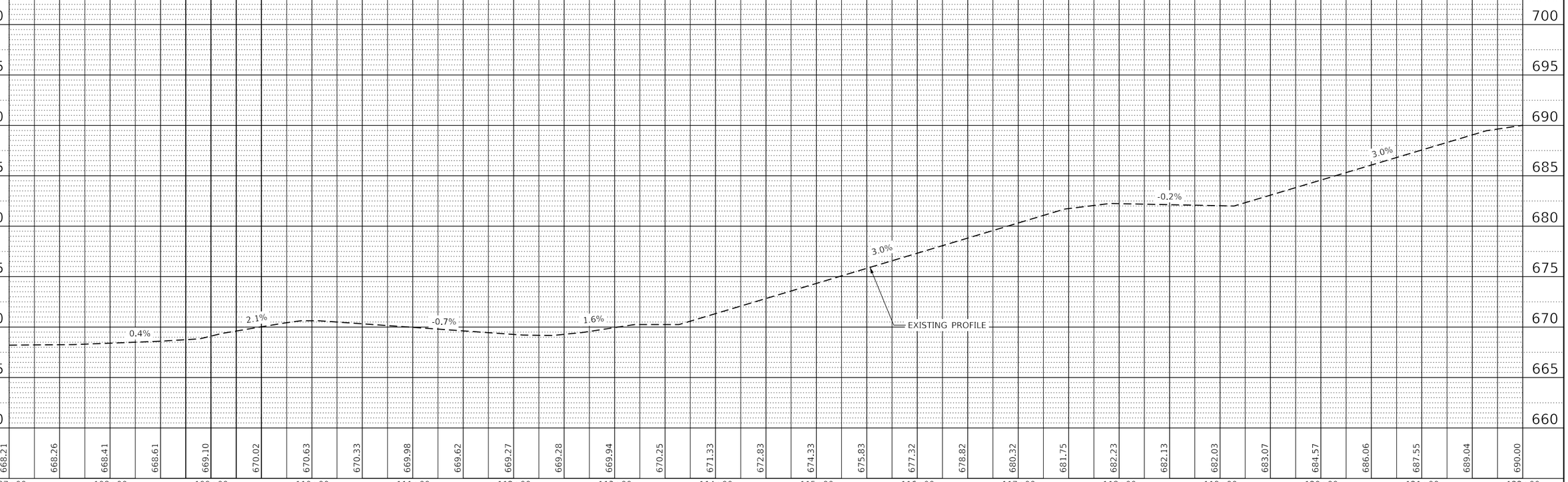
PROP. CURVE PR_PLUMCREEK37
PI STA. = 110+59.28
Δ = 6° 33' 22" (RT)
D = 12° 43' 57"
R = 450.00'
T = 25.77'
L = 51.49'
E = 0.74'
e =
T.R. =
S.E. RUN =
P.C. STA. = 110+33.51
P.T. STA. = 110+85.00

PROP. CURVE PR_PLUMCREEK38
PI STA. = 111+36.98
Δ = 62° 53' 26" (LT)
D = 67° 24' 24"
R = 85.00'
T = 51.98'
L = 93.30'
E = 14.63'
e =
T.R. =
S.E. RUN =
P.C. STA. = 110+85.00
P.T. STA. = 111+78.30

PROP. CURVE PR_PLUMCREEK39
PI STA. = 112+96.17
Δ = 37° 54' 28" (LT)
D = 39° 30' 52"
R = 145.00'
T = 49.80'
L = 95.93'
E = 8.31'
e =
T.R. =
S.E. RUN =
P.C. STA. = 112+46.38
P.T. STA. = 113+42.31

PROP. CURVE PR_PLUMCREEK42
PI STA. = 120+06.47
Δ = 13° 42' 16" (RT)
D = 14° 19' 26"
R = 400.00'
T = 48.07'
L = 95.67'
E = 2.88'
e =
T.R. =
S.E. RUN =
P.C. STA. = 119+58.40
P.T. STA. = 120+54.08

PROP. CURVE PR_PLUMCREEK43
PI STA. = 121+73.00
Δ = 9° 35' 53" (RT)
D = 28° 38' 52"
R = 200.00'
T = 16.79'
L = 33.50'
E = 0.70'
e =
T.R. =
S.E. RUN =
P.C. STA. = 121+56.21
P.T. STA. = 121+89.72



PLAN
SURVEYED
PLOTTED
ALIGNMENT CHECKED
RT. OF WAY CHECKED
CADD FILE NAME
NOTE BOOK
NO.
BY
DATE

PROFILE
SURVEYED
PLOTTED
GRADES CHECKED
B.M. NOTED
STRUCTURE NOTATIONS CHKD
NOTE BOOK
NO.

MODEL: Default
FILE NAME: M:\2020\20-175 FPDWC Plum Creek Greenway Trail\Design\Transportation\CADD\CADD Sheets\Plum-Creek-PP08.dgn

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USER NAME = DavidL	DESIGNED -	REVISED -
	DRAWN -	REVISED -
PLOT SCALE = 100.0000 ' / in.	CHECKED -	REVISED -
PLOT DATE = 2/6/2023	DATE -	REVISED -

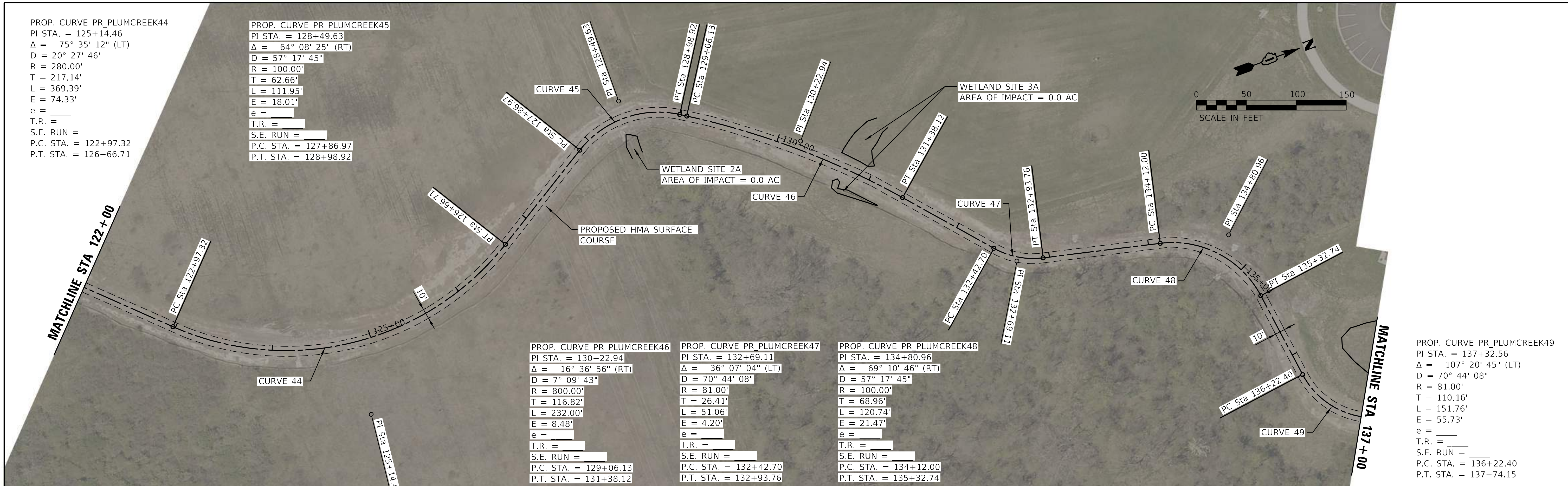
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

PLUM CREEK GREENWAY TRAIL
PLAN AND PROFILE

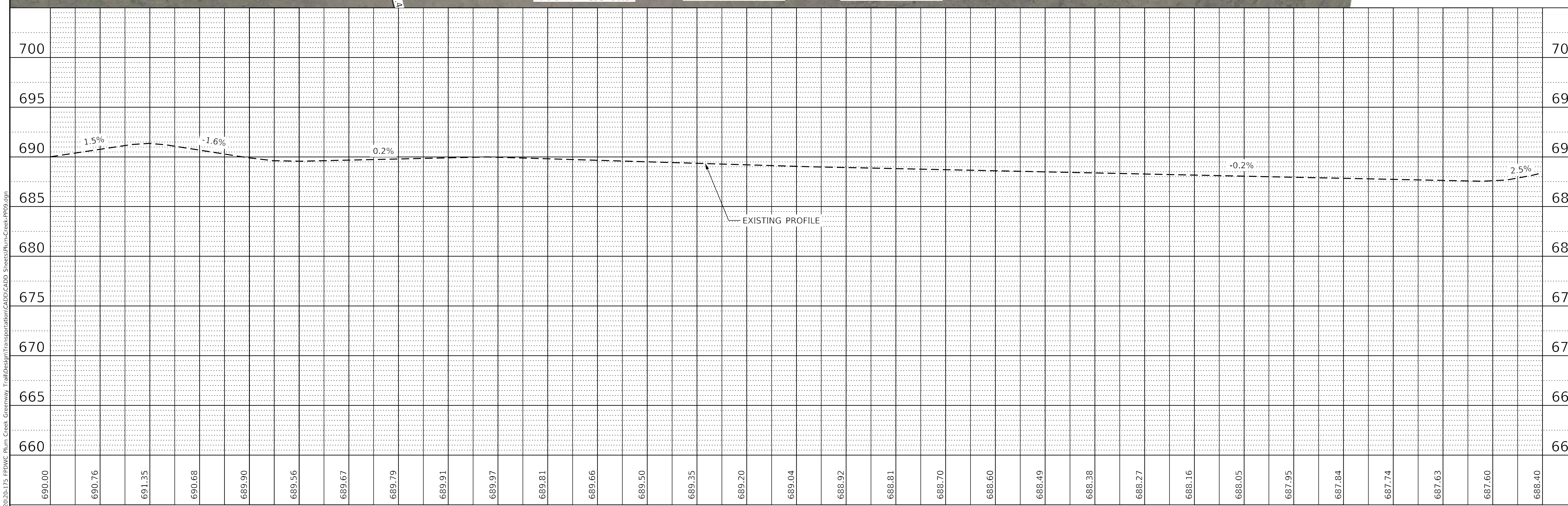
SCALE: 1" = 50' | SHEET 8 OF 10 SHEETS | STA. | TO STA.

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
	20-F3000-06-BT	WILL	10	8
		CONTRACT NO.		
		ILLINOIS FED. AID PROJECT		

EXHIBIT A-3



PROP. CURVE PR_PLUMCREEK44
PI STA. = 125+14.46
Δ = 75° 35' 12" (LT)
D = 20° 27' 46"
R = 280.00'
T = 217.14'
L = 369.39'
E = 74.33'
e =
T.R. =
S.E. RUN =
P.C. STA. = 122+97.32
P.T. STA. = 126+66.71
PROP. CURVE PR_PLUMCREEK45
PI STA. = 128+49.63
Δ = 64° 08' 25" (RT)
D = 57° 17' 45"
R = 100.00'
T = 62.66'
L = 111.95'
E = 18.01'
e =
T.R. =
S.E. RUN =
P.C. STA. = 127+86.97
P.T. STA. = 128+98.92
PROP. CURVE PR_PLUMCREEK46
PI STA. = 130+22.94
Δ = 16° 36' 56" (RT)
D = 7° 09' 43"
R = 800.00'
T = 116.82'
L = 232.00'
E = 8.48'
e =
T.R. =
S.E. RUN =
P.C. STA. = 129+06.13
P.T. STA. = 131+38.12
PROP. CURVE PR_PLUMCREEK47
PI STA. = 132+69.11
Δ = 36° 07' 04" (LT)
D = 70° 44' 08"
R = 81.00'
T = 26.41'
L = 51.06'
E = 4.20'
e =
T.R. =
S.E. RUN =
P.C. STA. = 132+42.70
P.T. STA. = 132+93.76
PROP. CURVE PR_PLUMCREEK48
PI STA. = 134+80.96
Δ = 69° 10' 46" (RT)
D = 57° 17' 45"
R = 100.00'
T = 68.96'
L = 120.74'
E = 21.47'
e =
T.R. =
S.E. RUN =
P.C. STA. = 134+12.00
P.T. STA. = 135+32.74
PROP. CURVE PR_PLUMCREEK49
PI STA. = 137+32.56
Δ = 107° 20' 45" (LT)
D = 70° 44' 08"
R = 81.00'
T = 110.16'
L = 151.76'
E = 55.73'
e =
T.R. =
S.E. RUN =
P.C. STA. = 136+22.40
P.T. STA. = 137+74.15
MATCHLINE STA 122+00
MATCHLINE STA 137+00
PC Sta 122+97.32
PI Sta 125+14.46
PT Sta 126+66.71
PC Sta 127+86.97
PI Sta 128+49.63
PT Sta 128+98.92
PC Sta 129+06.13
PI Sta 130+22.94
PT Sta 131+38.12
PC Sta 132+42.70
PI Sta 132+69.11
PT Sta 132+93.76
PC Sta 134+12.00
PI Sta 134+80.96
PT Sta 135+32.74
PC Sta 136+22.40
CURVE 44
CURVE 45
CURVE 46
CURVE 47
CURVE 48
CURVE 49
125+00
130+00
135+00
10'
PROPOSED HMA SURFACE COURSE
WETLAND SITE 2A
AREA OF IMPACT = 0.0 AC
WETLAND SITE 3A
AREA OF IMPACT = 0.0 AC
N
0 50 100 150
SCALE IN FEET



700
695
690
685
680
675
670
665
660
1.5%
-1.6%
0.2%
-0.2%
2.5%
EXISTING PROFILE
690.00 690.76 691.35 690.68 689.90 689.56 689.67 689.79 689.91 689.97 689.81 689.66 689.50 689.35 689.20 689.04 688.92 688.81 688.70 688.60 688.49 688.38 688.27 688.16 688.05 687.95 687.84 687.74 687.63 687.60 688.40
122+00 123+00 124+00 125+00 126+00 127+00 128+00 129+00 130+00 131+00 132+00 133+00 134+00 135+00 136+00 137+00

PLAN — NOTE BOOK NO. — SURVEYED / PLOTTED / ALIGNMENT CHECKED / R.T. OF WAY CHECKED / CADD FILE NAME — BY — DATE

PROFILE — NOTE BOOK NO. — SURVEYED / PLOTTED / GRADES CHECKED / B.M. NOTED / STRUCTURE NOTAT'NS CHK'D — BY — DATE

MODEL: Default
FILE NAME: M:\2020\20-175 FPDWC Plum Creek Greenway Trail\Design\Transportation\CADD\CADD Sheets\Plum-Creek-PP09.dgn

TERRA ENGINEERING LTD.

USER NAME = DavidL	DESIGNED -	REVISED -
	DRAWN -	REVISED -
PLOT SCALE = 100.0000 ' / in.	CHECKED -	REVISED -
PLOT DATE = 2/6/2023	DATE -	REVISED -

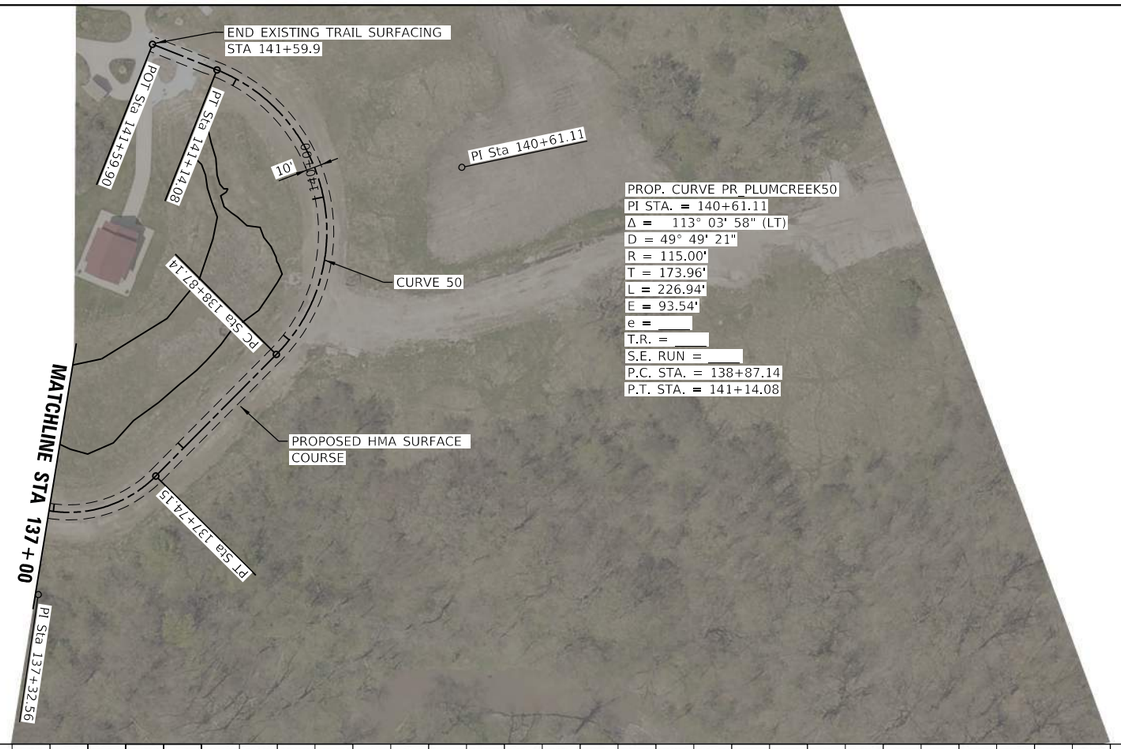
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

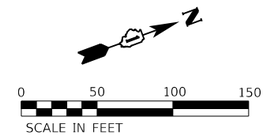
PLUM CREEK GREENWAY TRAIL
PLAN AND PROFILE

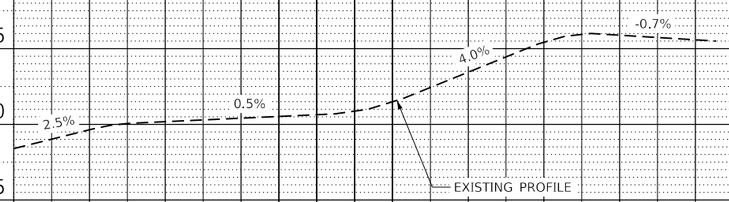
SCALE: 1" = 50' | SHEET 9 OF 10 SHEETS | STA. TO STA.

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
	20-F3000-06-BT	WILL	10	9
		CONTRACT NO.		
	ILLINOIS	FED. AID PROJECT		

EXHIBIT A-3







700	695	690	685	680	675	670	665	660

688.40	689.64	690.17	690.40	690.63	691.49	693.44	695.42	695.88	695.58

137+00 138+00 139+00 140+00 141+00

PLAN
SURVEYED
PLOTTED
ALIGNMENT CHECKED
RT. OF WAY CHECKED
CADD FILE NAME
NOTE BOOK
NO.
BY
DATE

PROFILE
SURVEYED
PLOTTED
GRADE CHECKED
B.M. NOTED
STRUCTURE NOTATNS CHKD
NOTE BOOK
NO.
BY
DATE

MODEL: Default
FILE NAME: M:\2020\20-175 FPDWC Plum Creek Greenway Trail\Design\Transportation\CADD\CADD Sheets\Plum-Creek-PP10.dgn

USER NAME = DavidL	DESIGNED -	REVISED -
	DRAWN -	REVISED -
PLOT SCALE = 100.0000 ' / in.	CHECKED -	REVISED -
PLOT DATE = 2/6/2023	DATE -	REVISED -

TERRA ENGINEERING LTD.

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

PLUM CREEK GREENWAY TRAIL
PLAN AND PROFILE

SCALE: 1" = 50' | SHEET 10 OF 10 SHEETS | STA. | TO STA.

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
	20-F3000-06-BT	WILL	10	10
		CONTRACT NO.		
		ILLINOIS FED. AID PROJECT		

EXHIBIT A-3