# Marshland - Briggs Road (Q-1D)
# 161 kV Rebuild Project
# Trempealeau & La Crosse Counties, Wisconsin

RUS Project Number 1064

# Draft Environmental Assessment

Prepared for: Rural Utilities Service

United States Department of Agriculture

Submitted by:


Dairyland Power Cooperative

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# Abbreviations and Acronyms

| | |
|---|---|
| AAQS | Ambient Air Quality Standards |
| ASNRI | Area of Special Natural Resource Interest |
| AM | Amplitude Modulated |
| AN | audible noise |
| ATV | all-terrain vehicle |
| AWEA | American Wind Energy Association |
| BNHC | Bureau of Natural Heritage Conservation |
| bgs | below ground surface |
| BMP | Best Management Practice |
| C | Centigrade |
| CapX | CapX2020 Hampton-Rochester-La Crosse 345 kV Transmission Project |
| CEQ | Council on Environmental Quality |
| CFR | Code of Federal Regulations |
| CPCN | Certificate of Public Convenience and Necessity |
| CWA | Clean Water Act |
| dBA | Decibels (A-weighted scale) |
| DATCP | Department of Agriculture, Trade and Consumer Protection |
| DOE | Department of Energy |
| DOT | Department of Transportation |
| DPC | Dairyland Power Cooperative |
| EA | Environmental Assessment |
| EIS | Environmental Impact Statement |
| EMF | Electric and magnetic fields |
| EO | Executive Order |
| EPA | Environmental Protection Agency |
| EPRI | Electric power Research Institute |
| ER | Environmental Report |
| ERS | Economic Research Services, U.S. Department of Agriculture |
| ERW | Exceptional Resource Water |
| ESA | Endangered Species Act |
| F | Fahrenheit |
| FAA | Federal Aviation Administration |
| FEMA | Federal Emergency Management Agency |
| FM | Frequency Modulated |
| FONSI | Finding of No Significant Impact |
| IBA | Important Bird Area |
| ITP | Incidental Take Permit |
| kV | Kilovolt |
| MBTA | Migratory Bird Treaty Act |
| MVAC | Mississippi Valley Archaeological Center |
| Midwest ISO | Midwest Independent Transmission System Operator |
| NAAQS | National Ambient Air Quality Standards |
| NEPA | National Environmental Policy Act |
| NERC | North American Electric Reliability Corporation |

| | |
|---|---|
| NESC | National Electric Safety Code |
| NFIP | National Flood Insurance Program |
| NHPA | National Historic Preservation Act |
| NHI | Natural Heritage Inventory |
| NIES | National Institute for Environmental Health |
| NPC | Noise Pollution Clearing House |
| NRCS | Natural Resource Conservation Service |
| NRHP | National Register of Historic Places |
| NWIS | Noxious Weeds and Invasive Species |
| ORW | Outstanding Resource Waters |
| PCB | polychlorinated biphenyl |
| psi | pounds per square inch |
| PEM | palustrine emergent (wetland) |
| PSCW | Public Service Commission of Wisconsin |
| PSS | palustrine scrub shrub (wetland) |
| PNW | Priority Navigable Water |
| PRF | Public Rights Feature |
| ROW | right-of-way |
| RI/TVI | radio and television interference |
| ROD | Record of Decision |
| RUS | Rural Utilities Service, U.S. Department of Agriculture |
| SHPO | State Historic Preservation Office |
| SFHA | Special Flood Hazard Areas |
| STH | State Trunk Highway |
| TCSB | temporary clear span bridge |
| UNT | unnamed tributary |
| U.S. | United States |
| USACE | U.S. Army Corps of Engineers |
| USC | United States Code |
| USDA | U.S. Department of Agriculture |
| USDI | U.S. Department of the Interior |
| USFWS | U.S. Fish and Wildlife Service |
| USGS | U.S. Geological Survey |
| UTV | utility vehicle |
| WBCI | Wisconsin Bird Conservation Initiative |
| WDNR | Wisconsin Department of Natural Resources |
| WGNHS | Wisconsin Geological and Natural History Survey |
| WHPD | Wisconsin Historic Preservation Database |
| WisDOT | Wisconsin Department of Transportation |
| WSEC | Wisconsin state Electric Code |

# Executive Summary

Dairyland Power Cooperative (DPC), a not-for-profit generation and transmission cooperative headquartered in La Crosse, Wisconsin, is proposing to rebuild approximately 13 miles of the north segment of the Q-1 161 kilovolt (kV) transmission line referred to as Q-1D line, or the Project. This 13-mile Project extends from 1.5 miles south of the Marshland Substation located in Trempealeau County, Wisconsin to the Briggs Road Substation located in La Crosse County, Wisconsin. Construction of the Project would occur entirely within the existing right-of-way (ROW), and require use of existing and temporary access routes and two temporary staging areas. The existing transmission structures will not be replaced at their current locations; rather, structure locations will be selected based on engineering, landowner input, and environmental factors including soil conditions, slope, maximum span length between transmission structures, and terrain.

Constructed in the 1950s, the Q-1D line is now in poor condition and reaching the end of its service life. The aging transmission structures also present the potential for outages to this service. The rebuild of the Q-1D line is needed so that DPC can continue to provide reliable electric service to its service territory. The Project would also increase the longevity of the Q-1D line and reduce line overloads, the occurrence of low voltages, and maintenance costs.

The Project crosses the Black River floodplain, which includes floodplain forest, streams, and emergent wetlands. The Van Loon Wildlife Area owned by Wisconsin Department of Natural Resources (WDNR), and the Upper Mississippi National Wildlife and Fish Refuge (Refuge) owned by the U.S. Fish and Wildlife Service (USFWS) are located within the Black River floodplain. The Project crosses approximately 0.3 miles of the Van Loon Wildlife Area and approximately 0.9 miles of the Refuge.

Rebuilding the Q-1D line on its existing alignment was determined to be the only practicable alternative based on an extensive alternatives analysis completed as part of a separate project, the CapX2020 Hampton – Rochester – La Crosse 345 kV Transmission Project (CapX project). The CapX project underwent both a state and a federal Environmental Impact Statement (EIS) process. The lead agency for the state EIS was the Public Service Commission of Wisconsin (PSCW). The lead agency for the federal EIS was the U. S. Department of Agriculture (USDA) Rural Utility Service (RUS). The federal CapX project Draft EIS considered the impacts of rebuilding DPC's Q-1 161 kV line that could be fully or at least partly co-located with the CapX project. As part of this process, DPC had identified and evaluated three route alternatives to rebuilding the Q-1 161 kV line within its existing corridor. The technical memorandum evaluating these alternatives was included as Appendix L to the federal CapX project Draft EIS. As required in the federal CapX project final EIS, Appendix L information has been appended to this document as **Appendix E**.

These alternatives were evaluated in terms of cost-effectiveness, technical feasibility, and environmental issues. Also, as directed by the policy of the state of Wisconsin (Wis. Stat. §1.12 (6)), the sharing of existing utility corridors, highway and railroad corridors, and recreational trails, in that order was also considered. Each alternative impacted more homes, increased the length of the line, was substantially more costly, and had greater environmental impact than rebuilding the portion of the Q-1 161 kV line now termed the Q-1D line along its existing alignment. The existing alignment also provides 100% sharing of existing utility corridor, the highest of all alternatives, and as such, best meets the state of Wisconsin siting policy. Reliability, based on maximizing the distance from a redundant line to reduce the likelihood

of simultaneous outages if a major weather event occurred, was also considered. Based on this evaluation of alternatives, DPC proposes to reconstruct the Q-1D transmission line on the existing ROW, which would be the least impacting alternative and avoids conversion of land to use by a transmission facility.

The Project has been designed to avoid resources such as wetlands, surface waters, soil, sensitive habitats, protected species, and historic or cultural areas, to the extent possible. Temporary impacts during construction include noise from heavy machinery and helicopters, construction-related traffic, ground disturbance around the foundation of each structure, the use of existing and temporary access routes and temporary staging areas, and the resulting potential for erosion and sedimentation. Temporary construction matting would be used in an approximately 25-foot by 25-foot area around the 21 structures within the Black River floodplain resulting in temporary wetland impacts. Temporary impacts to wildlife using the area, including protected species, could occur. Some local businesses may experience a temporary increase in revenue due to out-of-town workers in the area and the Project's need for construction-related materials and services. DPC has developed numerous measures to avoid and minimize negative impacts to resources, which are detailed Section 5 and in DPC's Field Guide for Transmission Line Construction and Maintenance Activities included as **Appendix B**.

Permanent impacts include the installation of an estimated 69 H-frame or monopole steel transmission structures with an approximate 500 to 800-foot span between structures, and an estimated 28 Y-frame steel transmission structures with an approximate 600 to 800-foot span between structures and 4 dead-end structures. The Y-frame steel transmission structures would be installed by heavy-lift helicopters for the 3-mile-long portion of the Project through the Black River floodplain to minimize impacts. The use of helicopter construction eliminates the need for concrete foundations, avoids the need for dewatering, does not generate waste soil material, and would not require placing gravel or other fill for construction access. These Y-frame structures would utilize only 65 feet of the existing ROW that is currently cleared to at least 80 feet (32.5 feet on either side of the 161 kV transmission centerline).

DPC intends to seek financial assistance from RUS for the Project, which thereby makes the Project a federal action subject to review under the National Environmental Policy Act of 1969 (NEPA), the National Historic Preservation Act of 1966 (NHPA), and all applicable federal environmental laws and regulations. This Environmental Assessment (EA) has been prepared to analyze potential impacts to the natural and human environments associated with the Project in accordance with 7 Code of Federal Regulations (CFR) Part 1794, RUS' Environmental Policies and Procedures, and 40 CFR Parts 1500-1508, the regulations promulgated by the Council on Environmental Quality (CEQ) for implementing the NEPA.

RUS, as the agency carrying out the federal action, is responsible for complying with the requirements of NEPA. Consistent with federal regulations implementing NEPA, the lead agency is responsible for establishing liaison with all federal, state, local, and tribal agencies that have jurisdiction by law or special expertise with respect to any environmental impact involved in a proposed action and for requesting their participation as cooperating agencies on an EA, as appropriate.

In accordance with 40 CFR § 1501.3, RUS has requested USFWS and U.S. Army Corps of Engineers (USACE) to participate as cooperating agencies given their jurisdiction by law and special expertise applicable to the EA effort, as defined at 40 CFR §§ 1508.15 and 1508.26 respectively. Both agencies have agreed to participate as cooperating agencies.

USFWS would need to issue a renewal of an easement for ROW on federally-owned land and a special use permit for construction activities within the Refuge. USFWS also has authority and trust responsibility under the Endangered Species Act, the Bald and Golden Eagle Act, and the Migratory Bird Treaty Act.

USACE would need to issue the following permits for the Project:

- A permit under Section 10 of the Rivers and Harbors Act, for the crossing of the Black River.
- A permit under Section 404 of the Clean Water Act, for activities that discharge fill into Waters of the United States, including wetlands.

Tribal consultation was also conducted as part of this EA process as described in Section 4.6.
This EA also addresses other laws, regulations, executive orders, and guidelines promulgated to protect and enhance environmental quality including, but not limited to, the Endangered Species Act; the Farmland Protection Policy Act; the Clean Water Act; and executive orders governing floodplain management, protection of wetlands, and environmental justice.

The existing Q-1D line must remain in service while the CapX project construction occurs to maintain service to the Winona, Minnesota area. Construction of the Wisconsin portion of the CapX project is expected to be completed in May or June of 2015. As a result, DPC plans to construct the Q-1D line from August through December 2015, which is the earliest timeframe that would avoid impacts on sensitive resources including protected species, surface waters, and wetlands.

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# 1.0 Project Description

## 1.1 Proposed Project

Dairyland Power Cooperative (DPC), a not-for-profit generation and transmission cooperative headquartered in La Crosse, Wisconsin, intends to seek financial assistance from the U.S. Department of Agriculture (USDA) Rural Utilities Service (RUS) to rebuild approximately 13 miles of the north segment of the Q-1 161 kilovolt (kV) transmission line referred to as Q-1D. This 13-mile segment extends from 1.5 miles south of the Marshland Substation located in Trempealeau County, Wisconsin to the Briggs Road Substation located in La Crosse County, Wisconsin (the Project)[1]. Constructed in the 1950s, the line is now in poor condition and reaching the end of its service life. The aging transmission structures also present the potential for outages to this service. This rebuild will occur along the existing Q-1D alignment within existing right of way (ROW).

The Project is located in Trempealeau and La Crosse Counties, Wisconsin as shown in **Figure 1 and Appendix A**. **Table 1-1** presents the township, range, and section for all proposed construction areas of the Project.

Table 1-1: Project Location

| State | County | Township | Range | Sections |
|---|---|---|---|---|
| Wisconsin | Trempealeau | 18N | 9W | 7, 8, 15, 16, 17, 22, 23, 24, 25 |
| Wisconsin | Trempealeau | 18N | 8W | 29, 30, 32, 33 |
| Wisconsin | La Crosse | 17N | 8W | 3, 4, 10, 11, 12, 13 |

The Project begins approximately 1.5 miles southeast of the Marshland Substation, which is located approximately 1 mile southeast of the unincorporated community of Marshland, Wisconsin. The Project then traverses generally southeast to the Briggs Road Substation, located approximately 0.1 mile southwest of the Village of Holmen, Wisconsin (**Figure 1 and Appendix A**). The Briggs Road Substation is currently being constructed as part of the CapX project, and is located on the opposite side of Briggs Road from the North La Crosse Substation, where the Q-1D line currently terminates.

**Project Route (North to South)**

- The Project originates approximately 1.5 miles southeast of the Marshland Substation and extends southeasterly across agricultural fields and forested habitat. This section of line crosses Schuh Road, Lehmann Road, West Prairie Road, Canar Road, Grana Lane, Memmer Lane, Williamson Lane, and State Trunk Highway (STH) 35/Great River Road.
- East of STH 35/Great River Road, the Project proceeds to the southeast crossing agricultural fields and forested habitat. This section of the Project crosses Schubert Road, Trempealeau County Highway (CH) K, 11th Street, South Street, and STH 35/Great River Road a second time.

[1] Note: The Project is identified in DPC's 2012–2014 Construction Work Plan (a document required by 7 CFR Part 1710 for the submittal of a loan application, which details projects that are required to meet a borrower's anticipated energy demand growth and improve service reliability and quality for the upcoming 2-4 year period) as Marshland-Briggs Road 161 kV Rebuild (RUS 1064).

- South of STH 35/Great River Road, the Project crosses the Black River floodplain. This area is made up floodplain forest, streams, and emergent wetlands. The Van Loon Wildlife Area owned by Wisconsin Department of Natural Resources (WDNR), and the Upper Mississippi National Wildlife and Fish Refuge (Refuge) owned by U.S. Fish and Wildlife Service (USFWS) are located within the Black River floodplain. The Project crosses approximately 0.3 miles of the Van Loon Wildlife Area and approximately 0.9 miles of the Refuge.
- East of the Black River floodplain, the Project proceeds to the southeast through primarily agricultural fields, crosses La Crosse CH XX, and then ends at the Briggs Road Substation.

The term "Project area" as referenced throughout this document refers to the 65 to 80-foot ROW, access routes, and two temporary staging areas as shown on the sheet maps in **Appendix A**. DPC is committed to following their standard best management practices (BMPs) for construction and operation and maintenance of the Project as described in Section 5 and provided in **Appendix B**.

## 1.2 Project History

The Project reviewed under this EA is a 13-mile section of DPC's approximately 70-mile long Q-1 161 kV transmission line. The Q-1 line was constructed in the 1950s and consists of four segments in Wisconsin as described in **Table 1-2**.

Table 1-2: DPC Wisconsin Q-1 161 kV Line Segments and Status

| Segment Name | Mileage | Status of Environmental Review |
|---|---|---|
| Alma – Marshland | 27 | Reviewed under the federal and State of Wisconsin CapX project EISs and selected as the route. The Q-1 line was co-located with the CapX project as a double circuit. RUS issued the Record of Decision (ROD) in January 2013. The Public Service Commission of Wisconsin (PSCW) issued the Final Decision in May 2012. |
| Marshland – North La Crosse Substation (Briggs Road Substation)[1] | 13 | Reviewed under this EA. The Q-1D line needs to be rebuilt as soon as possible to avoid interruptions in service and ongoing maintenance issues. Due to the need for the Q-1 D line to remain in service during construction of the CapX project in Wisconsin that is expected to be completed in May or June of 2015, DPC plans to construct the Q-1D line in August through December 2015, which is the earliest timeframe that would avoid impacts to certain protected species, wetlands, and waterways. |
| North La Crosse Substation (Briggs Road Substation) – La Crosse Tap | 9 | Will be reviewed by RUS under a separate Environmental Report (ER). Route options for this segment may be impacted by the proposed Xcel/ATC Badger – Coulee 345 kV transmission line project. The Badger – Coulee project includes alternatives that could follow the Q-1 161kV line corridor or otherwise carry the Q-1 line as a co-located double circuit. Routing and permitting of the Badger – Coulee project is currently underway by the PSCW. The PSCW route selection process for the Badger – Coulee project is anticipated to be complete in the spring of 2015. Depending upon the route selected for the Badger – Coulee project, engineering design and environmental review for the Q-1D Project, which would not begin until after PSCW route selection, would take several additional months and is planned for construction in 2016 or 2017. |
| La Crosse – Genoa Tap | 21 | Reviewed under a separate ER approved by RUS in September 2012. The project has independent utility from the CapX project and proposed Badger – Coulee 345 kV line and was therefore reviewed on its own. Construction was recently completed. |

Note: 1 - This is the Project reviewed under this EA.

The portion of the Q-1 161 kV route, now termed the Q-1D, was previously reviewed under the federal and State of Wisconsin EISs for the CapX project. RUS was the lead agency and USFWS and USACE were cooperating agencies for the federal EIS. The CapX project could have resulted in either a complete rebuild of the Alma – Marshland – North La Crosse Substation (Briggs Road Substation) 40-mile section, a partial rebuild, or no rebuild at all. The 27-mile Alma – Marshland segment of the Q-1 line was a selected route, and will be rebuilt as a co-located double circuit with the CapX project. The Project reviewed under this EA was referred to as the Trempealeau to Holmen segment and the Q-1 Black River Bottoms Alternative in the federal CapX project EIS, and would have involved the rebuild of the line as a 345 – 161 kV double circuit line (carrying the DPC Q-1 161 kV line), which would have required the expansion of the current ROW.

The Project was analyzed as an alternative under the federal draft EIS for the CapX project released in December 2011, but was eliminated from further detailed consideration under the federal final EIS released in July 2012 because of potential impacts to high quality resources. The alternative was eliminated from review at that time because under RUS's preferred alternative for the CapX project, the same alternatives for the Project reviewed under this EA were available if the route was evaluated at a later time, and because the CapX project was on an expedited construction schedule. RUS stated in the final EIS for the CapX project that DPC could apply for financial assistance for the Project at a later time, and would use the information included in Appendix L of the draft EIS in its review (Section 3.0). This Appendix L information is included as **Appendix E** of this document. The CapX project EIS documents can be found on RUS website at http://www.rurdev.usda.gov/UWP-CapX2020-Hampton-Rochester-LaCrosse.html.

## 1.3 Design and Construction Methods

Design and construction of the Project would consist of the major activities described in the following sections.

### 1.3.1 Construction Schedule

The existing Q-1D line must remain in service while the CapX project construction occurs to maintain service to the Winona area. Construction of the Wisconsin portion of the CapX project is expected to be completed in May or June of 2015. As a result, DPC plans to construct the Q-1D line from August through December 2015, which is the earliest timeframe that would avoid impacts on sensitive resources, including protected species, surface waters, and wetlands.

### 1.3.2 Preconstruction Activities

DPC conducted preconstruction reconnaissance and subsurface exploration activities required for design and planning of the Q-1D line rebuild. These preconstruction investigations took place between January and mid-March 2014. Approximately 21 soil borings were advanced to a depth of up to 100 feet below ground surface (bgs) at each proposed structure location. Temporary impacts resulted from the placement of construction matting on waterway embankments and in wetland areas as needed to minimize soil disturbance and erosion as equipment, personnel, and vehicles accessed boring locations.

Vehicles used for reconnaissance and soil borings consisted of Argo amphibious vehicles, rubber-tracked boring rigs, and rubber-tracked skid loaders (to install matting). These vehicles have low ground pressure rubber tracks or tires to minimize soils disturbance and compaction.

DPC obtained a National Wildlife Refuge System Special Use Permit from USFWS to conduct the exploratory work in the Refuge, an Individual Wetland and Waterway Permit (IP-WC-2013-62-N03573) and Incidental Take Permit (ITP237) for Eastern massasauga from WDNR, and authorization under Department of Army General Permit GP-002 WI category 2.a.7 from USACE.

### 1.3.3 Transmission Structures and Right-of-Way

Rebuilding the transmission line would consist of replacing the transmission structures and wires within the existing ROW. The Project has been designed to avoid resources such as wetlands, surface waters, sensitive habitats, protected species, and historic or cultural areas to the extent possible. Potential impacts to soil and surface water resources will be minimized or avoided by using erosion and sedimentation control BMPs and other monitoring and mitigation methods during construction (Section 5 and **Appendix B**). Permanent impacts would include the installation of an estimated 69 H-frame steel transmission structures with an approximate 500 to 700-foot span between structures, 28 Y-frame steel transmission structures with an approximate 600 to 800-foot span between structures, and 4 dead-end structures. Single-pole steel structures may be used in place of H-frame steel structures in appropriate locations and have an approximate span length of 770 feet and average height of 90 feet. Permanent impacts were calculated using the H-frame steel structures as a worst case scenario. Typical design characteristics associated with the transmission structures are shown in **Figure 2.**

For the reasons described in Section 3.3, DPC would use Y-frame steel structures for the 3-mile section that crosses the Black River floodplain. The ROW within the Black River floodplain would be reduced to 65 feet (32.5 feet on each side of the line). Dead-end structures would be installed at both ends of the 3-mile section crossing the Black River floodplain and at the west and east ends of the Project. H–frame structures would be used for the remaining 10 miles of the Project where the need for more costly Y-frame structures used to address environmental concerns in the Black River floodplain is reduced. Dead-end, H-frame, and monopole structures in uplands would use the existing 80-foot ROW (40 feet on each side of the line).

Exact structure locations within the corridor described within this EA would be selected based on engineering, landowner input, and environmental factors including soil conditions, slope, maximum span length between transmission structures, and terrain. Transmission structures are generally designed for installation at existing grades. Typically, transmission structure sites with a slope of 5% or less would not be graded or leveled. At sites with a slope of more than 5%, working areas would be graded level or fill would be brought in to create level work pads. In some cases, construction mats would be used to create a level work pad where grading is impractical. DPC prefers to leave the leveled areas and working pads in place for use on future maintenance activities if the landowner permits. If the landowner does not want to leave the leveled area in place, the area would be graded to its original condition to the extent feasible and all imported fill would be removed from the site.

The permanent area of disturbance would consist of the footprint of each transmission structure. The 28 Y-frame structures would result in approximately 352.8 square feet (approximately 0.01 acres) of permanent impacts (up to 12.6 square feet per structure). The 4 dead-end structures would result in approximately 113.2 square feet (approximately 0.003 acres) of permanent impacts (up to 28.3 square feet per structure).The 69 H-frame structures would result in approximately 1,324.8 square feet (approximately 0.03 acres) of permanent impacts (up to 9.6 square feet per structure). This would result in a total of less than 0.05 acres of permanent disturbance for the Project.

## 1.3.4 Construction Methods

### 1.3.4.1 Black River Floodplain

For Structure Locations 3 through 23 that are located within the Black River floodplain, DPC would use specialized construction methods to minimize environmental impacts. The following methods eliminate the need for concrete foundations, avoid the need for dewatering, do not generate waste soil material, and would not require placing gravel or other fill for construction access.

Within the Black River floodplain, existing wooden H-frame transmission structures would be cut off at ground level and removed by helicopter. A heavy-lift helicopter would then be used to install the 21 Y-frame structures, shown as Structures 3 through 23 in **Appendix A, Sheet Maps 7-10**. A heavy-lift helicopter would transport the steel caisson and associated construction equipment to the construction site (**Photograph 1**). The helicopter would then use a vibratory hammer (**Photographs 2 and 3**) to vibrate the caisson to the required foundation depth at each structure location.

Once the caisson is correctly installed, the heavy lift helicopter would transport the tubular Y-frame steel structure in sections (based upon the lift capacity of the helicopter), and attach the structure section to the foundation or previously-set lower section. Prior to erection, these structure sections would be stored in a nearby staging area then flown to the site. Each structure would likely require 2 to 4 trips to complete installation. The heavy lift helicopter would then remove all equipment when installation is complete. Temporary construction matting would be required for an approximately 25-foot by 25-foot area at the base of the 21 Y-frame structure locations within the Black River floodplain (**Appendix A, Sheet Maps 7-10**). A video showing a heavy lift helicopter installing transmission structures is available at http://www.youtube.com/watch?v=1pplGnUZMeU.

Following structure installation, several reels of wire would be placed in the cradles, and the wire run through a series of sheaves that support and apply tension to the wire while it is being pulled into place by a winch. Once the wires are strung, they would be properly “sagged” to maintain pre-determined wire tension that meets National Electric Safety Code (NESC) standards. Wire stringing within the Black River floodplain would use a helicopter to pull the wire (**Photograph 4**). The final construction operation would be to “clip-in” and fasten the conductors to the insulators. Once the wire has been clipped in, the construction operation would be essentially complete, and post-construction activities would follow.

Construction within the Black River floodplain would use access routes that have been used by DPC’s maintenance crews since the early 1950s. Access routes within the Black River floodplain area would be between 6 and 12 feet wide and would not require grading or vegetation clearing. Personnel would access the structure locations on foot or via an Argo amphibious ATV vehicle (**Photograph 5**). This type of vehicle has a ground pressure rating of 1.5 pounds per square inch to minimize soils disturbance and compaction.


Photograph 1: Helicopter Transporting Steel Caisson to Construction Site

Photograph 2: Vibratory Hammer

Photograph 3: Vibratory Hammer Installing Caisson

Photograph 4: Helicopter Stringing Wire

Photograph 5: Argo Amphibious ATV

DPC's helicopter contractor's Spill Prevention, Control, and Countermeasure Plan is attached as **Appendix J**. The helicopter contractor is also required to meet all FAA required flight rules including:

- Prior notification to emergency response agencies including state and local police, sheriff, fire department and 911 Central Office
- Flight route(s) with and without external loads
- Refueling procedures and notification of refueling area including fuel storage with local fire department

Additionally, traffic control personnel will be deployed at public road crossings to ensure safe passage of the public. Local town officials will be notified as to time and duration of the flight operations. All flights would occur during daylight hours. Helicopter contractor personnel will supervise all helicopter operations on the transmission line ROW.

#### 1.3.4.2 Upland Areas

In upland areas (outside of the Black River floodplain), existing transmission structures would be pulled using a crane or similar equipment. Conventional construction methods, described below, would be used to install the 7 remaining Y-frame structures, 4 dead-end structures and 69 H-frame structures located in uplands.

Access to the structures in uplands would be via local roadways, existing trails, and along the edges of agricultural fields. Conventional construction methods used to rebuild the transmission line would begin by auguring a hole for the structure with a drill rig or other heavy equipment. Once a structure has been assembled on the ground, a mobile crane would be used to erect the structure. The structures would be directly embedded in soil. Depending on soil conditions, culvert pipes may be used in areas outside of wetlands as a permanent casing to stabilize structures. Crushed stone would be used to fill excess space in the hole or culvert pipe. Excess spoil materials would be removed from the site and disposed at an existing landfill upon completion of construction. If excess spoil removal from the site is not practicable, other measures would be used to stabilize the material disposal sites including seeding and mulch combined with silt fence or fiber roll perimeter control.

Areas of disturbance will be re-contoured, re-vegetated, and returned to pre-existing conditions after construction. In non-agricultural land, disturbed areas around the newly installed structures will be seeded and mulched per landowners' requests. Stabilization of the structure locations would be achieved when a uniform perennial vegetation cover has been established with a density of at least 70% cover. The Integrated Vegetative Management Plan (**Appendix C**) will establish the criteria for sufficient vegetative growth in the Refuge.

Following structure installation, several reels of wire would be placed in the cradles, and the wire run through a series of sheaves that support and apply tension to the wire while it is being pulled into place by a winch. Once the wires are strung, they would be properly "sagged" to maintain pre-determined wire tension that meets NESC standards. The final construction operation would be to "clip-in" and fasten the conductors to the insulators. This step would involve removing the stringing sheaves and replacing them with clamps, which attach and secure the conductors to the insulator strings. Once the wire has been clipped in, the construction operation would be essentially complete, and post-construction activities would follow.

### 1.3.5 Staging Areas and Access Routes

The Project would require two temporary staging areas (**Appendix A, Sheet Maps 7 and 10**). Staging Area 1 (**Sheet Map 7**) is located in an upland area northwest of the Black River floodplain and is approximately 10 acres in size. Staging Area 2 (**Sheet Map 10**) is located in an upland area southeast of the Black River floodplain and is approximately 20 acres in size. The staging areas would be leased from local landowners and used for temporarily storing equipment and construction materials, wire stringing activities, parking vehicles, and temporary placement of construction management trailers. The staging areas would not require clearing or grading. These staging areas will be addressed in the erosion control plan. WDNR technical standards and DPC's BMPs (**Appendix B**) will be implemented during construction. Following construction, the staging areas will be restored to pre-construction conditions.

Access routes for Project construction have been preliminarily identified, using existing maintenance routes and temporary access routes (**Appendix A**). With the exception of off-ROW access within the Refuge, post-construction access to the transmission line for routine maintenance would follow these routes. Temporary-off-ROW maintenance access within the Refuge will be coordinated with the USFWS. If routes cross farm lane culverts, DPC may temporarily place a reinforcing structure over the existing culverts to avoid potential damage. Such structures would be placed on the farm lane and would not require the placement of fill in wetland or waterways. Access routes within the floodplain would employ existing easements, using entrances from local roads, field roads, and private driveways. Damage to vegetation and crops as well as soil compaction is possible; DPC will compensate landowners for damage resulting from construction.

Construction within the Black River floodplain would use approximately 4.5 miles of routes that have been used by DPC's maintenance crews since the early 1950s. Prior to pre-construction activities, one waterway crossing (West Fork of the Black River, 5B-WW20, **Appendix A, Sheet 9**) did not follow a visible existing access route or trail. Access routes within the Black River floodplain area would be between 6 and 12 feet wide. The access routes within the floodplain would not require grading or vegetation clearing. Because construction within the Black River floodplain would be completed by heavy-lift helicopter, the access routes would only be used for transporting construction crews to and from structure locations. Personnel would access the structure locations on foot or via an Argo amphibious ATV vehicle (**Photograph 4**)**.** This type of vehicle has a ground pressure rating of 1.5 pounds per square inch (psi) to minimize soil disturbance and compaction.

The remaining Y-frame structures located outside of the Black River floodplain, 4 dead-end structures, and 69 H-frame structures located in upland areas, would be constructed and accessed using conventional construction methods. Upland construction would use approximately 11.4 miles temporary access routes. The temporary access routes would not require grading or vegetation clearing for use. DPC would access the structures by driving equipment across low-lying vegetation along field edges, across fields, or adjacent to the edge of a road ROW. Access routes in uplands would be between 12 and 16 feet wide.

Typical conventional construction equipment that would be used on the Project consists of cranes, backhoes, digger-derrick line trucks, drill rigs, dump trucks, front-end loaders, bucket trucks, bulldozers, flatbed tractor-trailers, flatbed trucks, pickup trucks, and various trailers.

### 1.3.6 Post-Construction Activities

Areas of disturbance will be graded to reflect pre-construction contours, slopes, and topography. All ruts and depressions will be restored. Wherever soils have been stripped and segregated, stockpiled topsoil and subsoils will be put back in place. Areas will be re-vegetated, and returned to pre-existing conditions, as discussed in detail in DPC's vegetation plan, included as **Appendix C.**

- In agricultural areas, topsoil will be brought in and spread where topsoil has been lost or considerably mixed with subsoils. Compacted agricultural soils will be de-compacted. Any drainage tiles or other agricultural features that were damaged by the construction activities will be repaired, replaced, or the landowner will be compensated.
- Non-agricultural areas, such as roadsides, pastures, old fields, upland woods, and wetlands may be seeded with native mixtures (or other appropriate seed mixes approved by the landowner), and mulched with certified weed-free mulch. In some cases, where it is reasonable to allow the natural ground cover to re-establish itself, annual cover may be sown where needed to minimize the potential for erosion, while re-establishment is occurring. In wetlands, excavated surface soils or the organic layer containing the plant parts and rootstocks of native wetland vegetation may be spread around the foundation enhancing the re-establishment of original wetland species.
- In residential areas where all vegetation has been removed, lawn areas will be reseeded and low-growing shrubs will be replaced.
- DPC has developed an Integrated Vegetative Management Plan approach as described in **Appendix C** for the Refuge. Among other items, this allows for previously-mowed grassy areas along the edge of the ROW to be allowed to revert to shrub-scrub vegetation as requested by USFWS and WDNR, softening the edge effect of the ROW and creating an uneven, softer border.

Erosion control and ROW monitoring will continue until there is sufficient vegetative growth in the ROW. Following completion of restoration and re-establishment of vegetation all temporary erosion control devices not designed to be left in place will be removed and disposed of properly. In non-agricultural areas outside of USFWS and WDNR land, stabilization of the structure locations would be achieved when a uniform perennial vegetation cover has been established with a density of at least 70% cover. The Integrated Vegetation Management Plan will establish the criteria for sufficient vegetative growth within the Refuge.

The ROW, temporary work areas, access routes, and other areas of ground disturbance affected by Project construction will be restored.

## 1.4 Authorizing Actions

Federal and state laws, regulations, and associated permits, approvals and coordination that are applicable to the Project are summarized in **Table 1-3**. These laws and regulations are addressed throughout this EA.

### Applicable Statutory Requirements

**Table 1-3** summarizes permits that are anticipated to be required for the Project.

Table 1-3: Permits and Approvals

| Jurisdiction | Permits and Approvals |
|---|---|
| Federal | |
| U.S. Department of Agriculture – Rural Utilities Service | NEPA Compliance – Council on Environmental Quality Regulations (42 USC 4321, 40 CFR 1500-1508, 43 CFR 46) and RUS Environmental Policies and Procedures (7 CFR § 1794) – Lead Agency<br>Section 106 National Historic Preservation Act (16 USC 470s, 36 CFR § 800) - Lead Agency<br>Section 7 of the Endangered Species Act of 1973 (16 USC §1531-1544; 50 CFR § 22 Consultation) |
| U.S. Army Corps of Engineers | Regional General Permit (GP-002 WI) – Section 404 of the Clean Water Act ( CWA, 33 USC § 1251) |
| Federal Aviation Administration | Form 7406-1, Objects Affecting Navigable Airspace (14 CFR § 77) Notifications |
| U.S. Fish and Wildlife Service | NEPA Compliance – Council on Environmental Quality Regulations (42 USC 4321, 40 CFR 1500-1508, 43 CFR 46) and Department of Interior NEPA Procedures (516 DM 1-6) and USFWS Manual 550 1-3.<br>Section 106 National Historic Preservation Act (16 USC 470s, 36 CFR § 800)<br>Renewal of Easement on Federally Owned Land for Crossing a National Wildlife Refuge (50 CFR 29.21-2(a)(1))<br>General Special Use Permit for Construction Activities within a National Wildlife Refuge<br>Section 7 of the Endangered Species Act of 1973 (16 USC §1531-1544; 50 CFR § 17 Consultation) – Lead Agency<br>Bald and Golden Eagle Protection Act (16 USC § 668, 50 CFR §22)<br>Migratory Bird Treaty Act (16 USC § 701-712, 50 CFR § 21)<br>National Wildlife Refuge System Administration Act of 1966 (16 U.S.C. 668dd-668ee) |
| Environmental Protection Agency | Spill Prevention, Control and Countermeasure Plan (40 CFR § 112) |
| State of Wisconsin | |
| Wisconsin Department of Natural Resources | Utility General Permit 3-2013<br>Ongoing Endangered/Threatened Species Consultation<br>Incidental Take Permit for Eastern Massasauga and Wood Turtle<br>Construction Site Erosion Control and Stormwater Discharge Permit<br>Wisconsin Pollutant Discharge Elimination System (WPDES) Permit<br>General Utility Crossings Permit for Wetlands and Waterways<br>Section 401 Water Quality Certification (if Section 404 Permit is required by USACE) |
| Wisconsin Department of Transportation | Permit to Construct and Operate Utility Facilities on Highway ROW (Form DT 1553)<br>Access Driveway Permit<br>Drainage Permit (may be required) |
| Wisconsin Historical Society/Office of Preservation Planning | National Historic Preservation Act, Section 106 National Historic Preservation Act compliance |
| Local Government | |
| County, Town, City | Over-Width Load Permit<br>Road Crossing Permit<br>Driveway/Access Permit from county/local roads<br>Possible Conditional Use Permit from La Crosse County for laydown area |
| Other | |
| Approval to cross lands with conservation easements | Various, depending on program, including USDA, Natural Resources Conservation Service and local implementing governmental entities |

### 1.4.1 Federal EA Requirements

NEPA is a federal statute requiring the identification and analysis of potential environmental impacts associated with proposed federal actions before those actions are taken. The intent of NEPA is to help Federal agency officials make well-informed decisions based on an understanding of the potential environmental consequences and take actions to protect, restore, or enhance the environment. DPC intends to seek financial assistance from RUS for the construction, operation, and maintenance of the Project. Prior to making a decision about whether to provide financing assistance for the Project, RUS is required to conduct an environmental review under NEPA in accordance with its policies and procedures.

DPC also intends to seek renewal of an easement on federal lands from USFWS; the existing permit has expired. USFWS is also required to conduct an environmental review under NEPA prior to making their decision about the renewal. RUS is the lead federal agency for the development of this EA, in accordance with 40 CFR § 1501.3. RUS has requested USFWS and USACE to participate as cooperating agencies given their jurisdiction by law and special expertise applicable to the EA effort, as defined at 40 CFR §§ 1508.15 and 1508.26 respectively. Both agencies have agreed to participate as cooperating agencies.

This EA has been prepared in accordance with NEPA (42 U.S.C. 4321 et seq.), the regulations promulgated by the Council on Environmental Quality (CEQ) for implementing NEPA (40 CFR Parts 1500-1508); and the NEPA implementing regulations of RUS (7 CFR Part 1794) and USFWS (40 CFR 1500-1508, 43 CFR 46, 516 DM 1-6). According to RUS' environmental regulations, the Project qualifies as a categorically excluded proposal requiring an Environmental Report (ER) in accordance with 7 CFR § 1794.22(a)(5),(1)(ii). However, due to the potential for the Project to have a significant environmental affect and the classification of the Project as a proposal requiring the preparation of an EA under USFWS policies and procedures, RUS is requiring the preparation of an EA. The intent of the EA is to determine whether to prepare a finding of no significant impact (FONSI) or an environmental impact statement (EIS).

## 1.5 Public Involvement: Newspaper Advertisement and Legal Notices

The following public notices were published under the permitting process for the pre-construction activities described in Section 1.3.2:

- Individual Wetland and Waterway Permit: Public notice announcing a 30-day comment period was published in appropriate newspaper(s), mailed to interested parties, and published on the WDNR website at http://dnr.wi.gov/permits/water/notices.html. WDNR did not receive any comments.
- Incidental Take Permit: Public notice announcing a 30-day comment period was distributed to the appropriate local and state news media and organizations that request such notification per Wis. Stat. 29.604. The ITP was also published on the WDNR website at http://dnr.wi.gov/topic/erreview/take.html. WDNR did not receive any comments. However, a DPC was contacted by two local newspapers and an article was published at http://lacrossetribune.com/news/local/dnr-building-power-line-will-kill-rare-snakes/article_f21f59b2-5f84-11e3-8f46-0019bb2963f4.html.

Under the NEPA process and in conformance with 7 CFR 1794.42 and USFWS (40 CFR 1500-1508, 43 CFR 46, 516 DM 1-6), DPC is required to notify the public of the availability of the Draft EA and solicit comments on the Project. The public will be afforded 30 days to comment on the Draft EA (this document), which will be available on RUS and USFWS websites and in hard copy at DPC offices in La Crosse, Wisconsin and public libraries in Holmen and Trempealeau, Wisconsin. In addition, the USFWS Compatibility Determination also requires a 30 day public review. Publication of a newspaper advertisement and legal notice in local newspapers initiates the comment period. A copy of the newspaper advertisement and legal notice is provided in **Appendix K**. The agencies also intend to prepare a list of key "Question and Answers" related to the Project to have available and post on the DPC, RUS, and USFWS websites. Upon the completion of the comment period, RUS and USFWS will determine the significance of the Project's effects on the quality of the human environment and make a FONSI or prepare an EIS. Upon making a determination, a second newspaper advertisement and legal notice will be published in local newspapers.

In addition to public notices required under NEPA, DPC expects that the Project will fall under the General Utility Crossings Permit for Wetlands and Waterways at the state level (WDNR-GP3-2013) and the USACE Regional General Permit (GP-002 WI) at the federal level. As such, no additional notice would be required as these general permits were already noticed. The anticipated ITP for Eastern massasauga and Wood turtle would require a 30-day comment period and would be noticed in appropriate local and state news media and organizations that request such notification, as well as WDNR website.

# 2.0 Purpose and Need for the Project

## 2.1 Purpose and Need for DPC's Action

DPC provides wholesale electricity to 25 member cooperatives and 16 municipal utilities via 3,100 miles of transmission line and 285 substations within their service area. DPC's service area encompasses 62 counties across Wisconsin, Minnesota, Iowa, and Illinois. DPC's generation resources include coal, natural gas, hydroelectric, solar, landfill gas, and animal waste to energy. DPC is obligated to ensure reliable electricity service to its cooperative members and their customers to maintain compliance with North American Electric Reliability Corporation's (NERC) transmission planning standards.

In April 2013, DPC completed the Briggs Road – Marshland 161 kV Rebuild Study (Study), which includes portions of Trempealeau and La Crosse Counties (**Appendix E**). The Study identified that much of the Q-1 transmission line is reaching the end of its service life resulting in increased outages and maintenance costs. The Q-1 line was previously identified as failing in the CapX project federal and State of Wisconsin EISs. The existing 13-mile section of the Q-1D transmission line proposed for rebuild is approximately 62 years old with low reliability during contingencies.

The Q-1D line has had a recent history of reliability issues. These reliability issues are due to the age of the line, deterioration of the poles, and the fact that the line was originally constructed as a 138 kV line in the 1950's. The insulators have not been replaced since the line was upgraded to 161 kV and are undersized. As a result, there is a tendency for arcing to occur and cause pole-top fires. Access to the Q-1D ROW is extremely difficult within the Black River floodplain. In 2002, a structure in the floodplain failed, and at that time temporary upgrades were made, with the knowledge that the CapX project could possibly utilize this portion of DPC ROW. In 2012, another structure in the floodplain failed, and once again, a temporary upgrade was implemented pending a complete rebuild. In 2013, burn marks on three separate structures were identified by maintenance crews in the area. These three structures were maintained and reinforced as a temporary measure until the rebuild can be completed.

In addition to electricity, the Q-1D line carries a fiber optic line from Minneapolis to Chicago. The aging transmission structures also present the potential for outages to this service.

Construction of the Project would increase the longevity of the transmission line and reduce line overloads, the occurrence of low voltages, and maintenance costs. The Project would allow DPC and the fiber optic line service to maintain reliable service to their customers and meet NERC standards.

## 2.2 Purpose and Need for RUS's Action

Under the Rural Electrification Act, as amended (RE Act), the U.S. Secretary of Agriculture is authorized and empowered to make loans for rural electrification to nonprofit cooperatives and others "for the purpose of financing the construction and operation of generating plants, electric transmission and distribution lines or systems for the furnishing and improving of electric service to persons in rural areas." A primary function or mission of RUS is to carry out this electric loan program.

## 2.3 Purpose and Need for Federal Cooperating Agencies

USFWS would need to renew an easement for crossing the Refuge, which is part of the National Wildlife Refuge System. USFWS also has authority and trust responsibility under the Endangered Species Act, the Bald and Golden Eagle Protection Act, and the Migratory Bird Treaty Act (MBTA)**.** The mission of the National Wildlife Refuge System, as defined in the Refuge Improvement Act of 1997 (16 U.S.C 668dd), is "to administer a national network of lands and waters for the conservation, management and where appropriate, restoration of fish, wildlife and plant resources and their habitats within the United States for the benefit of present and future generations of Americans." The refuge system is administered with the stated mission of "working with others to conserve, protect and enhance fish, wildlife and plants and their habitats for the continuing benefit of the American people" (USFWS 2006). Under NEPA and the National Wildlife Refuge Improvement Act of 1997, major actions affecting the environment require full consideration of potential impacts, public involvement and an interdisciplinary approach to decision-making that considers a reasonable range of alternatives.

USACE would need to issue a permit under Section 10 of the Rivers and Harbor Act for crossing the Black River and a permit under Section 404 of the CWA (33 USC § 1251), for activities that discharge fill into Waters of the United States, including wetlands. USACE's evaluation of a Section 404 permit involves multiple analyses, including (1) evaluating the Project's impacts in accordance with NEPA, (2) determining whether the Project is contrary to the public interest, and (3) in the case of a Section 404 permit, determining whether the Project complies with the Section 404(b)(1) Guidelines (40 CFR 230).

# 3.0 Alternatives to the Project

## 3.1 Route Alternatives

The federal Draft EIS for the CapX project (RUS December 2011) considered the impacts of rebuilding DPC's Q-1 161 kV line, which could be fully or at least partly co-located with the CapX project. As part of this process, DPC had identified and evaluated all possible route alternatives to reconstructing the Q-1D line in its existing ROW. A technical memorandum, entitled the Q-1 Rebuild Comparison of Alternatives Technical Memorandum (DPC November 8, 2011) evaluating these alternatives was included as Appendix L to the federal Draft EIS for the CapX project. The federal final EIS for the CapX project (RUS July 2012) stated that this Appendix L information would be included in the federal Q-1D environmental review document. The technical memorandum is included as **Appendix E** to this EA. The CapX project EIS documents can be found on the RUS website at: http://www.rurdev.usda.gov/UWP-CapX2020-Hampton-Rochester-LaCrosse.html. **Table 3-1** and **Figure 3** present route alternative information summarized from **Appendix E**. Please note, Table 3-1 presents data for potential impacts of a 161 kV single circuit transmission line with a 100-foot corridor, as was proposed for CapX project. The Project's corridor has been reduced to 65-feet, which will therefore reduce the natural resource impacts. The selection of the Q1-Galesville Route for the CapX project resulted in approximately 27 miles of the Q-1 161 kV line being co-located with the 345 kV CapX line as a double circuit. As a result, the remainder of the Q-1 161 kV line (Q-1D line) still needs to be rebuilt. DPC had identified three alternatives to rebuilding the Q1-D along its existing alignment through the Black River floodplain:

- Highway 35 Route
- Seven Bridges Route
- Galesville Route

These alternatives were evaluated in terms of cost-effectiveness, technical feasibility, and environmental issues. Also, as directed by the policy of the state of Wisconsin (Wis. Stat. §1.12 (6)), the sharing of existing utility corridors, highway and railroad corridors, and recreational trails, in that order, was also considered. Each alternative impacted more homes, increased the length of the line, was substantially more costly, and had greater environmental impact than rebuilding the Q-1D along its existing alignment. The existing alignment also provides 100% sharing of existing utility corridor, the highest of all alternatives. Reliability was also considered. Placing the Q-1D close to another line that provides redundancy to the Q-1D line creates additional reliability risk and increases the chance of customer outages if a major weather event causes simultaneous outages of the two lines. The most reliable alternative for the Q-1D line is to maximize the distance between the Q-1D line and the Tremval 161 kV line, which would be accomplished by rebuilding the Q-1D line on its existing alignment. The lower reliability values in **Table 3-1** are the more reliable choices. DPC proposes to reconstruct the Q-1D transmission line in the existing ROW, which would be the least impacting alternative and avoids conversion of land to use by a transmission facility.

Table 3-1: Impact Summary for Q-1 Rebuild Options across Black River Floodplain

| Resource Category | Existing Q-1 Route | Highway 35 Route | Seven Bridges Route | Galesville Route |
|---|---|---|---|---|
| Length (miles) | 13.2 | 15.0 | 16.2 | 19.9 |
| General Characteristics | | | | |
| Corridor Sharing | | | | |
| Length utilizing existing transmission corridor (miles) | 13.2 | 7.4 | 12.4 | 0.0 |
| % of route utilizing existing transmission corridor | 100% | 50% | 77% | 0% |
| Length utilizing existing transportation corridor (miles) | 0.0 | 6.5 | 3.8 | 13.6 |
| % of route utilizing existing transportation corridor | 0% | 43% | 23% | 68% |
| Length utilizing existing transmission corridor and/or transportation corridor (miles) | 13.2 | 13.9 | 16.2 | 13.6 |
| % of route utilizing existing transmission corridor and/or transportation corridor | 100% | 93% | 100% | 68% |
| Length not utilizing linear features (miles) | 0.0 | 1.1 | 0.0 | 6.3 |
| % of route not following linear infrastructure | 0% | 7% | 0% | 32% |
| Natural Resources | | | | |
| Length crossing wetlands (miles) | 2.6 | 1.5 | 1.8 | 1.1 |
| Forested wetlands Impacted (acres of forested wetlands converted to non-forested wetlands) | 1.4 | 17.7 | 11.9 | 9.3 |
| Upland forest impacted (acres) | 4.5 | 8.3 | 7.2 | 32.9 |
| Waterway crossings | 27 | 18 | 7 | 4 |
| Natural Heritage Inventory occurrences (historic and non-historic) within 2 miles of reference centerline | 47 | 44 | 40 | 28 |
| Residences | | | | |
| Total residences 0-25 feet | 0 | 0 | 0 | 0 |
| Total residences 26-50 feet | 0 | 0 | 1 | 0 |
| Total residences 51-100 feet | 5 | 6 | 15 | 10 |
| Total residences 101-150 feet | 3 | 5 | 25 | 15 |
| Total residences 151-300 feet | 15 | 25 | 42 | 82 |
| Total residences 0 - 150 feet | 8 | 11 | 41 | 25 |
| Total residences 0 - 300 feet | 23 | 36 | 83 | 107 |

| Resource Category | Existing Q-1 Route | Highway 35 Route | Seven Bridges Route | Galesville Route |
|---|---|---|---|---|
| Newly impacted residences 0-25 feet | 0 | 0 | 0 | 0 |
| Newly impacted residences 26-50 feet | 0 | 0 | 0 | 0 |
| Newly impacted residences 51-100 feet | 0 | 0 | 0 | 9 |
| Newly impacted residences 101-150 feet | 0 | 3 | 2 | 15 |
| Newly impacted residences 151-300 feet | 0 | 9 | 8 | 79 |
| Newly impacted residences 0 - 150 feet | 0 | 3 | 2 | 24 |
| Newly impacted residences 0 - 300 feet | 0 | 12 | 10 | 103 |
| Schools, Day-care Centers, and Hospitals | | | | |
| Total 0-300 feet | 0 | 0 | 0 | 0 |
| State and Federal Lands | | | | |
| State lands crossed (miles) | 0.30 | 0.12 | 1.54 | 0.06 |
| Federal lands crossed (miles) | 0.93 | 0.00 | 0.00 | 0.00 |
| Cost | | | | |
| Cost | $10,500,000 | $12,200,000 | $15,800,000 | $17,200,000 |
| Reliability | | | | |
| Reliability<br>(Lower values are more reliable choices) | 0.5 | 3.0 | 3.0 | 8.0 |

## 3.2 Regional Alternatives

The Q-1D line is primarily a local load-serving facility, and is not intended to be regional in nature. As such, regional studies were not performed for the Project. The electrical source on north side of this line is DPC's John P. Madgett generation station and on the south side is a 345 kV transmission source, the upcoming Briggs Road 345/161 kV transmission station. The CapX project will be completed in mid-2016 and is a regional project that is currently being constructed. The Marshland-Briggs Road 161 kV line primarily acts as one of two sources to the Marshland 161/69 kV transmission substation that largely serves the load of Winona, Minnesota and the surrounding area on the 69 kV system out of Marshland.

In the event of an outage of the Briggs Road 345 kV source, the Marshland-Briggs Road 161 kV line would help in serving load in the La Crosse, Wisconsin area as well. This 161 kV line is not used for bulk power transfer, as the existing limit is 162 MVA in the summer. Further, the primary need driver for replacing Marshland-Briggs Road is due to age/condition issues of the poles for this transmission line as it was built in 1951. The line is needed for the local load serving needs highlighted above and any regional alternatives would not address the need to replace the transmission structures due to age and condition.

## 3.3 Alternative Designs and Construction Methods

DPC considered alternative transmission structure types, such as steel monopoles, Y-frame steel structures, H-frame wood structures, and H-frame steel structures for the Project.

DPC would use Y-frame steel structures for the 3-mile section that crosses the Black River floodplain to:

- Limit new transmission line height to an average of 65 feet to remain at or below the average tree height as requested by USFWS and WDNR.
- Decrease the width of the ROW to 65 feet to reduce impacts related to maintaining a wider cleared ROW and allow for part of the existing ROW to revert to native vegetation, including shrub-scrub vegetation as requested by USFWS and WDNR to soften the edge effect of the ROW.
- Reduce the number of structures needed in the Black River floodplain from 22 H-frame structures (44 poles) to 21 single Y-frame structures.
- Reduce the number of poles on USFWS and WDNR land from 11 H-frame structures (22 poles) to 8 single Y-frame structures.

DPC would use specialized construction methods to minimize environmental impacts. The following methods eliminate the need for concrete foundations, avoid the need for dewatering, do not generate waste soil material and would not require placing gravel or other fill for construction access.

Dead-end structures would be installed at both ends of the 3-mile section crossing the Black River floodplain and at the west and east ends of the Project where construction would start and stop. H–frame structures would be used for the remainder of the route where the need for more costly Y-frame structures used to address environmental concerns in the Black River floodplain is reduced. The color and scale of the new structures would not substantially adversely impact vistas, damage scenic resources, or degrade the existing visual character or quality of the corridor and its surroundings.

## 3.4 No Action Alternative

Under the No Action Alternative, RUS would not provide financing for the Project and the Project would not be rebuilt. The existing transmission line would remain in service, and its 1950s-era transmission structures would continue to deteriorate. Failure to rebuild the Project would result in continued growing strain on the transmission system in the area, which in turn could result in more frequent system overloads. DPC is obligated to ensure reliable electricity to its customers, and if this lack of reliable service were not addressed, DPC would be in violation of the NERC Transmission Planning Standards.

The No Action Alternative would have impacts on natural and human resources similar to the Project because operation and maintenance activities would continue to occur along the existing ROW, including removing small trees and brush to allow vehicle and equipment access for repairs. The operation and maintenance activities would generate, in particular, temporary effects to vegetation, potential short-term displacement of wildlife, and construction noise. The No Action Alternative would potentially avoid construction-related activities that include up to 3 days of intermittent construction at each transmission structure; removal and replacement of new transmission structures in wetlands; and utilization of temporary access routes. However, these effects may occur in the future regardless given the inevitability of future transmission line failures.

# 4.0 Affected Environment

This section describes the existing human and natural environments potentially affected by the Project.

## 4.1 Land Use

### 4.1.1 General Land Use

The Project crosses through the Towns of Trempealeau and Caledonia in Trempealeau County, and the Towns of Holland and Onalaska in La Crosse County. The Project utilizes the existing 161 kV transmission line ROW. No residences are located within the Project ROW. Holmen High School is the closest school, located approximately 1.05 miles north of the transmission line centerline.

The land use in Trempealeau and La Crosse Counties is typified by agricultural land with widely scattered rural farmsteads, open space, and the Black River floodplain that includes state- and federally-owned tracts. The rural residential development is more concentrated near the Project's southern terminus near Holmen, Wisconsin.

Trempealeau and La Crosse Counties fall within the Mississippi River Regional Planning Council planning area. The three-county area has development potential due to the rural nature of the region and proximity to two larger area employers and major employment centers. Residential development is characterized by rural residential and denser clusters near villages and cities. The Mississippi River Regional Planning Council noted that people live in rural areas and commute to jobs in La Crosse, Eau Claire, and Winona.

**Trempealeau County**

Trempealeau County is characterized by agriculture and rural residential use with small cities and villages scattered in the agriculture landscape. Development in the county is mainly agricultural-based and typically consists of expansion of existing farms. Small residential subdivisions are typical near the towns and villages.

In 1972, the Trempealeau County Board of Supervisors adopted a Comprehensive Zoning Ordinance for the County. All fifteen Towns in Trempealeau County adopted the Comprehensive Zoning Ordinance. The Trempealeau County Department of Land Management and Trempealeau County Board of Supervisors do not have zoning authority over the city and villages within Trempealeau County. Incorporated municipal jurisdictions are authorized by Wisconsin State Statutes to adopt and regulate land use regulations within their own jurisdictions. The Trempealeau County 2009-2029 Comprehensive Plan (the Plan) was reviewed to identify future land use and zoning. Within the Project vicinity zoning consists of:

- Exclusive Agriculture and Exclusive Agriculture-2: preserve agricultural areas from scattered residential developments and preserve woodlands, wetlands, natural areas and the rural atmosphere of the area. Primary Agriculture provides areas for residential development.
- Residential-8 and Residential-20: establish areas for residential development allowing up to 8 and 20 dwellings per 40 acres respectively.
- Environmental Significance: includes the Black River floodplain and areas such as wetlands, floodplains, lakes and streams where the plan designates that development should be

discouraged, but not prohibited unless federal, state, or local ordinances prohibit or regulate development in these areas.

The Plan addresses utilities and community facilities. The Plan's goal includes support of community facilities and services that contribute to the overall improvement of the community. The Plan encourages and supports the burial of utility lines when and where feasible and promotes the use and production of green energy with respect to public health and safety. The adopted zoning ordinance stipulates that a land use permit is not required for any installation of distribution poles, towers, or wires. The towns of Caledonia and Trempealeau have adopted the Trempealeau County Zoning Ordinance. Consultation with Trempealeau County verified that no additional permits would be required for the Project (**Appendix F**).

**La Crosse County**

La Crosse County encompasses a variety of land uses, incorporated cities and villages, as well as agricultural and recreation areas. According to the La Crosse County Comprehensive Plan (March 2008) existing land uses crossed by the Project consist of Agriculture and Woodlands/Wetlands and future land uses are Exclusive Agriculture and Environmental (along the Black River floodplain).

The plan recognizes the Wisconsin's Citizen Utility Board assessment that the electrical system in western Wisconsin is congested and not as robust as in other parts of the state and the importance of considering energy needs over this planning horizon and the coordination of transmission planning with Minnesota. The county's code of ordinances exempts transmission poles and lines from height requirements.

The Town of Onalaska's Comprehensive Plan (May 2005) addresses utilities and public infrastructure in context with protecting the environment and visual resources. The plan directs that utilities should avoid environmentally sensitive areas when extending and constructing new utilities and community facilities. The Utilities and Community Facilities Element directs that the Environmental Features Map be consulted prior to making decisions regarding location of new utilities. The Project falls within the floodplain on the Environmental Features Map. The Town of Onalaska has adopted the La Crosse County Code of Ordinances (July 2013), which exempts transmission poles and lines from height requirements. Transmission lines are specifically permitted in Agricultural District and Exclusive Agriculture District as well as between the setback lines and the highway. They are not addressed in the Industrial District.

The Town of Holland is predominantly agriculture and forest with residential and commercial/ manufacturing a small part of the total town area. The Town of Holland has an adopted comprehensive plan (January 2007). The town's goals, objectives and actions provide a framework for the planning and construction of utilities. The plan directs utility development to avoid environmentally sensitive areas when extending and constructing new utilities and community facilities. The plan recommends that the Environmental Features Map be consulted prior to making decisions regarding location of new utilities. The Project falls within the floodplain on the Environmental Features Map.

The Town of Holland has adopted a zoning map (May 2012) and the La Crosse County Code of Ordinances (July 2013), which exempts transmission poles and lines from height requirements. The Project crosses Recreation and Natural Resource, Exclusive Agriculture and General Agriculture Districts. Transmission lines are specifically permitted in these Districts as well as between the setback lines and the highway.

### 4.1.2 Important Farmland, Prime Forest Land, Prime Rangeland

The Project ROW and access routes cross prime farmland and farmland of statewide importance (**Figure 4**). The Project ROW would cross approximately 4.44 miles (41.98 acres) of prime farmland. Proposed access routes would cross approximately 4.63 miles (8.96 acres) of prime farmland. Farmland of statewide importance is designated along approximately 0.10 miles (0.88 acres) of the Project ROW. The proposed access routes would cross approximately 0.02 miles (0.07 acres) of farmland of statewide importance. The Project and access routes would not cross any potential prime farmland, if drained (USDA, NRCS 2013). Prime farmland and farmland of statewide importance are shown on **Figure 4**.

DPC would not acquire any new easements for ROW and the temporary staging areas would be leased and revert back to agricultural use. As a result, the Wisconsin Department of Agriculture, Trade and Consumer Protection (DATCP) will not require the preparation of an agricultural impact statement. The consultation letter from the DATCP addressing this is included in **Appendix F**.

### 4.1.3 Formally Classified Land

The Black River and associated wetlands and floodplain are unique natural resources, parts of which are managed by WDNR as the Van Loon Wildlife Area and USFWS as the Refuge. The existing transmission line currently crosses approximately 0.3 miles (2.28 acres) of the Van Loon Wildlife Area and approximately 0.9 miles (7.32 acres) of the Refuge (**Figure 5**) and the Project would be constructed within this existing ROW. A portion of the access route to Structure Locations 12 and 13 would cross the Van Loon Wildlife Area outside of the ROW. Portions of the access routes to Structure Locations 16, 18, 19, and 20 would cross Refuge land outside of the ROW (**Appendix A**, **Sheet Map 9**).

**Van Loon Wildlife Area**

The Van Loon Wildlife Area originated as a lease project in 1948 (known as McGilvary Bottoms). Fee acquisition began in 1957 with the purchase of 758 acres from the William Van Loon estate. The Van Loon Wildlife Area is a 3,918 acre property located in La Crosse County. It is located in the northwest corner of La Crosse County approximately 3.5 miles northwest of the Village of Holmen. The Van Loon Wildlife Area extends 5 miles south of the Black River from Highway 53/93 "Hunter's Bridge" to the community of New Amsterdam on CH XX. The property contains six historic McGilvary arch truss bridges over the Black River built circa 1892.

The Van Loon Wildlife Area is managed to provide opportunities for public hunting, fishing, trapping, and other outdoor recreation, while protecting the qualities of the unique native communities and associated species found on the property. The Van Loon Floodplain Forest State Natural Area and the Van Loon Floodplain Savanna State Natural Area are located within the Van Loon Wildlife Area (WDNR 2009). Habitat consists primarily of floodplain forest, sand prairies, and oak savanna. The Van Loon Wildlife Area is also a state-designated Important Bird Area noted for yellow-crowned night-herons. It also provides habitat for the Eastern massasauga rattlesnake and Blanding’s and Wood turtles. Additional details regarding the biological resources in this area are discussed in the following sections.

**Upper Mississippi River Wildlife and Fish Refuge**

The Refuge was established by an Act of Congress on June 7, 1924 "(a) as a refuge and breeding place for migratory birds included in the convention between the United States and Great Britain for the protection of migratory birds, concluded August 16, 1916, and (b) to such extent as the Secretary of Interior may by regulations prescribe, as a refuge and breeding place for other wild birds, game animals, furbearing animals, and for the conservation of wild flowers and flowering plants, and (c) to such extent as the Secretary of Interior may by regulations prescribe as a refuge and breeding place for fish and other aquatic animal life" (16 U.S.C. 723 ). The Refuge is approximately 240,000 acres in size and spans 261 miles along the Mississippi River in four states Minnesota, Wisconsin, Iowa and Illinois. The goals of the Refuge system are to conserve a diversity of animal and plant life and their habitat, including threatened and endangered species; to maintain and develop a planned and managed network of habitats for migratory birds, certain fish and marine mammals; conserve important ecosystems, wetlands and plant communities; and provide opportunities to participate in compatible wildlife-dependent recreation (hunting, fishing, wildlife observation and photography, and environmental education and interpretation) (USFWS 2006a).

The refuge encompasses one of the largest blocks of floodplain habitat in the lower 48 states. Bordered by steep wooded bluffs that rise 100 to 600 feet above the river valley and the Mississippi River corridor, the Refuge offers scenic beauty and productive fish and wildlife habitat (USFWS 2014). The Refuge is the flagship refuge of the Mississippi Flyway, where an estimated 40% of the North American continent's waterfowl and a substantial portion of its other migratory birds travel, rest, feed and nest each year. USFWS has identified the Black River Bottoms as a “Classification A” resource, which means that as a habitat for fish or wildlife it is unique or irreplaceable on a national basis or within the ecoregion (USFWS 2006b). The area is also one of only a few sites in Wisconsin that provides habitat for the Eastern massasauga rattlesnake, Wisconsin’s most endangered reptile. The biological resources in this area are discussed in the following sections.

## 4.2 Floodplains

Federal Emergency Management Agency (FEMA) has the primary responsibility for the development and implementation of regulations and procedures to control development in areas subject to flooding through the National Flood Insurance Program (NFIP). To implement the NFIP, FEMA prepares Flood Insurance Rate Maps (FIRMs) that show special flood hazard areas (SFHAs) where flood insurance is mandatory. The 100-year flood, or base flood, is defined as the flood having a 1% chance of being equaled or exceeded in any given year. Floodplain data was obtained from the Wisconsin Natural Resource Geospatial Clearinghouse. Floodplains are shown on **Figure 6**. The Project ROW crosses approximately 2.88 miles of 100-year floodplain. The proposed access routes for the Project cross approximately 4.5 miles of 100-year floodplain.

## 4.3 Water Resources

### 4.3.1 Wetlands and Waterways

Wetlands perform many important hydrologic functions, such as flood abatement, maintaining stream flows, nutrient removal and uptake, groundwater recharge, sediment control, and water quality. Section 404 of the CWA establishes a Federal-permitting program that regulates activities in wetlands. Section 404 requires that anyone proposing to deposit dredged or fill material into "Waters of the United States"

including wetlands, must obtain a permit from the USACE, the agency responsible for administering Section 404 permitting process for such activities. Executive Order (EO) 11990 directs federal agencies to minimize the destruction, loss, or degradation of wetlands and to preserve and enhance the natural and beneficial values of wetlands. To meet these objectives, the EO requires federal agencies, in planning their actions, to consider alternatives to wetland sites and limit the potential damage if any activity affecting a wetland cannot be avoided. Where wetlands cannot be avoided, measures to minimize adverse impacts to wetlands must be examined.

Wetlands and waterways in Wisconsin are regulated by USACE and WDNR. USACE would need to issue a permit under Section 404 of the CWA, for activities that discharge fill into Waters of the United States, including wetlands. USACE's evaluation of a Section 404 permit involves multiple analyses, including evaluating the project's impacts in accordance with NEPA, determining whether the project is contrary to the public interest and in the case of a Section 404 permit, determining whether the Project complies with the Section 404(b)(1) Guidelines (40 CFR 230 ).

At the state level, excavating or placement of any material in low areas or wetlands requires a WDNR permit. WDNR has both general permits and individual permits available. WDNR reviews a project to determine if it complies with the requirements of Wis. Stat. § 281.36, and Wis. Admin. Code NR 299 and NR 103. The Utility General Permit (WDNR-GP3-2013) is used for utility projects that meet all of the eligibility criteria and permit conditions. The Utility GP covers the placement of structures on the bed or bridges across navigable waters, and the placement of fill in wetlands. Individual permits are required when a project cannot meet the eligibility standards or conditions in the general permits.

The Project crosses agricultural and upland area for most of its length, with an approximately 3-mile section of Black River floodplain and related wetlands near the middle of the Project. The entire floodplain area was assumed to be wetland from its western edge (west of Tank Creek) to its eastern edge (near Holmen). The wetlands and waterways of the Black River floodplain provide water quality improvement by slowing water flow and removing suspended sediments and absorbing nutrients. They also provide floodwater storage. The area provides important wildlife habitat for the Eastern massasauga rattlesnake and Blanding's and Wood turtles. It is part of the Mississippi Flyway, where an estimated 40% of the North American continent's waterfowl and a substantial portion of its other migratory birds travel, rest, feed and nest each year. USFWS has identified the Black River Bottoms as a "Classification A" resource, which means that as a habitat for fish or wildlife it is unique or irreplaceable on a national basis or within the ecoregion (USFWS 2006b).

Wetlands and waterways within the Project area were identified first for the CapX project through review of WDNR 24K Hydro Geographic Information System (GIS) Database and aerial photography (Xcel *et al.* 2011). A follow up field reconnaissance survey to identify the condition of existing wetlands and waterways was conducted for the Project in October 2013, the findings of which are listed in **Table 4-1.** For descriptive purposes, the un-named waterways and non-waterway areas (wetlands) of the floodplain were assigned ascending numerical identifiers from northwest to southeast.

A total of 9 wetlands and 27 waterways (including Tank Creek and the Black River) were identified within the Project area, all in the ROW along the Black River floodplain or related access routes. Identification numbers were assigned to the wetland areas from northwest to southeast based on aerial photography and field observations for ease of discussion, but a delineation was not performed to differentiate

between the finely intertwined, multiple wetlands of the floodplain. The identified wetlands are all either palustrine emergent (PEM) or palustrine scrub shrub (PSS) wetlands.

Of the 27 waterways identified along the Project ROW and/or access routes during the initial database and photography identification, 8 were not initially identified by WDNR 24K Hydro GIS Database and were not discernable from the surrounding or adjacent wetland during the October 2013 site review (**Table 4-1** and in **Appendix A on Sheet Maps 7, 8, 9 and 10)**.

WDNR Surface Water Data Viewer and maps of trout streams were reviewed to identify any Areas of Special Natural Resource Interest (ASNRI), Public Rights Features (PRF), Priority Navigable Waters (PNW), or trout streams that may be present within the Project area (WDNR 2009). ASNRI waters include several classes of designated waters including trout streams, outstanding resource waters (ORW), or exceptional resource waters (ERW) and waters or portions thereof that may be inhabited by endangered, threatened, or special concern species or unique ecological communities identified in the Natural Heritage Inventory. ASNRI waters and PRF waters are also considered PNW waters. No ORWs, ERWs or trout streams occur in the transmission corridor. The entire Black River floodplain is designated as an ASNRI. One wetland and 1 waterway (5B-WW2 and 5B-W2) are designated as PNWs (**Table 4-1**).

Table 4-1: Wetlands and Waterways in Project Area

| Feature ID[1] | Feature Type | Crossing Required | (Appendix A) Sheet Map Index | Field Observations[2, 3] |
|---|---|---|---|---|
| 5B-W1 | Wetland | No | 7, 8 | Emergent and shrub/scrub wetland. Reed canary grass predominant. Existing transmission corridor cleared 80-100 feet (ft). Existing access route/trail present. |
| 5B-WW1 | Waterway. | No | 7, 8 | Described as UNT to Tank Creek in 2011, no longer observable in 2013 |
| 5B-WW2 | Waterway - PNW (lakes less than 50 acres). | Yes | 8 | UNT to Tank Creek, waterway about 10-12 ft wide at the crossing, with a depth of 3-4 ft. Banks are soft organic muck vegetated with emergent wetland vegetation. Existing access route/trail present off of ROW in a shallower and narrow location. |
| 5B-W2 | Wetland - ASNRI and PNW (Tank Creek and 5B-WW2). | Yes/Wetland Crossing | 8 | Emergent and shrub/scrub wetland. Reed canary grass predominant. Existing transmission corridor cleared 80-100 ft. Existing access route/trail present |
| 5B-WW3 | Waterway. | No | 8 | Described as UNT to Tank Creek in 2011, no longer observable in 2013 |
| 5B-WW4 | Waterway. | No | 8 | Described as UNT to Tank Creek in 2011, no longer observable in 2013. |
| 5B-WW5 | Waterway - ASNRI (NHI). | No | 8 | Tank Creek, waterway about 12-14 ft wide at the crossing, with a depth of 3-4 ft. Adjacent wetland is reed canary grass in soft organic muck. |
| 5B-WW6 | Waterway, included in Wetland 5B-W2. | Yes/ Wetland Crossing | 8 | Described as UNT to Tank Creek in 2011, in 2013 appears to be depressional wetland with emergent vegetation. Existing access route/trail present. |

| Feature ID[1] | Feature Type | Crossing Required | (Appendix A) Sheet Map Index | Field Observations[2, 3] |
|---|---|---|---|---|
| 5B-WW7 | Waterway. | Yes | 8, 9 | UNT to Tank Creek, emergent vegetation and open water. No discernible bed or bank to the stream\. Appears to be a depressional wetland. Existing access route/trail present. |
| 5B-WW8 | Waterway. | Yes | 8, 9 | Described as UNT to Tank Creek in 2011, in 2013 no discernible bed or bank to the stream Appears to be depressional wetland. Existing access route/trail present. |
| 5B-WW9 | Waterway. | Yes | 8, 9 | Described as UNT to Tank Creek in 2011, in 2013 small area of standing water in a linear feature with no discernible inlet or outlet appearing in the vegetation. Emergent lake sedge bed. Appears to be depressional wetland. Existing access route/trail present along edge of depression. |
| 5B-WW10 | Waterway. | Yes | 8,9 | Described as UNT to Tank Creek in 2011, in 2013 there is no discernible bed or bank to the stream at this time. Appears to be depressional wetland. Existing access route/trail present. |
| 5B-W3 | Wetland - ASNRI (Van Loon Wildlife Area). | Yes/Wetland Crossing | 8, 9 | Emergent and shrub/scrub wetland. Reed canary grass predominant. Existing transmission corridor cleared 80 - 100 ft. Existing access route/trail present. |
| 5B-WW11 | Waterway. | Yes | 8, 9 | UNT to Tank Creek, constructed, straight-line V-shaped ditch located west of the access route. In 2013, the waterway is approximately 6 ft wide with a depth of approximately 2 ft. The waterway was dry. Access avoids ditch by skirting outside of edge. |
| 5B-W4 | Wetland - ASNRI (Van Loon Wildlife Area and contains PNW lake less than 50 acres). | Yes/Wetland Crossing | 9 | Emergent and shrub/scrub wetland. Reed canary grass predominant. Existing transmission corridor is cleared to 80-100 ft. Existing access route/trail present. In order to avoid crossing this wetland, the access route to be used by the Argo during construction would cross Van Loon Wildlife Area lands outside of the Project ROW. |
| 5B-W5 | Wetland - ASNRI (Van Loon Wildlife Area and Refuge, associated with Shingle Creek and Black River). | Yes/Wetland Crossing | 9 | Emergent and shrub/scrub wetland. Reed canary grass predominant. Existing transmission corridor is cleared to 80-100 ft. Existing access route/trail present. |
| 5B-WW12 | Waterway - ASNRI (NHI and in Van Loon Wildlife Area) | Yes | 9 | Shingle Creek, emergent and shrub/scrub vegetation with reed canary grass along narrow, shallow meandering channel. About 10-ft wide open water area in possibly wider channel. Depth less than 1 ft deep. Extends beyond ROW. Existing access route/trail present. |
| 5B-WW13 | Waterway - ASNRI (Refuge), included in Wetland 5B-W6 | Yes/Wetland Crossing | 9 | Described as UNT to Black River in 2011, in 2013 emergent and shrub/scrub wetland. Reed canary grass predominant. Small dry depression or ditch was noted in the area, but did not appear to have upgradient or downgradient connections. Existing access route/trail present. |
| 5B-WW14 | Waterway - ASNRI (Refuge), included in Wetland 5B-W6 | Yes/Wetland Crossing | 9 | Described as UNT to Black River in 2011, in 2013 emergent and shrub/scrub wetland. Reed canary grass predominant. Small dry depression or ditch was noted in the area, but did not appear to have upgradient or downgradient connections .Existing access route/trail present. |

| Feature ID[1] | Feature Type | Crossing Required | (Appendix A) Sheet Map Index | Field Observations[2, 3] |
|---|---|---|---|---|
| 5B-WW15 | Waterway - ASNRI (Refuge), included in Wetland 5B-W6 | Yes/Wetland Crossing | 9 | Described as UNT to Black River in 2011, in 2013 emergent and shrub/scrub wetland. Reed canary grass predominant. Small dry depression or ditch was noted in the area, but did not appear to have upgradient or downgradient connections. Existing access route/trail present. |
| 5B-WW16 | Waterway - ASNRI (Refuge), included in Wetland 5B-W6 | Yes/Wetland Crossing | 9 | Described as UNT to Black River in 2011, in 2013 no waterway discernible in area indicated; dense reed canary grass. Existing access route/trail present. |
| 5B-W6 | Wetland - ASNRI (Refuge) | Yes/Wetland Crossing | 9 | Degraded Wet Meadow, reed canary grass; dense. Access route overgrown by dense vegetation. |
| 5B-WW17 | Waterway - ASNRI (Refuge) | Yes | 9 | UNT to Black River, drainage channel. Emergent and shrub/scrub vegetation. Reed canary grass predominant. The access route to be used by the Argo during construction would cross Refuge lands outside of the Project ROW, where slopes are more gradual to banks and water is very shallow. Approximately 12-ft wide open water; channel likely 60 ft wide; 1 ft deep. Existing access route/trail present. |
| 5B-WW18 | Waterway - ASNRI (Refuge) | Yes | 9 | UNT to Black River, small waterway on ROW. Water depth approximately 0.5-1.0 ft with a sand bottom. Existing access route/trail present. |
| 5B-WW19 | Waterway - ASNRI (Refuge), included in Wetland 5B-W6 | Yes/Wetland Crossing | 9 | UNT to Black River, no waterway discernible in area indicated; dense reed canary grass. Existing access route/trail present. |
| 5B-WW20 | Waterway - ASNRI (Sturgeon areas, NHI, and Refuge) | Yes | 9 | UNT to Black River, waterway is about 50 ft wide with depths varying from 0.5-2.5 ft. Steep eroded sandy banks at ROW. Sand bottom with sandbars. Adjacent reed canary grass and shrub/scrub wetlands. Sandbars can be used to cross with most gradual slope, so access route to be used by the Argo during construction would cross Refuge lands just outside of the Project ROW. Mussel shells noted along with raccoon tracks. Very small mussel shells noted in gravel eddies. No existing access route/trail present. |
| 5B-W7 | Wetland - ASNRI associated with Black River and in Refuge | Yes/Wetland Crossing | 9, 10 | Shrub Carr/ Alder Thicket (located on Refuge); Existing transmission corridor is cleared to 80-100 ft. Existing access route/trail present. |
| 5B-WW21 | Waterway - ASNRI (Refuge) | Yes | 9 | UNT to Black River, old stream channel blocked by debris and sediment mound at ROW. Existing access route/trail exists to south of ROW to use a narrower and shallower crossing location, so access route to be used by the Argo during construction would cross Refuge lands just outside of the Project ROW |
| 5B-WW22 | Waterway - ASNRI (Refuge) | Yes | 9 | UNT to Black River, old stream channel flows to south. Bank is more gradual to south. Existing access route/trail exists to south of ROW to avoid the waterway so access route to be used by the Argo during construction would cross Refuge lands just outside of the Project ROW |

| Feature ID[1] | Feature Type | Crossing Required | (Appendix A) Sheet Map Index | Field Observations[2, 3] |
|---|---|---|---|---|
| 5B-WW23 | Waterway - ASNRI (Refuge), Included in Wetland 5B-W7 | Yes/Wetland Crossing | 10 | Described as UNT to Black River in 2011, in 2013 reed canary grass depressional wetland with no obvious upgradient and downgradient connections. No discernible waterway. Existing access route/trail present across this wetland. |
| 5B-WW24 | Waterway - ASNRI (Refuge) | No | 10 | UNT to Black River. |
| 5B-WW25 | Waterway - ASNRI (PNW Sturgeon Areas, NHI and Refuge) | No | 10 | Black River. |
| 5B-WW26 | Waterway - ASNRI (Refuge), Included in Wetland 5B-W8 | Yes/Wetland Crossing | 10 | Described as UNT to Black River in 2011, in 2013, no discernible waterway features (bed and bank) noted in the wetland at the crossing area indicated. |
| 5B-W8 | Wetland - ASNRI (Black River and in Refuge | Yes/Wetland Crossing | 10 | Floodplain, emergent and shrub/scrub wetland. Reed canary grass predominant. Existing access route/trail present. |
| 5C-W1 | Wetland - ASNRI | Yes/Wetland Crossing | 10 | Floodplain, emergent and shrub/scrub wetland. Reed canary grass predominant. Existing access route/trail present. |
| 5C-WW1 | Waterway - ASNRI | Yes | 10 | Described as UNT to Black River in 2011, in 2013 waterway has an existing permanent crossing (rock and gravel road/ford) across it for agricultural use. |

Notes: ASNRI = Area of Special Natural Resource Interest PNW = Priority Navigable Waterway NHI = Natural Heritage Inventory (WDNR), UNT = Unnamed Tributary

[1] Feature ID: W# = wetland, WW# = waterway (DPC Q-1D segment number precedes community designation).

[2] Resource descriptions follow WDNR NHI 2002 Natural Community Classification when applicable. Additional community type classifications may be included to capture communities not covered in the NHI Natural Community Classification. (Waterways are named using the mapped river or creek name, or by naming the discharge point of an unnamed tributary if known [e.g. UNT to Black River].

[3] Limited Wisconsin Wetland Inventory data (shapefiles) were available at the time of field review; available information was digitized and augmented with aerial photography review and field checks.

One of the identified waterbodies, the Black River (1676700), is on the Wisconsin 303(d) list of impaired waters for polychlorinated biphenyls (PCBs), total phosphorous and mercury (WDNR 2013a). Although transmission lines would be strung over this waterbody, no vehicles or personnel would enter this waterbody to cross it during construction of the Project.

Some waterways crossed by the Project are classified as being potential habitat for endangered, threatened, or special concern species by WDNR. These are described in Section 4.4.3 and summarized in **Tables 4-3 and 4-4.**

## 4.3.2 Groundwater

Three principal types of aquifers provide water in Wisconsin: sand and gravel, shallow bedrock, and deep bedrock. Groundwater in the Project area occurs in deep-bedrock sandstone aquifers (Cambrian-Ordovician), carbonate-rock aquifers (Silurian-Devonian) and other rock aquifers (USGS 2006). These aquifers lie at depths of about 100 to 150 feet below ground surface (bgs) (USGS 2013). Numerous bedrock community supply wells service La Crosse and Trempealeau Counties (WDNR 2013b).

## 4.4 Biological Resources

### 4.4.1 Vegetation

The Project is located within the Western Coulee and Ridges ecological landscape (WDNR 2013). The Western Coulee and Ridges ecological landscape is a topographically diverse area that developed as a result of erosive forces down-cutting previously uplifted bedrock (WGNHS 1984). This region is characterized by forested land (mostly oak-hickory and bottomland hardwoods), agricultural land, grassland, and wetlands (WDNR 2013).

The area of the Project is also referred to as the Driftless Area ecoregion. The Driftless Area ecoregion is characterized by pasture and cropland on more level uplands, woodlands and forest on steeper slopes and ravines. Livestock and dairy farming are major land uses and have had a major impact on stream quality. Corn, soybeans, feed grains, and hay are principal crops (Omernik 1988).

The vegetation of the Driftless Area is transitional between the mixed forests of North Central Wisconsin and the oak savannas of Iowa). Upland hardwood forests consist primarily of Red oak, White oak, Bitternut hickory, Shellbark hickory, Sugar maple, and Wild cherry. Low areas support forests dominated by elm, cottonwood, River birch, ash, Silver maple, and willow. Savanna communities of Bur oak and bluestem grasses grow in some areas, particularly on sandy soils; however, the grasslands have largely been converted for cropland or invaded by forests (Omernik 1988).

The Project crosses developed land cover (open space, low intensity), shrub/scrub land cover, grassland/herbaceous land cover, emergent herbaceous wetlands, woody wetlands, deciduous forest, evergreen forest, open water, and cultivated crops. A summary of the distribution of land cover types crossed by the Project is provided in **Table 4-2.**

Table 4-2: Land Cover Types [1]

| Land Cover Type | Percentage of Total Transmission ROW Length |
|---|---|
| Cultivated Crops | 56.8 % |
| Developed | 6 % |
| Emergent Herbaceous Wetlands | 16.9 % |
| Grassland/Herbaceous | 3.1 % |
| Shrub/Scrub | 0.0 % |
| Woody Wetlands | 0.0 % |
| Deciduous Forest | 2 % |
| Evergreen Forest | 13.4 % |
| Open Water | 1.8 % |

[1]Xcel et al. 2011.

Approximately 4.9 miles of access routes are located outside of the ROW. These access routes that are also used for ongoing maintenance are currently used to maintain the existing line and largely follow existing farm lanes or trails, field lines, or property boundaries. In the Black River floodplain, they largely follow access routes or trails. With the exception of off-ROW access within the Refuge, post-construction access to the transmission line for routine maintenance would follow these routes. Temporary off-ROW maintenance access within the Refuge will be coordinated with the USFWS. The ground cover would not change in these areas as a result of the Project.

The two temporary construction staging areas would be approximately 10 and 20 acres. These staging areas are located within agricultural fields and would not require clearing or grading.

The invasive species rule (Wis. Adm. Code NR 40) makes it illegal to possess, transport, transfer, or introduce certain invasive species in Wisconsin without a permit. During an invasive species survey in August 2013 (**Appendix G**), four species, common buckthorn (*Rhamnus cathartica*), spotted knapweed (*Centaurea biebersteinii*), Canada thistle (*Cirsium arvense*) and Purple loosestrife (*Lythrum salicaria*), were documented the Project area. Common buckthorn was noted infrequently along the northern portion of the access route extending south from STH 35 to the middle area of Black River floodplain (within the Van Loon Wildlife Area). This species was also noted as a common understory shrub in off-ROW areas in the southeast portion of the corridor outside the floodplain. Spotted knapweed and Canada thistle were noted throughout the western portion of the area outside the Black River floodplain. Reed canary grass is prevalent along the Project corridor and listed as “Restricted” under Wis. Adm. Code NR 40. Restricted species are defined as invasive species that are already established in the state and cause or have the potential to cause significant environmental or economic harm or harm to human health.

### 4.4.2 Fish and Wildlife

Based on the habitat present along the Project ROW and access routes, fisheries and wildlife resources include a range of species groupings (birds, mammals, fish, reptiles, amphibians, and insects), both resident and migratory. Habitat is likely used by one or more of these species groupings in almost every life-cycle stage (e.g. forage, shelter, breeding, rearing, migration, etc.). Commonly occurring species are likely those compatible with the edges of agricultural lands and heavily forested areas, which may include White-tailed deer (*Odocoileus virginianus*), raccoons (*Procyon lotor*), coyotes (*Canis latrans*), Northern short-tailed shrew (*Blarina brevicauda*), Fox squirrel (*Sciurus niger*), House sparrows (*Passer domesticus*), and European starlings (*Sturnus vulgaris*). Agricultural fields within the ROW also may provide migratory stopover habitat for waterfowl such as Canada goose (*Branta canadensis*). Field edges and forested areas may provide shelter, breeding, and foraging habitat for songbirds, upland game birds, and small mammals.

The Black River floodplain is characterized by wetland, riverine, and riparian habitats that support a variety of aquatic life, birds, and wildlife. The USFWS has identified the Black River Bottoms as a “Classification A” resource, which means that as a habitat for fish or wildlife it is unique or irreplaceable on a national basis or within the ecoregion (USFWS 2006b). In addition to “known or very probable federal endangered species habitat” and “essential habitat for state endangered species”, the USFWS considers lands that are essential production habitat or concentration areas for the Wood duck, mallard, Ring-necked duck, canvasback, Tundra swan, osprey, Peregrine falcon, and Bald eagle as Resource Classification A.

The area provides habitat for the state endangered (federal candidate) Eastern massasauga rattlesnake and (state protected) Blanding's and (state threatened) Wood turtles and other protected species as described in Section 4.4.3. WDNR Van Loon Wildlife Area is a Wisconsin Bird Conservation Initiative (WBCI) Important Bird Area (IBA) noted for Yellow-crowned night-herons, Acadian flycatchers, Cerulean warblers and Prothonotary warblers that breed there (USFWS 2009).

The Van Loon Wildlife Area also supports Red-headed woodpeckers, Blue-winged warblers, and Field sparrows. Waterbirds congregate in late summer and land birds migrate through, particularly in the spring. The wildlife area is managed to provide opportunities for public hunting, fishing, trapping and other outdoor recreation while protecting the qualities of the unique native communities and associated species found on the property. As described in Section 4.1.3, the Refuge was established as a refuge and breeding place for migratory birds for the protection of migratory birds, and as a refuge and breeding place for other wild birds, game animals, furbearing animals, and for the conservation of wild flowers and flowering plants, and as a refuge and breeding place for fish and other aquatic animal life.

### 4.4.3 Threatened and Endangered Species

The Federal Endangered Species Act (ESA) protects all federally listed animals from direct killing, taking, or other activities that may be detrimental to the species. Federally listed plants have similar protection, but the direct killing or taking prohibitions are limited to federal lands. Federal Protection for plants also covers intentional taking on any lands if done in violation of state law or criminal trespass laws.

Under the ESA, all federal agencies and cooperating states shall seek to conserve and recover federally listed species. All federal agencies must consult with USFWS if any federal project could result in a direct or incidental take of any federally listed species. Any state projects that could affect a federally listed species and that are funded in whole or in part by federal funds also requires consultation with USFWS prior to any project activity. To take, transport, possess, process, or sell any federally-listed species, an endangered species permit must be obtained from USFWS. The federal ESA also limits interstate and international commerce of all species.

USFWS also has jurisdiction under the MBTA (16 USC § 701-712, 50 CFR § 21) and the Bald and Golden Eagle Protection Act (16 USC § 668, 50 CFR § 22). The MBTA prohibits the hunting, killing, capturing, possession, sale, transportation, and exportation of birds, feathers, eggs, and nests. It also provides for the establishment of protected refuges to give birds safe habitats, and it encourages the sharing of data between nations to monitor bird conservation. Hunting seasons are regulated on specific birds, and management techniques are allowed when birds may be causing extensive problems with necessary activities, such as agriculture. The Bald and Golden Eagle Protection Act continues to protect the Bald eagle under the Bald and Golden Eagle Protection Act even though it has been delisted under the Endangered Species Act. This law, originally passed in 1940, provides for the protection of the Bald eagle and the golden eagle (as amended in 1962) by prohibiting the take, possession, sale, purchase, barter, offer to sell, purchase or barter, transport, export or import, of any bald or golden eagle, alive, or dead, including any part, nest, or egg, unless allowed by permit.

In 1972, Wisconsin passed its own endangered species law. Under WDNR, the state implemented rules and regulations and identified species to be protected. The state law incorporates the Endangered Species Preservation Act of 1966 and Endangered Species Conservation Act of 1969. Wis. Stat. § 29.604 and Wis. Admin. Code NR 27 establish, define, and guide Wisconsin's endangered and

threatened species laws. Wis. Admin. Code NR 29, establishes and defines the endangered resources information fees related to providing rare species data to the public.

DPC consulted with USFWS and WDNR Bureau of Natural Heritage Conservation (BNHC) to determine the potential for federal and/or state-listed status species to occur along the Project ROW, access routes and temporary staging areas. This consultation consisted of meetings, telephone conversations, and a formal request for review of Wisconsin's Natural Heritage Inventory (NHI) database. Endangered resources information was reviewed to develop an approach to WDNR required and recommended follow-up actions for endangered, threatened, and special concern species.

DPC reviewed other information sources on rare plants and animals, high quality natural communities, and other endangered resources documented in the area that could potentially be impacted by the Project were also reviewed, including surveys of the Q-1D corridor conducted for the CapX project. Documents referenced for this review include:

- WDNR Endangered Resources Review (ERR Log# 14-293) dated June 6, 2014.
- WDNR Endangered Resources Review (ERR Log # 13-542) letter dated November 8, 2013.
- WDNR Natural Heritage Inventory Database's element occurrence records within 1 mile of the Project area for terrestrial and wetland occurrences, and within two miles for aquatic occurrences (January 13, 2014 database download).
- Table 4a. Habitat Assessment and Rare Species Survey Results: Q-1 Route from Rare Species and Natural Communities Analysis and Survey Summary Report: CapX2020 – Hampton – Rochester – La Crosse 345 kV Transmission Project, January 2011, Docket 5-CE-136.
- Figure 2. Habitat Assessment and Species Survey Map from Rare Species and Natural Communities Analysis and Survey Summary Report: CapX2020 – Hampton – Rochester – La Crosse 345 kV Transmission Project, January 2011, Docket 5-CE-136.
- WDNR website Wisconsin's Natural Communities Available URL http://dnr.wi.gov/topic/EndangeredResources/Communities.asp Accessed September 17, 2014.
- WDNR. 1975. Aquatic Insects of Wisconsin – Generic Keys and Notes on Biology, Ecology and Distribution. Technical Bulletin No. 89.
- USFWS Northern Long-Eared Bat (Myotis septentrionalis) Fact Sheet Available URL http://www.fws.gov/midwest/endangered/mammals/nlba/nlbaFactSheet.html. Accessed September 17, 2014.
- USFWS. 2014. Northern Long-eared Bat Interim Conference and Planning Guidance – USFWS Regions 2, 3, 4, 5, & 6.

Consultation with the WDNR identified:

- Species that WDNR identified as requiring action to comply with state and/or federal endangered species law. These species and those that are protected by federal law under the Bald and Golden Eagle Protection Act or the MBTA are identified in **Table 4-3**.
- Species that WDNR recommends actions to conserve Wisconsin's rare species and high-quality natural communities are identified in **Table 4-4**.

Table 4-3: Federal and State Endangered Species, and Other Species Protected by Federal Law

| Species | Status | Life History, Habitat Requirements, and Potential to Occur |
|---|---|---|
| *MAMMALS* | | |
| Big Brown Bat<br>*(Eptesicus fuscus)* | State Threatened | Big brown bats are found in various habitats including mixed landscapes of deciduous woodlands, farmlands, edge habitat near water, and urban areas. The Big brown bat is insectivorous and feeds primarily on small beetles found among tree foliage. In the summer, females may form large colonies in bat houses, buildings, or rock crevices. During the winter months, the bats hibernate in natural and manmade structures such as caves, mines, and human dwellings. Mating occurs in the fall at cave and mine entrances. One to two pups are born in early June and mature after six weeks.<br>Big brown bat has been recorded within the vicinity of the Project area. Suitable habitat for this species exists in forested areas along the Project corridor. |
| Northern Long-eared Bat<br>(Myotis septentrionalis) | State Threatened, Proposed Federal Endangered | On October 2, 2013, USFWS proposed to list the Northern long-eared bat as endangered throughout its range. According to the USFWS, a final decision on listing the bat will be made no later than April 2, 2015.<br>In the summer, the Northern long-eared bats roost alone or in small colonies underneath the bark or in cavities or crevices of both live trees and snags (dead trees). Roosting tree species are used based on suitability to retain bark or provide cavities or crevices. Males and non-reproductive females may also roost in cooler places, such as caves and mines. The bats spend the winter hibernating in caves and mines. |
| *REPTILES* | | |
| Eastern Massasauga<br>*(Sistrurus catenatus catenatus)* | State Endangered, Federal Candidate | Eastern massasauga are strongly associated with floodplain habitats along medium to large rivers, especially near river confluences where they primarily occupy open canopy wetlands such as sedge meadows, fresh wet meadows, scrub carr and adjacent upland prairies, and old fields. These snakes usually overwinter in terrestrial crayfish burrows or rotted out root channels in open canopy wetlands, shrub-carr, and lowland hardwood forests. Massasaugas begin to emerge in the spring, usually in early to mid-April when soil temperatures average 51 degrees Farenheit (F) at a depth of 15 centimeters. Massasaugas remain active into early or mid-October, depending on air temperatures. This species breeds primarily in August and females give birth in late July through August the following year.<br>Stantec Consulting Services, Inc. conducted a desktop assessment of Eastern massasauga habitat in the Project area in 2013. In most years, much of the existing ROW through the Black River floodplain is inundated during the late winter and early spring, and throughout much of the growing season in some years. This renders the area unsuitable as eastern massasauga over-wintering habitat, and provides a low potential for summer habitat. In addition, land cover outside of the ROW through the floodplain is primarily composed of closed canopy floodplain forest, further limiting the potential of the area to provide suitable habitat. Upland areas crossed by the Project do not have suitable habitat.<br>WDNR maintains that Eastern massasauga are known to occur in the vicinity of Project and suitable habitat is present at the Project site. |

| Species | Status | Life History, Habitat Requirements, and Potential to Occur |
|---|---|---|
| Wood Turtle<br>*(Clemmys insculpta)* | State Threatened | Wood turtles prefer clean rivers and streams with moderate to fast flows, adjacent riparian wetlands, and upland deciduous forests. This species often forages in open wet meadows or in shrub-carr habitats dominated by speckled alder. The turtles overwinter in streams and rivers in deep holes or undercut banks where there is enough water flow to prevent freezing. This semi-terrestrial species tends to stay within about 300 meters of rivers and streams, but exceptions occur, especially within the driftless area of southwestern and western Wisconsin. This species becomes active in spring as soon as the ice is gone and air temperatures reach around 50 degrees F in March or April. They can remain active into mid-October, but have been seen breeding under the ice. Wood turtles can breed at any time of year, but primarily during the spring or fall. Nesting usually begins in late May in northern Wisconsin and early June in southern Wisconsin and continues through June. This species nests in sand or gravel, usually very close to the water, although it is known to nest along sand and gravel roads or in abandoned gravel pits some distance from water. Hatching occurs in 55-75 days (August) depending on air temperatures. Unllike other Wisconsin turtles, this species does not overwinter in nests.<br>Wood turtle has been recorded to occur in the vicinity of the Project within the Black River floodplain and field observations conducted for the CapX project indicate that suitable overwintering, nesting, and summer foraging habitat for this species occurs along portions of the Q-1D Route through the Black River floodplain. |
| *BIRDS* | | |
| Bald Eagle<br>*(Haliaeetus leucocephalus)* | State Special Concern; MBTA, and Federal Bald and Golden Eagle Protection Act | Bald eagles prefer large trees in isolated areas close to large areas of surface water, large complexes of deciduous forest, coniferous forest, wetland, and shrub communities. Large lakes and rivers with nearby tall pine trees are preferred for nesting.<br>Bald eagles are known to nest in the vicinity of the Project; however the record is from 2001. Another record exists that dates back to 1992. An aerial survey for eagle nests was conducted on January 15, 2014. No nests were observed. DPC will re-survey the area in April 2015 prior to construction. If there are new nests, protection under Bald and Golden Eagle Protection Act requires USFWS consultation. |
| Loggerhead Shrike<br>(*Lanius ludovicianus)* | State Endangered and MBTA | Loggerhead shrikes prefer open country with scattered trees and shrubs (usually hawthorne and red cedar), and edge habitat such as open areas in forests.<br>Loggerhead shrike has been recorded to occur in the vicinity of the Project. Suitable habitat is present along in an upland area east of STH 35. |
| Great Egret<br>*(Casmerodius albus)* | Four State Threatened and MBTA | Great egrets prefer freshwater wetlands, rivers and streams with waterside deciduous forest communities and willow thickets.<br>Great egret has been recorded to occur in La Crosse County. Suitable habitat for this species was not identified in forested areas along portions of the Project through the Black River floodplain per WDNR agency consultation with the Regional Ecologist and Office of Energy Conservation Biologist on May 9, 2009. Breeding bird point count surveys were completed for the CapX project at up to 15 forested point count locations in this area on June 25, 2009 and May 25 and June 9, 2010. No individuals were detected during surveys. |
| Bell's Vireo<br>*(Vireo bellii)* | | Bell's vireos prefer dense shrubby areas within an open prairie landscape.<br>Bell's vireo has been recorded to occur in the vicinity of the Project. Marginally suitable habitat for this species exists along portions of the Project at the west end of the Black River floodplain per WDNR agency consultation with the Regional Ecologist and Office of Energy Conservation Biologist on May 9, 2009. Breeding bird point count surveys were completed for the CapX project at 2 point count locations in this area on May 27 and June 21, 2010. No individuals were detected during surveys. |

| Species | Status | Life History, Habitat Requirements, and Potential to Occur |
|---|---|---|
| Cerulean Warbler<br>*(Dendroica cerulean)* | | Cerulean warblers prefer lowland deciduous forests dominated by mature stands of American elm, cottonwood, and green ash and large upland blocks of mature dry-mesic to mesic forests.<br>Cerulean warbler has been recorded to occur in the vicinity of the Project. The record includes observations of the species from 1994 and 1983. Suitable habitat for this species exists in forested areas along portions of the Project through the Black River floodplain per WDNR agency consultation with the Regional Ecologist and Office of Energy Conservation Biologist on May 9, 2009. Breeding bird point count surveys were completed for the CapX project at up to 15 forested point count locations in this area on June 25, 2009 and May 25 and June 9, 2010. No individuals were detected during surveys. |
| Red Shouldered Hawk<br>*(Buteo lineatus)* | | Red shouldered hawks prefer larger stands of medium-aged to mature lowland deciduous forests, dry-mesic and mesic forest with small wetland pockets.<br>Red shouldered hawk has been recorded to occur in the vicinity of the Project, which was confirmed by CapX project surveys. Suitable habitat for this species exists in forested areas along portions of the Project through the Black River floodplain per WDNR agency consultation with the Regional Ecologist and Office of Energy Conservation Biologist on May 9, 2009. |
| Black-crowned Night Heron<br>(*Nycticorax nycticorax)* | Three State Special Concern and MBTA | Black-crowned night herons prefer freshwater wetlands dominated by bulrush and cattail with small groves of alder, willow, or other brush<br>Black-crowned night heron has been recorded to occur in the vicinity of the Project. These birds, their nests, and eggs are protected under the MBTA. Potentially suitable habitat for this species occurs in shrub-carr and floodplain forest areas through the Black River floodplain. |
| Prothonotary Warbler<br>(*Protonotaria citrea)* | | Prothonotary warblers breed in floodplain hardwoods in the southern $^{2}/_{3}$ of the state, typically in truncated snags among flooded timber.<br>Prothonotary warbler has been recorded to occur in the vicinity of the Project. These birds, their nests, and eggs are protected under the MBTA. Potentially suitable habitat for this species occurs in shrub-carr and floodplain forest areas through the Black River floodplain. Breeding bird point count surveys were completed for the CapX project at up to 15 forested point count locations through the Black River floodplain on June 25, 2009 and May 25 and June 9, 2010 and at two shrub-carr point count locations in on May 27 and June 21, 2010. No individuals were detected during surveys |
| Western Meadowlark<br>*(Sturnella neglecta)* | | Western meadowlarks are typically found in open landscapes such as pastures and hay fields, grasslands, prairies, and meadows where there is a mix of short to medium-high grasses. From April 20 to August 15, females construct nests by weaving grass and shrub stems in a 7-8 inch wide depression in the soil. Western meadowlarks have suffered from significant population decline over the past three decades, likely due to loss of habitat caused by fragmentation, land use conversion, and succession from grasslands to brush or forests.<br>Western meadowlark has been recorded to occur in the vicinity of the Project. These birds, their nests, and eggs are protected under the MBTA. Suitable habitat for this species does not occur along the Project corridor. |
| FISH | | |
| Black Redhorse<br>*(Moxostoma duquesnei)* | Five State Endangered | Black redhorse are found in clear water over gravel, bedrock, and sand where siltation is at a minimum. Spawning occurs in from late May through early June.<br>In Wisconsin, the only known extant population is in the Wisconsin and Eau Claire Rivers near Wausau. |
| Goldeye<br>*(Hiodon alosoides)* | | Goldeyes prefer the quiet, turbid waters of large rivers and their connecting lakes ponds and marshes. Spawning occurs from May through early July.<br>This species has been recorded in Trempealeau and La Crosse Counties. |
| Pallid Shiner<br>*(Notropis amnis)* | | Pallid shiners prefer the quiet to sluggish flows of large lowland rivers and their sloughs and impoundments, over substrates of sand or mud. Spawning occurs from late March into April at around 10 degrees Celcius (C) with rising water levels.<br>This species has been recorded in Trempealeau and La Crosse Counties. |

| Species | Status | Life History, Habitat Requirements, and Potential to Occur |
|---|---|---|
| Starhead Topminnow (*Fundulus dispar)* | | Starhead topminnows prefer quiet, clear-slightly turbid, shallow backwaters with an abundance of submerged aquatic plants. Spawning occurs from June through July.<br>This species has been recorded in La Crosse County. |
| Crystal Darter *(Ammocrypta asprella)* | | Crystal darters prefer clear to slightly turbid waters over sand substrates. The darter is most often found in moderate to strong currents in large rivers. They occupy sandy riffles, bars, and pools. Spawning occurs from mid May through mid-June.<br>This species have been recorded to occur in the vicinity of the Project. |
| Black Buffalo *(Ictiobus niger)* | Five State Threatened | Back buffalo prefer strong currents of large rivers, sloughs, backwaters and impoundments. Spawning occurs from April through mid-June.<br>This species has been recorded in Trempealeau and La Crosse Counties. |
| Blue Sucker *(Cycleptus elongates)* | | Blue suckers prefer large, deep rivers with moderate to strong currents over substrates of gravel or cobble. Spawning occurs from late April through early May.<br>This species has been recorded in Trempealeau and La Crosse Counties. |
| Paddlefish *(Cycleptus elongates)* | | Paddlefish prefer large rivers and their lakes. They spawn over mud or gravel in early spring during high flows.<br>This species has been recorded in Trempealeau and La Crosse Counties. |
| River Redhorse (*Moxostoma duquesnei)* | | River Redhorse prefer moderate to swift currents in large rivers systems, including impoundments and pools, especially those with clean gravel riverbottoms. Spawning occurs from mid May through June when water temperatures reach 68 to 74 degrees F.<br>This species has been recorded in Trempealeau and La Crosse Counties. |
| Shoal Chub *(Macrhybopsis [Hybopsis] aestivalis)* | | Shoal Chubs prefer fast, moderate depth water over broad sand flats. Spawning occurs from May through June, sporadic in August.<br>This species has been recorded in Trempealeau and La Crosse Counties. |
| MUSSELS | | |
| Buckhorn *(Tritogonia verrucosa)* | Three State Threatened | Buckhorn mussels are found in medium to large-sized rivers, with a moderate to swift current, and clean, firm substrates. Known host fish are yellow and brown bullheads and flathead catfish.<br>This species has been recorded in Trempealeau and La Crosse Counties. |
| Fawnsfoot *(Truncilla donaciformis)* | | Fawnsfoot mussels prefer large rivers or the lower reaches of medium-sized streams. They are most commonly found in sand or gravel. Once widespread and abundant, this species is rarely found in recent years. Known fish hosts are freshwater drum and sauger.<br>This species has been recorded in Trempealeau and La Crosse Counties. |
| Monkeyface (*Quadrula metanevra*) | | Monkeyface mussels are found in the western part of the state in swift, clean water in larger rivers in gravel or mixed sand and gravel. Three common host fishes have been reported: bluegill, green sunfish, and sauger.<br>This species has been recorded in Trempealeau and La Crosse Counties. |
| Butterfly *(Ellipsaria lineolata)* | Four State Endangered Including One Federal Endangered | Butterfly mussels are found in large rivers in the western and southern parts of the state. They prefer a stable substrate containing rock, gravel and sand in swift current. The known host species include three common fish; drum, green sunfish, and sauger.<br>This species has been recorded in Trempealeau and La Crosse Counties. |

| Species | Status | Life History, Habitat Requirements, and Potential to Occur |
|---|---|---|
| Ebony Shell<br>*(Fusconaia ebena)* | | Ebony shells are found in the western and southern part of Wisconsin in large rivers at least 6 feet deep with a swift current and a gravel, sand, or mud bottom. Only very old relic individuals have been found since 1920. Although five fish have been reported as hosts, it is believed that the Skipjack herring was the primary host.<br>This species has been recorded in Trempealeau and La Crosse Counties. |
| Elephant Ear<br>*(Elliptio crassidens)* | | Elephant ear mussels are found in large rivers in the western part of the state. Only very old relic individuals have been found since 1920. The only known host is the Skipjack herring, which only very rarely occurs in the upper Mississippi River and its tributaries.<br>This species has been recorded in Trempealeau County. |
| Higgins' Eye<br>*(Lampsilis higginsi)* | | Higgin's eyes are found in large rivers in the western part of the state. They are found in flowing waters with various stable substrate types but seems to prefer stable sand. Several common fish species have been recorded as its host, including drum, large and small mouth bass, walleye, and sauger. Higgins' eye is also listed as federally endangered and may require USFWS consultation should suitable habitat be identified.<br>This species has been recorded in Trempealeau and La Crosse Counties. |
| INSECTS | | |
| Pecatonica River Mayfly<br>(*Acanthametropus pecatonica*) | Two State Endangered | These mayflies are known only from nymphal specimens. There is no information known about the adult mayfly and repeated attempts to rear Wisconsin nymphs to adulthood have been unsuccessful. The species habitat requirements include sand-bottom rivers with little water pollution. Specimens found in Wisconsin have been collected from large, sand-bottomed rivers with wide channels, in water a meter or less deep. Records from Illinois are from moderately sized, fast, shallow streams with sand and rock bottoms.<br>Pecatonica river mayfly has been recorded to occur in the vicinity of the Project (Trempealeau and La Crosse Counties). An element occurrence record intersected twice by the Project centerline. |
| Regal Fritillary Butterfly<br>(*Speyeria idalia*) | | Regal fritillary are found in large grassland areas with tallgrass prairie remnants or lightly grazed pasture lands containing prairie vegetation. Larval food plants are violets, primarily Prairie violet (*Viola pedatifida*), Birdsfoot violet (*V. pedata*), and Arrowleaf violet (*V.sagittata*). Adults are present between late June and early September with peak flight usually the first part of July.<br>Regal fritillary has been recorded to occur in the vicinity of the Project (Trempealeau County). No suitable habitat for this species exists along the Project per WDNR agency consultation with the Regional Ecologist and Office of Energy Conservation Biologist on May 9, 2009. |

Table 4-4: State Rare Species and High Quality Natural Communities

| Species | Status | Life History, Habitat Requirements, and Potential To Occur |
|---|---|---|
| *REPTILES* | | |
| Gophersnake (*Pituophis catenifer*) | Six State Special Concern | Gophersnakes prefer sand prairies, bluff prairies, oak savannas, and pine and oak barrens. Overwintering can occur in sand prairies, where they often den singly by using mammal burrows or other structures to get below the frost line or they may den communally using deep rock fissures on southerly exposed bluff prairies. This species is active from late March through early October, breeds mid-April through May and lays its eggs in sand cavities they create or under large flat rocks in late June to early July. The eggs hatch in late August to early September.<br>Gophersnake has been recorded to occur within the Project vicinity. Suitable upland habitat may exist along a 4.9-mile portion of the Project through uplands. |
| Gray Ratsnake *(Pantherophis spiloides)* | | Gray ratsnakes refer savanna and oak forest habitats in southwestern Wisconsin and are known to communally overwinter with other bluff prairie species. These snakes spend a lot of time in trees where they forage on cavity-nesting birds and small rodents. They will often move into barns and other outbuildings in June during the sparrow and swallow nesting season. Gray ratsnakes are active from April through early October, breed from mid-May to early June and lay their eggs in mid- to late July, the latest egg-laying snake in Wisconsin. The young hatch in September, shortly before overwintering.<br>Gray ratsnake has been recorded to occur within the Project vicinity. Suitable upland habitat may exist along a 4.9-mile portion of the Project through uplands. |
| Timber Rattlesnake (*Crotalus horridus*) | | Adult male and non-gravid adult female Timber rattlesnakes prefer deciduous forests and woodland edges in an agricultural setting during the summer. Gravid females and juvenile timbers prefer to remain in open-canopy bluff prairies during the summer because of higher preferred body temperatures, but avoid overheating by taking advantage of various structures to provide shade, such as brush, trees or rock shelves. Snakes emerge from hibernation as early as mid-April but may continue to emerge well into June. They remain active until as late as mid-October, with the females that give birth in a given year remaining active longer than other individuals. Snakes primarily breed in August and females give birth the following mid-August or mid-September. Individual females in Wisconsin usually produce young only once every three to four years.<br>Timber rattlesnake has been recorded to occur within the Project vicinity. Suitable upland habitat may exist along a 4.9-mile portion of the Project through uplands. |
| Blanding's Turtle (*Emydoidea blandingii*) | | Blanding's turtles utilize a wide variety of aquatic habitats including deep and shallow marshes, shallow bays of lakes and impoundments where areas of dense emergent and submergent vegetation exists, sluggish streams, oxbows and other backwaters of rivers, drainage ditches (usually where wetlands have been drained), and sedge meadows and wet meadows adjacent to these habitats. This species is semi-terrestrial and individuals may spend a good deal of time on land. They often move between a variety of wetland types during the active season, which can extend from early March to mid-October. They overwinter in standing water that is typically more than 3 feet deep and with a deep organic substrate, but will also use both warm and cold-water streams and rivers where they can avoid freezing. Blanding's turtles generally breed in spring, late summer or fall. Nesting occurs from about mid-May through early July depending on spring temperatures. They strongly prefer to nest in sandy soils and may travel up to 900 feet from a wetland or waterbody to find suitable soils. This species appears to display nest site fidelity, returning to its natal site and then nesting in a similar location annually. Hatching occurs from early August through mid-October. This species takes 17 to 20 years or more to reach maturity.<br>Blanding's turtle has been recorded to occur within one mile of the Project centerline. Suitable habitat may exist in the Black River floodplain and immediately adjacent uplands. |

| Species | Status | Life History, Habitat Requirements, and Potential To Occur |
|---|---|---|
| False Map Turtle (*Graptemys pseudogeographica)* | | False map turtles prefer large rivers with sand, gravel, and cobble substrates. They overwinter in deeper water behind structures that create an immediate downstream eddy where they singly or communally sit up on top of a sand substrate. Turtles are active from April through mid-October, breeding in spring or fall and nesting in late May through early July. This species may produce double clutches. Eggs hatch from early August to early September but can overwinter in nests.<br>False map turtle has been recorded within two miles of the Project centerline, but suitable habitat is greater than 300 feet from the Project centerline. |
| Smooth Softshell *(Apalone mutica)* | | Smooth softshells are exclusively a large river species, and have a preference for clean water and sandy substrates. The Chippewa, Lower Black, Mississippi, and the Lower Wisconsin rivers encompass its known range in Wisconsin. Turtles are active from April through September and overwinter by burrowing in sandy substrate in flowing water where freezing can be avoided. This species breeds in spring or fall and nests from early June to early July. Nesting often occurs close to the riverbank but individuals will move up to 100 meters from water on large exposed sandy areas to lay eggs. Smooth softshells nest in sand around four or more feet above normal river levels to achieve suitable nest temperatures and avoid inundation during periods of high water. This species lays a single clutch annually. Eggs hatch in 60-90 days depending on summer temperatures.<br>Smooth softshell has been recorded within two miles of the Project centerline, but suitable habitat is greater than 300 feet from the Project centerline. |
| *FISH* | | |
| American Eel *(Anguilla rostrata)* | Eight State Special Concern Including One Federal Special Concern Species | American eels prefer large streams, rivers and lakes with muddy bottoms and still waters. To reach these conditions the eel has to traverse a wide variety of less suitable habitat including swift-flowing waters with a wide variety of substrates.<br>American eel has been recorded to occur in the vicinity of the Project. |
| Lake Sturgeon *(Acipenser fulvescens)* | | Lake sturgeon live in the shoal waters of the Great Lakes. Inland it shows a preference for the deepest mid-river areas and pools. Spawning occurs from late April through early June in cold, shallow fast water.<br>Lake sturgeon has been recorded to occur in the vicinity of the Project. |
| Mud Darter *(Etheostoma asprigene)* | | Mud darters prefer moderate currents in sloughs, overflow areas, riffles, and pools of large, low-gradient rivers over bottoms of mud, sand, gravel, clay, or bedrock. Spawning occurs from mid-May through June.<br>Mud darter has been recorded to occur in the vicinity of the Project. |
| Pirate Perch *(Aphredoderus sayanus)* | | Pirate perch prefer the quiet waters of oxbows, overflow ponds, sloughs, marshes, ditches, and the pools of medium to large rivers. Bodies of water often traversed have sand covered or soft muck bottoms with organic debris. Spawning occurs during May.<br>Pirate perch has been recorded to occur in the vicinity of the Project. |
| Pugnose Minnow (*Opsopoeodus [Notropi] emiliae)* | | Pugnose minnows prefer quiet, weedy lakes, sloughs, and low-gradient rivers over bottoms of mud, sand, rubble, silt, or clay. Spawning occurs from mid-June through mid-July.<br>Pugnose minnow has been recorded to occur in the vicinity of the Project. |
| Silver Chub *(Macrhybopsis [Hybopsi] storeriana)* | | Silver chubs prefer large, low gradient rivers. This species is found in moderate to strong currents, riffles, pools and sloughs with or without vegetation over substrates of sand, mud, slay or gravel. Spawning occurs in June and July.<br>Silver chub has been recorded to occur in the vicinity of the Project. |
| Weed Shiner *(Notropis texanus)* | | Weed shiners prefer sloughs, lakes, and still to sluggish sections of medium streams to large rivers, over substrates of sand, mud, clay, silt, detritus, gravel or boulders. Spawning occurs from late June through July at approximately 18 degrees C.<br>Weed shiner has been recorded to occur in the vicinity of the Project. |

| Species | Status | Life History, Habitat Requirements, and Potential To Occur |
|---|---|---|
| Western Sand Darter<br>*(Etheostoma clarum)* | | Western sand darters prefer clear to slightly turbid waters with moderate to strong currents. They are often found in medium to large rivers over extensive sand flats. Spawning occurs from late June through July.<br>Western sand darter has been recorded to occur in the vicinity of the Project. |
| *AQUATIC INVERTEBRATES* | | |
| A Brush-legged Mayfly<br>*(Homoeoneuria ammophila)* | Four State Special Concern | Mayflies (family Ephemeroptera) inhabit a wide variety of aquatic habitats, ranging from streams and flowing waters to lakes, ponds, marshes and swamps, depending upon species.<br>These three aquatic invertebrate have been recorded to occur in Trempealeau and La Crosse Counties. |
| A Cleft-footed Minnow Mayfly<br>(*Metretopus borealis)* | | |
| Wisconsin Small Square-gilled Mayfly<br>*(Cercobrachys lilliei)* | | |
| Sioux (Sand) Snaketail<br>(*Ophiogomphus smithi)* | | Sioux (Sand) snaketail Dragonflies have been found in small to medium clean, fast-flowing sandy warm streams. The flight period extends from late May through mid-June.<br>Sioux (Sand) snaketail has been recorded to occur in Trempealeau and La Crosse Counties. |
| *MUSSELS* | | |
| Elktoe<br>*(Alasmidonta marginata)* | Two State Special Concern | Elktoe mussels are found in various-sized streams with flowing water, sand, gravel or rock substrates that are stable. The known host fishes include widespread species including redhorse, sucker species, and Rock bass.<br>Elktoe has been recorded to occur in the vicinity of the Project. |
| Washboard<br>*(Megalonaias nervosa)* | | Washboard mussels are found in the western part of the state in large rivers with moderate current. Although it has been found in various substrate types, it seems to be most abundant in stable mud. A number of common fish species have been recorded as its host (eel, catfish, centrarchids, bowfin and bass).<br>This species has been recorded to occur in the vicinity of the Project. |
| *INSECTS* | | |
| Columbine Dusky Wing<br>(*Erynnis lucilius*) | Two State Special Concern | Columbine dusky wing butterflies are found in woodland habitat with wild columbine (*Aquilegia canadensis*); most often in rocky ravines, gullies, or woodland edge. Also found in prairie habitat edged with oak woods. This species is bivoltine, their flight periods are the first three weeks of May and mid July through early August. Larvae live in leaf nests on the host plant and mature larvae overwinter in the litter at the base of the plant.<br>Columbine dusky wing has been recorded to occur in the vicinity of the Project. |
| Gorgone Checkerspot<br>(*Chlosyne gorgone*) | | Gorgone checkerspot butterflies are found in barrens, dry fields and prairies, sandy ridges, glades in woodlands, and open pine forests. This species has two flight periods, one from late May through June and again in early August to early September.<br>Gorgone checkerspot has been recorded to occur in the vicinity of the Project. |

| Species | Status | Life History, Habitat Requirements, and Potential To Occur |
|---|---|---|
| *PLANTS* | | |
| *Utility projects are exempt from protecting listed plants on private and public lands. However, these plant species are presented with information about known occurrences. Impacts to rare plants will be avoided or minimized.* | | |
| Hill's Thistle (*Cirsium hillii*) | | Hill's Thistles are found in dry prairies and oak barrens; in neighboring states it is found in pine barrens. Blooming occurs mid June through early August; fruiting occurs late July through late August. The optimal identification period for this species is mid June through late August. |
| Prairie Milkweed (*Asclepias sullivantii*) | | Prairie milkweeds are found in moist prairies. Blooming occurs early June through early July; fruiting occurs throughout July. Optimal identification period for this species is early June through early July.<br>Suitable habitat for Prairie milkweed exists along portions of the Project corridor through the Black River floodplain per WDNR agency consultation with the Regional Ecologist and Office of Energy Conservation Biologist on May 9, 2009 for the CapX2020 HRL Project. |
| Largewater-starwort (*Callitriche heterophylla*) | | Large water-starworts are found on muddy shores, pools in swift streams, and wet sand along creeks. Blooming occurs late July through late August; fruiting occurs early August through late September. Optimal identification period for this species is early August through early September.<br>Large water-starwort hs been recorded to occur La Crosse County and suitable habitat may exist in the Black River floodplain. |
| Clustered Poppy-marlow (*Callirhoe triangulate*) | Seven State Special Concern | Clustered poppy-mallow are found in sand terrace prairies. Blooming occurs early July through late September; fruiting occurs early August through late September. Optimal identification period for this species is early July through late September.<br>Clustered poppy-mallow has been recorded to occur in Trempealeau and La Crosse Counties. |
| Dragon Wormwood (*Artemisia dracunculus*) | | Dragon wormwoods are found in dry bluff prairies and on roadsides. Blooming occurs throughout July; fruiting occurs throughout August. The optimal identification period for this species is early July through late August.<br>Dragon wormwood has been recorded to occur in Trempealeau and La Crosse Counties. |
| Silky Prairie-clover (*Dalea villosa var. villosa*) | | Silky prairie-clover are found on dry sandy river terraces and hillside prairies (often being invaded by red cedar) near the St. Croix and Mississippi Rivers. Blooming occurs late July through early September; fruiting occurs throughout September. Optimal identification period for this species is early August through late September.<br>Silky prairie-clover has been recorded to occur in Trempealeau and La Crosse Counties. |
| Snowy Champion (*Silene nivea*) | | Snowy champion are found on streambanks and stream-side meadows, often in reed canary grass. It also occurs along deciduous forest margins, near streams and rivers. Blooming occurs late June through late July; fruiting occurs early July through late August. Optimal identification period for this species is late June through late July.<br>Snowy champion have been recorded to occur in Trempealeau and La Crosse Counties. Suitable habitat for Snowy Campion exists along portions of the Project through the Black River floodplain per WDNR agency consultation with the Regional Ecologist and Office of Energy Conservation Biologist on May 9, 2009 for the CapX2020 HRL Project. Three moderate size populations of Snowy Campion of approximately 100 individuals each were found on June 25, 2009 along portions of the Project through the Black River floodplain. |
| Vasey's Pondweed (*Potamogeton vaseyi*) | | Vasey's pondweed are found in bays of large soft-water lakes as well as rivers and ponds. Blooming occurs throughout July; fruiting occurs early August through early September. Optimal identification period for this species is throughout August.<br>Vasey's pondweed have been recorded to occur in La Crosse Counties. |

| Species | Status | Life History, Habitat Requirements, and Potential To Occur |
|---|---|---|
| Wafer Ash (*Ptelea trifoliate*) | | Water ash are found on dry, dolomite ledges in oak forests, in dry prairies, along railroad grades, and along rivers. Blooming occurs late May through early June; fruiting occurs throughout July. Optimal identification period for this species is late May through late September.<br>Water Ash has been recorded to occur in Trempealeau County. |
| White Camas (*Zigadenus elegans var. glaucus*) | | White camas are found in a variety of habitats, including oak openings, wet-mesic calcareous prairies, limestone-capped sandstone bluffs, cliffs, outcrops, and stabilized dunes along Lake Michigan. Blooming occurs late May through late July; fruiting occurs mid-August through early September. Optimal identification period for this species is late May through late July.<br>White camas has been recorded to occur in Trempealeau and La Crosse Counties. |
| *NATURAL COMMUNITIES*<br>WDNR identified the natural communities listed below as having the potential to be present in vicinity of the Project. | | |
| Bird Rookery | | A bird rookery is an area where more than one pair of birds nest in a group. The number of nests can vary from just a few to hundreds and can include one to many different species of birds. Sites can include rare and non-rare species. The breeding time will vary based on the species present at the site. Rookeries are typically located in inaccessible locations including forests, shrub communities, wetlands adjacent to water (lakes, rivers or streams), and islands. These sites are important as large numbers of breeding individuals can be found in a single place. |
| Dry Prairie | | This grassland community occurs on dry, often loess-derived soils, usually on steep south or west facing slopes or at the summits of river bluffs with sandstone or dolomite near the surface. Short to medium-sized prairie grasses: little bluestem (*Schizachyrium scoparium*), Side-oats grama (*Bouteloua curtipendula*), Hairy grama (*B. hirsuta*), and Prairie dropseed (*Sporobolus heterolepis*), are the dominants in this community. Common shrubs and forbs include Lead plant (*Amorpha canescens*), Silky aster (*Aster sericeus*), Flowering spurge (*Euphorbia corollata*), Purple prairie-clover (*Petalostemum purpureum*), Cylindrical blazing-star (*Liatris cylindracea*), and Gray goldenrod (*Solidago nemoralis*). Stands on gravelly knolls in the Kettle Moraine region of southeastern Wisconsin and along the St. Croix River on the Minnesota - Wisconsin border may warrant recognition, at least at the subtype level. |
| Emergent Marsh | | These open, marsh, lake, riverine and estuarine communities with permanent standing water are dominated by robust emergent macrophytes, in pure stands of single species or in various mixtures. Dominants include cattails (*Typha spp*.), bulrushes (particularly *Scirpus acutus, S. fluviatilis*, and *S. validus*), bur-reeds (*Sparganium spp*.), Giant reed (*Phragmites australis*), Pickerel-weed (*Pontederia cordata*), Water-plantains (*Alisma spp*.), arrowheads (*Sagittaria spp*.), and the larger species of spikerush such as (*Eleocharis smallii*). |
| Floodplain Forest | | This is a lowland hardwood forest community that occurs along large rivers, usually stream order three or higher, that flood periodically. Best development occurs along large rivers in southern Wisconsin, but this community is also found in the north. Canopy dominants may include Silver maple (*Acer saccharinum*), River birch (*Betula nigra*), Green ash (*Fraxinus pennsylvanica*), Hackberry (*Celtis occidentalis*), Swamp white oak (*Quercus bicolor*), and Cottonwood (*Populus deltoides*). Northern stands are often species poor, but Balsam-poplar (*Populus balsamifera*), Bur oak (*Quercus macrocarpa*), and Box elder (*Acer negundo*) may replace some of the missing "southern" trees. Buttonbush (*Cephalanthus occidentalis*) is a locally dominant shrub and may form dense thickets on the margins of oxbow lakes, sloughs and ponds within the forest. Nettles (*Laportea canadensis* and *Urtica dioica*), sedges, Ostrich fern (*Matteuccia struthiopteris*) and Gray-headed coneflower (*Rudbeckia laciniata*) are important understory herbs, and lianas such as Virginia creepers (*Parthenocissus spp*.), grapes (*Vitis spp*.), Canada moonseed (*Menispermum canadense*), and Poison-ivy (*Toxicodendron radicans*) are often common. Among the striking and characteristic herbs of this community are Cardinal flower (*Lobelia cardinalis*) and Green dragon (*Arisaema dracontium*). |

| Species | Status | Life History, Habitat Requirements, and Potential To Occur |
|---|---|---|
| Lake – Shallow, hard, drainage | | These lakes have both an inlet and outlet where the main water source is stream drainage. Most major rivers in Wisconsin have drainage lakes along their course. |
| Oak Barrens | | Black oak (*Quercus velutina*) is the dominant tree in this fire-adapted savanna community of xeric sites, but other oaks may also be present. Common understory species are Lead plant (*Amorpha canescens*), Black-eyed susan (*Rudbeckia hirta*), Round-headed bush clover (*Lespedeza capitata*), Goat's rue (*Tephrosia virginiana*), June grass (*Koeleria cristata*), Little bluestem (*Schizachyrium scoparium*), Flowering spurge (*Euphorbia corollata*), Frostweed (*Helianthemum canadense*), False Solomon's-seals (*Smilacina racemosa* and *S. stellata*), Spiderwort (*Tradescantia ohioensis*), and Lupine (*Lupinus perennis*). Distribution of this community is mostly in southwestern, central and west central Wisconsin.<br>Consultation with the WDNR identified this natural community as having the potential to be present in vicinity of the Project. |
| Riverine Lake/ Pond | | The Lower Black River watershed is located in northwest La Crosse and southern Trempealeau Counties and contains land that drains approximately 190 square miles. The watershed contains many acres of wetlands adjacent to the Black and Mississippi Rivers, in addition to the steeper topography found throughout the rest of the watershed. |
| Sand Prairie | | This dry grassland community is composed of Little bluestem (*Schizachyrium scoparium*), Junegrass (*Koeleria macrantha*), Panic grass (*Panicum spp*.), and Crab grass (*Digitaria cognata*). Common herbaceous species are Western ragweed (*Ambrosia psilostachya*), sedges (*Carex muhlenbergii* and *C. pensylvanica*), Poverty-oat grass (*Danthonia spicata*), Flowering spurge (*Euphorbia corollata*), Frostweed (*Helianthemum canadense*), Common bush-clover (*Lespedeza capitata*), False-heather (*Hudsonia tomentosa*), Long-bearded hawkweed (*Hieracium longipilum*), Stiff goldenrod (Solidago rigida), Horsebalm (Monarda punctata), and Spiderwort (*Tradescantia ohioensis*).<br>At least some stands are Barrens remnants now lacking appreciable woody cover, though extensive stands may have occurred historically on broad level terraces along the Mississippi, Wisconsin, Black, and Chippewa Rivers. |
| Shrub-carr | | This wetland community is dominated by tall shrubs such as Red-osier dogwood (*Cornus stolonifera*), Meadow-sweet (*Spiraea alba*), and various willows (S*alix discolor, S. bebbiana,* and *S. gracilis*). Canada bluejoint grass (*Calamagrostis canadensis*) is often very common. Associates are similar to those found in alder thickets and tussock-type sedge meadows. This type is common and widespread in southern Wisconsin but also occurs in the north. |
| Southern Dry Mesic Forest | | Red oak (*Quercus rubra*) is a common dominant tree of this upland forest community type. White oak (*Q. alba*), Basswood (*Tilia americana*), Sugar and Red maples (*Acer saccharum* and *A. rubrum*), and White ash (*Fraxinus americana*) are also important. The herbaceous understory flora is diverse and includes many species listed under Southern Dry Forest plus Jack-in-the-pulpit (*Arisaema triphyllum*), Enchanter's-nightshade (*Circaea lutetiana*), Large-flowered bellwort (*Uvularia grandiflora*), Interrupted fern (*Osmunda claytoniana*), Lady Fern (*Athyrium Filix-femina*), Tick-trefoils (*Desmodium glutinosum* and *D. nudiflorum*), and Hog peanut (*Amphicarpa bracteata*) . To the detriment of the oaks, mesophytic tree species are becoming increasingly important under current management practices and fire suppression policies. |
| Southern Sedge Meadow | | Widespread in southern Wisconsin, this open wetland community is most typically dominated by Tussock sedge (*Carex stricta*) and Canada bluejoint grass (*Calamagrostis canadensis*). Common associates are Water-horehound (*Lycopus uniflorus*), Panicled aster (*Aster simplex*), blue flag (*Iris virginica*), Canada goldenrod (*Solidago canadensis*), Spotted joe-pye-weed (*Eupatorium maculatum*), Broad-leaved cat-tail (*Typha latifolia*), and Swamp milkweed (*Asclepias incarnata*). Reed canary grass (*Phalaris arundinacea*) may be dominant in grazed and/or ditched stands. Ditched stands can succeed quickly to shrub-carr. |
| Van Loon State Wildlife Area | | State Wildlife Areas are managed to sustain the wildlife and natural communities found on the properities and provide a full range of traditional outdoor recreational uses. State Wildlife Areas are protected by law (Wisc. Stat. § 23.09 and 23.11). |

## 4.5 Coastal Areas

The Project is not located within any coastal zones or areas subject to the Wisconsin Coastal Management Program.

## 4.6 Cultural Resources

Under federal law, Section 106 of the National Historic Preservation Act (NHPA) requires federal agencies to consider the effects of their actions on historic properties and provide the Advisory Council on Historic Preservation an opportunity to comment. Historic properties are defined as cultural resources determined eligible for inclusion on the National Register of Historic Places (NRHP) (based upon criteria found at 36 CFR 60). To be considered eligible to the NRHP, a cultural resource must satisfy at least one of four significance criteria as defined by 36 CFR 60.4 (National Park Service 1991). The resource must contain one of the following qualities that:

- Are associated with events significant to broad patterns of history (36 CFR 60.4a).
- Are associated with the lives of persons significant in the past (36 CFR 60.4b).
- Embody the distinctive characteristics of a type, period, or method of construction; represent the work of master; possess highly artistic values; or represent a distinguishable entity whose components lack individual distinction (36 CFR 60.4c).
- Have yielded or may yield information important to history or prehistory (36 CFR 60.4d).

The following describes the categories of cultural resources to be evaluated under the National Historic Preservation Act:

- Archaeological properties or resources are places where the remnants of past cultures survive in a physical context that allows for the interpretation of these remains.
- Historic properties or resources are historic buildings or structures that are 50 years or older and may be eligible for listing in the NRHP.
- Paleontological resources are the fossil remains of life that existed in prehistoric or geologic times. These can include plants, animals, and other organisms.

Mississippi Valley Archaeological Center (MVAC) was retained by DPC to conduct a Phase I Archaeological Survey to identify resources eligible for listing on the NRHP within the Project area, including the transmission line ROW and approximately 70-acres where temporary construction staging areas could potentially be located. MVAC obtained a Wisconsin Public Land Field Archaeology Permit from the Office of the State Archaeologist, a Special Use Permit from USFWS to work in the Refuge, and a permit to work within the boundary of an uncatalogued burial site from the Wisconsin SHPO. The survey identified two previously recorded sites and one new site within the Q-1D ROW:

- Site 47TR52-Tank Creek is a previously recorded prehistoric campsite/village. The site is currently bisected by the existing transmission line and is located in the plowed fields. No evidence of 47TR52 could be located despite survey in the site area more than once.
- Site 47LC64/BLC86-Fortek Mound Group is previously recorded prehistoric mound group. Although field notes from a 1994 MVAC field visit to the site show that there were four possible

conical mounds under the existing transmission line, the survey did not identify any surface evidence of the mounds under the line. The location of the single pole that would be installed within the site was staked at the time of the survey, so a shovel test was performed. No evidence of human remains or mound fill was discovered by shovel testing, essentially mitigating the pole location. Some likely mounds were located in the area, but they are located outside of the Project area ad would not be impacted. A qualified archaeologist will be present in the area during construction to assure no unplanned inadvertent ground disturbance takes place.

- Site 47TR424-Woyczik Isolated Find is a newly recorded isolated find. No additional artifacts were associated with 47TR424 were identified and the site was note considered eligible for listing on the NRHP.

One additional site 47TR53-Lone Antler is a previously located campsite/village mapped close to, but not within Temporary Staging Area 1. No archaeological material was recovered during the pedestrian survey of the staging area.

DPC provided the survey and a Request for Wisconsin SHPO Comment on a Federal Undertaking to the Wisconsin SHPO December 9, 2013 for assistance in determining effects in accordance with Section 106 of the NHPA. The Wisconsin SHPO's December 11, 2013 response concurred that no Historic Properties are located with the Project APE per 36 CFR 800.4; this correspondence is included in **Appendix H**.

DPC also notified potentially interested Indian tribes of the proposed undertaking, and provided a detailed Project summary, mapping, the survey, and contact information to reach RUS if the Indian tribe would have liked to engage in government to government consultation. The Indian tribes contacted include:

- Bad River Band of Lake Superior Indians of Wisconsin
- Forest County Potawatomi Community of Wisconsin
- Ho-Chunk Nation
- Lac Courte Oreilles Band of Lake Superior
- Lac du Flambeau Band of Lake Superior
- Menominee Indian Tribe of Wisconsin
- Oneida Tribe of Indians of Wisconsin
- Red Cliff Band of Lake Superior
- St. Croix Band of Chippewa Indians of Wisconsin
- Sokaogon Chippewa Community
- Stockbridge Munsee Community of Wisconsin
- Sac and Fox Nation of Oklahoma
- Sac and Fox Nation of Missouri in Kansas
- Sac and Fox Nation of the Mississippi in Iowa
- Iowa Tribe of Oklahoma
- Prairie Band Potawatomi Nation
- Prairie Island Indian Community
- Lac Vieux Desert Band of Lake Superior Chippewa Indians

- Ketegitigaaning Ojibwe Nation

DPC and RUS received responses from three Indian tribes (the Prairie Island Indian Community, the Bad River Band of Lake Superior Indians of Wisconsin, and the Stockbridge Munsee Community of Wisconsin), which are included in **Appendix I**. No additional resources were identified. The Prairie Island Indian Community requested that construction personnel be made aware of the fact that although a mound location has been obliterated on the surface, a burial might remain underneath.

## 4.7 Air Quality

Federal air quality standards are established by the Clean Air Act and administered by the WDNR Air Management Program. An attainment area is a geographic area in which levels of a criteria air pollutant meet the health-based primary standard (national ambient air quality standard). Attainment areas are defined using federal pollutant limits set by the Environmental Protection Agency (EPA).

Areas where the concentrations of criteria pollutants are below the levels established by the NAAQS are considered in attainment. Trempealeau and La Crosse Counties are in attainment with Wisconsin and National Ambient Air Quality Standards (NAAQS) for all criteria pollutants (ozone, particulate matter, carbon monoxide, nitrogen oxides, sulfur dioxide, and lead). The only areas in Wisconsin currently not meeting NAAQS are in the southeastern part of the state, near Milwaukee and Chicago, Illinois, where several counties are designated as “nonattainment” with respect to the NAAQS for 8-hour average ozone and particulate matter 2.5 microns or less in diameter (EPA 2013c).

## 4.8 Visual Resources

Visual or aesthetic resources are naturally-occurring or manmade visible physical features (e.g., land, water, vegetation, structures, etc.) that occur in a landscape. Landscape character includes the distinctive qualities and arrangement of these landscape features. Potential visually-sensitive areas would be limited to the areas around rural residences, the Great River State Park Trail and the Black River floodplain including the Van Loon Wildlife Area and the Refuge. Given the rolling terrain and the largely uniform vegetation coverage of the existing landscape, views of the Project from areas not directly adjacent to the Project would generally be screened (either partially or completely) by topography and/or vegetation. Several residences are located adjacent to the Project ROW. The viewshed from these residences currently include the existing power transmission line and vegetation associated with residential landscaping or naturally occurring vegetation around residential structures, which often provide partial screening of the Project. The use of Y-frame structures that would not extend above the tree canopy in the Black River floodplain would further screen the view of structures within the Black River floodplain, Van Loon Wildlife Area, and Refuge.

Man-made modifications that have locally modified the Project area include dispersed residences associated with agricultural lands and associated ancillary structures (e.g., barns, maintenance sheds, fences, etc.). Local infrastructure modifications within the area include STH 35/Great River Road, CH K, CH XX, Briggs Road and US 53, county roads, and local paved and unpaved roads; the Briggs Road substation; distribution lines; and high-voltage transmission lines. The existing 80-foot ROW which currently supports the existing 161 kV transmission line is the location for the Project.

## 4.9 Transportation

Transportation corridors in proximity to the Project consist of residential roads, county roads, two-lane Wisconsin state highways, and roads. Fourteen total road crossings are located along the existing 161 kV Q-1D transmission line corridor. Since the Project follows the existing corridor, the number of crossings would not change. **Table 4-5** shows traffic counts available from WisDOT on roads crossed by the Project.

Table 4-5: Roads Crossed by the Project and Associated Average Annual Daily Traffic Volumes

| County | Road | Traffic Count[1] | Traffic Year[1] | Traffic Count Point Location[1] |
|---|---|---|---|---|
| Trempealeau County | Great River Road (STH 35) | 2,200 | 2011 | South of TH 54 |
| | U.S. Highway 10 | 1,200 | 2011 | South of Wagner Road |
| | Bluff View Road | 4,900 | 2011 | West of County Road M |
| | Interstate 94 | 25,500 | 2007 | West of County Road G |
| La Crosse County | CH XX | 1,400 | 2011 | East of Briggs Road |

[1] Traffic counts were not available for nine of the road crossings.

CFR Title 14 Part 77.9 states that any person/organization who intends to sponsor any of the following construction or alterations must notify the Administrator of the Federal Aviation Administration (FAA):

- Any construction or alteration exceeding 200 feet above ground level.
- Any construction or alteration:
  - Within 20,000 feet of a public use or military airport that exceeds a 100:1 surface from any point on the runway of each airport with its longest runway more than 3,200 feet.
  - Within 10,000 feet of a public use or military airport that exceeds a 50:1 surface from any point on the runway of each airport with its longest runway no more than 3,200 feet.
  - Within 5,000 feet of a public use heliport which exceeds a 25:1 surface.
- Any highway, railroad or other traverse way that has a prescribed adjusted height that will exceed the above-noted standards.
- When requested by the FAA.
- Any construction or alteration located on a public use airport or heliport regardless of height or location.

The new structures will have a height of 65 to 90 feet. The closest airport is the La Crosse Regional Airport, located in La Crosse, Wisconsin. This airport has a runway length of 8,742 feet, and is located 4.2 miles southwest from the Project centerline. The closest private airstrip to the Project is the Holland Air Park, located in Holmen, Wisconsin. This airstrip has a runway length of 3,200 feet, and is located 3.8 miles north northeast from the Project centerline.

Because of the proximity of the eastern end of the Project to the La Crosse Airport, FAA notification is required. **Appendix F** includes the completed Notice Criteria Tool results and Notification Forms for the 13 structures near the eastern end of the Project for which FAA Notification is required, and has been made. The FAA will review the Project with an aeronautical study to determine potential impacts on instrument approaches and navigation facilities of the La Crosse Airport, and provide input.

No communication towers are located within the Project ROW, although two communication towers are located within 1 mile of the Project centerline: Alltel Communications of La Crosse Limited Partnership, located 0.2 miles northeast from the Project centerline, and Specstrasite Communications, Inc. (through American Towers, Inc.) located approximately 0.3 miles south southwest from the Project centerline.

## 4.10 Health and Safety

All DPC facilities are designed, constructed, operated and maintained to meet or exceed applicable design standards and performance set forth in the NESC. Specific health and safety measures associated with the new transmission lines are discussed in Section 5.10.

Electrical characteristics associated with transmission lines and substations are those associated with electric and magnetic fields (EMF), corona, audible noise, radio, and television interference. EMF is described below. Corona, audible noise, radio, and television interference are discussed in Section 4.11.

Voltage on any wire (conductor) produces an electric field. The intensity of the electric field is proportional to the voltage of the transmission line. The flow of electrical current on a wire produces a magnetic field. The intensity of the magnetic field is proportional to the current flow through the conductors. EMF extends outward from the conductor and decrease rapidly with distance from the conductor. There is no federal or Wisconsin state standard for transmission line EMF.

Additional information can be found in the PSCW brochure on EMF, available online at <http://psc.wi.gov/theLibrary/publications/electric/electric12.pdf>. Also, the Electric Power Research Institute (EPRI) publication “EMF and Your Health” is available online at http://www.epri.com/abstracts/Pages/ProductAbstract.aspx?ProductId=000000000001023105.

## 4.11 Corona, Audible Noise, Radio, and Television Interference

Corona is the electrical breakdown of the air near high voltage conductors into charged particles. Corona consists of audible noise, radio, and television interference from electromagnetic interference. Audible noise (AN) may consist of a variety of sounds of different intensities across the entire frequency spectrum. AN is measured in units of decibels on a logarithmic scale. Because human hearing is not equally sensitive to all frequencies of sound, certain frequencies are given more "weight." The A-weighted decibel (dBA) scale corresponds to the sensitivity range for human hearing. Noise levels capable of being heard by humans are measured in A-weighted decibels. **Table 4-6** shows noise levels associated with common everyday sources.

Table 4-6: Common Noise Sources and Levels

| Sound Pressure Level (dBA) | Typical Sources |
|---|---|
| 100–105 | Leaf blower |
| 100–104 | Circular Saw |
| 84–89 | Vacuum Cleaner |
| 76–83 | Garbage disposal |
| 68–73 | Inside car, windows closed, 30 MPH |
| 55–65 | Normal conversation |
| 50 | Background music |
| 40 | Living room |
| 28–33 | Quiet Room |

Source: NPC (2011)

AN from an overhead electric transmission line can be produced by corona from the breakdown, or ionization, of air in a few centimeters or less immediately surrounding conductors. It occurs when the electric field intensity, or surface gradient, on the conductor exceeds the breakdown strength of air. Usually some imperfection, such as a scratch on the conductor or a water droplet, is necessary to cause corona.

Sources of AN in proximity to the Project include equipment noise from agricultural operations and residential activities, and noise generated by cars and trucks on local, state, and U.S. highways. The primary land use in proximity to the Project consists of rural agricultural. Rural residences and farmsteads are scattered throughout the Project area. The Project also crosses the Van Loon Wildlife Area and the Refuge. Current average background noise levels in these areas are typically in the range of 30 to 40 dBA. Ambient noise in rural areas is commonly caused by rustling vegetation, light traffic and agricultural equipment use. Higher ambient noise levels, typically in the range of 50 to 60 dBA, are produced near roadways, urban areas and commercial and industrial properties.

Corona on transmission line conductors can generate noise at the frequencies at which radio and television signals are transmitted. This noise can interfere with receiving signals and is called radio and television interference (RI/TVI). Radio reception in the Amplitude Modulated (AM) broadcast band (535 to 1605 kilohertz) is most often affected with what is commonly referred to as static. Frequency Modulated

(FM) radio reception is rarely affected. Only radio receivers very near to transmission lines have the potential to be affected by radio interference. Corona can affect the reception of the video (picture) portion of a television signal. Television interference caused by corona appears as three bands of "snow" on the television screen. Television interference due to corona primarily occurs during precipitation (rain or snow).

## 4.12 Socioeconomic and Community Resources

According to the U.S. Census Bureau, in 2012 Trempealeau and La Crosse Counties had a total population of 29,297 and 116,461 respectively. This is an increase of 1.7% for Trempealeau County and an increase of 1.6% or Lacrosse County, since the 2010 census. U.S. Census demographics from 2012 for Trempealeau County show a 50.6% male and a 49.4% female distribution of the predominantly (97.7%) white population. Demographics from 2012 for La Crosse County show a 48.9% male and 51.1% female distribution of the predominantly (92.2%) white population. Per capita income in Trempealeau County is $24,065, and in La Crosse County per capita income is $25,680 approximately 11.4% and 5.5% lower than the statewide average of $27,192, respectively (U.S. Census Bureau 2013). August 2013 unemployment in Trempealeau County was 4.7% and in La Crosse County unemployment was 5.1%, according to the U.S. Department of Labor: Bureau of Labor Statistics (Federal Reserve Economic Data 2013 a, b, c). The August 2013 statewide average for unemployment was 6.7% (U.S. Bureau of Labor Statistics 2013).

## 4.13 Environmental Justice

Executive Order 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations, states that “each federal agency shall make achieving environmental justice part of its mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority populations and low-income populations.” The analysis pursuant to this executive order follows guidelines from the Council on Environmental Quality (CEQ), Environmental Justice Guidance under the National Environmental Policy Act (CEQ 1997).

The CEQ guidelines state that minority populations should be identified where “… (a) the minority population of the affected area exceeds 50% or (b) the minority population percentage of the affected area is meaningfully greater than the minority population percentage in the general population or other appropriate unit of geographic analysis” (CEQ 1997).

In compliance with the CEQ guidelines, the minority and economic aspects of the Project were evaluated on a regional basis. Minority and low-income data for the block groups in the Project were compared to the average data for Trempealeau and La Crosse Counties and the state of Wisconsin. Minority and low-income data were analyzed for each census tract that the Project would cross. It should be noted that the census tracts that were analyzed encompass a much larger area than the Project, so the actual population located adjacent to the Project is smaller than what is shown for the census tract. The socioeconomic trends shown by the census tract are expected to be representative of the population located in proximity to the proposed transmission line. **Table 4-7** shows the census data for the state, for the counties crossed by the Project, and for the census tracts crossed by the Project (Proximity 2013).

Table 4-7: Census Data

| Location | Population | Race Percentages | | Per Capita Income | Persons Below Poverty Level |
|---|---|---|---|---|---|
| | | Caucasian | Minority | | |
| State of Wisconsin | 5,726,398 | 97.7 | 18.0 | $27,192 | 12% |
| Trempealeau County | 29,297 | 88.2 | 8.6 | $24,065 | 12% |
| Trempealeau County, Census Tract 1007 | 5,657 | 92.2 | 9.6 | $23,070 | 13% |
| La Crosse County | 116,461 | 92.2 | 9.4 | $25,680 | 14% |
| La Crosse County, Census Tract 102.02 | 6,228 | 93.1 | 8.22 | $25,066 | 7.8% |

2010 data were available for Wisconsin and Trempealeau and La Crosse Counties, including census tracts within each of these counties that would be crossed by the Project. Use of these datasets represents the most recent available data and provides an appropriate comparison given the low incidence of minority populations across datasets. According to the 2010 data, minority populations are less than 11% of the populations in La Crosse and Trempealeau counties. Minority populations within the county census tracts that would be crossed by Project range from approximately 1.5% to 3.8%, which is lower than both the county- and state-level data. Per capita income in La Crosse and Trempealeau counties (including census tracts) are lower than those reported for the state. Poverty levels in La Crosse and Trempealeau counties are higher than those reported for the state of Wisconsin.

# 5.0 Environmental Effects

This section describes potential environmental effects associated with the construction, operation and maintenance of the Project, and associated mitigation measures. The list of standard DPC BMPs for Project construction and operation are presented in DPC's Field Guide for Transmission Line Construction and Maintenance Activities Manual, January 2013 (**Appendix B)**. DPC is also committed to following mitigation guidelines in the U.S. Department of Agriculture/U.S. Department of the Interior Environmental Criteria for Electric Transmission System to the extent applicable and practicable (USDA, USDI 1970).

Preconstruction investigations, including soil borings, were conducted in the winter of 2013/2014 to refine Project design by assessing possible structure locations, access routes, and depths of installation. As a result, this EA preliminarily identifies, access routes and structure locations for the 3-mile section crossing the Black River floodplain. For both the floodplain and the remaining 10 miles of the Project, existing transmission structures may not be replaced at their current locations; rather, the rebuild structure locations would be selected based on engineering, landowner input, and environmental factors including soil conditions, slope, maximum span length between transmission structures, and terrain. However, the locations and access identified are relatively precise as is the information regarding impacts that has been developed. Impact calculations for this document were based on the DPC's best available design information.

## 5.1 Land Use

### 5.1.1 General Land Use Effects

Impacts to land use resulting from construction, operation, and maintenance of the Project would be less than significant. Temporary impacts within the existing transmission line ROW would be limited to those occurring during construction and are not anticipated to be significant. Landowners may be restricted from accessing the ROW during construction activities (vegetation clearing, transmission structure installation, conductor stringing, and conductor tensioning) at each transmission structure location.

DPC would utilize existing local roads, existing maintenance roads, and temporary access routes to construct the Project. Approximately 15.9 miles of access routes would temporarily impact land use. In areas where access routes would be located in active agricultural fields, agricultural operations may be suspended for a short period of time while the construction crews are hauling equipment to the transmission structure locations. Other temporary impacts include approximately 625 square feet (25 feet by 25 feet) of temporary disturbance at each of the 21 transmission structures located within the Black River floodplain and up to 30 acres of temporary disturbance at the two staging areas. A Conditional Use Permit may be needed from La Crosse County for one of the staging areas. Areas of temporary disturbance would be re-vegetated and returned to pre-existing conditions after construction.

Permanent impacts will be limited because the Project would be constructed primarily within the existing transmission line ROW. The ROW has been maintained (cleared of trees and brush) at regular intervals since originally constructed. Although some trimming of trees and brush along the edges of the ROW may be required, no additional areas of tree clearing would be required.

The permanent area of disturbance would consist of the footprint of each transmission structure. The 28 Y-frame structures would result in approximately 352.8 square feet (approximately 0.01 acres) of permanent impacts (up to 12.6 square feet per structure). The 4 dead-end structures would result in approximately 113.2 square feet (approximately 0.003 acres) of permanent impacts (up to 28.3 square feet per structure).The 69 H-frame structures would result in approximately 1,324.8 square feet (approximately 0.03 acres) of permanent impacts (up to 9.6 square feet per structure). This would result in a total of less than 0.05 acres of permanent disturbance for the Project.

The transmission line is not expected to impact the goals, policies, or existing or future land use plans as outlined in the Trempealeau County Comprehensive Plan and associated plans, or the La Crosse County Comprehensive Plan and associated plans. The Project consists of rebuilding an existing transmission line within an existing ROW and would not result in a change in land classification.

Construction and operation of the Project is not anticipated to have significant effects on land use because the land use would not be changed from its current use as a transmission line. Any impacts resulting from the Project would be further reduced by implementing the mitigation measures described below (Section 5.1.4) and in **Appendix B**.

### 5.1.2 Prime and Important Farmland Effects

Temporary impacts to prime farmland and farmland of statewide importance would be minimal and would be limited to the disturbance around the foundation of each structure and at the location of the access routes.

Permanent impacts to prime farmland and farmland of statewide importance are also expected to be minimal and would be limited to the footprint of the structure foundations because the Project would be located within an existing transmission line ROW. Similar to the existing transmission line, an estimated 32 structures (2 dead-end structures, 25 H-frame structures, and 5 Y-frame structures) in prime farmland would result in approximately 0.008 acres of permanent impacts to prime farmland. One Y-frame structure would result in less than 0.001 acres of permanent impacts to farmland of statewide importance.

Approximately 4.63 miles (8.96 acres) of access routes cross prime farmland or farmland of statewide importance. As with the existing transmission line, access through agricultural areas would continue to be required for maintenance purposes. However, access routes in agricultural areas almost entirely follow the existing ROW or field edges, so that farming activities can continue, and do not result in a change from existing conditions. Of the 4.63 miles of access routes, approximately 1.54 miles (2.98 acres) cross prime farmland outside of the existing ROW.

### 5.1.3 Formally Classified Lands Effects

Construction and operation of the Project is anticipated to have less than significant effects on formally classified lands because the Project would be constructed within an existing ROW. Additionally, utilities, including power transmission lines, are conditional uses within the Van Loon Wildlife Area and the Refuge.

Temporary impacts within formally classified lands would be limited to the disturbance around the foundation of each structure and access routes. Permanent impacts would be limited to the footprint of the transmission structure foundations in addition to ongoing tree trimming within the ROW. Trimming is performed to maintain a safe distance between tree branches on the edge of the Project ROW and the transmission line, and will be continued. Existing maintenance routes and temporary access routes will be used. With the exception of off-ROW access within the Refuge, post-construction access to the transmission line for routine maintenance would follow these routes. Temporary off-ROW maintenance access within the Refuge will be coordinated with the USFWS. No permanent access routes would be constructed within formally classified lands. DPC will coordinate with Trempealeau and La Crosse Counties, WDNR and USFWS to obtain all necessary permits required for crossing the Counties, the Van Loon Wildlife Area, and the Refuge.

USFWS regulations for land use on refuges state: “No right-of-way will be approved unless it is determined by the Regional Director to be compatible.” Compatible use is defined as a proposed or existing wildlife-dependent recreational use or any other use of a national wildlife refuge that, based on sound professional judgment, will not materially interfere with or detract from the fulfillment of the National Wildlife Refuge System mission or the purposes of the national wildlife refuge.

For a compatibility determination, USFWS policy requires a written determination signed and dated by the refuge manager and Regional Chief, signifying that a proposed or existing use of a national wildlife refuge is a compatible use or is not a compatible use. The Director makes this delegation through the Regional Director” (USFWS 2000). The compatibility determination process begins when the party seeking the ROW submits an application to USFWS Regional Director in accordance with USFWS regulations. If ROW is granted, the regulations require that the applicant reimburse USFWS for any costs incurred by USFWS as a result of processing or granting the ROW.

An application to renew the Q-1D easement has been submitted to USFWS; thus, USFWS has initiated the compatibility determination process. In addition, USFWS policy allows refuge managers to deny proposed uses without compatibility determinations if any one of ten situations exists regarding the proposed use (USFWS 2000).

USFWS has indicated that the renewal of the easement would require NEPA review, in this case, an EA. USFWS is a cooperating agency on this EA for purposes of the required NEPA review.

USFWS would monitor construction, operation, and maintenance within the ROW and determine if they met with the terms and conditions of the agreement. Upon completion of construction, DPC would be required to file a certification of completion with USFWS; 50 CFR 29.21-5(b).

### 5.1.4 Mitigation and Monitoring

In addition to those described in the BMPs in **Appendix B** and Integrated Vegetation Management Plan **(Appendix B**) the following mitigation measures will be employed to reduce potential impacts to land use:

- Avoid removing landscaping whenever possible.
- Maintain access to all residences during construction.
- Notify residents of construction activities prior to the start of construction.
- Reseed disturbed areas according to landowner requests.
- Project was designed to reduce, avoid and minimize impacts to the Black River floodplain, Van Loon Wildlife Area and Refuge to reduce the ROW to 65 feet, maintain structure height be at or below tree canopy, and reduce the number of structures through this area by approximately 50%.
- Helicopter construction will significantly reduce the impacts of constructing the line through the Black River floodplain, Van Loon Wildlife Area, and Refuge.

## 5.2 Floodplains

### 5.2.1 Floodplain Effects

The Project would result in the construction of up to 21 new transmission structures in the 100-year floodplain to replace the existing 22 H-frame structures (44 poles) within the 100-year floodplain. Disturbance in floodplain would be limited to the area needed for the approximately 21 Y-frame steel transmission structures, and would result in approximately 264.6 square feet (approximately 0.01 acre) of permanent impacts (up to 12.6 square feet per structure). Within the Black River floodplain, existing transmission structures would be cut off at ground level and removed from their current locations by helicopter. During construction, ground cover and soils would be temporarily disturbed. Effects resulting from the removal of groundcover and soils in floodplain would be temporary in nature and the area not occupied by the transmission structures would be reclaimed and re-vegetated to pre-construction conditions. Potential floodwater displacement could occur where structures are placed in floodplain. Based on the low volume of potential floodwater displacement, impacts on flooding are not anticipated**.**

With implementation of the mitigation measures described below, it is not anticipated that construction or operation would have significant effects on floodplain.

### 5.2.2 Mitigation and Monitoring

In addition to those described in the BMPs in **Appendix B**, the following mitigation measures will be employed by DPC to reduce potential impacts to floodplains:

- Utilize heavy-lift helicopter for construction in the Black River floodplain.
- Coordinate with USACE, WDNR, USFWS, and local authorities for approval of structure locations.
- Observe all floodway development requirements as outlined in the Trempealeau County Floodplain Zoning Ordinance.

- Observe all floodway development requirements as outlined in Chapter 16 of the La Crosse County Code of Ordinances.
- Acquire all required permits. A list of permits that are anticipated to be required is included in **Table 1-3**.
- Preserve existing natural vegetation to the extent practicable.
- Restore temporary ground disturbance within 100-year floodplains caused by construction activities by re-vegetating the area impacted to pre-construction conditions.

## 5.3 Water Resources

### 5.3.1 Wetland and Waterways Effects

Based on preliminary engineering for the Project, approximately 21 structures and 3 miles of access routes would be located in wetlands. Wetland 5C-W1 (**Appendix A, Sheet Map 10**) occurs in an area east of the Black River floodplain. The remaining 10 miles of the Project do not cross any wetlands or waterways. The area of wetland that would be permanently impacted by each of the Y-frame steel transmission structures is approximately 12.6 square feet. Total permanent wetland impacts resulting from the Project are estimated to be approximately 264.6 square feet (less than 0.01 acre). Temporary impacts to wetlands would be limited to a 625-square-foot (25 feet by 25 feet) work pad around each structure. Of the 19 waterways identified in the field, 6 would not be crossed, and 13 would be crossed on foot or by an Argo during the construction of the Project. No transmission structures would be placed within waterbodies. Wetlands and waterways crossed by the Project are identified in **Table 4-1** and shown on the sheet maps in **Appendix A**.

The Project is expected to result in minimal impacts to wetlands and waterways given the avoidance efforts taken in design of the Project and planned for construction and operation. While some of the routes to be utilized for access to the Project ROW for construction also cross wetlands, they were selected because they have historically been used for maintenance of the existing Q-1D transmission line, or because they are seasonally dry or otherwise passable during some times of the year. In this way, use of these routes minimizes wetland impacts.

The use of helicopter construction within the Black River floodplain will minimize impacts, and it is expected that the Project would fall under WDNR Utility Permit 3-2013 and USACE Regional General Permit GP-002 WI. No temporary clear span bridges (TCSBs) would be needed for equipment, vehicles, or personnel to cross the waterways. Temporary matting would also be used for each work pad and the matting would be flown in by helicopter to eliminate the need for large equipment, such as skid loaders, to use the access routes to place the matting. Construction-related liquids (e.g., equipment lubricants) would be managed to avoid spills on the ground surface. Vehicle fueling will occur off site. Mitigation measures described below will help minimize impacts on quality of surface water run-off. After construction, no impact on surface water quality is anticipated to result from operations and maintenance of the transmission line.

### 5.3.2 Groundwater Effects

Impacts to groundwater are not anticipated. Construction-related liquids (e.g., equipment lubricants) would be managed to avoid spills on the ground surface. Vehicle fueling would occur off site. Mitigation measures described below will help minimize impacts on quality of surface water run-off. After

construction, no impact on surface water quality is anticipated to result from operations and maintenance of the transmission line.

### 5.3.3 Mitigation and Monitoring

During construction, the most effective way to avoid impacts is to avoid wetland areas, streams, and rivers. Equipment fueling and lubricating will occur off site. The following construction practices will be implemented by DPC to help prevent and/or contain accidental spills, soil erosion, and sedimentation:

- Utilize heavy-lift helicopter and existing maintenance/access routes for construction in the Black River floodplain.
- Plan, install, and maintain erosion control measures and re-vegetate and stabilize disturbed soil adjacent to waterways.
- Implement spill prevention, control, and countermeasures required to be identified in the Stormwater Management Plan to be developed for the Project.
- Prohibit on-site fuel storage or refueling.
- Clear debris and disturbed ground cover and soils from construction areas, staging areas and access routes, and return disturbed ground cover and soils to pre-construction conditions upon completion of construction so that sedimentation will not occur.
- Acquire all required permits. A list of permits that are anticipated to be required is included in **Table 1-3**.

## 5.4 Biological Resources

### 5.4.1 Vegetation Effects

The use of helicopters for construction within the Black River floodplain would require placing temporary matting around each proposed structure location to minimize impacts to vegetation. The use of an Argo to transport construction personnel would further minimize impacts to vegetation.

Construction activities for the remaining 10 miles of the Project in uplands would involve excavation and grading in limited areas around each proposed transmission structure location. These activities would temporarily disturb herbaceous vegetative cover, and in some areas, agricultural crops. Vehicle and equipment access also has the potential to disturb vegetation. The long-term effects of these actions are not expected to result in measurable losses; rather, short-term effects (during construction) would be areas of bare ground. Permanent impacts to vegetation would occur within the footprint of each structure.

Maintaining the ROW by clearing woody and herbaceous vegetation would continue where the existing ROW is adjacent to or crosses forested areas. Some trimming of forested areas along access routes with overhanging or overgrown woody vegetation would be necessary to permit passage within a cross-sectional area measuring approximately 15 feet in height and width. The long-term effects of the ROW clearing and temporary use of access routes are not expected to result in measurable losses, but short-term effects (during construction) would result in areas of bare ground and long-term effects would result from vegetation maintenance within the existing Project ROW.

The two construction staging areas could result in the temporary loss of farmland during one growing season. The staging area locations were selected to avoid tree clearing. The staging areas will be leased from the landowners and consist primarily of cropland. Upon completion of construction, DPC will re-vegetate any disturbed non-cropland areas to pre-construction conditions.

Overall, impacts to vegetation are anticipated to be less than significant because the Project would be located within an existing ROW that is currently maintained for operation of a transmission line. Permanent impacts would be primarily limited to the footprint of transmission structures and minor vegetation clearing within the ROW. No permanent access routes and no permanent impacts would result from use of the construction staging areas, because these areas would be re-vegetated to pre-construction conditions after construction.

### 5.4.2 Vegetation Mitigation and Monitoring

Noxious weeds were noted in portions of the Project during an invasive species survey in August of 2013 (**Appendix G**). Management of noxious weeds and invasive species (NWIS) will occur as a part of vegetation management. Annual ground inspection will identify the occurrence and density of vegetation considered noxious weeds or invasive species as listed in Wis. Admin. Code NR 40 Regulated Plants listing. NWIS will be continually eradicated to limit infestation of native habitats BMPs to control invasive species include:

- Locate and documents NWIS infestations prior to disturbance activities on the ROW (including vegetation clearing). Provide maps to project managers, construction coordinators, contractors, and corridor workers performing activities.
- Establish staging areas and/or other temporary work facilities in locations that are free of NWIS or where NWIS can be avoided.
- Avoid contact between NWIS infestations and personnel and equipment when feasible. One option of this may include using matting underlain with geotextile where work areas coincide with infestation.
- Clean equipment prior to arrival on-site. Remove visible dirt with high pressure compressed air blowers or by heat sterilization. This is critical when moving equipment from infested areas to non-infested areas.
- Inspect and clean clothing, footwear and gear for soil, seeds, or plant parts that may spread NWIS before and after activities. Dispose soils, seeds or plants parts properly.
- Use materials that are free of invasive species propagules (soil, aggregates, mulch, erosion control blankets, seed mixes). Use certified NWIS-free products when available.
- Leave NWIS onsite in infested areas. If you must transport plant material that may contain invasive species, ensure plant material is not dispersed during transport and bring them to a designated area for appropriate disposal.

In addition to those described in the BMPs in **Appendix B**, the DPC will following mitigation measures to reduce potential impacts to vegetation:

- Use methods such as installing silt fence or using timber matting to protect existing vegetative cover where necessary and practicable to avoid erosion or sedimentation.

- Restore disturbed areas by re-grading, seeding in non-agricultural areas and/or mulching as necessary per landowner's preferences.
- Monitor re-vegetation in non-agricultural areas outside of the USFWS Refuge until 70% (or greater if requested by the landowner) of the original cover is attained or applicable permit conditions are otherwise satisfied.
- The Integrated Vegetation Management Plan will establish the criteria for sufficient vegetative growth within the Refuge.

### 5.4.3 Fish and Wildlife Resources Effects

Minimal potential exists for long-term displacement of wildlife and loss of habitat from the Project because construction would occur along an existing transmission ROW. Wildlife could be temporarily displaced within the immediate area of construction activity. During operation the impacts would not differ significantly for existing conditions. DPC has agreed to take steps that would minimize the impacts resulting from the existing line through the Black River floodplain, Van Loon Wildlife Area, and Refuge as described below.

### 5.4.4 Fish and Wildlife Mitigation and Monitoring

In addition to the BMPs described in **Appendix B**, DPC will implement the following mitigation measures to reduce potential impacts to avian species:

- Install line marking devices (bird diverters) along portions of the Project that cross the Black River floodplain to minimize bird collision risk. These diverters will be installed by helicopter concurrently with Project construction.
- Use Y-frame steel structures for the 3-mile section that crosses the Black River floodplain to:
    - Limit new transmission line height to average of 65 feet to remain to at or below the average tree height as requested by USFWS and WDNR.
    - Decrease the width of the ROW to 65 feet to reduce impacts related to maintaining a wider cleared ROW and allow for part of the existing ROW to revert to native vegetation, including shrub-scrub vegetation as requested by USFWS and WDNR to soften the edge effect of the ROW.
    - Reduce the number of structures needed in the Black River floodplain from 22 H-frame structures (44 poles) to 21 single Y-frame structures.
    - Reduce the number of poles on USFWS and WDNR land from 11 H-frame structures (22 poles) to 8 single Y-frame structures.

### 5.4.5 Threatened and Endangered Species Effects

Potential impacts on threatened and endangered species may arise from construction projects in areas where the resources exist in several ways including direct impacts on species and individuals, disturbance of individuals or disturbance, alteration or destruction of habitat. DPC consulted with WDNR to identify potential protected resources, their locations, and methods to avoid or minimize impacts.

Based on consultation with USFWS and WDNR, DPC developed a set of conservation measures to avoid and minimize impacts on protected species and unique resources. These measures were reviewed with USFWS and WDNR at a February 2014 meeting. The agencies and DPC reached agreement on the conservation measured identified in **Tables 5-1 and 5-2.** DPC is currently planning on applying for an ITP for the Eastern massasauga and Wood turtle for construction.

No long-term impacts to existing habitat for threatened or endangered species are expected to result because the Project is a rebuild of an existing transmission line within the same ROW, transmission structures would be replaced at or near their existing positions, and impacts to these species will be avoided and/or mitigated as described below**.** The impact probability for all species from the Project with the required and recommended actions implemented is low.

### 5.4.6 Threatened and Endangered Species Mitigation and Monitoring

DPC will continue to coordinate and consult with USFWS and WDNR. DPC will implement the conservation measures identified in **Tables 5-1 and 5-2**. In addition to these measures, DPC will implement the following general avoidance and minimization measures.

Regarding protected plants in general, Wis. Stat. § 29.604 (4) (c) describes unlawful actions regarding state-listed plants, but also excludes work by utilities, including the kind of work in the Project. However, DPC's BMPs (**Appendix B**) and Integrated Vegetation Management Plan (**Appendix C**) will be implemented for the Project, and field activities will be conducted in ways that minimize impacts on all vegetation.

Table 5-1: Conservation Measures for Avoid and Minimize Impacts on State or Federal and Threatened and Endangered or other Federally Protected Species

| Species | Proposed Conservation Measures |
|---|---|
| *MAMMALS* | |
| Big Brown Bat | Much of the land cover in upland areas is not wooded and consists primarily of cropland. The portions of Project that do cross forested land were cleared in the 1950's and have been maintained on an ongoing basis. The Project will be constructed entirely within the existing cleared ROW and will not require tree clearing. If tree clearing were to be required, DPC will avoid directly impacting individuals, locations of maternity colonies and areas of suitable habitat, and avoid clearing snags or dying trees from June 1-August 15. |
| Northern Long-eared Bat | Much of the land cover in upland areas is not wooded and consists primarily of cropland. The portions of Project that do cross forested land were cleared in the 1950's and have been maintained on a regular basis. The Project will be constructed entirely within the existing cleared ROW and will not require tree clearing. If tree-clearing were to be required, DPC will avoid directly impacting individuals, locations of roosts, and areas of suitable habitat and avoiding clearing trees during the spring and fall migrations and summer when bats would roost in wooded areas from early April to mid-November. |
| *REPTILES* | |
| Eastern Massasauga | The potential for Eastern massasauga to be present in the Black River floodplain construction area was reviewed by DPC (Section 4.4.3). It was determined that there was no suitable overwintering habitat for this species along the Project corridor, and there was only low potential summer habitat within and along portions of the Project corridor through the Black River floodplain. However, WDNR maintains that the Eastern massasauga is known to occur in the vicinity of Project and that suitable habitat is present within the Black River floodplain. The snake's avoidance period (April 1 – October 15) will overlap with construction in the Black River floodplain.<br>The use of helicopter construction, an Argo to transport personnel, and strict erosion control and runoff prevention measures will reduce potential impacts to the snake. DPC has agreed to apply for an ITP. DPC will also have a qualified onsite biological monitor present when construction occurs within snake's avoidance period to perform visual encounter surveys, removals, and relocations so that no snakes remain in the work area during work activities. The biological monitor will also clear the 25-foot by 25-foot area around each structure location in the floodplain prior to matting being brought in by helicopter and installed.<br>Plastic netting without independent movement of strands can easily entrap snakes moving through the area. Netting that contains biodegradable thread with the "leno" or "gauze" weave appears to have the lease impact on snakes and will be used where erosion control netting is required within the Black River floodplain. |
| Wood Turtle | Wood turtles overwinter in rivers and streams, typically in shallower areas near banks. The avoidance period for Wood turtles is March 15 - October 31.<br>Because this species can be present in rivers and streams throughout the year, impacts to suitable rivers and streams, and their associated shorelines will be minimized. The use of helicopter construction, an Argo to transport personnel, and strict erosion control and runoff prevention measures will also reduce impacts to the turtle. DPC has agreed to apply for an ITP.<br>The biological monitor will perform the same actions for Wood turtles during the avoidance period as those described for the Eastern massasauga so that no Wood turtles will remain in the work area during work activities. DPC will continue to coordinate with WDNR and USFWS regarding this species as the use of a monitor is most effective if construction at each structure location is not prolonged. |

| Species | Proposed Conservation Measures |
|---|---|
| *BIRDS* | |
| Bald Eagle | Bald eagles are known to nest in the vicinity of the Project; however the record is from 2001. Another record exists that dates back to 1992. An aerial survey for eagle nests was conducted on January 15, 2014. No nests were observed. DPC will re-survey the area in April 2015 prior to construction. If there are new nests, protection under Bald and Golden Eagle Protection Act requires USFWS consultation.<br>DPC's planned construction will fall outside of the avoidance period. DPC will comply with prescribed timeframe for the National Bald Eagle Management Guidelines' . DPC will continue to work with the WDNR and USFWS regarding the presence of Eagle nests and related requirements. |
| Loggerhead Shrike | Suitable habitat is present along in an upland area east of STH 35. The avoidance period for Loggerhead shrike is April 16-August 15. If construction within the area of suitable habitat is required prior to August 15, DPC will conduct a survey in that area consisting of an area search at least two times during May 2015. If no individuals are detected during surveys, then no further Project restrictions related to this species will be necessary.<br>If individuals are detected and take cannot be avoided (i.e. work must commence before August 15), the BNHC Incidental Take Coordinator will be contacted to discuss possible project-specific avoidance measures as recommended. If take cannot be avoided, an ITP will be necessary. |
| Bell's Vireo<br>Cerulean Warbler<br>Great Egret<br>Red-shouldered Hawk | DPC's current construction schedule within the Black River floodplain will occur outside of the Bell's vireo (May 25-August 15), Cerulean warbler (May 1-August 24), Great egret (late April-mid July), and Red-shouldered hawk(March 15-July 31) avoidance periods. No further Project restrictions related to these species would be required if work proceeds as planned.<br>If work must commence within these avoidance periods additional coordination will be conducted with UFWS and WDNR to identify appropriate measures. |
| Black-Crowned Night Heron<br>Prothonotary Warbler<br>Western Meadowlark | Suitable habitat for the Western Meadowlark does not occur along the Project corridor.<br>DPC's current construction schedule within the Black River floodplain will occur outside of the avoidance period of April 15-September 1 for the remaining birds. If this changes an evaluation for suitable habitat for the Black-crowned night heron and Prothonotary warbler will be conducted and, where present, surveys will be conducted to determine if birds are present. If no individuals are detected during surveys, then no further project restrictions related to this species will be necessary.<br>If individuals are detected and take cannot be avoided (i.e. work must commence before September 1), additional coordination will be conducted with USFWS and WDNR to identify appropriate measures. |
| *FISH* | |
| Black Redhorse<br>Goldeneye<br>Pallid Shiner<br>Starhead Topminnow<br>Black Buffalo<br>Blue Sucker<br>Buckhorn<br>Paddlefish<br>River Redhorse<br>Shoal Chub | Strict erosion and siltation controls will be employed during the entire construction period to avoid impacts to the Black River and any neighboring water bodies and wetlands. Work in the Black River floodplain avoids the spawning period (Late March - August 31) for these species. Other portions of the Project will not impact suitable habitat. |

| Species | Proposed Conservation Measures |
|---|---|
| *MUSSELS* | |
| Butterfly | Strict erosion control measures will be employed during the entire construction period to avoid impacts to the Black River and any neighboring water bodies and wetlands. Construction in the Black River floodplain will overlap with the avoidance period (March 1 - October 31) for mussels. The use of helicopter construction, an Argo to transport personnel, and strict erosion control and runoff prevention measures will also reduce direct and indirect impacts to mussels. As required by the WDNR and USFWS, DPC will have a mussel expert conduct summer surveys and relocations of mussels from proposed waterway crossings. |
| Ebony Shell | |
| Elephant Ear | |
| Higgins' Eye | |
| Monkeyface | |
| Fawnsfoot | |
| *INSECTS* | |
| Pecatonica River Mayfly | The use of helicopter construction, an Argo to transport personnel, and strict erosion control and runoff prevention measures will reduce direct and indirect impacts to wetlands and waterways within the Black River floodplain. |
| Regal Fritillary | No suitable habitat for this species exists along the Project per WDNR agency consultation with the Regional Ecologist and Office of Energy Conservation Biologist on May 9, 2009. No further Project restrictions related to this species assuming the work proceeds as planned. |

Table 5-2: Conservation Measures for Avoid and Minimize Impacts on Other Sensitive Species and Natural Communities

| Species/Community | Proposed Conservation Measures |
|---|---|
| *REPTILES* | |
| Gopher Snake | If construction in the area of concern (upland area west of the Black River floodplain) must occur during the snakes' avoidance period (March 16 - October 15), work will either be conducted on days that are below 55 degrees F, or if performed on days exceeding 55 degrees F., a qualified biologist will walk in front of the equipment to remove snakes from the area. |
| Gray Ratsnake | |
| Timber Rattlesnake | |
| Blanding's Turtle | The biological monitor for the Eastern massasauga and Wood turtle and will also monitor construction for the Blanding's Turtle within the Black River floodplain and in suitable nesting habitat (sandy and/or well-drained soils within 900 ft of a wetland or waterbody) to prevent impacts on this species, given the construction schedule (August - December 2015) that would overlap with the turtle's avoidance period (March 15 - October 15).<br>The biological monitor will perform the same actions for Blanding's turtles as those described for the Eastern massasauga and Wood Turtle during the avoidance period so that no Blanding's turtles will remain in the work area. The use of helicopter construction, the Argo, and strict erosion control and runoff prevention measures will also reduce impacts to the turtle. |
| False Map Turtle | Based on consultation with the WDNR, no action is needed for the False map turtle and Smooth softshell as the Project is further than 300 ft. from turtles' suitable habitat. |
| Smooth Softshell | |
| *FISH* | |
| American Eel | The strict erosion control measures employed during the entire construction period to avoid impacts to the Black River and any neighboring water bodies and wetlands and the proposed construction methods will act to conserve these species. |
| Lake Sturgeon | |
| Mud Darter | |
| Pirate Perch | |
| Pugnose Minnow | |
| Silver Chub | |
| Weed Shiner | |
| Western Sand Darter | |
| *AQUATIC INVERTEBRATES* | |
| A Brush-legged Mayfly *(Homoeoneuria ammophila)* | Strict erosion control measures employed during the entire construction period to avoid impacts to the Black River and any neighboring water bodies and wetlands and the proposed construction methods will act to conserve these species. |
| A Cleft-footed Minnow Mayfly (*Metretopus borealis)* | |
| Wisconsin Small Square-gilled Mayfly | |
| Sioux (Sand) Snaketail | |
| *MUSSELS* | |
| Elktoe | Strict erosion control measures employed during the entire construction period to avoid impacts to the Black River and any neighboring water bodies and wetlands and the proposed construction methods will act to conserve these species. |
| Washboard | |

| Species/Community | Proposed Conservation Measures |
|---|---|
| *INSECTS* | |
| Columbine Dusky Wing | The Project will not significantly impact the butterflies host plants and/or habitat because it will follow an existing cleared right of way. |
| Gorgone Checker Spot | Suitable habitat is not likely present as the Project crosses farmed land, the Black River floodplain and rural developed areas. The Project will not significantly impact the butterflies host plants and/or habitats because it will follow an existing cleared ROW. |
| *PLANTS* | |
| Hill's Thistle | |
| Prairie Milkweed | |
| Large Water-starwort | |
| Clustered Poppy-mallow | |
| Dragon Wormwood | |
| Silky Prairie Clover | |
| Snowy Campion | |
| Vasey's Pondweed | |
| Wafer Ash | |
| White Camas | |
| *NATURAL COMMUNITIES* | |
| Bird Rookery | DPC has minimized impacts to the extent practicable on all habitats and plants through Project design, use of existing ROW, and selected construction methods. |
| Dry Prairie | |
| Emergent Marsh | |
| Floodplain Forest | |
| Lake – Shallow, hard, drainage | |
| Oak Barrens | |
| Riverine Lake/ Pond | |
| Sand Prairie | |
| Shrub-carr | |
| Southern Dry Mesic Forest | |
| Southern Sedge Meadow | |
| Van Loon State Wildlife Area and Refuge | The ROW within the Black River floodplain will be reduced from 80 feet to 65 feet and the number of poles in the Refuge and the Van Loon Wildlife Area will be reduced from 22 H-frame structures (44 poles) to 21 single Y-frame structures. DPC has submitted an application for Renewal of Easement on Federally Owned Land for Crossing a National Wildlife Refuge (50 CFR 29.21-2(a)(1)) and will apply for a Special Use Permit for construction from the agency for the portion of the Project that crosses the Refuge. During consultation, the WDNR referenced the USFWS Special Use Permit for further requirements pertaining to the Van Loon Wildlife Area. |

## 5.5 Coastal Areas

No coastal areas would be impacted by the Project.

## 5.6 Cultural Resources

### 5.6.1 Effects

Since no evidence of site 47TR52 was identified and site 47TR424 is not eligible for listing, the Project would have no effect on these resources. Project construction activities, including soil testing and pole placement, will occur within the boundaries of Site 47LC64/BLC86. While no surface evidence of the Site 47LC64/BLC86 was identified, the survey recommended archaeological monitoring of any construction activities. DPC has determined that the structure will be placed in this location in one of two ways, using a helicopter or the conventional way. If helicopter construction is used, there will be no ground disturbing activities associated with construction that could affect the site. If conventional construction methods are used, DPC will employ the mitigation and monitoring measures discussed below to ensure that there are no effects to the site.

Based on a review of the survey, consultation with the Wisconsin SHPO and Indian Tribes, and the implementation of the avoidance and monitoring measures discussed below, RUS has determined that a finding of no historic properties affected is appropriate for the undertaking (the Project) in accordance with Section 106 of the National Historic Preservation Act of 1966, 16 U.S.C. 470f .

### 5.6.2 Mitigation and Monitoring

In response to Prairie Island Indian Community's concerns discussed in Section 4.6 and as part of DPC's responsibilities under Wis. Stat. § 157.70, an archaeologist will be present to monitor any ground disturbing activities in a known burial site location on private or state land. MVAC personnel will monitor any ground disturbing activities within site 47LC64/BLC86. If the structure is placed the conventional way (rather than helicopter construction), DPC will place protective mats under the heavy equipment while driving within the 47LC64/BLC86 site area to assure no inadvertent ground disturbance occurs. MVAC personnel will monitor structure placement in the 47LC64/BLC86 site area for either method of placement to ensure no unplanned ground disturbance takes place within the site area. If human bone or cultural resources are discovered during construction, work would be immediately suspended and DPC would contact RUS and the State Historical Society of Wisconsin, Burial Sites Preservation Office. MVAC will also direct construction personnel as to the best path to follow in the vicinity of the possible mounds based on sketch maps from 20 years ago.

## 5.7 Air Quality

### 5.7.1 Effects

Construction of the Project would result in relatively small amounts of construction equipment exhaust emissions and potentially in some fugitive dust emissions if soil along access roads is loose and dry. Wis. Admin Code NR 154.11 states that no person shall allow materials to be transported without taking precautions to prevent the particulate matter from becoming airborne. Temporary impacts from fugitive dust would be minimized or avoided by using mitigation measures as described below. Emissions resulting from corona-related ozone and nitrogen during operation of the transmission line are discussed in Section 5.11.

### 5.7.2 Mitigation and Monitoring

In addition to those described in the BMPs in **Appendix B**, the following mitigation measures will be employed to reduce potential impacts to vegetation:

- Apply water to alleviate dust nuisance generated by construction activities.
- Use soil binders if water proves to be ineffective as a dust suppressant.

## 5.8 Visual Resources

### 5.8.1 Effects

Rebuilding the existing transmission line would create direct short-term effects to visual resources by introducing vehicles, equipment, materials, and a workforce during the construction period. Viewers would see transmission line structure assembly, erection, and conductor stringing activities. Visual effects from construction activities would not be significant because of the short-term duration of the construction, anticipated to be up to three days at each structure.

The Project would change visual resources in the long-term because the new 65 to 90-foot transmission structures would be taller and made of different materials than the existing 55-foot-tall wooden structures to be replaced. The existing 80-foot ROW would remain outside the Black River floodplain, but would be reduced to 65 feet for the area within the Black River floodplain. The ROW would continue to be cleared on a regular basis, so changes to the casual observer would be less than significant due to the clearing that has occurred previously on a regular basis in the existing ROW. In addition, the Project would not be out of character with the aesthetic character of the existing landscape because man-made features (e.g., transmission lines, substations, and communication towers) are common within the area. Given the presence of existing man-made features, including the existing transmission line, the landscape has a higher visual absorption capacity for the new elements compared with landscapes that are less modified by man-made structures, because similar vertical elements had previously been introduced into the landscape setting. The high degree of existing modification to the landscape and the visual variability in the landscape (including a mosaic of agricultural lands, forested areas, farms, transmission lines, residences, buildings, and other man-made structures) would allow the new transmission line to blend with the existing landscape.

Sensitive viewsheds include the views from local residences. Residences adjacent to the Project ROW have views that range from unobstructed to partially or intermittently screened by vegetation located between the residential building and the existing ROW. The Project would not have a significant effect on these sensitive viewers because the new transmission structures would be similar in form and color as the structures being replaced, and would be located within the existing ROW. Residences located farther away would have a less prominent view of the Project and modifications would not be discernible to the casual observer. Sensitive viewers would also include recreational users of and visitors to the Van Loon Wildlife Area, the Refuge and the Great River State Park Trail. Views of the Project by recreational users associated with these areas would be completely screened by existing vegetation and/or by the rolling topography, with the exception of river and creek users who would pass beneath the transmission lines

and could view the lines and some structures. The new transmission line would not have a significant impact on viewers because the structures would be placed within the existing disturbed ROW. Viewers positioned directly adjacent to or within the Project ROW would have unobstructed views of the new transmission line; however, the proposed structures would be similar to existing structures that are being replaced.

Overall, effects to the aesthetic environment are anticipated to be less than significant because vertical elements similar to the Project already exist in the landscape, so the Project would not be out of character with the existing landscape. Furthermore, many sensitive views would be partially to completely screened by existing vegetation and/or topography.

### 5.8.2 Mitigation and Monitoring

The Project design reduces aesthetic and visual impacts to a level that is less than significant by locating the Project within an already disturbed corridor. In addition, to further minimize potential visual effects, existing undisturbed trees, shrubs, and native vegetation will be preserved to the extent possible to maintain visual contrast in the landscape.

## 5.9 Transportation

### 5.9.1 Effects

Effects to transportation resulting from construction of the Project are not expected to be significant and will be temporary in nature. Construction crews will use public roadways and up to 15.9 miles of private and public access routes to access structure locations and to string conductor along the 161 kV transmission line route. A small construction crew consisting of approximately 15 to 20 people for the transmission line will be required. It is not anticipated that construction equipment or labor transportation will have a significant impact on traffic volumes or flow on local roadways or state highways. Any increases in traffic will be short-term in nature and will be limited to the construction time period near individual transmission structures and staging areas.

The replacement conductor for the Project would need to be strung across 15 road crossings and the existing conductor would need to be removed from these locations. When possible, the removal and replacement would occur at the same time. Traffic would be temporarily delayed for the time that it would take to string the new conductor across the road and remove the existing conductor. Conductor stringing and removal will be at these locations is estimated to require only a few hours per crossing. If lane closures are necessary while conductor stringing and removal takes place, at least one lane would remain open to traffic at all times. Temporary guard or clearance poles would also be installed to ensure that conductors do not obstruct traffic during stringing. Once the installation of new conductors has been completed, the temporary guard poles would be removed.

No railroads would be crossed by the Project.

No impacts to airports or heliports during construction of operation of the Project are anticipated. DPC used the FAA Notice Criteria tool to determine whether the new transmission structures would require DPC to file a notice to construct with the FAA (FAA 2013). The screening tool indicated that 13 structures exceed the Notice Criteria; therefore, DPC has notified the FAA of the location and height of the structures requiring notice, as shown in documentation included in **Appendix F**.

Construction, operation, and maintenance of the transmission line will have no significant effects on transportation or access in the Project area. The minor effects that will take place during construction will be minimized by utilizing the mitigation measures described below.

### 5.9.2 Mitigation and Monitoring

In addition to the BMPs described in **Appendix B**, the following mitigation measures will be employed to reduce potential impacts to transportation:

- Maintain roadway crossings in a condition that will prevent tracking of sediment onto the roadway.
- Shovel or sweep off mud tracked onto paved roadways daily.
- Discuss road crossings resulting from stringing operations with the appropriate transportation organization and, if required, personnel will be enlisted to assist with public safety and to ensure minimal disruption to traffic flow.
- Prohibit contractor from utilizing state or county road/highway ROW for parking.
- Require contractor to make necessary provisions for conformance with federal, state, and local traffic safety standards using traffic control, signage, and hazard cones as necessary to minimize the obstruction and to provide for the smooth flow of traffic around or through the construction area.
- Install temporary guard or clearance poles where needed to ensure that conductors do not obstruct traffic during stringing.

## 5.10 Health and Safety

### 5.10.1 Effects

No health impacts would result from the construction and operation of the Project. Air quality would not be affected and electromagnetic or electrostatic characteristics are nonexistent. The existing 161 kV transmission line would be replaced with a new 161 kV line, so no new sources of EMF would be introduced in the area. Many studies of EMF have been conducted but none has identified a mechanism by which EMF can cause disease. Considerable research has been devoted to this subject over the past 30 years. More information and questions and answers can be found on the website for The National Institute of Environmental Health Sciences (NIEHS): <http://www.niehs.nih.gov/health/topics/agents/emf/>.

The potential for injuries or mortality from a variety of accidental causes involving the transmission line is a valid consideration with any high voltage facility. DPC's transmission line design is in accordance with the NESC and WSEC-Part 2 and designed to minimize the possibility of injury from either inadvertent causes or ill-advised tampering by the public. There exists a possibility of human hazards despite all attempts to educate the public and design tamper-proof facilities. However, this hazard would be no greater for the proposed transmission line than presently exists from existing similar facilities in the area.

### 5.10.2 Mitigation and Monitoring

DPC will continue to communicate with landowners adjacent to the Project ROW on the safe operation of equipment near a transmission line. Because no additional impacts to human health and safety are anticipated, no mitigation measures are proposed.

## 5.11 Corona, Audible Noise, Radio, and Television Interference

### 5.11.1 Effects

Corona from transmission lines can create buzzing, humming, or crackling. Measures such as carefully handling the conductor during construction to avoid nicking or scraping or otherwise damaging the surface and using hardware with no sharp edges or points are typically adequate to control corona. Corona effects are expected to be low enough that no objectionable AN would result outside the Project ROW. Corona-related ozone and nitrogen oxide emissions are the primary air quality concerns related to transmission line operation. The concentration of ozone caused by corona is a few parts per million near the conductor and is not measurable at any distance from the conductor.

Project construction would result in AN from the transmission line and temporary short-term noise increases in areas where construction and staging are taking place. Indirect effects from post-construction activities, which would include the AN effects from the transmission line and inspection and maintenance activities, would be insignificant because of their short duration and infrequency. The AN generated during construction would be caused by foundation construction, assembly and erection of the transmission line structures, helicopter construction and noise generated by other construction equipment such as auguring machines, cranes, heavy machinery and trucks.

Typical equipment associated with transmission line construction and the associated noise levels at full power are shown in **Table 5-3**. Shaded areas indicate reference noise levels.

A heavy-lift helicopter will be used for construction in the Black River floodplain. Typical noise levels from various helicopters can vary. One source indicates an S-64 Aircrane heavy-lift helicopter at 100 feet above ground elevation would have a dBA of 95. This Project is located in a rural agricultural area with scattered residences. Helicopter construction within the Black River floodplain would introduce noise to the area for short durations (1 to 2 hours at each structure site) for a period of 5 to 7 days.

Under peak conditions during construction in uplands, with the noisiest construction equipment operating simultaneously, the highest average expected noise level is estimated to be 89 dBA-equivalent sound level (Leq) at a reference distance of 50 feet (DOE 2002). This noise level is approximately equivalent to noise experienced on a sidewalk next to a busy urban street. Noise decreases with distance at a rate of approximately 6 dBA per doubling of distance from the noise source. Based on this attenuation rate, at distances above 0.25 mile, peak construction noise would be approximately 61 dBA, or equivalent to normal conversation at 6 feet. Significant impacts resulting from construction noise for are not anticipated.

Landowners in proximity to electric transmission lines are often concerned that new transmission lines would affect their radio or television reception. This is a legitimate concern, not only related to transmission lines, but for distribution and communications lines as well. It is DPC's general experience that when the radio or television receiver is located outside the ROW, very few problems with radio or television reception are encountered.

Table 5-3: Construction Equipment Noise Levels

| Equipment | Typical Noise Levels 50 feet from Source (dBA)[1] |
|---|---|
| Rural area during daytime[1] | 40 |
| Residential area during daytime | 50 |
| Normal conversation at 6 feet | 55–65 |
| Trucks | 75 |
| Air compressor | 81 |
| City traffic | 80 |
| Backhoe | 80 |
| Concrete mixer | 85 |
| Mobile crane | 83 |
| Bulldozer | 85 |
| Grader | 85 |
| Rotary drilling rig[2] | 87 |
| Peak combined equipment[3] | 89 |
| Lawn mower | 90 |

Note: Shaded areas indicate reference noise levels.

[1] Source: DOT (2006) except as noted.

[2] Yantak (2007)

[3] DOE (2002)

Corona associated with the proposed transmission line is expected to be low enough so that no radio or television interference is anticipated outside of the ROW, consistent with the operation of the existing transmission line. However, DPC is committed to taking all reasonable steps to assure area landowners that the Project would not interfere with radio or television reception. In cases where there is a demonstrable effect from the transmission line on reception, very often simple corrective steps, such as checking line hardware for loose or defective hardware and repairing or replacing defective items is sufficient to solve the problems. In a very limited number of cases, it has been necessary to take more extensive corrective steps such as relocating individual television or radio antenna systems or installing systems where none previously existed. In most cases, however, it is possible to entirely avoid radio and television interference by appropriate routing steps and by post-construction adjustments of line hardware.

### 5.11.2 Mitigation and Monitoring

Noise from heavy machinery and helicopters during construction of the proposed transmission line may create a short-term nuisance to nearby residents and wildlife. DPC will mitigate the nuisance by ensuring that construction vehicles and equipment are maintained in proper operating condition and equipped with manufacturer's standard noise control devices or better (e.g., mufflers or engine enclosures).

Impacts associated with the generation of corona are not anticipated and there would be no impact to radio and television interference; therefore, no mitigation measures are proposed.

## 5.12 Socioeconomic and Community Resources

### 5.12.1 Effects

Any impacts to social and economic resources would generally be of a short-term nature. DPC anticipates that one crew of 15 to 20 construction workers will be needed for construction of the Project. The construction crews will not be local. Revenue, therefore, will likely increase for some local businesses, such as restaurants, gas stations, grocery stores and hotels because of an increase in the number of out-of-town workers in the area. Other local businesses, such as gravel suppliers, hardware stores, welding and machine shops and heavy equipment repair and maintenance service providers, will also likely benefit from construction of the Project. The existing businesses and public services will be adequate to support the Project because of the small size of the construction crews and the short duration of the construction activities. The increased availability of reliable power in the area will have a positive effect on local businesses and the quality of service provided to the general public.

Given the relatively small size of the construction crews needed for construction of the Project, no impacts to emergency health care facilities or law enforcement services are anticipated.

### 5.12.2 Mitigation and Monitoring

No negative effects resulting from construction of the Project are anticipated, so no mitigation is necessary.

## 5.13 Environmental Justice

### 5.13.1 Effects

The percentages of minority populations in the census tracts that are crossed by the Project are lower than those found in Trempealeau and La Crosse Counties and the state of Wisconsin or in. Due to the remote location and lack of residential or commercial land use within the vicinity of the Project, no environmental justice impacts are anticipated.

### 5.13.2 Mitigation and Monitoring

Construction of the Project will not have disproportionate impacts on minority and low-income populations, so no mitigation is necessary.

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# 6.0 Cumulative Impacts

CEQ regulations define cumulative impacts as “the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (federal or non-federal) or person undertakes such other action. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time” (40 CFR 1508.70). Also, cumulative impacts are those “which when viewed with other reasonably foreseeable or proposed agency actions have cumulatively significant impacts” (40 CFR 1508.25(a)(2)).

Cumulative impacts occur when the effects of an action are added to the effects of other actions occurring in a specific geographic area and timeframe. The cumulative impact analysis follows CEQ’s guidelines: Considering Cumulative Effects under the NEPA (CEQ, 1997). The steps associated with the analysis include requirements that the assessor:

- Specify the class of actions for which effects are to be analyzed.
- Designate the appropriate time and space domain in which the relevant actions occur.
- Identify and characterize the resources to be assessed.
- Determine the magnitude of effects on the receptors and whether those effects are accumulating.

The cumulative impacts analysis presented in this Section is resource-specific. The temporal and spatial boundaries used for the cumulative impacts analysis are specific to each resource area. For those resources where the spatial boundary is defined as the Project area, this includes the ROW, access routes, and temporary staging areas. For those resources where the temporal boundary is defined as the lifetime of the Project, this is estimated to be 50 years. If the Project is not expected to result in direct or indirect impacts on a resource, then that resource was eliminated from the cumulative impacts evaluation.

Past, present and reasonably foreseeable future actions relevant to the cumulative impact analysis are discussed below.

## 6.1 Land Use and Land Cover Changes

Land cover in the Project area has changed dramatically since the time before settlement, with most of these changes, in terms of land area impacted, occurring in the 19$^{th}$ century. During that time, forests were cleared and land suitable for agriculture was converted to that use. The Early Vegetation Map of Wisconsin (University of Wisconsin Extension 1965) identifies the general land cover in the Project vicinity as Oak Savanna, Southern Oak Forest, Prairie, Lowland Hardwood, and Sedge Meadow. Nearly all of the forests in the area were clear-cut, primarily in the late 19$^{th}$ century (WDNR 2001).

Between 1982 and 2010, total cropland in rural Wisconsin decreased from 11.45 million acres to 10.2 million acres, a decrease of 3% (NRCS 2013, Table 10). The change in rural land cover/use between 1982 and 2010 also showed a 1% increase in CRP land, a 1% decrease in pastureland, a 3% increase in forestland and a 1% increase in other rural land (NRCS 2013, Table 2) as the percent of total rural land for those years.

Trempealeau and La Crosse Counties fall within the Mississippi River Regional Planning Council planning area. The three-county area has development potential due to the rural nature of the region and proximity to two larger area employers and major employment centers. The population of the Town of Holland has grown from 976 in 1970 to 3,701 in 2010, and has experience significant growth and development in recent decade (MRPC September 2013), with an almost 40% growth rate occurring from 1990 to 2000 (Town of Holland January 2007). The population of the Town of Trempealeau has grown from 1,082 in 1970 to 1,756 in 2010, the County of La Crosse from 80,468 to 114,638, and the State of Wisconsin from 4,417,821 to 5,686,986 (MRPC September 2013). Trempealeau County has had both increases and decreases in population since the 1960 census. The population of Trempealeau County in 1960 was 23,377 and in 2000 was 27,010. The population in 2030 is projected to be 32,219, which would represent an increase of 27% over 1960 (Trempealeau 2009).

Floodplains and riparian zones along the Mississippi were greatly impacted with the construction of locks and dams on the river, which changed the free-flowing river into a series of pools.

## 6.2 Roadway Projects

WisDOT currently has three projects planned for Trempealeau County. These are the STH 93 Revitalization Project in Independence, and the I-94 West Central Freeway, and the US 10, I-94 projects both near Osseo. These projects are approximately 20 miles and 50 miles from the Q-1D corridor. The closer of the three projects is the reconstruction of STH 93 that is being conducted to widen the existing highway, reconstruct the WIS 93/221 intersection, upgrade existing storm sewer and street lighting replace outdated sanitary and water utilities and replace Elk Creek Bridge. Construction began in March 2014. Improvements to the more distant I-94 West Central Freeway and US 10, I-94 project would include culvert replacement, repaving and repair and is expected to begin in the summer of 2016. None of the proposed detours are in the vicinity of the Q-1D Project.

The Trempealeau County Highway Department was contacted (March 18, 2014). The Highway Commissioner identified the repaving, culvert replacement, and related work for an 8.8-mile section of the Galesville to Melrose section of Highway 54, identified in the 2014-2019 Six Year Highway Plan as the only other major highway project planned for the Project vicinity for that timeframe.

WisDOT also plans to continue to conduct reconditioning and reconstruction of I-90 in La Crosse County. This project is located about 6 miles from the Q-1D corridor. Construction was started in 2013 and is scheduled to be completed in 2018. The work would be conducted in Onalaska and La Crosse. It includes the reconstruction of I-90 between Round Lake Bridge (Campbell) to Theater Road (Onalaska) in La Crosse County, the reconstruction of the I-90/US 53/STH 35 Interchange and construction of STH 157 bridges over I-90. None of the proposed detours are in the vicinity of the Q-1D Project. The Project includes work within or adjacent to the Black River floodplain in La Crosse.

La Crosse County is currently in the design process for a 2.9-mile reconstruction project on CH SN from CH S to Alpine lane in the City of Onalaska and Village of Holmen located approximately 2.5 miles from the terminus of the Q-1D Project. The reconstruction would include pavement replacement and the possible addition of sidewalk from CH S to CH OT, the reconstruction of the CH OT intersection, and reconstruction of CH OT to Alpine Lane, including the reconstruction of the Sand Lake Coulee Creek Bridges. The County would apply for construction funding in the 2015 to 2020 cycle.

## 6.3 Energy Projects

There are more than 150,000 miles of transmission lines in the US in the 230-765 kV Range (U.S. Department of Energy, 2002b, p.3). There are currently 53,203 miles within the Midwest Transmission System Operator (ISO), ranging from 69 to 500 kV (Midwest ISO 2010). In its 2010 transmission expansion plan (MTEP), the Midwest ISO identifies several hundred transmission improvement projects recommended for approval by its board, including approximately 2,400 miles of upgraded line or line on existing ROW and 1,700 miles of new line (Midwest ISO 2010a, Appendix A). Most are planned for completion over the next few years. Additionally, Appendix B lists projects that have been reviewed by Midwest ISO staff for need and effectiveness, and lists approximately 1,800 miles of upgrades/lines on exiting ROW and 24,000 miles of new lines. Many of these lines are conceptual, although a small percentage of them are planned. Finally in Appendix C, projects listed are either conceptual or new to the planning process, and have not undergone thorough review, including approximately 2,600 miles of upgrades/lines on existing ROW and 13,000 miles of new lines are in the conceptual stage.

Wind energy in the U.S. has grown at a healthy pace in recent years. Growth was 30% on average for the past five years. Americas wind industry built 13,131 MW of wind power last year, posting 28% growth in 2012 and had its best year ever. Total wind installation stands at 60,009 MW (AWEA 2012).

In the vicinity of the Q-1D Project, the CapX project is currently under construction in Minnesota and Wisconsin, ending in May or June of 2015. The Wisconsin portion of the project consists of approximately 46 miles of 345 kV transmission line, approximately 2.3 miles of 161 kV relocations to connect with the new Briggs Road Substation, through Buffalo, La Crosse, and Trempealeau Counties.

The proposed Badger-Coulee 345-kV transmission project is a 159 to 182 mile transmission line through Columbia, Dane, Jackson, Juneau, La Crosse, Monroe, Sauk, Trempealeau, and Vernon Counties. The southern end point of the line would be the North Madison Substation in the Town of Vienna, continuing to the Cardinal Substation in the Town of Middleton. The western end point of the line would be Xcel Energy's new Briggs Road Substation near Holmen. Route options for the 9 mile long rebuild of the North La Crosse Substation (Briggs Road Substation) – La Crosse Tap may be impacted by the route selected for the Xcel/ATC Badger – Coulee 345 kV transmission line project as described in **Table 1-2**.

## 6.4 Resulting Cumulative Effects

### 6.4.1 Soils and Geology

The Project would disturb surface soils through the installation of poles, transport of crews, machinery, material, and equipment over access routes, primarily along the transmission ROW, and the temporary use of the two construction staging areas. The majority of these impacts would be temporary. The spatial boundary for the cumulative effects analysis is defined as the counties within which the Project is located. The temporal boundary is the lifetime of the Project.

The impacts from the Project would minimally contribute to the cumulative impacts on soil from other past, present, and reasonably foreseeable future activities in the area. Past activities include urban and suburban development and associated infrastructure, which has resulted in millions of acres of soil impacts. Other present activities contributing to soil impacts include on-going development, including roadway and transmission projects (hundreds of acres of impact). Reasonably foreseeable activities contributing to soil impacts in the area include future urban and suburban development and roadway and

transmission projects. Hundreds of acres of soil impacts could be expected from these activities in the future.

The Project is not expected to have geologic impacts; therefore cumulative impacts to geologic resources were not considered.

### 6.4.2 Water Resources

During construction of the Project, the potential for temporary impacts to surface water existing as a result of erosion from exposed areas of soil during construction and subsequent transport in runoff to steams and other surface water bodies. Erosion and runoff could result in increases in the volume of sediment and concentrations of dissolved solids (minerals, salts, and/or metals) in surrounding surface water bodies. These impacts will be minimized by the relatively small areas of exposed soil over the length of the Project, and by the implementation of BMPs during construction. No other impacts to surface water would be expected. All water bodies will be spanned. An estimated 21 poles would be placed within wetland within the Black River floodplain. The spatial boundary for the cumulative impact analysis of the surface water includes the watersheds in the Project area. The temporal boundary for the cumulative effects analysis is defined as the lifetime of the Project.

Because cropland covers much more than any other type of land use in the U.S., and because growing crops requires at least some exposure of soil, agriculture is the major contributor of sediment and dissolved solids to surface water. Recent trends in no-till and reduced-till farming have helped reduce these impacts. In the watersheds within the Project area, while the Project has the potential to contribute to the cumulative impacts on surface water, the impacts would not be expected to be discernible. Post-construction impacts on surface water would be limited to accessing the structures for maintenance, and would also be less than discernable. The Project would require crossing the Black River floodplain at its currently existing location and impacts would be limited to the 21 single pole Y-frame structures in the floodplain where there are currently 22 H-frame structures (44 poles). The Project ROW, currently cleared to at least 80 feet, would be reduced to 65 feet. Additionally, the Integrated Vegetation Management Plan (**Appendix C**) for the USFWS Refuge allows for previously-mowed grassy areas along the edge of the ROW to be allowed to revert to shrub-scrub vegetation, softening the edge effect of the ROW and creating an uneven, softer border. These impacts would result in a negligible change to cumulative impacts when past activities such as lock and dam construction, bridge construction, and conversion to farmland are considered. At least some of the transmission lines expected to be constructed in the foreseeable future would be expected to have similar floodplain impacts and would contribute to cumulative impacts. FEMA limits cumulative impacts on floodway by requiring a demonstration that any proposed construction in the floodway, in combination with other foreseeable construction would not cause a rise in flood elevation. While the transmission structures are so small that they would not be expected to have an impact, a potential effect on flood elevation would need to be addressed.

The Project is not expected to have impacts on groundwater; therefore, cumulative impacts to groundwater are not considered.

### 6.4.3 Biological Resources

Planned roadway expansion and urban/suburban expansion would add to the cumulative impacts on upland forest loss and fragmentation and potential grassland resources. However, other trends suggest that forested land may continue to increase despite these impacts and that wetland would generally remain constant in terms of overall area.

The existing transmission line currently crosses approximately 0.3 miles (2.28 acres) of the Van Loon Wildlife Area and approximately 0.9 miles (7.32 acres) of the Refuge and the Project would be constructed within this existing ROW. As described in Section 4.4.3, the Black River floodplain provides habitat for the state endangered (federal candidate) Eastern massasauga rattlesnake, (state protected) Blanding's and (state threatened) Wood turtles and other protected species. USFWS has identified the Black River Bottoms as a "Classification A" resource, which means that as a habitat for fish or wildlife it is unique or irreplaceable on a national basis or within the ecoregion (USFWS 2006b). As described in Section 4.1.3, the WDNR Van Loon Wildlife Area is a WBCI IBA noted for Yellow-crowned night-herons, Acadian flycatchers, Cerulean warblers and Prothonotary warblers that breed there. The Refuge was established by an Act of Congress on June 7, 1924 in part as a refuge and breeding place for migratory. The Refuge is approximately 240,000 acres in size and spans 261 miles along the Mississippi River in four states Minnesota, Wisconsin, Iowa, and Illinois.

To minimize the contribution of this Project to cumulative impacts of wind farms, wind towers, transmission lines, and structures on birds, particularly migrating birds and eagles, DPC designed the structures within the Black River floodplain to be at or below that the height of the tree canopy and will coordinate with the USFWS and WDNR on the areas where bird diverters should be installed. Bird diverters will be installed on all portions of the Project that cross the Black River floodplain, and would be installed by helicopter concurrently with Project construction. DPC will use a heavy-lift helicopter to construct the transmission line within the Black River floodplain and prepare a Habitat Conservation Plan as part of the ITP process for the Eastern massasauga and Wood turtle. This and the other conservation measures identified in **Tables 5-1 and 5-2** will be implemented. The Project will add to the cumulative impacts, but they should be less than discernable.

Future wind farms, tower, and transmission lines would add to the cumulative impact of structures on birds in flight.

### 6.4.4 Cultural Resources

Any development may adversely impact historic and cultural resources. Minimal impact on these resources is expected and therefore the contribution to cumulative impacts is expected to be negligible. The requirements for federal projects will ensure that such projects result in the preservation of cultural resources.

### 6.4.5 Air Quality

As described in Section 5.7, the Project would result in limited air emissions. During construction there would be some fugitive dust and exhaust emissions from construction equipment. Potential air quality impacts from operation are primarily associated with the production of small amounts of ozone and nitrogen dioxide in the air surrounding transmission line conductors. The Project does not include the construction of any substations.

Through its air permitting process under the Clean Air Act, USEPA has established procedures for evaluation of the cumulative impacts of stationary emission sources on the NAAQS, which are protective of human health and environment. Because of its de minimus stationary emission the Project would not require an air permit under the Clean Air Act and would therefore be expected to contribute negligibly to cumulative air quality impacts. In terms of overall mobile emissions, vehicle exhaust and fugitive dust emission from the construction and maintenance of the Project are minimal enough that they would not need to be specifically included in a transportation conformity plan for mobile source. The mobile sources associated with the Project would conform to current and future regulatory requirements for their manufacture, maintenance, operation, and fueling - all of which would restrict the potential emissions from those mobile sources.

### 6.4.6 Visual Resources

The Project would contribute to the visual intrusion of building, highways, other structures, wind farms, transmission lines and communication towers. This increase in constructed visual elements is expected to increase. The impacts are generally incremental, as few areas have no visual intrusion of human-made structures.

### 6.4.7 Transportation

This and other transmission projects would affect highways, as there would continue to be pressure to use existing transportation corridors for new projects. This would require increased coordination with DOTs and local road authorities. The Contribution of this project to cumulative impacts is negligible given the fact that would be rebuilt within its existing ROW.

### 6.4.8 Health and Safety

The Project is not expected to have adverse impacts on public health and safety, and therefore is not expected to contribute to cumulative impacts.

### 6.4.9 Socioeconomic Impacts

Since the project would be constructed within an existing ROW, its contribution to cumulative impact such as property values and agricultural impacts are expected to less than discernable.

# 7.0 Agencies Consulted

DPC consulted with federal, state and local agencies to solicit comments regarding potential impacts associated with the Project. DPC sent consultation letters to the following resource management agencies:

- USFWS concerning:
  - The Refuge, including cultural and historic resources within the Refuge
  - Federally-listed threatened or endangered species, MBTA, and Bald and Golden Eagle Act
  - Wetlands
  - FAA regarding notification related to potential impacts on airport approaches and navigation facilities
- USACE concerning wetlands and floodplains
- Wisconsin DATCP regarding farmland
- WDNR concerning:
  - The Van Loon Wildlife Area
  - State-listed protected species and habitats
  - Wetlands and waterways
- WisDOT concerning road crossings and clearances
- Wisconsin SHPO concerning cultural and historic resources
- Trempealeau and La Crosse County Natural Resources Conservation Service (NRCS) concerning soils, prime farmland and farmland of statewide importance
- Trempealeau County Department of Land Management concerning land use, floodplains and county/local permits and approvals
- La Crosse County Zoning and Planning concerning county permits and approvals

In addition, DPC participated in meetings with USFWS, USACE, and WDNR to discuss the Project. Meeting notes from each meeting are provided in **Appendix F**.

Copies of the consultation letters sent to resource management agencies and responses received to date are provided in **Appendix F**.

Copies of consultation letters sent to Tribes are included in **Appendix I.**

At the time that this EA was submitted to RUS, responses have been received from WisDOT, Wisconsin DATCP, WDNR, SHPO, Trempealeau and La Crosse Counties.

DPC will provide RUS with acquired agency permits as they are received.

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# 8.0 References

Economic Research Services, ERS USDA. 2013. http://www.ers.usda.gov/data-products/state-factsheets/statedata.aspx?StateFIPS=55&StateName=Wisconsin#Pd63c54cf25e94023ae02389a115e85f0_2_428iT15C0x0 Accessed March 18, 2014.

November 2013. Webpage. http://ers.usda.gov/data-products/ag-and-food-statistics-charting-the-essentials/land-and-natural-resources.aspx Accessed March 18, 2014

American Wind Energy Association (AWEA). 2012. Industry Fact Sheet.at http://awea.files.cms-plus.com/FileDownloads/pdfs/AWEA%20U.S.%20Wind%20Industry%20Annual%20Market%20Update%202012_1383058080720_3.pdf Accessed March 18, 2014.

Council on Environmental Quality (CEQ). 1997. *Considering Cumulative Effects under the National Environmental Policy Act.* Washington: Council of Environmental Quality, 64 pp.

Federal Aviation Administration (FAA). 2013. Federal Aviation Administration Notice Criteria Tool. https://oeaaa.faa.gov/oeaaa/external/gisTools/gisAction.jsp?action=doNoNoticeRequiredTool&latD=43&latM=50&latS=47&latDir=N&longD=91&longM=10&longS=30&longDir=W&datum=NAD83&siteElevation=758&structureHeight=120&traverseway=NO&onAirport=false&submit=Submit. Accessed .October 29, 2013.

Federal Reserve Economic Data (FRED) 2013a. (Source: U.S. Bureau of Labor Statistics). Unemployment Rate in Trempealeau County, WI. http://research.stlouisfed.org/fred2/series/WITREM1URN?cid=30494 Accessed October 29, 2013.

2013b. Unemployment Rate in La Crosse County, WI. http://research.stlouisfed.org/fred2/series/WILACR3URN?cid=30464 Accessed October 29, 2013.

2013c. Unemployment Rate in Wisconsin. http://research.stlouisfed.org/fred2/series/WIUR?cid=27333 Accessed October 29, 2013.

Midwest ISO. 2010. Midwest ISO Transmission Expansion Plan. MTEP2010.

National Park Service (NPS). 1991. How to Apply the National Register Criteria for Evaluation. National Register Bulletin No. 15. National Park Service, Washington, D.C.

Noise Pollution Clearing House (NPC). 2011. Typical Noise Levels. http://www.nonoise.org/library/household/index.htm. Accessed July 24, 2011.Omernik, J.M. and A.L. Gallant. 1988. Ecoregions of the Upper Midwest States. EPA/600/3-88/037. U.S. EPA, Environmental Research Laboratory, Corvallis, OR. 56p.

Omernik, J.M. and A.L. Gallant. 1988. Ecoregions of the Upper Midwest States. EPA/600/3-88/037. U.S. EPA, Environmental Research Laboratory, Corvallis, OR. 56p.

Proximity 2013. Wisconsin Census Tract Demographic Characteristics. http://proximityone.com/ustr0509_wi.htm Accessed December 12, 2013.

Public Service Commission of Wisconsin (PSCW). May 30, 2012. Final Decision for Joint Application of Dairyland Power Cooperative, Northern States Power Company-Wisconsin, and Wisconsin Public Power, Inc., for Authority to Construct and Place in Service 345 kV Electric Transmission Lines and Electric Substation Activities for the CapX Twin Cities-Rochester-La Crosse Project, Located in Buffalo, Trempealeau, and La Crosse Counties.

University of Wisconsin – Geological and Natural History Survey. 1965) Early Vegetation of Wisconsin.

U.S. Department of Agriculture Rural Utilities Service (RUS). January 2013. Record of Decision. CapX 2020 Hampton-Rochester-La Crosse 345-kV Transmission System Improvement Project.

USACE. 1987. Corps of Engineers Wetland Delineation Manual. Technical Report Y-87-1, U.S. Army Corps of Engineers (USACE) Waterways Experiment Station. Vicksburg, MS.

2010. Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Midwest Region, ed. J.S. Wakeley, R. W. Lichvar, and C. V. Noble. ERDC/EL TR-08-27. Vicksburg, MS: U.S. Army Engineer Research and Development Center.

U.S. Department of Agriculture (USDA), Natural Resource Conservation Service (NRCS), 2013. http://datagateway.nrcs.usda.gov/ Accessed October 29, 2013.

USDA. 2014. Agricultural Projections to 2023. http://www.ers.usda.gov/publications/oce-usda-agricultural-projections/oce141.aspx Accessed March 18, 2014.

2013. Summary Report: 2012 National Resources Inventory, Natural Resources Conservation Service, Washington, DC and Center for Survey Statistics and Methodology, Iowa State University. Ames, Iowa. http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/stelprdb1167354.pd Accessed March 18, 2014.

U.S. Department of Agriculture, U.S. Department of Interior (USDI). 1970. Environmental Criteria for Electric Transmission System.

U.S. Department of Energy (DOE). 2002. Bonneville Power Administration, Draft Environmental Impact Statement, Grand Coulee–Bell 500kV Transmission Line Project (DOE/EIS-0344). August 2002.

2002b. National Transmission Grid Study.

U. S. Department of Transportation (DOT). 2006. Transit Noise and Vibration Impact Assessment. May 2006.

U.S. Environmental Protection Agency (USEPA) “Green Book” - Currently Designated Nonattainment Areas for All Criteria Pollutants. Available URL: http://www.epa.gov/oaqps001/greenbk/ancl.html#Notes Accessed September 27, 2013.

U.S. Geological Survey (USGS). 2006. Principal Aquifers of the 48 Conterminous United States, Hawaii, Puerto Rico, and the U.S. Virgin Islands: U.S. Geological Survey, Madison, WI, USA. Available URL: http://www.nationalatlas.gov/atlasftp.html#aquifrp. Accessed September 18, 2013.

2013. Wisconsin Annual Data, 20 Years of More: U.S. Geological Survey, Water Resources Discipline – Office of Groundwater. Available URL: http://groundwaterwatch.usgs.gov/ltn/statemapsad/ListWIa1d1.html, Accessed September 18, 2013.

U.S. Fish and Wildlife Service (USFWS). 2006a. U.S. Fish and Wildlife Service. Our Mission. Available URL: http://www.fws.gov/help/mission.cfm, Accessed on February 23, 2014.

2006b. Upper Mississippi National Wildlife and Fish Refuge Final Environmental Impact Statement and Comprehensive Conservation Plan.

2009. U.S. Fish and Wildlife Service. Letter to Thomas Hillstrom, Xcel Energy, from Don Hultman, Refuge Manager, Upper Mississippi River National Wildlife and Fish Refuge. May 4.

2014. Upper Mississippi River: About the Refuge. Available URL: http://www.fws.gov/refuge/Upper_Mississippi_River/about.html Accessed January 6, 2014.

2014b. Northern Long-eared Bat Interim Conference and Planning Guidance – USFWS Regions 2, 3, 4, 5, & 6.

Northern Long-Eared Bat (*Myotis septentrionalis)* Fact Sheet Available URL http://www.fws.gov/midwest/endangered/mammals/nlba/nlbaFactSheet.html Accessed September 17, 2014.

Wisconsin Department of Natural Resources (WDNR). 2001. Forest Legacy Program, Wisconsin’s Forests. PUB-FR-182.

1975. Aquatic Insects of Wisconsin – Generic Keys and Notes on Biology, Ecology and Distribution. Technical Bulletin No. 89.

Division of Water, Water Quality Monitoring. 2012. 303(d) Impaired Waters List. Available URL: http://dnrmaps.wi.gov/SL/Viewer.html?Viewer=SWDV Accessed September 18, 2013.

Division of Water, Water Quality Monitoring. 2012 Wisconsin Drinking Water Data. Available URL http://prodoasext.dnr.wi.gov/inter1/pws2$.startup Accessed September 18, 2013b.

State Natural Areas Program, Van Loon Floodplain Forest and Wildlife Area (No. 568) http://dnr.wi.gov/topic/lands/WildlifeAreas/vanloon.html. Accessed September 18, 2013d.

Ecological Landscapes – Western Coulee and Ridges Fact Sheet http://dnr.wi.gov/topic/landscapes/index.asp?mode=detail&Landscape=11 Accessed October 14, 2013e.

Blanding's Turtle (*Emydoiea blandingii*) Fact Sheet. http://dnr.wi.gov/topic/EndangeredResources/Animals.asp?mode=detail&SpecCode=ARAAD04010. Accessed January 15, 2014.

Wisconsin's Natural Communities website http://dnr.wi.gov/topic/EndangeredResources/Communities.asp Accessed September 17, 2014.

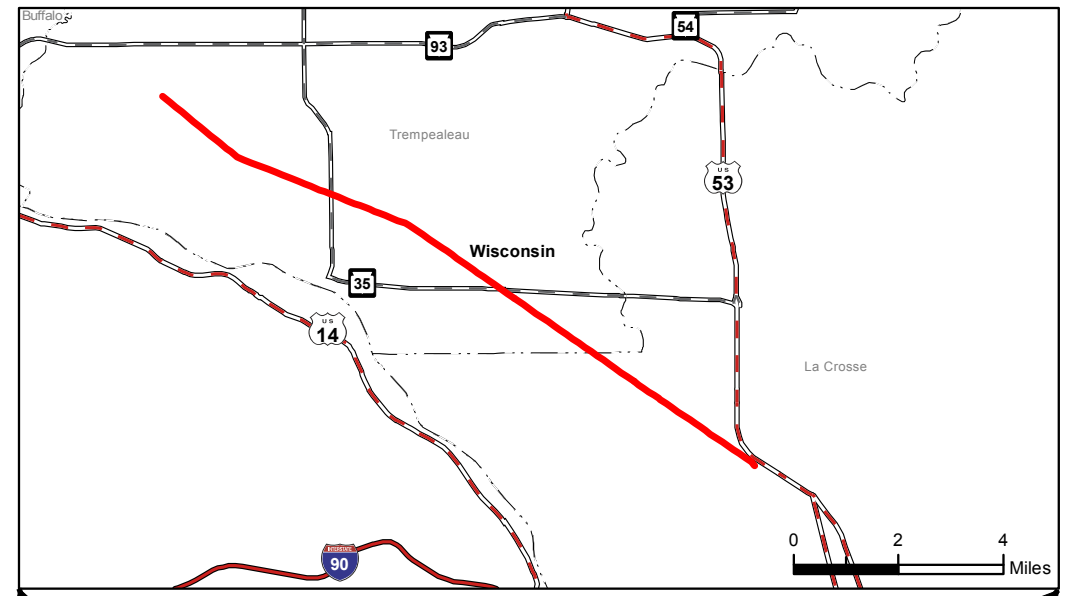
Wisconsin Department of Transportation (WisDOT) Travel Information. Available URL: http://www.dot.wisconsin.gov/travel/counts. Accessed September 18, 2013c.

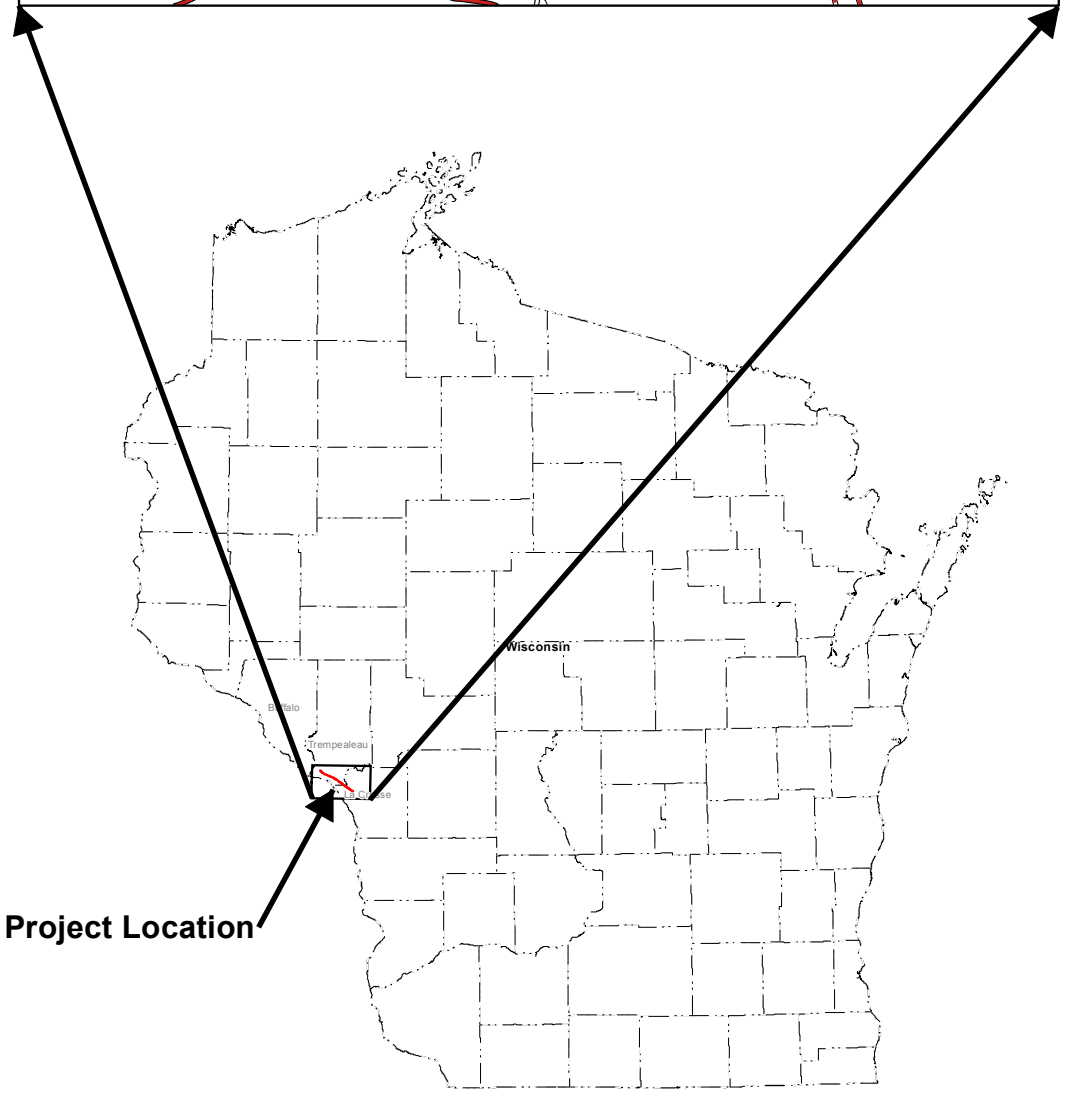
Wisconsin Geological and Natural History Survey (WGNHS). 1984. Short History of the Ice Age in Wisconsin. Revised November 1984. http://wisconsingeologicalsurvey.org/pdfs/pgszpdf/ice_age_deposits.pdf. Accessed September 18, 2013.

Xcel Energy Inc., Dairyland Power Cooperative, and WPPI Energy. Application for Certificate of Public Convenience and Need. Final revised package submitted June 29, 2011.

Yantak, David S.; David K. Ingram, and R.J. Matetic. 2007. In-Cab Noise Reduction on an Air-Rotary Drill Rig. Journal of Noise Control Engineering, May–June 2007; 55(3): pp. 294-310.

# FIGURES




**Legend**

Project Centerline

State

**Transportation**

Interstate Highway

US Highway

State Highway

30 0 30 Miles

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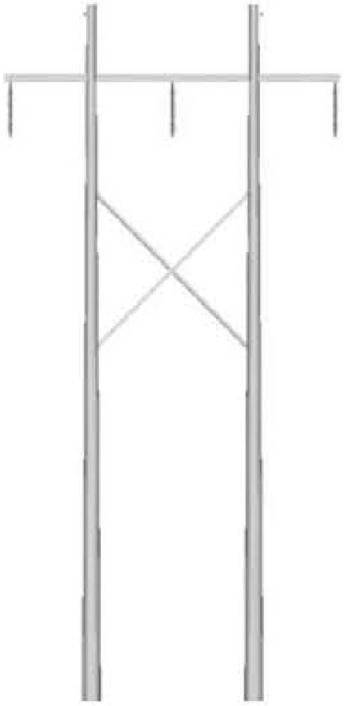
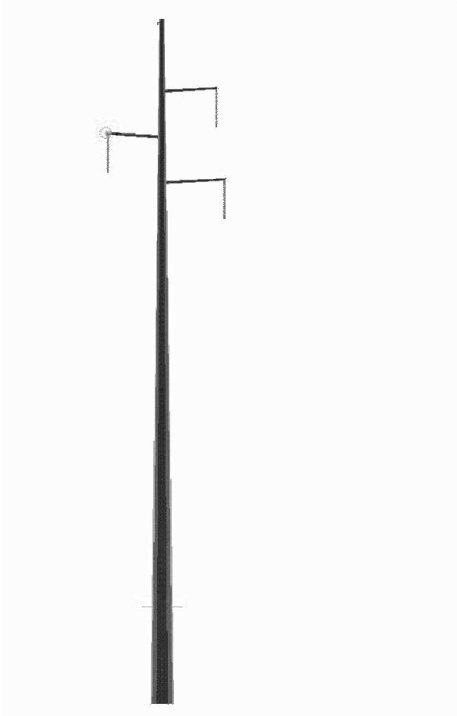
**Marshland-Briggs Road 161 kV Rebuild Project (RUS #1064)**

Trempealeau and La Crosse Counties, Wisconsin

***Figure 1***
***Project Location Map***
*February 2015*



H-Frame Steel



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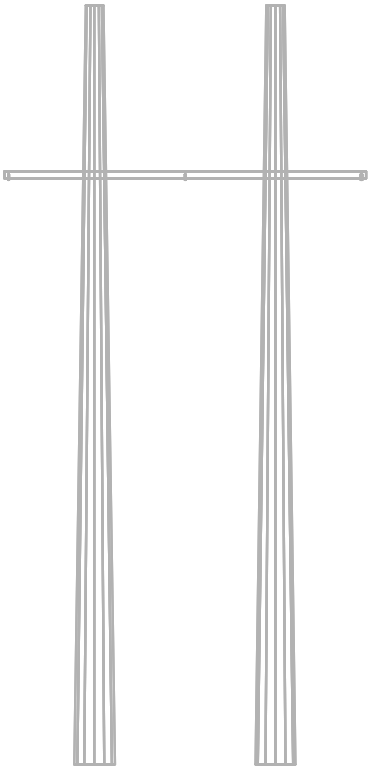

H-Frame Deadend Steel

Y-Frame Steel

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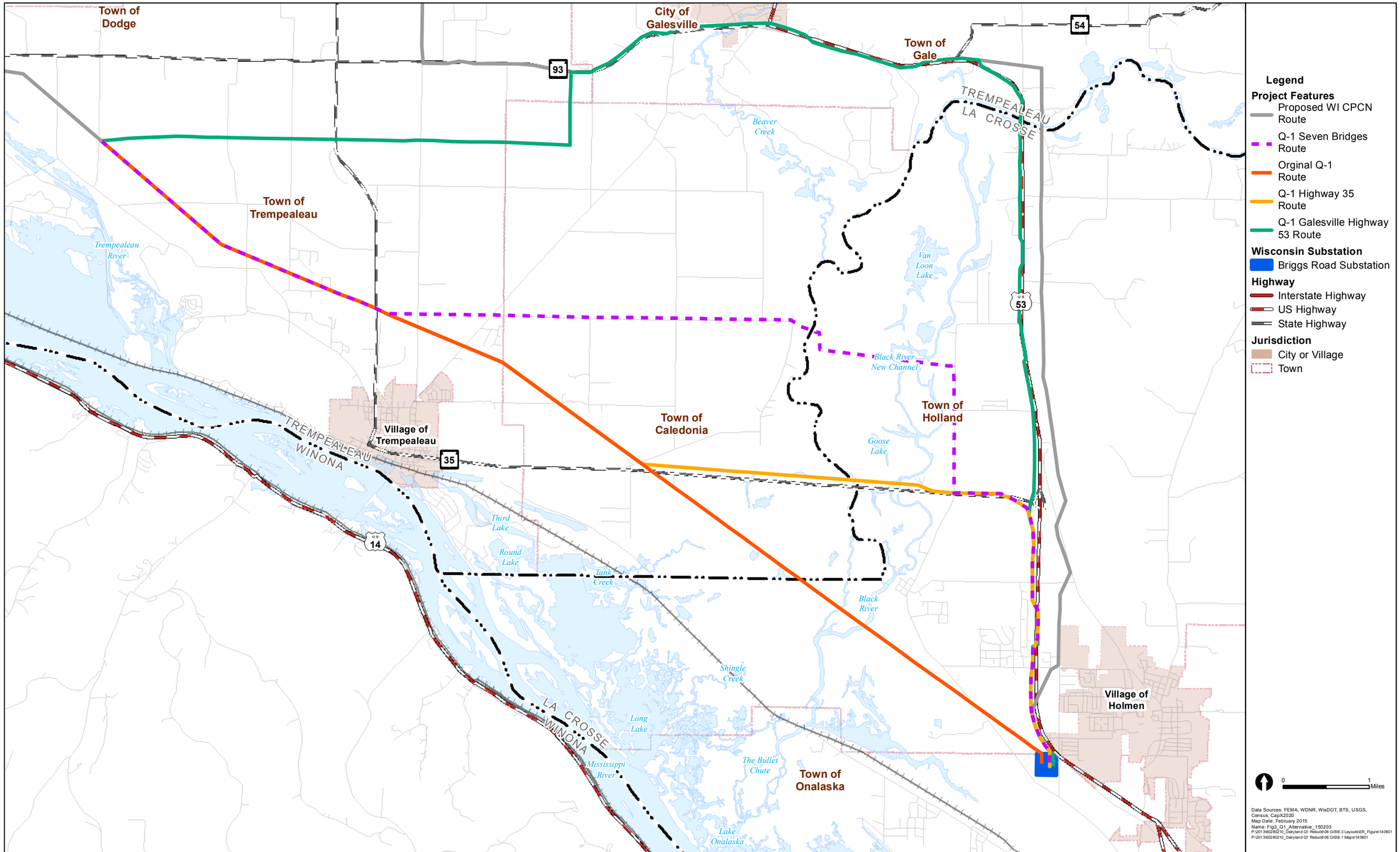
**Marshland-Briggs Road 161 kV Rebuild Project (RUS #1064)**

Treampealeau and La Crosse Counties, Wisconsin

***Figure 2***
***Structure Diagram***
*February 2015*

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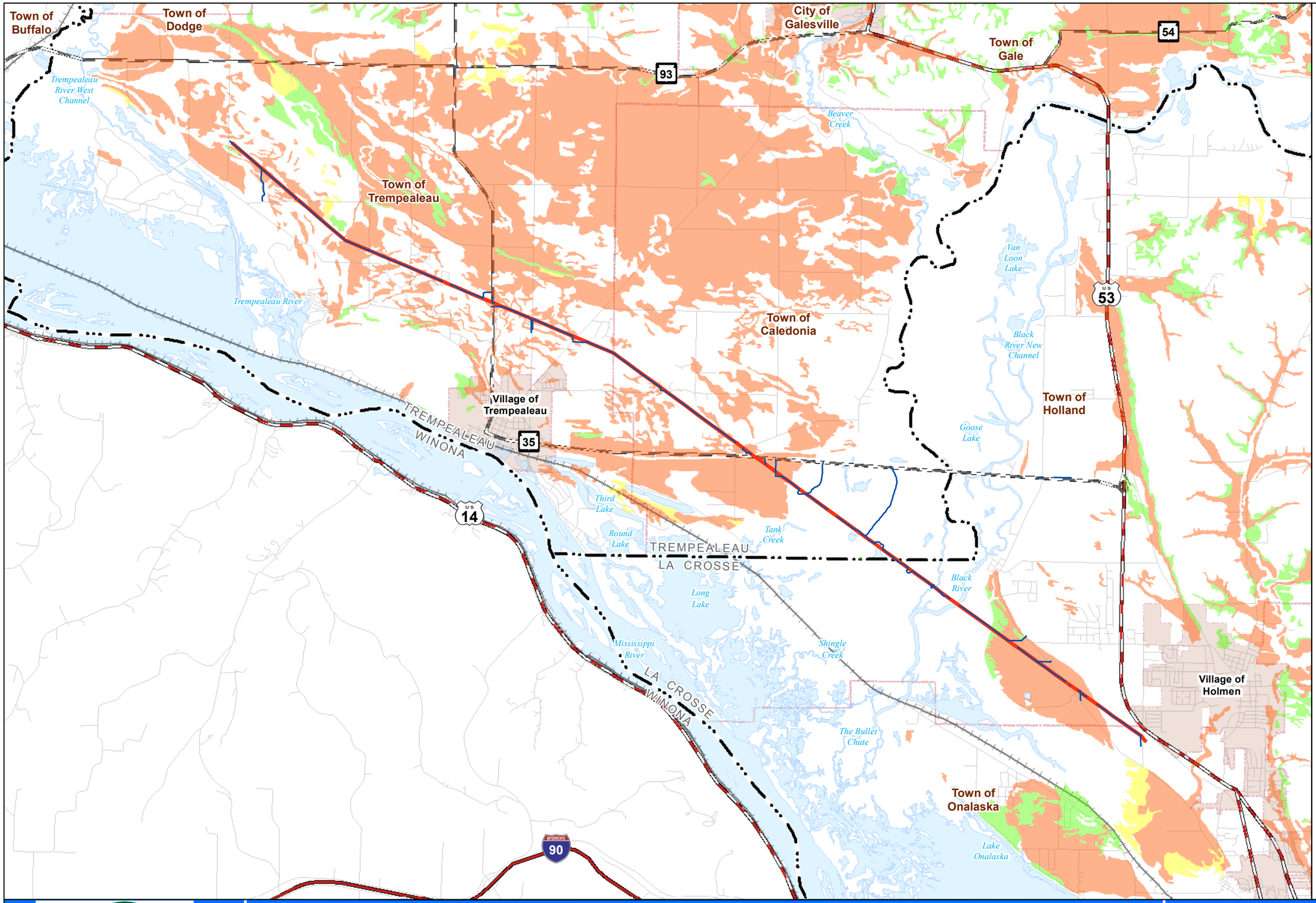
# Marshland-Briggs Road 161 kV Rebuild Project (RUS #1064)

Trempealeau and La Crosse Counties, Wisconsin

***Figure 3***
***Q-1 161 kV Transmission Line Rebuild Alterantives***
***February 2015***

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# Marshland-Briggs Road 161 kV Rebuild Project (RUS #1064)

Trempealeau and La Crosse Counties, Wisconsin

**Figure 4**
**Prime Farmland Map**
February 2015

Town of Dodge
Town of Buffalo
Trempealeau River
Greenwood Cemetary
Centerville Methodist Church
City of Galesville
Marinuka Lake
Town of Gale
Berean Church
93
54
Trempealeau River West Channel
Trempealeau National Widlife Refuge
Beaver Creek
Town of Trempealeau
Scattered Wildlife
Great River State Trail
Trempealeau Cemetary
Brady's Bluff Prairie
Perrot State Park
Town of Caledonia
Van Loon Lake
US 53
Black River New Channel
Town of Holland
35
Old Catholic Cemetary
Village of Trempealeau
TREMPEALEAU
WINONA
Black River
Goose Lake
Trempealeau Public Access
Trempealeau Lakes Fishery Area
Tank Creek
US 14
Trempealeau Lakes State Public Hunting Grounds
Third Lake
Round Lake
Van Loon Wildlife Area
New Amsterdam Grasslands
TREMPEALEAU
LA CROSSE
Upper Mississippi Fish and National Wildlife Refuge
Long Lake
Mississippi Island Wildlife Area
Shingle Creek
Holland Sand Prairie State Natural Area
Holmen High School
Long Coulee Cemetary
La Crosse Area Comprehensive F. A.
Holmen Middle School
Holmen School
Village of Holmen
LA CROSSE
WINONA
Great River Trail Prairie State Natural Area
The Bullet Chute
Great River Bluffs State Park - MN
Mississippi River
Oak Grove Elementary School
Town of Onalaska
Statewide Public Access
Brice Prairie Cemetary
Lake Onalaska
INTERSTATE 90
Midway Railroad Prairie State Natural Area
City of Onalaska

## Legend

**Project Feature**
- Project Centerline

**Communication Tower**
- Cellular

**Jurisdiction**
- City or Village
- Town
- Federal Land
- State Land

**Transporation**
- Interstate Highway
- US Highway
- State Highway

0 1 Miles

Data Sources: WDNR, WisDOT, BTS, USGS, Census
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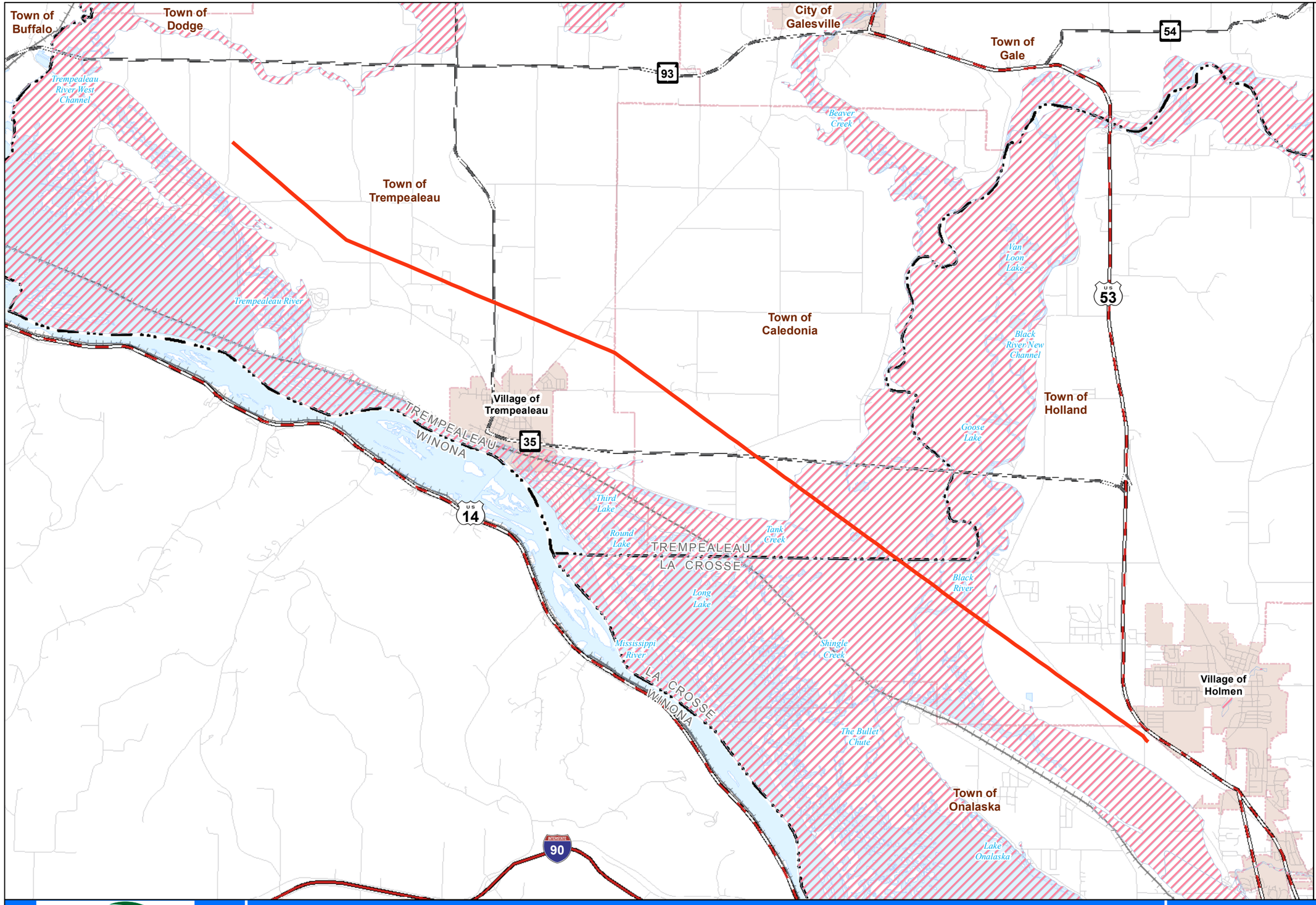
# Marshland-Briggs Road 161 kV Rebuild Project (RUS #1064)

Trempealeau and La Crosse Counties, Wisconsin

**Figure 5**
**Formally Classified Land Map**
February 2015

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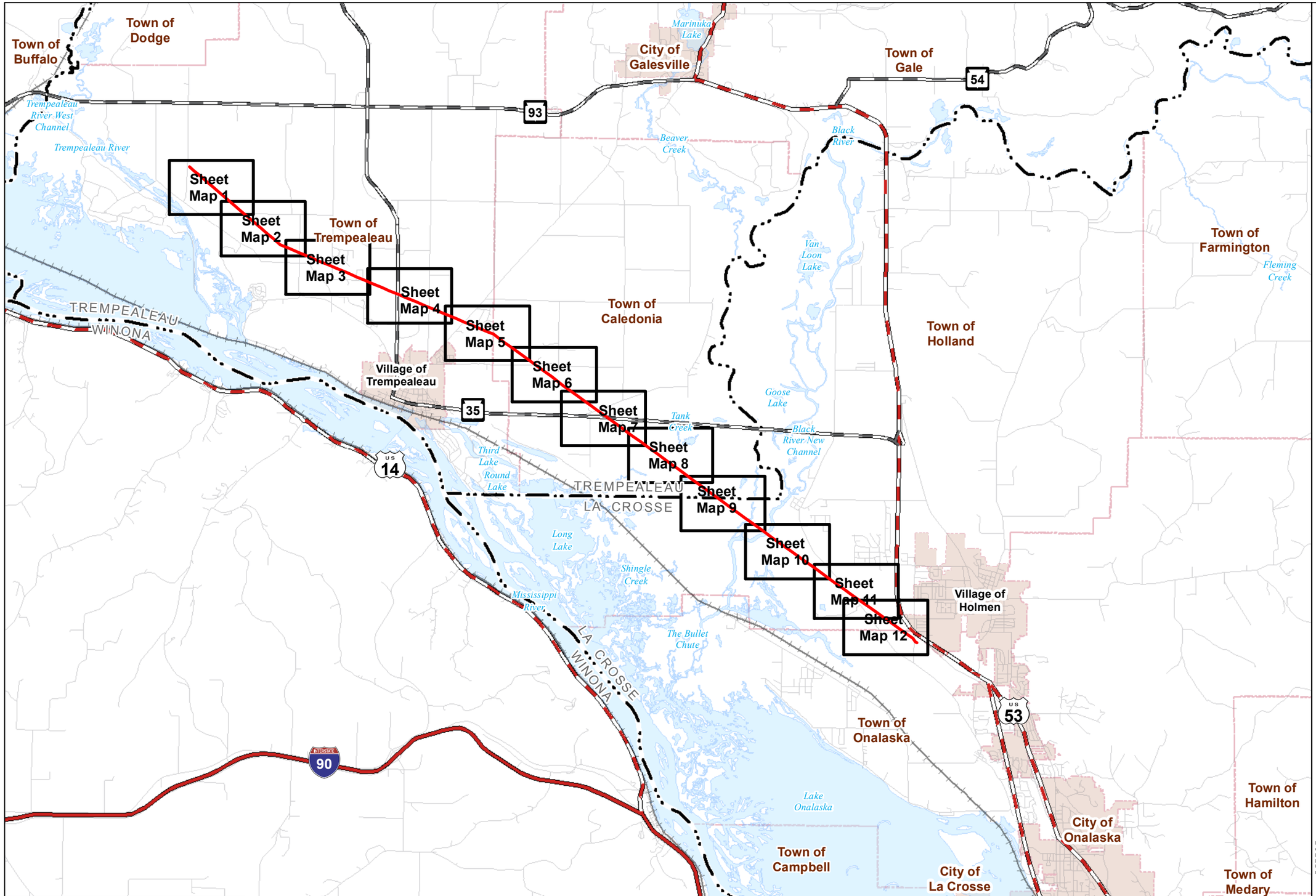
# Marshland-Briggs Road 161 kV Rebuild Project (RUS #1064)

Trempealeau and La Crosse Counties, Wisconsin

**Figure 6**
**FEMA Floodplain Map**
*February 2015*

# Appendix A:  Sheet Maps




## Sheet Map Index

**Legend**

**Project Feature**
- Project

**Highway**
- Interstate Highway
- US Highway
- State Highway

**Jurisdiction**
- City or Village
- Town

0 1 Miles

Data Sources: WDNR, WisDOT, BTS, USGS, Census
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# Marshland-Briggs Road 161 kV Rebuild Project (RUS #1064)

Trempealeau and La Crosse Counties, Wisconsin

*Appendix A*
*Dairyland Marshland-Briggs Road 161 kV Rebuild Project Overview Map*
*June 2014*


## Sheet Map 1

### Legend

**Project Feature**

- H-Frame Steel
- H-Frame Steel (Deadend)
- Y-Frame Steel
- Y-Frame Steel with Matting
- Project Centerline
- Right-of-Way
- Access Route
- Approximate Staging Area
- Briggs Road Substation

**Water Feature**

- Waterbody
- Field Sketched Waterway
- Field Sketched Wetland
- Field Sketched Open Water

**WDNR 24K Hydrography**

- Intermittent Stream
- Perennial Stream

**Transportation**

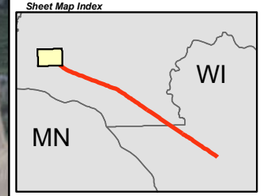
- Interstate Highway
- US Highway
- State Highway

**Jurisdiction**

- State
- County
- Township
- Section
- City, Village or Town
- Federal Land
- State Land

0 400 Feet

*Sheet Map Index*

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**Aerial Photography Published by ESRI World Imagery, 2010**

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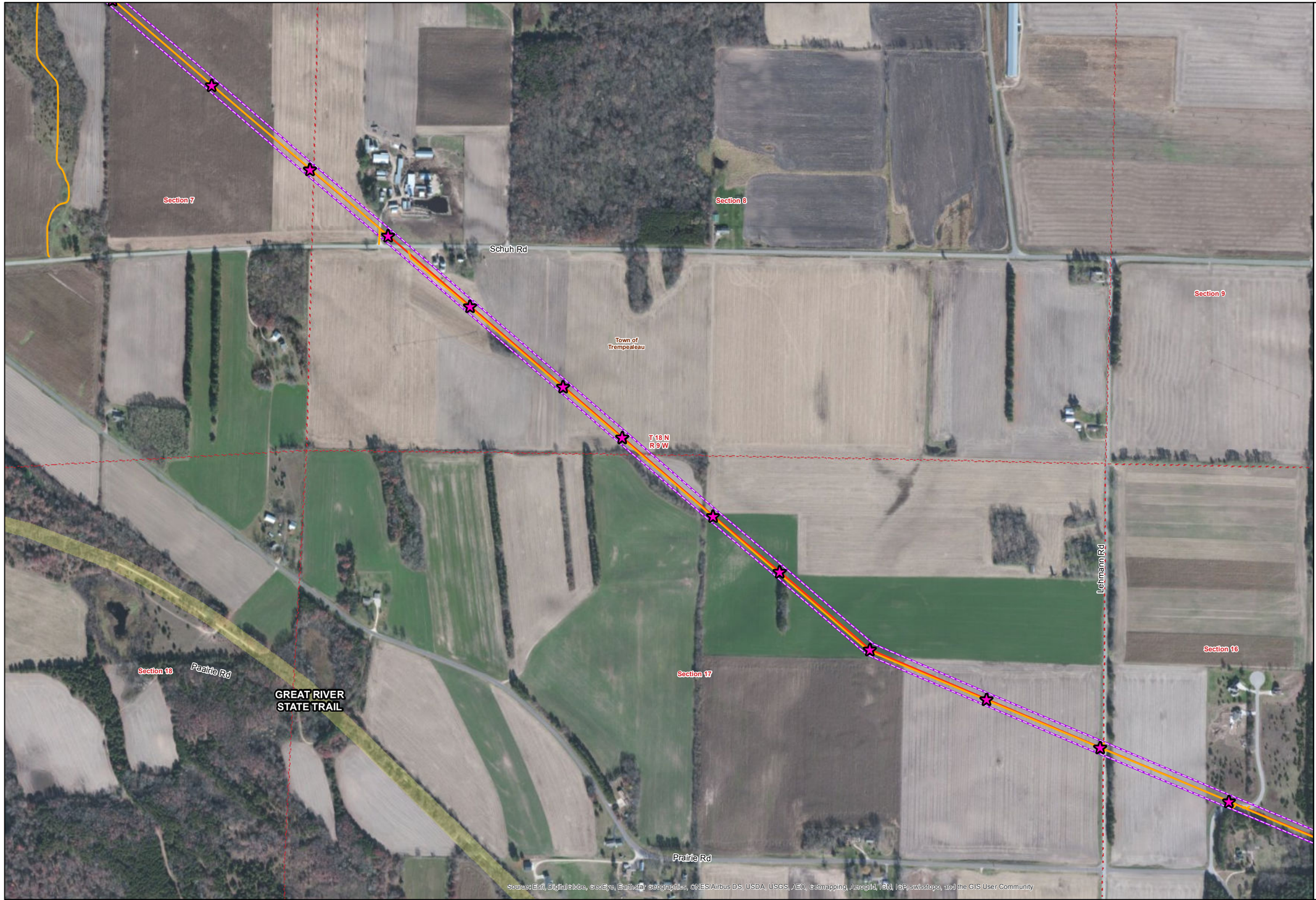
# Marshland-Briggs Road 161 kV Rebuild Project (RUS #1064)

Trempealeau and La Crosse Counties, Wisconsin

***Appendix A***
***Dairyland Marshland-Briggs Road 161 kV Rebuild Project***
*February 2015*




## Sheet Map 2

### Legend

**Project Feature**

- H-Frame Steel
- H-Frame Steel (Deadend)
- Y-Frame Steel
- Y-Frame Steel with Matting
- Project Centerline
- Right-of-Way
- Access Route
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- Briggs Road Substation

**Water Feature**

- Waterbody
- Field Sketched Waterway
- Field Sketched Wetland
- Field Sketched Open Water

**WDNR 24K Hydrography**

- Intermittent Stream
- Perennial Stream

**Transportation**

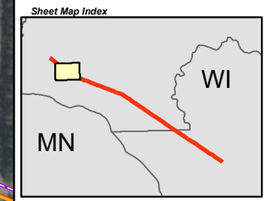
- Interstate Highway
- US Highway
- State Highway

**Jurisdiction**

- State
- County
- Township
- Section
- City, Village or Town
- Federal Land
- State Land

0 400 Feet

*Sheet Map Index*

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DAIRYLAND POWER COOPERATIVE
A Touchstone Energy® Cooperative

# Marshland-Briggs Road 161 kV Rebuild Project (RUS #1064)

Trempealeau and La Crosse Counties, Wisconsin

***Appendix A***
***Dairyland Marshland-Briggs Road 161 kV Rebuild Project***
***February 2015***


## Sheet Map 3

### Legend

**Project Feature**

- H-Frame Steel
- H-Frame Steel (Deadend)
- Y-Frame Steel
- Y-Frame Steel with Matting
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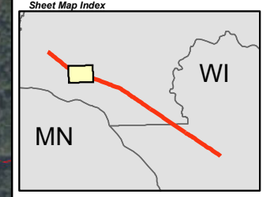


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# Marshland-Briggs Road 161 kV Rebuild Project (RUS #1064)

Trempealeau and La Crosse Counties, Wisconsin

***Appendix A***
***Dairyland Marshland-Briggs Road 161 kV Rebuild Project***
*February 2015*


## Sheet Map 4

### Legend

**Project Feature**

- H-Frame Steel
- H-Frame Steel (Deadend)
- Y-Frame Steel
- Y-Frame Steel with Matting
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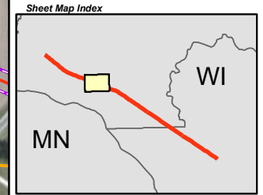


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# Marshland-Briggs Road 161 kV Rebuild Project (RUS #1064)

Trempealeau and La Crosse Counties, Wisconsin

***Appendix A***
***Dairyland Marshland-Briggs Road 161 kV Rebuild Project***
*February 2015*


## Sheet Map 5

### Legend

**Project Feature**

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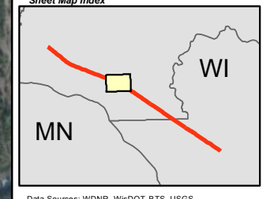
*Sheet Map Index*

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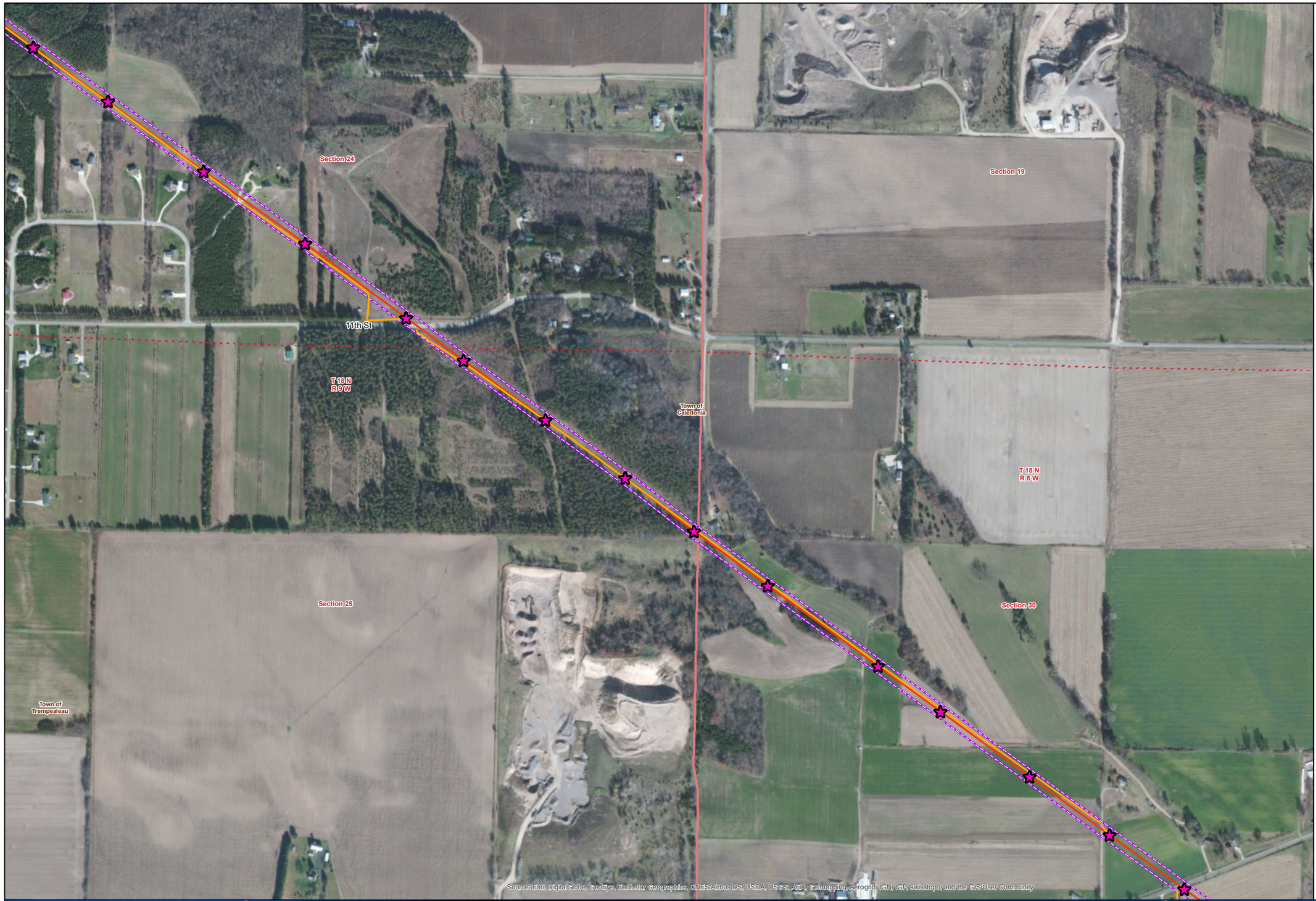
# Marshland-Briggs Road 161 kV Rebuild Project (RUS #1064)

Trempealeau and La Crosse Counties, Wisconsin

***Appendix A***
***Dairyland Marshland-Briggs Road 161 kV Rebuild Project***
*February 2015*




## Sheet Map 6

### Legend

**Project Feature**

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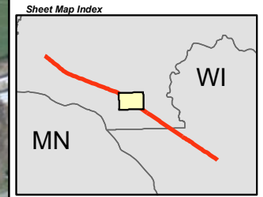


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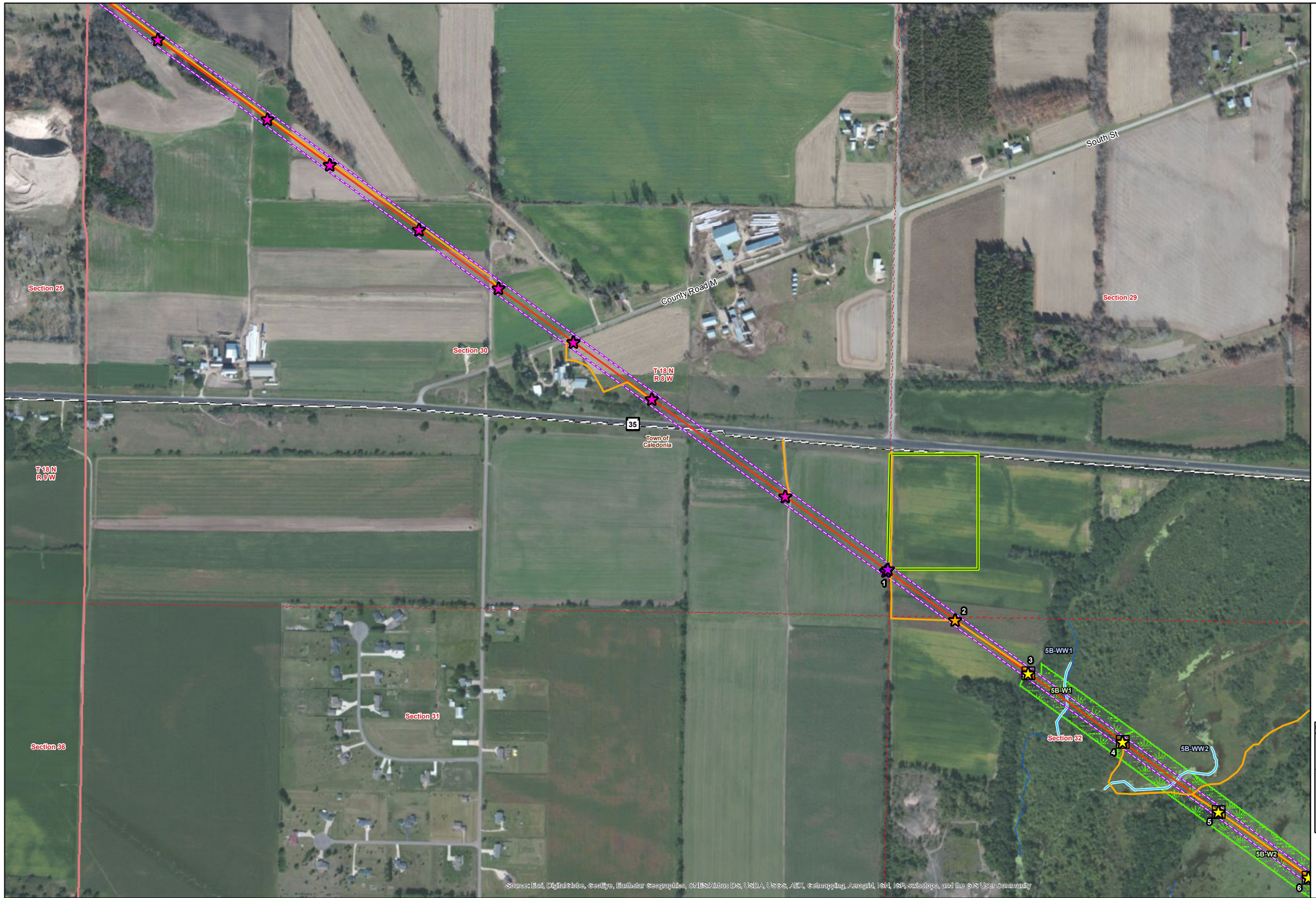
# Marshland-Briggs Road 161 kV Rebuild Project (RUS #1064)

Trempealeau and La Crosse Counties, Wisconsin

***Appendix A***
***Dairyland Marshland-Briggs Road 161 kV Rebuild Project***
*February 2015*




## Sheet Map 7

### Legend

**Project Feature**

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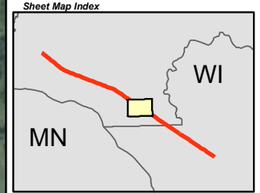


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DAIRYLAND POWER COOPERATIVE
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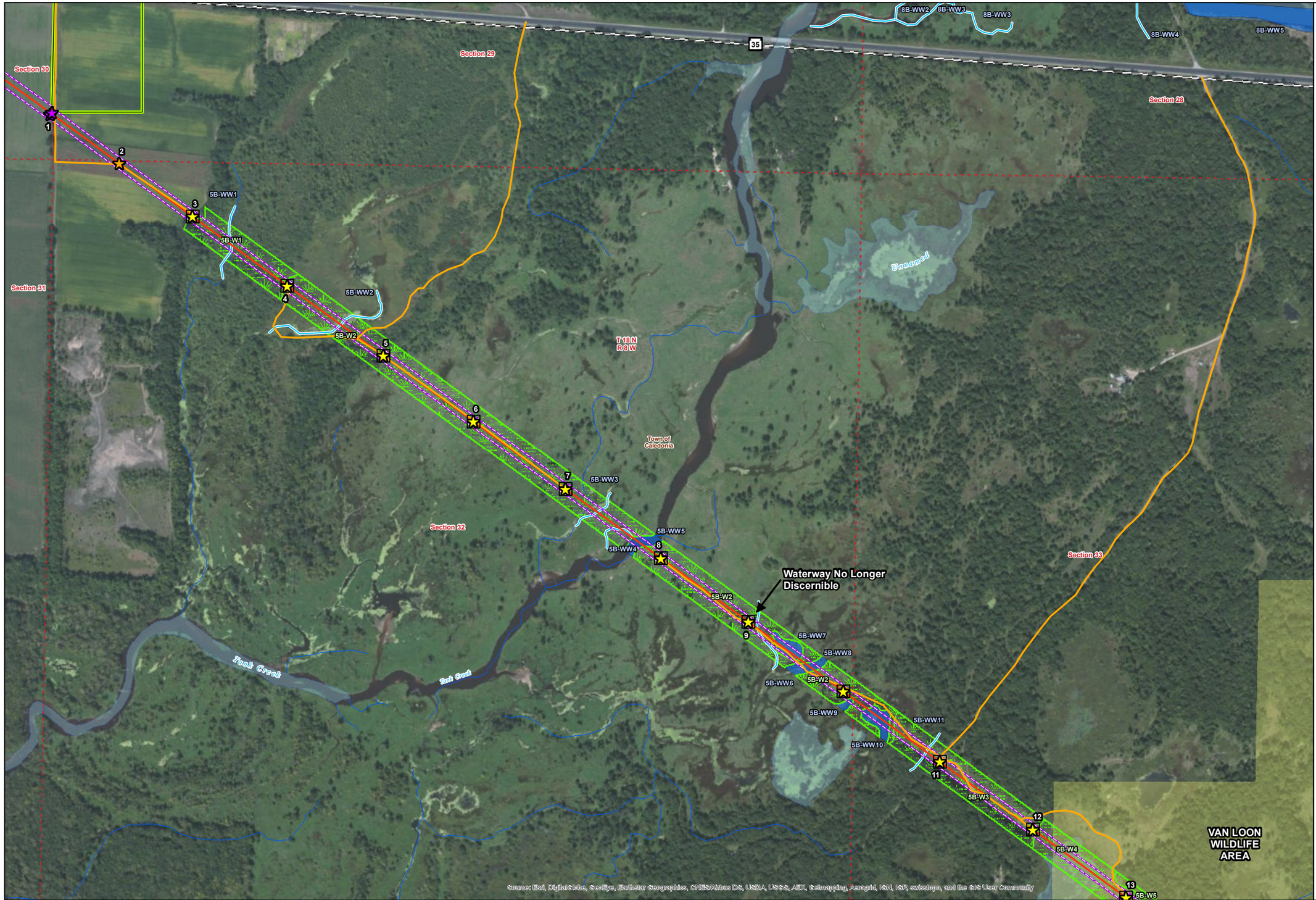
# Marshland-Briggs Road 161 kV Rebuild Project (RUS #1064)

Trempealeau and La Crosse Counties, Wisconsin

***Appendix A***
***Dairyland Marshland-Briggs Road 161 kV Rebuild Project***
***February 2015***




## Sheet Map 8

### Legend

**Project Feature**

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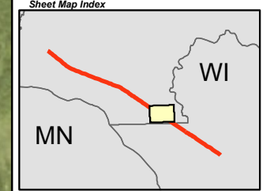


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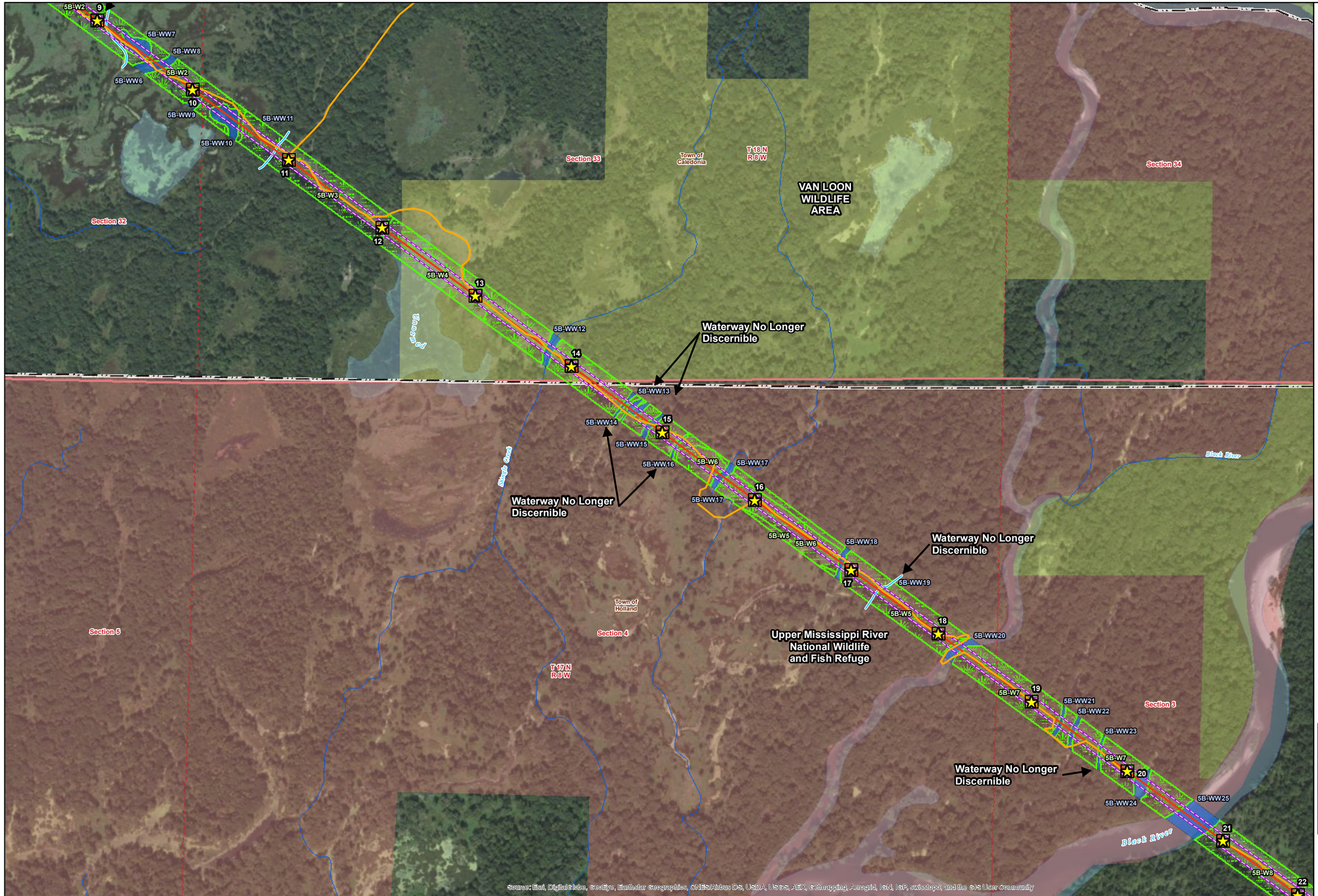
# Marshland-Briggs Road 161 kV Rebuild Project (RUS #1064)

Trempealeau and La Crosse Counties, Wisconsin

***Appendix A***
***Dairyland Marshland-Briggs Road 161 kV Rebuild Project***
***February 2015***




## Sheet Map 9

### Legend

**Project Feature**

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- Y-Frame Steel
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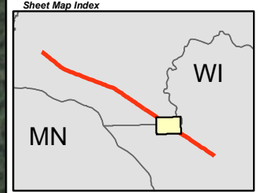


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# Marshland-Briggs Road 161 kV Rebuild Project (RUS #1064)

Trempealeau and La Crosse Counties, Wisconsin

***Appendix A***
***Dairyland Marshland-Briggs Road 161 kV Rebuild Project***
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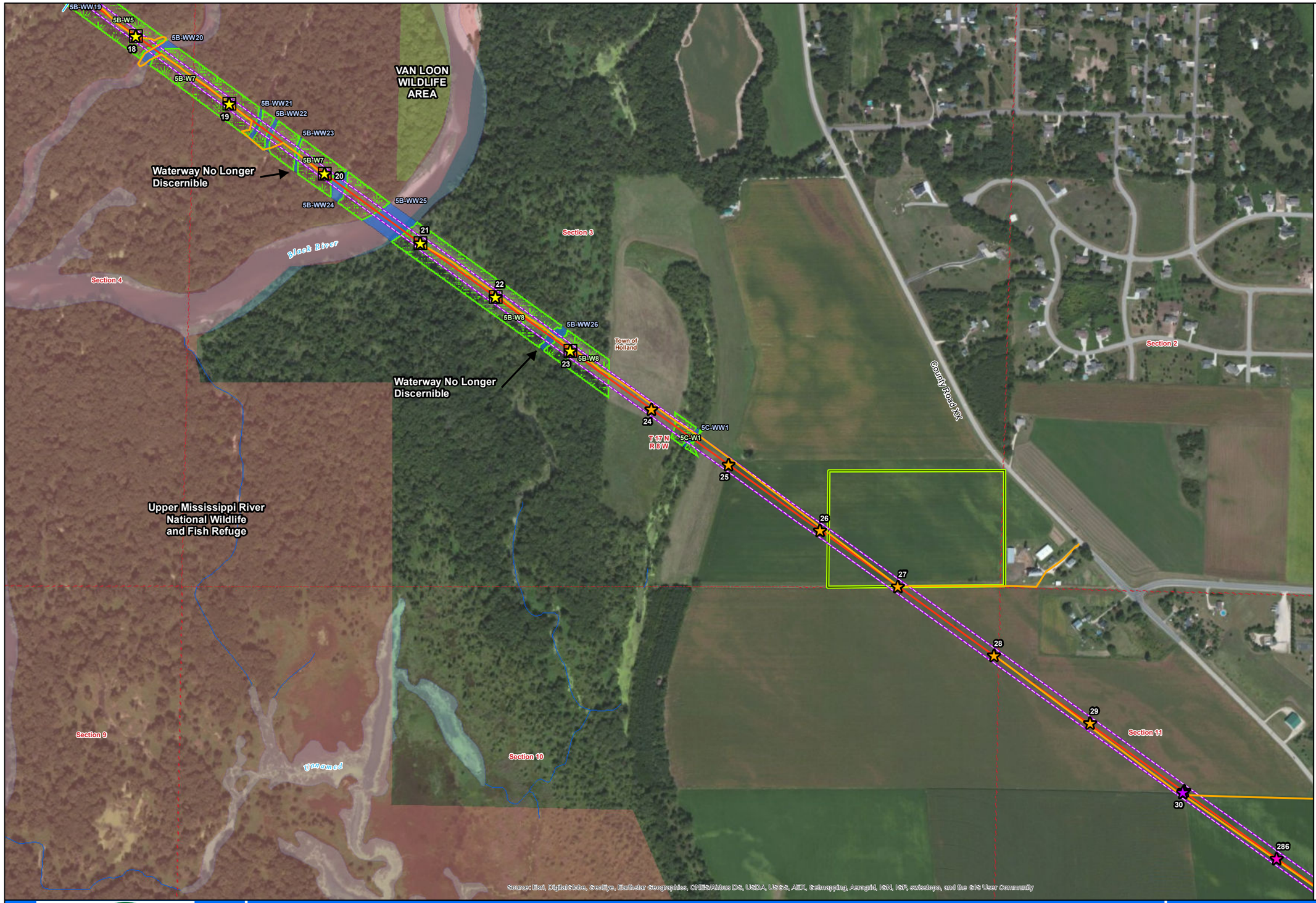


## Sheet Map 10

### Legend

**Project Feature**

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- Y-Frame Steel
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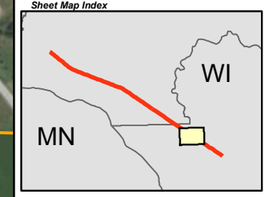


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# Marshland-Briggs Road 161 kV Rebuild Project (RUS #1064)

Trempealeau and La Crosse Counties, Wisconsin

***Appendix A***
***Dairyland Marshland-Briggs Road 161 kV Rebuild Project***
*February 2015*


## Sheet Map 11

### Legend

**Project Feature**

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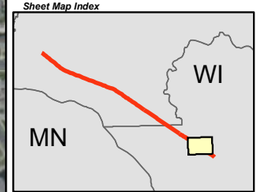
*Sheet Map Index*

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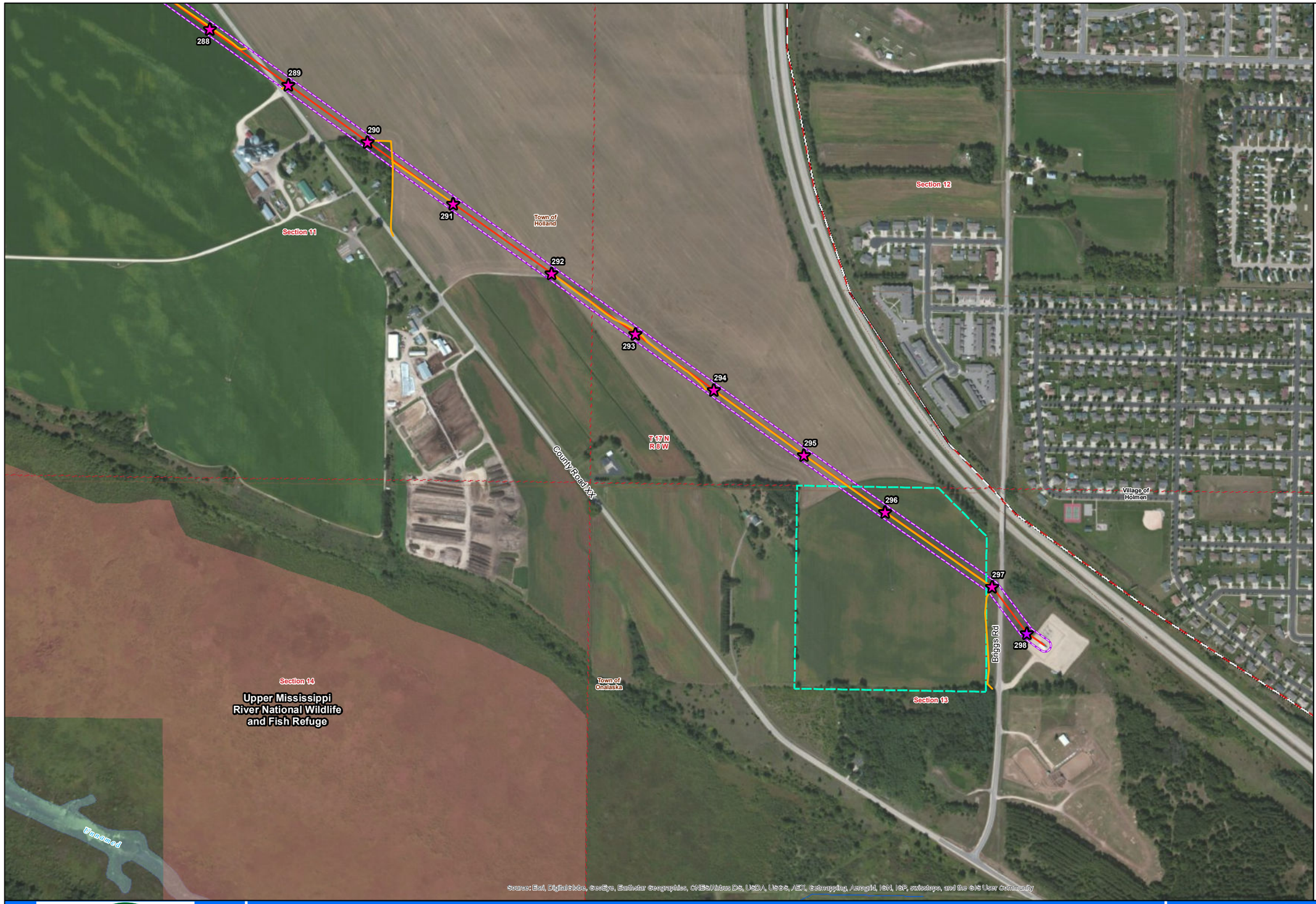
# Marshland-Briggs Road 161 kV Rebuild Project (RUS #1064)

Trempealeau and La Crosse Counties, Wisconsin

*Appendix A*
*Dairyland Marshland-Briggs Road 161 kV Rebuild Project*
*February 2015*




## Sheet Map 12

### Legend

**Project Feature**

- H-Frame Steel
- H-Frame Steel (Deadend)
- Y-Frame Steel
- Y-Frame Steel with Matting
- Project Centerline
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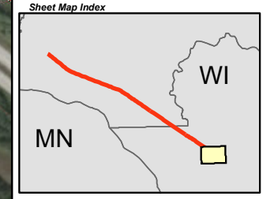


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# Marshland-Briggs Road 161 kV Rebuild Project (RUS #1064)

Trempealeau and La Crosse Counties, Wisconsin

***Appendix A***
***Dairyland Marshland-Briggs Road 161 kV Rebuild Project***
*February 2015*

# Appendix B: Field Guide for Transmission Line Construction and Maintenance Activities

# FIELD GUIDE FOR
## Transmission Line Construction and Maintenance Activities

DAIRYLAND POWER COOPERATIVE

JANUARY 2013

HDR

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**HDR Engineering, Inc.**
701 Xenia Avenue South, Suite 600
Minneapolis, MN 55416

www.hdrinc.com

Dairyland Power Cooperative (Dairyland) is a generation and transmission cooperative based in LaCrosse, Wisconsin that provides wholesale electrical energy to 25 member cooperatives and 16 municipalities who deliver the energy needs to over 500,000 people.[1] Dairyland's service area comprises 62 counties in Illinois, Iowa, Minnesota, and Wisconsin (Figure 1).

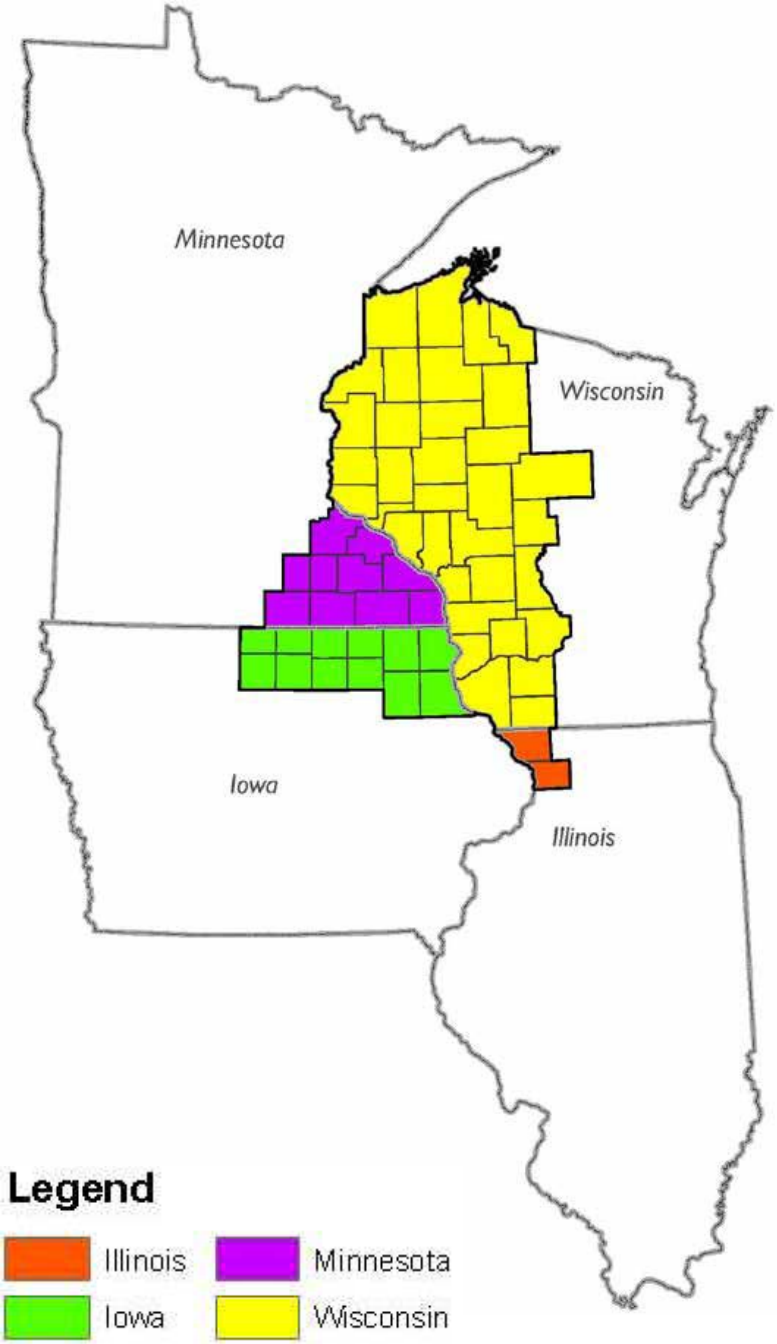
**Dairyland is committed to the preservation and protection of precious natural resources. This field guide was created in acknowledgement of that commitment.** The field guide summarizes erosion and sediment control BMPs for use by field crews. These practices, when properly implemented, will minimize or prevent erosion and sediment pollution from adversely impacting sensitive resources, such as, streams, ponds, lakes, wetlands, and natural vegetation. This guide must be periodically updated to reflect changes in BMPs.

Erosion and sediment control measures apply to all earth moving activities – small or large

[1]McWilliams, John M, MBA, PE. *Dairyland Power Cooperatives' Methane Digester Project, AgSTAR National Conference*. Madison, Wisconsin, 2006.

The purpose of the BMPs described in this field guide is to comply with regulations and prevent soil from entering waters and wetlands of the state and the U.S. The BMPs should be used as described in project-specific erosion control plans, and are not necessary around every structure if there is no risk of erosion.

**Figure 1**
**Dairyland Power Cooperative Service Area**



## TIPS FOR CONSTRUCTION IN RESIDENTIAL AREAS

Construction near residential areas requires special precautions to minimize disturbance to residences and maximize safety considerations. Impacts to residences near construction will be minimized by implementing the following applicable mitigation measures:

- Strip and store, or replace topsoil with imported topsoil after construction.
- Install orange safety fence between the construction area and residences where necessary.
- Avoid removal of trees and landscape whenever possible or specified in an agreement.
- Maintain access to residences at all times during construction.
- Notify residences within 48 hours of start of construction and construction during nighttime hours. Review permits for additional requirements for nighttime construction.
- Restoration of residential areas should be completed shortly after construction is completed, as conditions and seasons dictate.

***Don't forget!***

Erosion control is generally more cost effective than sediment control and requires less maintenance and repair.

## HIGHWAY AND ROAD CROSSINGS

Roadway crossing and ROW access points must be identified before the start of construction to maintain safe and accessible conditions throughout construction.

Refer to Volume I of the BMP Manual for erosion control and sediment control as most if not all are applicable. A few that stand out follow and are detailed in the following section:

- Preservation of existing vegetation
- Mulch, blankets, and mats
- Silt fence or log rolls along perimeter of project area adjacent to roadway
- Construction entrance and exits
- Street cleaning

## TEMPORARY WETLAND CROSSINGS

Temporary wetland crossing options include wood mats, wood panels, wood pallets, bridge decking, expanded metal grating, polyvinyl chloride (PVC) and high density polyethylene (HDPE) pipe mats or plastic road, tire mats, corduroy, pole rails, wood aggregate, and low ground pressure equipment.[2] Temporary wetland crossings should be avoided unless absolutely necessary. Successful crossings are enhanced with a root or slash mat to provide additional support for equipment and geotextile to segregate the crossing from underlying soil and provide floatation.

Permitting requirements for temporary wetland impacts differ by state. Prior to starting construction, coordination with the appropriate state agencies is recommended to determine if notification or permitting is necessary for temporary wetland crossings.

U.S. EPA

[2]U.S. Department of Agriculture. *Temporary Stream and Wetland Crossing Options for Forest Management*. 1998.

### *State Specific*

***Wisconsin*** - Temporary impacts to wetlands may require permits from the Wisconsin Department of Natural Resources. The approval process takes a minimum of 14 days and alternatives, avoidance and minimization measures will need to be documented. Note that updated permit requirements for transmission lines are in process in early 2013. Check the latest regulations and implementations at http://dnr.wi.gov/topic/wetlands/.

***Minnesota*** - Temporary impacts associated with substation construction must be permitted through the joint local/state (Wetland Conservation Act) and US Army Corps of Engineers (USACE) permit process. For temporary impacts associated with transmission structures, these are exempt from the Wetland Conservation Act but may be subject to USACE permitting.

***Iowa*** - The USACE generally does not require notification of temporary impacts to wetlands associated with transmission lines unless mechanical clearing of forested wetlands is involved, which does require a pre-construction notice.

***Illinois*** - The USACE and Illinois Department of Natural Resources generally do not require notification of temporary impacts to wetlands associated with transmission lines with a possible exception of forested wetland clearing.

*Temporary wetland crossing options will be discussed in further detail on the following pages.*

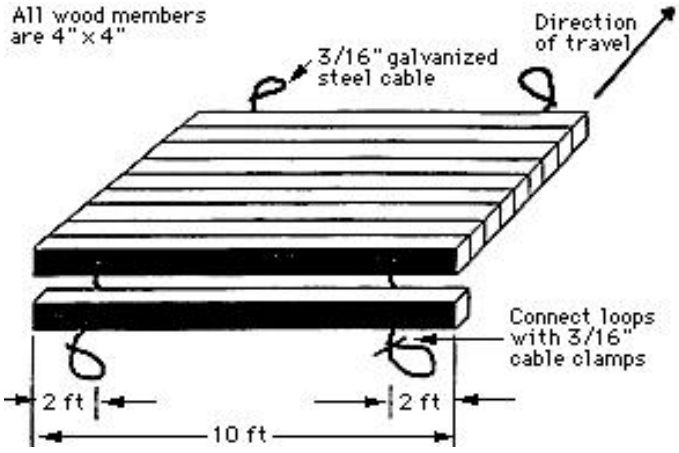
### *Wood Mats*

Individual cants, sawdense hardwood (oak), or round logs cabled together to make a single-layer crossing.

Wood mats provide a surface that protects wetlands during hauling or equipment moving operations.

U.S. Department of Agriculture

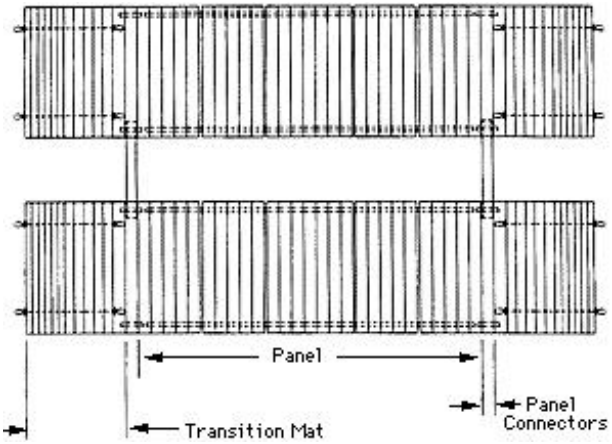

University of Minnesota




University of Minnesota

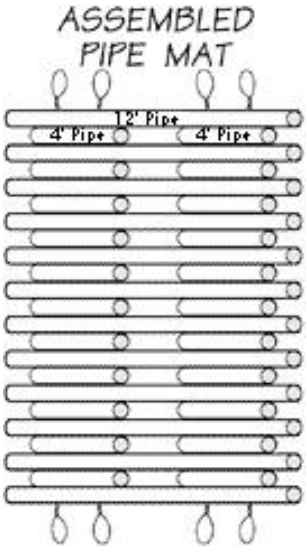
### *PVC and HDPE Pipe Mats or Plastic Road*

A portable, reusable, lightweight corduroy-type crossing can be created with PVC or HDPE pipe mats.[2] Pipe mats work as a conduit and allow water to move through the crossing without further wetting the area. This can also be used for stream crossings.




University of Minnesota

USDA




University of Minnesota

USDA

### *Corduroy*

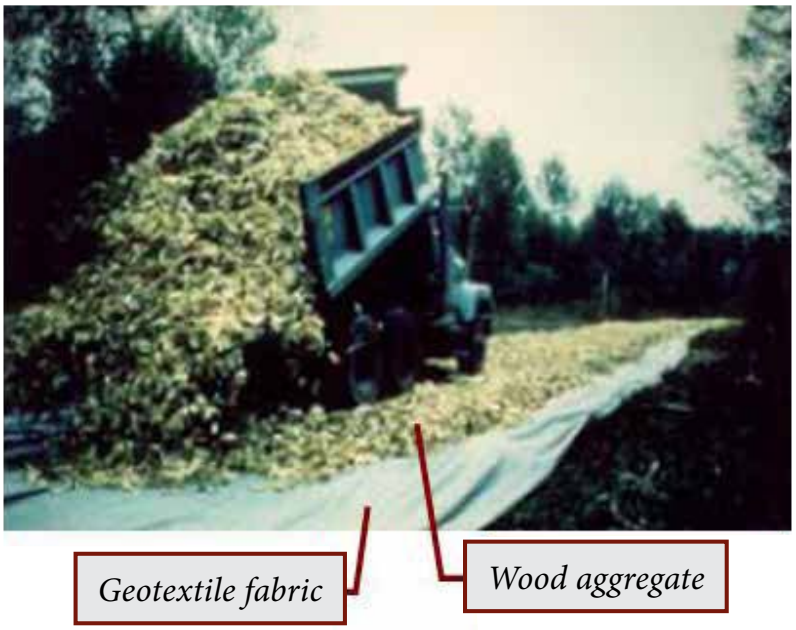
Corduroy is a crossing made of brush, small logs cut from low value and noncommercial trees on site, or mill slabs that are laid perpendicular (most often) or parallel to the direction of travel.[2] The greater the surface area of the corduroy the greater the floatation capability of the crossing. Placing geotextile provides additional support and segregation of brush, logs, or mill slabs from underlying soil.

USDA


Erosion Control Magazine

### *Wood Aggregate*

Use wood particles, varying in size, to fill soft soil areas. This is a popular method because the wood is relatively light in weight, which gives it better natural flotation than gravel. Wood, being a naturally biodegradable material, will allow water to flow freely through, causing no change to the natural hydrologic flows.




USDA

USDA

## WETLAND FILL

### *Woody Debris*

Woody vegetation in wetlands must be removed as required by Wisconsin state regulations. Minnesota, Illinois, and Iowa allow woody debris to remain in the wetland.

### *Spoils*

Wetland spoils must be removed from wetlands promptly; wetlands may not be used to store excavated materials.

### *Removal of Existing Poles*

When removing transmission poles in wetlands, it is recommended the poles be cut off at ground level to limit land disturbance to the area.

## STREAM AND RIVER CROSSINGS

Temporary stream crossing is required to provide safe, erosion free access across a stream for construction equipment.[3] Temporary stream crossings are fords, culverts, PVC and HDPE pipe bundles, and portable or on site constructed bridges.[2] Unless it is absolutely necessary, stream crossing should be avoided. Use existing stream crossing locations if crossing is unavoidable and the existing crossing can withstand the weight. Properly designed, installed, and maintained temporary stream crossings can greatly reduce costs and help meet concerns of regulating agencies.[2] If a stream crossing is needed, it should be limited to as few as possible and should be as short as possible. To correctly cross a stream, the crossing should be located on a straight segment of the stream channel that has low banks (except for bridge crossings where higher banks are preferred to support the abutments).[2] Contact a local engineer or hydrologist to determine permitting needs for the stream crossings, if needed. IA, MN and IL require state and/or USACE permits for stream crossings that include work within the banks of the streams.

Massachusetts Stream Crossings Handbook

[3]California Stormwater Quality Association. *California Stormwater Best Management Practices, Construction*. July 2006. http://www.cabmphandbooks.com/Documents/Construction/SE-9.pdf Retrieved July 17, 2006.

## STREAM AND RIVER CROSSINGS *(continued)*

Temporary, clear-span bridges are allowed in IA, MN and IL under a general permit if the appropriate conditions are followed.[4] WI requires permits for any type of stream crossing of any stream feature, even those that do not involve work within the banks, including temporary span bridges.

In Minnesota, Iowa and Illinois, streams are generally defined as a drainage feature that has distinct bed and banks. In Wisconsin, the DNR has mapped stream features, and any crossing of the mapped streams will require a permit and temporary crossing structure, even if no bed and banks are present in the field.

Road ditches may or may not be considered jurisdictional stream features. A general rule of thumb is that if a ditch adjacent to a road contains culverts or other connections that allow flow that will eventually reach a stream, these ditch features should be treated as streams.

*Temporary stream crossing options will be discussed in further detail on the following pages.*

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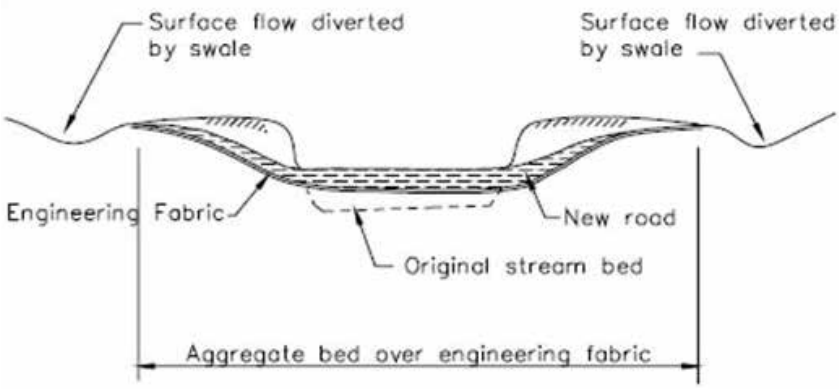
[4]Minnesota conditions can be found at: https://www.revisor.leg.state.mn.us/rules/?id=6115.0210
Illinois conditions can be found at: http://dnr.state.il.us/owr/ResmanStatewidePermits.htm

### *Fords*

A ford utilizing the streambed is used when flows are consistently less than 600 mm (2 feet) deep, as part of the road or access trail, and is best for shortterm, limited traffic. Cable concrete fords (articulated concrete mats) are prefabricated mats of concrete that can be placed in dry or intermittent streambeds to more evenly distribute weight for stable crossing. These must be removed when the construction is complete.

- Fords should not be constructed or used during periods of fish spawning and migration.
- If the crossing location has a mucky or weak streambed a base must be constructed.

North Carolina Forest Service




TYPICAL FORD CROSSING
NOT TO SCALE

### *Fords - State Specifics*

***Iowa*** - For regulations regarding ford construction, see the Natural Resources Conservation Service Conservation Practices Standard for stream crossing; http://efotg.sc.egov.usda.gov/references/public/IA/Stream_Crossing_578__STD_2012_04.pdf.

***Illinois*** - For regulations regarding ford construction, see the Natural Resources Conservation Service Conservation Practices Standard for stream crossing; http://efotg.sc.egov.usda.gov/references/public/IL/IL-578_2004_09.pdf.

***Minnesota*** - Areas with extensive wetlands or floodplains adjacent to the channel should be avoided. A DNR work permit is not required if all of the following are met:

- Stream bed is capable of supporting the ford crossing without special site preparation.
- Water depth does not exceed 2 feet under normal summer flow conditions.
- Crossing conforms to the natural cross section of the stream channel and does not restrict normal low-water flows.
- Original streambank at the site does not exceed 4 feet in height.
- Crossing is constructed of gravel, natural rock, steel matting or other durable inorganic material not exceeding 1 foot in thickness. Recycled asphalt or construction rubble is not allowed.
- The approach is graded to a finished slope not steeper than 5 to 1 horizontal to vertical, and all graded banks are seeded and mulched to prevent erosion and sedimentation.
- Crossing is not placed on an officially designated trout stream; on a wild, scenic, or recreational river; or on an officially designated canoe and boating route.

The MnDOT General Public Waters Permit stipulates that all equipment intended for use at a project site must be free of prohibited invasive plants prior to being transported into or within the state and placed into state waters. Equipment used in state waters known to contain aquatic invasive species that are designated as infested waters shall be inspected by MnDOT and/or its contractors and adequately be decontaminated prior to being transported.

***Wisconsin*** - A general Permit or individual permit is required to install a ford in a navigable waterway. To qualify for this permit, the project may not be in an area of special natural resource interest (ASNRI) unless used for an agricultural use, or in a Public Rights Feature (PRF). General Permit eligibility can be obtained if conditions set by the Wisconsin DNR in the Ford General Permit are met; http://dnr.wi.gov/waterways/permit_apps/GP_Ford_Attachment.pdf

- All grading, excavation and land-disturbance activity will be confined to the minimum area necessary for the placement of the structure and will not exceed 10,000 square feet.
  - › Note: If the project includes any grading, excavation or land-disturbance activity in excess of 10,000 square feet you will also need to receive approval under a Grading General or Individual Permit in addition to this permit
- Any excavated material must not be placed in a waterbody, wetland, or floodway
- The project meets or exceeds the stormwater management technical standards of s. NR 151.11 and 151.12, Wis. Adm. Code for stormwater discharges. Any area where topsoil

is exposed during the placement, repair or removal of the structure will be immediately seeded and mulched to stabilize disturbed areas and prevent soils from being eroded and washed into the waterway.

- Unless part of a permanent stormwater management system, all temporary erosion and sediment control practices will be removed upon final site stabilization. All areas disturbed during removal of temporary erosion and sediment control practices will be restored.
- To minimize adverse impacts on fish movement, fish spawning, egg incubation periods and high stream flows, the project will not occur during the following time periods:
  - › September 15th through May 15th for trout streams and perennial tributaries to those trout streams.
  - › March 15th through May 15th for ALL waters located south of state highway 29.
  - › April 1st through June 1st for ALL waters located north of state highway 29.

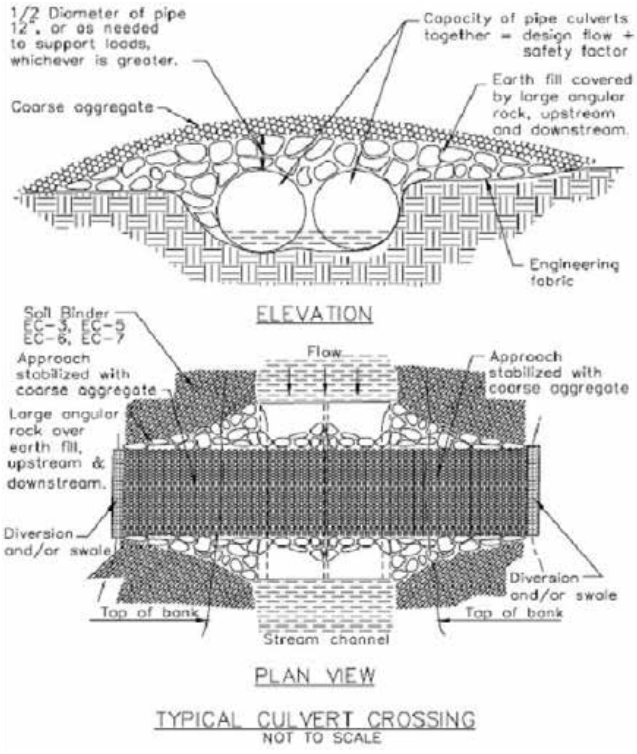
To stop the spread of invasive species from one public waterway to another public waterway, all equipment or portions of equipment used for constructing, operating, or maintaining the project will be washed for invasive species before and after use or prior to use within another public waterway.

### *Culverts*

A culvert is a structure that conveys water under a road or access trail.[2] Culverts are the most common methods of crossing intermittent and perennial streams. There are manufactured culverts that come in various shapes, lengths, and diameters. Manufactured culverts are made of corrugated steel, concrete, or polyethylene. Proper sizing with a minimum of a 375mm (15inch) diameter and installation of culverts is crucial for a successful crossing. Other materials, such as steel piling, wooden box culverts, and hollow logs can be used as culverts as well.

Culvert installation must be in compliance with local codes and permitting requirements.

Ohio Department of Transportation



### *Bridges*

Bridges keep fill and equipment out of the water better than any other stream crossing option. Temporary bridges can be constructed from ice, timber, steel, or prestressed concrete. A licensed engineer may be required to review the design of any bridge that is fabricated from locally available materials; otherwise, manufactured bridges are made for various span lengths and load capacities.

Bridge installation must be in compliance with local codes and permitting requirements.

#### *Ice Bridges*

Ice bridges are most common stream crossing methods during winter months with night temperatures below 0 degrees Fahrenheit (°F) with several days to build up thick enough ice. An estimated formula was developed to estimate minimum ice thickness to support a given load.

$$H=4(P)^{1/2}$$

Where: H = Ice thickness in inches

P = The load or gross weight of the vehicle plus its contents, in tons

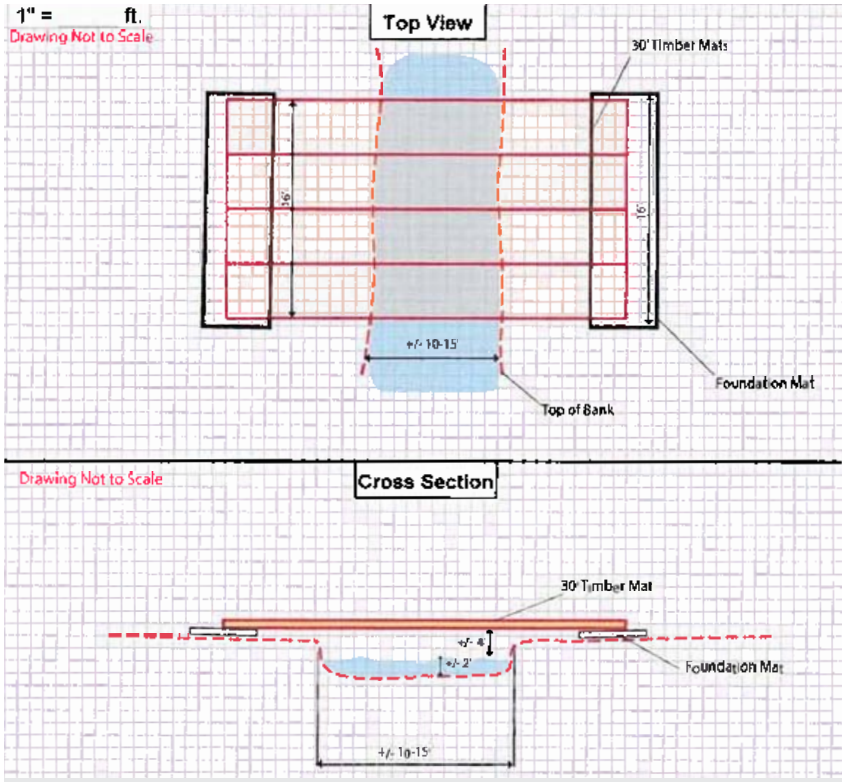
Placing mats on top of ice bridges provides added support in case ice was to give way.

### *Timber Bridges*

Two common designs for timber bridges are the log stinger bridges and solid sawn stringer bridges with or without a plank deck. Log stringer bridges are built by cabling logs together from trees felled in the area of construction. Solid sawn stringer bridges are built with new lumber, railroad ties, or demolition materials.

USDA

Steven E. Taylor, PE




***Typical bridge used by Dairyland***

## TEMPORARY EROSION CONTROL

### *Temporary Seeding*

Stabilizing crop seed mixture, or temporary seeding, used should be in accordance with the following rates and schedule unless otherwise specified in the contract documents.

| Location | Species | Season(s) | Application Rate |
|---|---|---|---|
| Illinois and Iowa | Perennial Ryegrass | All | 40 lbs/acre |
| Minnesota and Wisconsin | Winter Wheat | Fall | 100 lbs/acre |
| Minnesota and Wisconsin | Perennial Ryegrass | Spring | 100 lbs/acre |

### *Mulching*

Straw or hay can be used as mulch but must be free of noxious weed contaminants. State approval is necessary for mulching in wetlands.

***Mulch at a rate of 2 tons per acre.***

### *HydroMulching*

Hydromulching is a planting process which utilizes a slurry of seed and mulch. Hydromulching material is weed free and is typically produced from recycled paper or raw wood. The material enhances initial growth by providing a micro environment beneficial to seed germination.

## COMMON EROSION AND SEDIMENT CONTROL BMPS

### *Street Cleaning of Paved Roads*

Cleaning tracked sediments and debris from paved streets prevents unwanted material from washing into surface waters and improves the appearance of public roadways. State and many county requirements also dictate that no dirt can be tracked on to public paved roads.

Paved roadways adjacent to construction or maintenance sites must be inspected at the end of each day and tracked soil shall be promptly removed.

### *Truck Washing*

Vehicle washing can generate dry weather runoff contaminated with detergents, oils, grease and heavy metals. External washing of trucks and other construction vehicles must be limited to a defined area on the site. Runoff must be contained and waste properly disposed of; untreated wash water must not be transported into waters of the state. No engine degreasing is allowed on site.

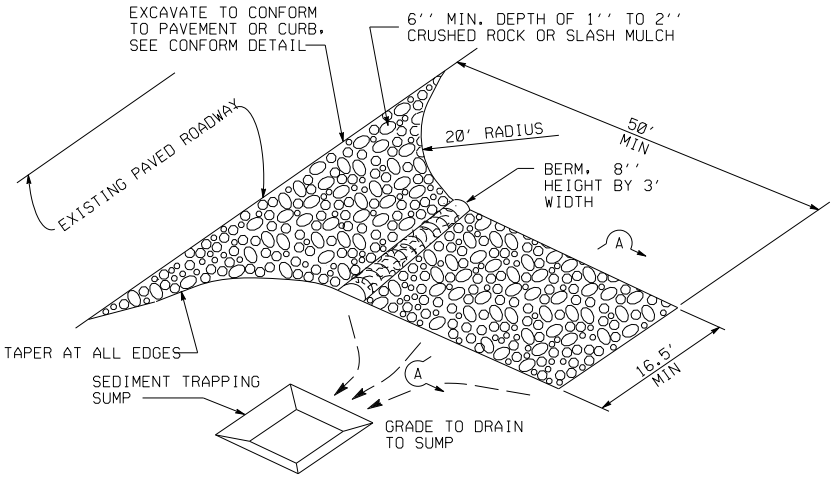
In addition to limiting the potential for sediment transport, washing vehicles prior to entering/ leaving work site helps deter the spread of invasive species. This mitigates the spread of invasive species by not allowing new species to enter the site with the vehicles, and likewise prevents the transport of species from the project site to other locations. Vehicle washing also may be a condition of the permit.

## *Truck Washing (continued)*

Wash areas should be designed to direct wash water to an appropriate containment facility or treatment facility through use of silt fences, log rolls, etc. Blowers, vacuums or shovels can be used instead of water to remove dry material from vehicles. If water is to be used, high-pressure water spray without detergents is to be utilized.

All designated washing areas should be clearly marked and only used for vehicle washing activities.

A wheel wash can be installed at or near the exit of the site to wash excess dirt and mud off truck tires. A series of railroad rails spaced 2 to 8 inches apart can be used to shake off loose rocks and dirt while the vehicle is driving through the wheel wash. The water used must be treated to remove turbidity before being discharged.




PERSPECTIVE

TEMPORARY CONSTRUCTION ENTRANCE (TYPE 1)

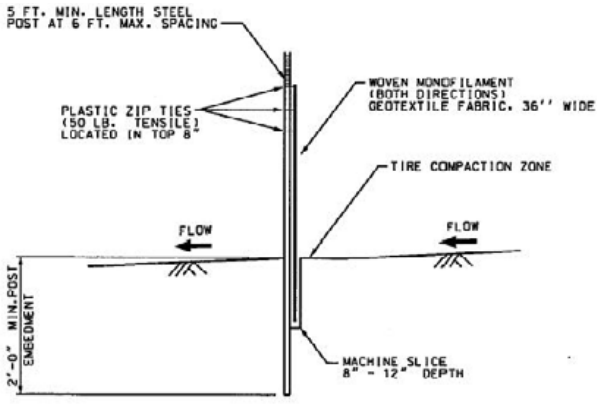
## PERIMETER CONTROL

### *Silt Fence*

- Porous fabric (woven, non-woven, mono-filament) held up by wooden or metal posts that ponds sediment laden stormwater runoff, causing sediment to be retained by the settling process.
- Place silt fence around staging areas, stockpiles, and trees to protect from damage.
- In addition, place silt fence at the downstream side of access roads to protect streams and ditches. Silt fence shall be either machine sliced or hand installed into the soil.

*Incorrect Use of Silt Fence*

*Proper Use of Silt Fence*



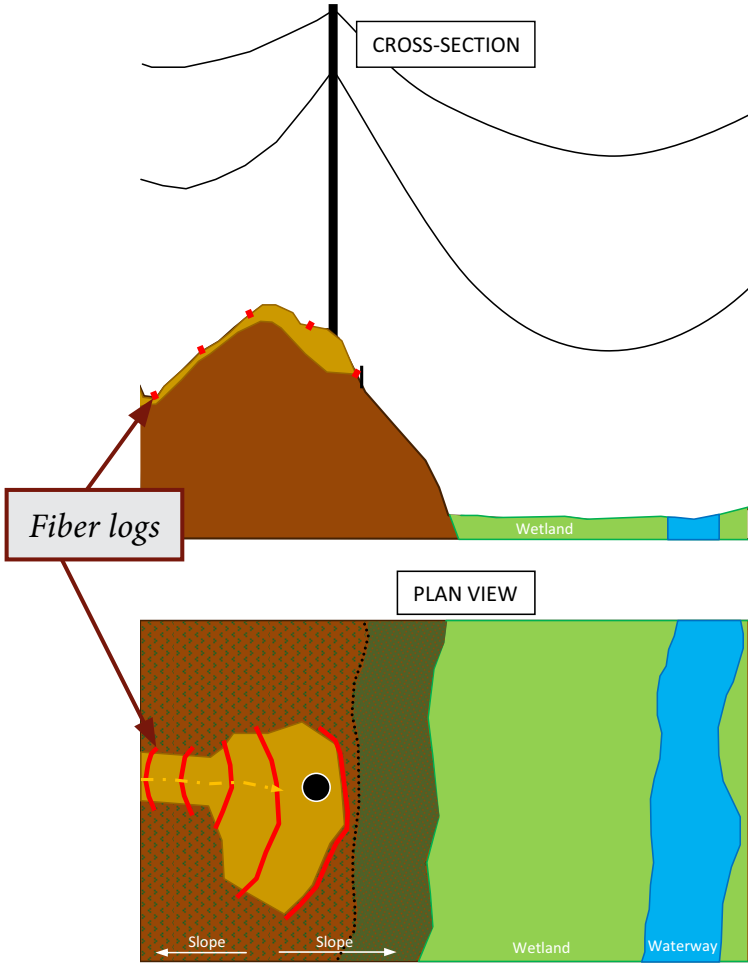

MACHINE SLICED

### *Hay Bales*

Straw or hay bales have been used as check dams, inlet protection, outlet protection, and perimeter control. Because many applications of straw and hay bales have been ineffective, the EPA often recommends other BMPs be considered first.

### *Fiber Logs/Biorolls*

- Fiber logs are tube shaped devices filled with straw, flax, rice, coconut fiber material, or composted material and wrapped with UV-degradable materials like burlap, jute, or coir.
- Biorolls are straw or wood fibers encased in a netting with a minimum 6 inch diameter slows runoff velocities allowing sediment to settle out and remain on site.
- Place along toe, top, face, and at-grade breaks of exposed and erodible slopes to shorten slope length and spread runoff as sheet flow
- In addition, place at the end of a downward slope where it transitions to a steeper slope, along the perimeter of a project, as check dams in unlined ditches, downslope of exposed soil areas, and around temporary stockpiles.

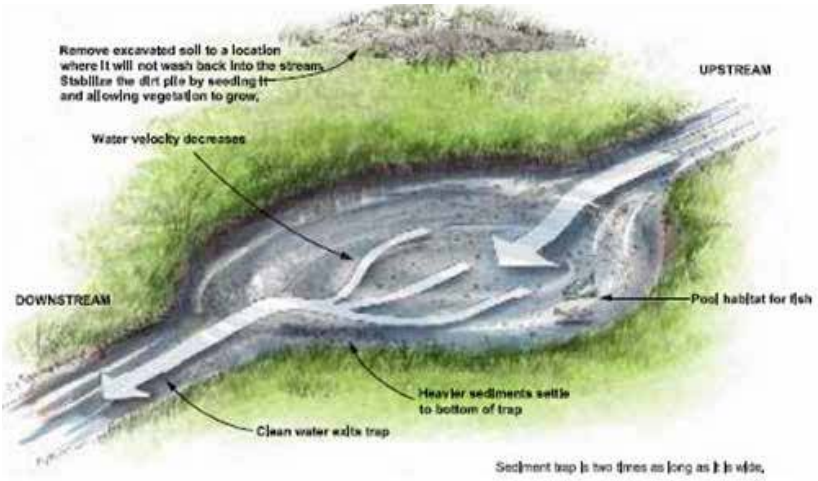


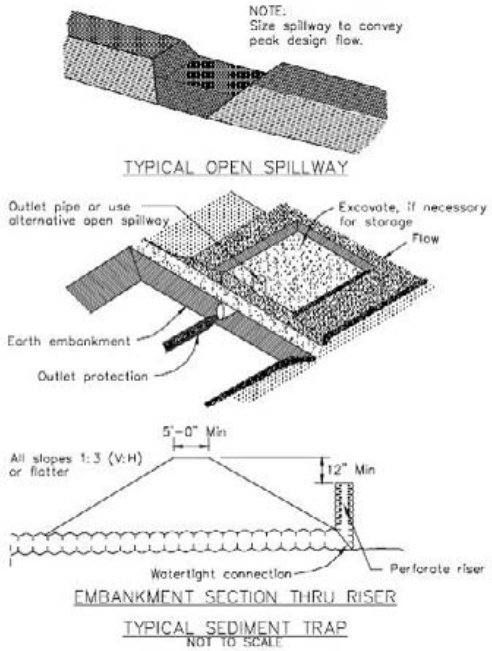

*Typical installation of fiber logs*

## *Sediment Trap*

Sediment traps are a temporary measure with a design life of approximately 6 months to 1 year and are maintained until the site area is permanently protected against erosion by vegetation and/or structures.[5]

Direct discharge from dewatering operations to a temporary sediment trap constructed with a spillway that consists of geotextile fabric and crushed rocks.

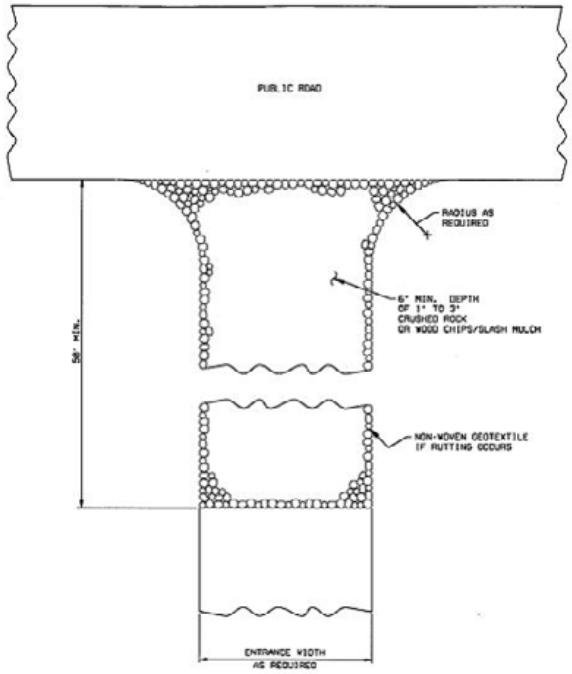



[5]California Stormwater Best Management Practices, Construction. July 2006. http://www.cabmphandbooks.com/Documents/Construction/SE-9.pdf Retrieved July 17, 2006.

### *Temporary Entrance/Exit for heavy access*

- Construct entrances and exits by overlaying a 12-ounce geotextile fabric with a 6-inch layer of 1 to 3 inch diameter washed aggregate or woodchips.
- Stone or wood chip pads consists of clean rock or wood chips designed in such a way that vehicle tires will sink slightly in, helping remove mud from tires as vehicle passes over the mat.
- Vegetation and topsoil should be removed from the shoulder zones to construct the entrances, however, tall vegetation may be mowed.
- If the entrance/exit begins to rut, stabilize by placing a geogrid and additional washed aggregate or woodchips in the roadway.
- Remove the entrance/exit restore the area to the geometry of the intersection at the end of each project.
- Areas outside of the permanent roadway shoulder may require re-grading.
- Compacted soils shall be loosened by ripping or disking, then seeded and mulched.



### *Temporary Entrance/Exit for lower traffic access*

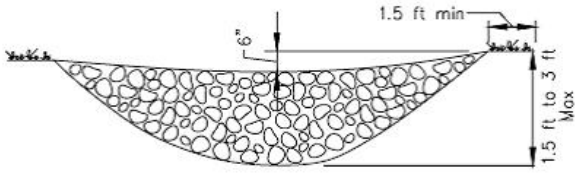
Temporary access paths are required throughout the Project limits. Access paths will consist of areas of cleared vegetation and are anticipated to be approximately 16 feet wide. The paths will follow the natural terrain and will not result in increased impervious area.

*Temporary access (low-traffic) using composite mats*

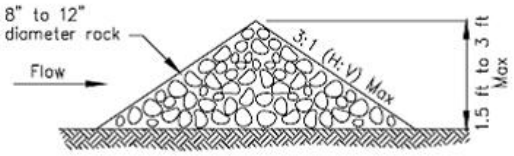
*Temporary access (low-traffic) using mulch*

## *Check Dams*

Check dams are made of rocks, straw, logs, lumber, or interlocking pre-cast concrete blocks within a ditch, drainage, swale, or channel to reduce the gradient of a ditch, thus slowing the water, lowering its ability to cause erosion, and allowing sediment to settle out.[6]

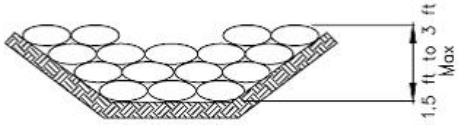



ELEVATION

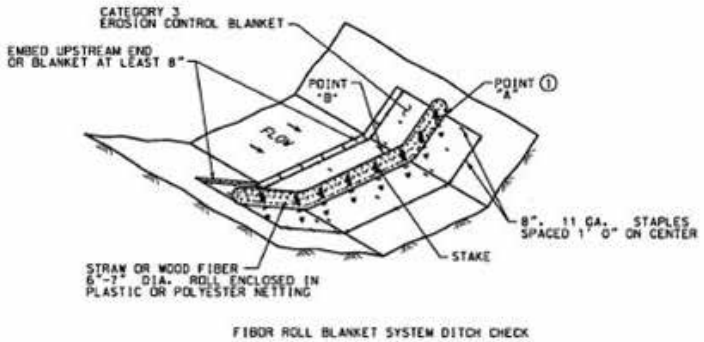



TYPICAL ROCK CHECK DAM SECTION

ROCK CHECK DAM
NOT TO SCALE




GRAVEL BAG CHECK DAM ELEVATION
NOT TO SCALE




FIBOR ROLL BLANKET SYSTEM DITCH CHECK

[6]British Columbia. *Erosion Stormwater Pollution, Check Dam*. July 2006. http://www.em.gov.bc.ca/Mining/MiningStats/Aggregate%20BMP%20Handbook/BMPs/Check%20Dam.pdf Retrieved July 10, 2006.

## *Dewatering*

Areas with a high water table may require dewatering to facilitate construction, prevent erosion and sediment transport, and/or to prevent pollution of groundwater. Sediment-laden water cannot be discharged directly into a surface water or into a drainage pipe, inlet, or ditch that flows to a surface water. If dewatering is required, a site assessment shall be conducted and documented to determine the physical site characteristics that will affect the placement, design, construction, and maintenance of dewatering activities. Dewatering systems must be consistent with state defined specifications.

***The following dewatering methods will be used as appropriate:***

- Pump directly into a temporary sedimentation basin, overflow protection by rock, or super-duty silt fence system
- Chitosan or floc sock installed in a pump or hose section, which will be directed into a temporary sedimentation basin with outflow protection
- Pump head placed into a barrel with filtering holes and rock
- Pump head and gravity inlet installed on a floating head skimmer
- Pump into a plastic lined dumpster, with Chitosan treatment and floating head discharge
- Pump into an engineered treatment plastic lined dumpster, with Chitosan or starch floc treatment and filter fence liner
- Sand media particulate filter with inline Chitosan sock
- Alternative method engineered to meet specific circumstances.

### *Winter Construction*

Erosion control permit conditions must still be met in the winter. For sites where construction started prior to ground freeze, perimeter control and other BMPs must be inspected and maintained throughout the winter so they are functional if and when thaws arrive.

For areas where construction begins after ground freeze, installation of erosion control BMPs can be difficult.

***Suggested methods include clearing the area and anchoring the BMPs:***

- Using rocks to weigh compost or mulch logs
- Placing filter rock over fabric lip of silt fence

For areas with erosion control blanket, snow should be removed from the area prior to installation, and the anchors should be 6" nails and washers

## SPILL RESPONSE AND PROTOCOLS

1. Identify key spill response personnel.
2. Clean up leaks and spills immediately.
    - Place a stockpile of spill cleanup materials where they will be readily accessible (e.g. near storage and maintenance areas).
    - Utilize dry cleaning methods to clean up spills to minimize the use of water. Use a rag for small spills, a damp mop for general cleanup, and absorbent material for larger spills. If the spilled material is hazardous, then used cleanup materials are also hazardous and must be sent to a certified laundry or disposed of as hazardous waste. Physical methods for the cleanup of dry chemicals include the use brooms, shovels, sweepers, or plows.
    - Never hose down or bury dry material spills. Sweep up the material and dispose of properly.
    - Clean up chemical materials with absorbents, gels, and foams. Use adsorbent materials on small spills rather than hosing down the spill. Remove the adsorbent materials promptly and dispose of properly.
    - For larger spills, a private spill cleanup company or hazardous material team may be necessary.

### *Spill Response Reporting*

Report spills that pose an immediate threat to human health or the environment to local agencies.

- ***Illinois*** – Illinois Emergency Management Agency (217) 782-7860 or (800) 728-7860
- ***Iowa*** – Iowa DNR (515) 281-8694
- ***Minnesota*** – Minnesota Pollution Control Agency (State Duty Office) (651) 649-5451 or (800) 422-0798
- ***Wisconsin*** – Wisconsin DNR (800) 943-0003
- Establish a system for tracking incidents. The system should be designed to identify the following:
- Types and quantities (in some cases) of wastes
- Patterns in time of occurrence (time of day/night, month, or year)
- Mode of dumping (abandoned containers, "midnight dumping" from moving vehicles, direct dumping of materials, accidents/spills)
- Responsible parties

Federal regulations require that any oil spilled into a water body or onto an adjoining shoreline must be reported to the National Response Center (NRC) at (800) 424-8802 (24 hour).

## LOCAL SEED VENDORS

### *Iowa*

Ion Exchange, Inc
1878 Old Mission Drive
Harpers Ferry, IA
(563) 535-7231

### *Minnesota*

Brock White
6784 10th Avenue Southwest
Rochester, MN 55902
(507) 282-2421 or
(800) 279-9034

Shooting Star Native Seeds (Seed Only)
20740 County Road 33
Spring Grove, MN 55974
(507) 498-3944

Sodko, Inc. (Sod Only)
20740 County Road 33
Spring Grove, MN 55974
(507) 498-3943

Ramy Turf Products
842 Vandalia Street
St. Paul, MN 55114
(651) 917-0939 or
(800) 658-7269

### *Wisconsin*

La Crosse Forage and Turf Seed Corporate
2541 Commerce Street
La Crosse, WI 54603
(608) 783-9560 or
(800) 328-1909

### *Illinois*

Genesis Nursery, Inc. (Wholesale)
23200 Hurd Road
Tampico, IL 61283
Phone: (815) 438-2220

Mason State Nursery
IL Dept. of Natural Resources, Forest Resources
17855 N Country Road, 2400 E.
Topeka, IL 61567
Phone: (309)-535-2195

National Seed
4720 Yender Avenue
Lisle, IL 60532
Phone: (630)-963-8814

# Appendix C: Integrated Vegetation Management Plan

# Vegetation Management Plan

**Dairyland Power Cooperative**
**Marshland – Briggs Road 161 kV Rebuild Project**
**(RUS #1064)**

Submitted by:

DAIRYLAND POWER
COOPERATIVE
A Touchstone Energy® Cooperative

February 2015

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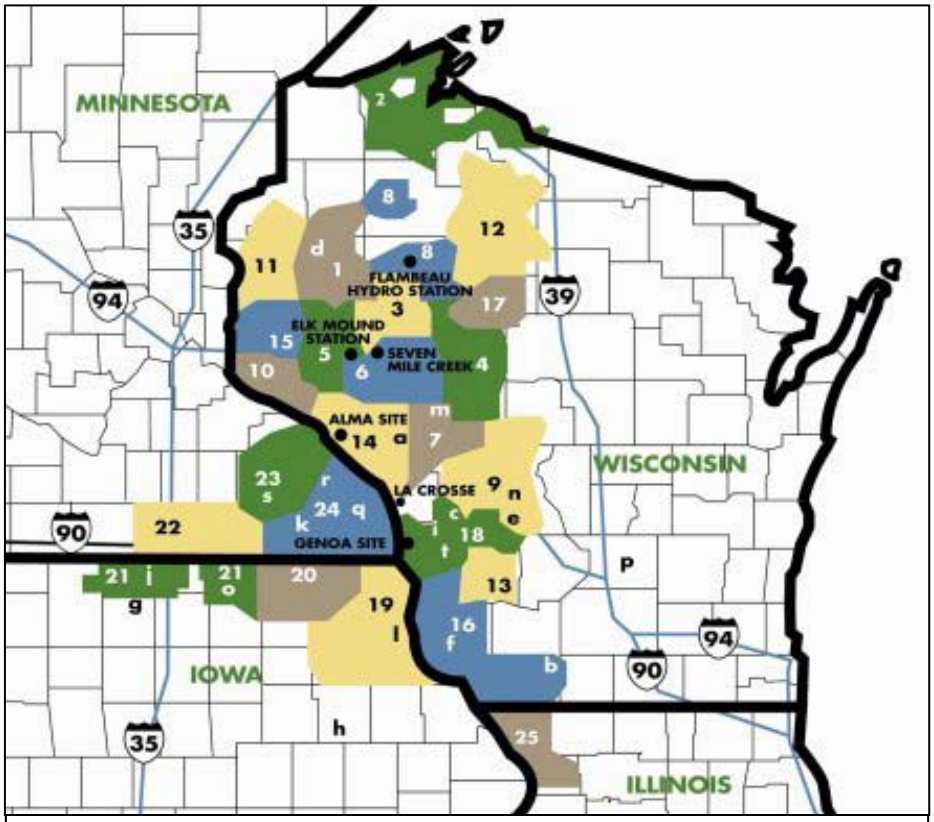
# 1.0 Introduction

Dairyland Power Cooperative (DPC) is a not-for-profit electric generation and transmission cooperative owned by its members and headquartered in La Crosse, Wisconsin. As such, it provides wholesale electricity and related services to 25 electric distribution cooperatives and 16 municipal utilities, which collectively provide electricity to approximately 600,000 consumer members in parts of Wisconsin, Minnesota, Iowa and Illinois. DPC delivers electricity via more than 3,100 miles of transmission lines and nearly 300 substations.

DPC intends to rebuild approximately 13 miles of their Q-1 161 kilovolt (kV) transmission line from the Marshland Substation located in Trempealeau County, Wisconsin to the Briggs Road Substation located in La Crosse County, Wisconsin (the Project). The north end of the Project begins approximately 1.6 miles southeast of the Marshland Substation, which is located approximately 1 mile southeast of the unincorporated community of Marshland, Wisconsin. It then traverses generally southeast to the Briggs Road Substation currently being constructed as part of a separate project - the CapX 2020 Hampton-Rochester-La Crosse 345 kV Transmission Improvement Project (CapX project). The Briggs Road substation is located on the opposite side of Briggs Road from the North La Crosse Substation where this north segment of the Q-1 line currently terminates. The Briggs Road Substation is located approximately 0.1 mile southwest of the Village of Holmen, Wisconsin.




**The Dairyland Power Cooperative System**

The Project crosses the Black River floodplain and associated wetland complex for approximately 3 miles. Approximately 0.9 miles (7.32 acres) of the Project corridor are located within the Upper Mississippi River Wildlife and Fish Refuge (Refuge). The Refuge is approximately 240,000 acres in size and spans 261 miles along the Mississippi River. It is managed as public land by the U.S. Army Corps of Engineers (USACE) and the U.S. Fish and Wildlife Service (USFWS). Approximately 0.3 miles (2.28 acres) of the Project corridor is located within the Van Loon Wildlife Area (Wildlife Area), managed by the Wisconsin Department of Natural Resources (WDNR).

DPC was granted a permit to cross the Refuge in 1951 for the construction and maintenance of a 40-foot wide right-of-way (ROW) to accommodate the construction a 161 kV electric power transmission line. The ROW corridor has been maintained cooperatively with USFWS and Refuge staff following the general Terms of Agreement for vegetation maintenance activities for over 60 years.

The Federal Energy Regulatory Commission (FERC) is an independent agency that regulates the interstate transmission of electricity, natural gas, and oil. The Energy Policy Act of 2005 gives FERC the responsibility to ensure the reliability of high voltage transmission systems. The North American Electric Reliability Council (NERC) was selected by FERC to establish and enforce reliability standards for the bulk-power system. NERC standards have been established and have prompted DPC to implement a more frequent and intensive inspection and maintenance program of its existing transmission lines.

Integrated Vegetation Management (IVM) establishes “a system of managing plant communities in which managers set objectives; identify compatible and incompatible vegetation; consider action thresholds; and evaluate, select and implement the most appropriate control method or methods to achieve those objectives” (ANSI A300 Part 7). It is beneficial for agencies and utilities to work cooperatively to streamline the management of vegetation in a timely and efficient manner near utility facilities on lands owned or managed by federal and state agencies to meet both ecological and reliability standards. DPC has developed a plan utilizing IVM as the system for controlling undesirable vegetation on the transmission line corridor. The Plan has been developed to maintain safe and reliable electrical service while complying with habitat management goals and strategies of the Refuge and Wildlife Area.

# 2.0 Management Goals

DPC’s objective for vegetation management is to maintain clearances between transmission lines and vegetation on transmission ROWs and to prevent and/or minimize outages. The goals of this IVM Plan are to:

- Manage vegetation along DPC’s transmission ROW to meet FERC/NERC requirements
- Work cooperatively with USFWS and WDNR staff to maximize the habitat goals of the Refuge and maintain ROW at permitted width;
- Work cooperatively with USFWS on special projects that benefit the stewardship of the Refuge;
- Meet the land management conditions of the permit and easement agreements.
- Promote the use of IVM and Best Management Practices (BMPs) to ensure proper vegetation management, promotion of native plants, and the protection of the environment.

- Maintain close communication between DPC Vegetation Management and USFWS staff, and work cooperatively to expedite permitting of vegetation management activities.

# 3.0 Description of Vegetation Management Techniques - Construction/Post Construction

## 3.1 General Practices

The following is a list of practices that will minimize vegetation impacts such as tree removal and ground disturbance in wetland and upland areas related to Project construction:

- Limit construction activities, including vegetation removal, to the ROW and off-ROW access routes.
- Minimize rutting by using matting materials in unstable (very wet) wetland areas during construction activities, including ROW clearing activities, or perform work on firm or frozen ground that can support the equipment used.
- Minimize soil disturbance in steeply sloped areas, to the extent possible and/or practicable.
- Limit traffic in the ROW between transmission line structure locations to a single access path up to 12 feet wide to the extent practical.
- Use BMPs to minimize the potential for spills or leaks from equipment during construction, including frequent inspections of equipment, requiring portable spill containment kits for construction equipment.
- Avoid placement of staging or laydown areas in wetlands, and immediately adjacent to wetlands or waterways if possible.
- Limit staging and lay-down areas to previously disturbed areas where practical.
- Locate, design, construct, and maintain access routes to minimize rutting, maintain surface and subsurface water flows in the wetland, and reduce erosion and sedimentation.
- Where wetlands are to be crossed, create access through the shortest practicable route within the wetland resulting in the least amount of physical impact to the wetland during construction.
- Slash or woody vegetation that originates from outside wetlands is considered unauthorized fill, must be removed and is not to be left in wetlands.
- BMPs must be used to minimize the introduction of noxious weeds and invasive species (NWIS) on land surfaces disturbed by construction activities. An Invasive Species Survey was conducted for the Project corridor within the Black River floodplain in August 2013. Potential avenues of spread from existing NWIS populations onto the ROW include clearing activities and woody material handling, and vehicle travel along the length of the ROW. NWIS may also be spread onto the ROW from populations outside of the ROW, and may be imported onto the ROW on workers, equipment, or materials such as contaminated seed, mulch, soil or aggregate.
- Revegetate and restore areas disturbed by construction activities are intended to protect wetland and water resources from negative impacts associated with sedimentation, to protect wildlife habitat, and reduce the movement of NWIS species within the ROW.

- Planning access routes into and along the ROW to avoid NWIS populations, flagging major NWIS infestations in the field for avoidance, using construction matting to prevent NWIS propagules from attaching to equipment, and/or mechanically pre-treating infestations prior to ROW access to lessen the likelihood of spread. Cleaning equipment of soil and plant material after contact and before entering non-infested areas will also reduce the spread of NWIS.

## 3.2 Site Clean-up and Restoration

As construction wastes are generated, they will be properly disposed of in a manner which is suitable and appropriate for those wastes. Restoration of the natural landscape will begin as soon as construction or clearing activities cease. Restoration activities may include:

- Regrading or back-dragging of areas disturbed by construction or clearing to reflect pre-construction topography.
- Return floodplain contours to their pre-construction profile if disturbed during construction.
- Plant or seed non-agricultural surface areas disturbed by transmission line work to stabilize the soil and prevent runoff. Use local, native seed mixes, and seeding and mulching guidelines developed in consultation with Refuge staff upon with Refuge staff following seeding and mulching guidelines. Ensure seeding and/or planting are done at a time congruent with seeding and growth of the area, not during a time that would preclude germination or rooting.
- Restore the ROW, temporary work spaces, access paths, and other areas of ground disturbance affected by Project construction upon completion

# 4.0 Description of Vegetation Management Technique – Maintenance

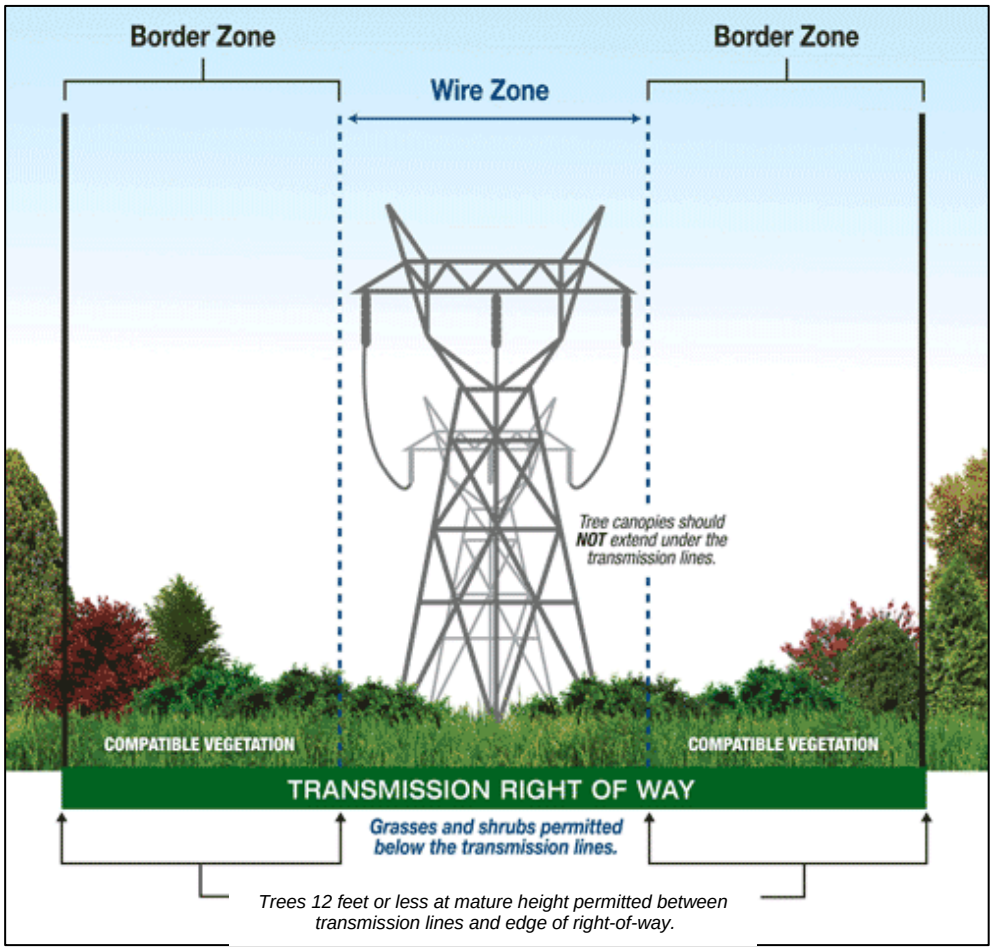
The IVM will be used by DPC as part on an on-going maintenance program to control undesirable vegetation. An IVM uses a variety of control options that can include biological, chemical, manual, and mechanical methods based on suitability in consideration of site conditions, environmental impacts, and effectiveness. The overall goal of an IVM program is to develop compliant, site-specific, environmentally sensitive, cost-effective and socially responsible solutions to vegetation control near transmission lines.

The primary objective of the transmission line clearance program is to keep transmission facilities clear of all incompatible trees, brush and other vegetation that could grow too close to the conductors. Incompatible vegetation is defined as vegetation that at maximum mature height could encroach within minimum clearance distances.

Utilities typically acquire easements with landowners rather than purchase the property outright. The ROW — or the land area described in the easement — must be clear of woody vegetation and structures that could interfere with the safe and reliable operation of the power line. Whenever feasible the “Wire Zone - Border Zone’ concept is integrated into the IVM program to allow for different types and heights of vegetation in the ROW. This modified Wire-Border Zone clearing concept consists of the removal of woody vegetation within the Wire Zone, while allowing some low growing, minimal density woody vegetation within the Border Zone to remain. American National Standard Institute (ANSI) A300 Part 7 2006 Standard Annex A defines these areas as:

"**Wire Zone** – An area on an electric utility ROW directly beneath and between the energized conductors farthest out on the pole/tower. This area is the most likely to contain vegetation that could potentially grow into contact with the energized conductors. The area is also typically used as access to the poles, towers, and conductors for repair, inspection, and maintenance."

"**Border Zone** – An area on an electric utility ROW outside the Wire Zone, extending to the outer edge of the established ROW."




Source: Tennessee Valley Authority

In the Border Zones, incompatible vegetation is selectively controlled, and compatible vegetation that will not grow to maturity above a specified height (12 feet for this Project) is conserved. The compatible vegetation is permitted between the transmission lines and the edge of the ROW. By retaining a greater variety of vegetation types, wildlife habitat is improved, and the visual impact to the ROW is softened. The USFWS and WDNR requested that shrub species be allowed to remain, reestablish themselves, and/or be planted within the Border Zone

In the Wire Zone, maintaining low-growing, primarily herbaceous cover allows access to utility infrastructure for inspection, repair, and maintenance, and for inspection of vegetation on and off the ROW. In addition, the Wire Zone is often ideal for wildlife species that prefer a meadow-life habitat.

An IVM program establishes the important steps that must be taken and questions that must be answered during each phase of the program. First, IVM objectives are established and compatible and incompatible vegetation that establish the desired results are identified. In this case, Refuge and Wildlife Area staffs prefer a modified IVM approach that promotes domination of a mix of native vegetation, including shrubs and small tree species up to 12 feet in height, and early succession stages of vegetation within the Border Zone.

The remainder of this document establishes control method(s), Corridor Pre- and Post-Management Evaluation, communication, and drawings and maps.

# 5.0 Control Methods

DCP may utilize various control methods such as; manual, mechanical, chemical and biological during vegetation management activities. Control methods will be selected based on site conditions, economics, clearing objectives, effectiveness and environmental issues within the transmission corridor ROW. Control methods may also be selective or non-selective management methods depending on site conditions and existing clearing.

## 5.1 Manual Clearing

Manual clearing is typically completed by using chainsaws to cut and mulch down existing vegetation directly under the energized conductors and tower bases of the transmission line in areas that are not accessible to larger mechanical mowing equipment. Such work is typically done where there is a low vegetation density, tree size is beyond the capacity of a mechanical mower, or where precision felling is necessary due to site restrictions. All debris generated will remain on site at the clearing location.

## 5.2 Mowing

Use of mechanical mowing to control vegetation within the ROW is based on density and/or size of the woody vegetation present, site characteristics and environmental and access restrictions. Mowing activities would typically occur in densely woody vegetation areas. Mowing activities must avoid damaging transmission line facilities.

## 5.3 Hazard Tree Work & Individual Tree Removal

Hazard trees are those located off ROW that are structurally defective and if they fell towards the conductors would cause an outage of the transmission circuit. Hazard trees are also those whose branches or trunk are growing into the ROW and are approaching FERC approved clearance standards. When these are identified they will be discussed on an individual basis with DCP and refuge staff and an acceptable resolution agreed to.

# 6.0 Vegetation Management Procedures and Guidelines

## 6.1 Corridor Pre- and Post-Management Evaluation

DPC will perform a ground inspection of the transmission ROW to evaluate existing conditions and record data on the vegetative cover types using a GIS based computer program. DPC, along with Refuge and Wildlife Area staff, as applicable, will evaluate collected data from the corridor and determine what vegetation is compatible or incompatible with the management objectives, the point of action threshold, and determine the appropriate control method(s). The ROW will be reviewed for vegetation maintenance requirements every five years and a vegetation management work plan developed. The work plan will incorporate the appropriate combination of control methods described in Section 5.0 during planned vegetation management activities to achieve management objectives. The work plan must incorporate flexibility to adjust for changing conditions, including anticipated vegetation growth and environmental factors (i.e. flooding or abnormally wet conditions or dry conditions) that may have an impact on the reliability of the transmission line. Documentation of any adjustments made to the work plan will be recorded for future reference.

## 6.2 Management Guidelines

- Every effort will be made to conduct management activities during the dormant season (November to March) to avoid the breeding season (April 15- August 15) with the exception of invasive species treatment following co-ordination with the agency. Disturbance in any endangered species or sensitive habitat areas (see Section 9) should only occur beyond the breeding season in September to December, and disturbance should be as minimal as possible. There may be exceptions for the treatment of invasive plant species outside of the dormant season for problematic species. In such cases, DPC or its contractors will coordinate with the refuge staff for permission to conduct spot treatments.
- DPC will ensure that heavy equipment and vehicles are free of weed seeds or propagating plant parts before being brought onto the job site. Workers shall also be vigilant of transporting weed seeds from other job sites in pant cuffs, or on footwear, tools, and equipment.
- Debris from brush-cutting or tree-top removal shall not be left in large piles, but mulched in place or distributed so as not to cause an accumulation of thatch and produce a fire hazard or interfere with plant germination. Small amounts of debris cuttings may be left in place for decomposition.
- Invasive shrubs such as common buckthorn (*Rhamnus cathartica and R. frangula*) with berries will be removed and properly disposed.
- Promote the conservation and encourage the dominance of native shrubs, forbs, grasses and trees, and avoid the removal of such if they do not pose a threat to the service goals of the utility.

- All pruning cuts must follow WDNR's approved techniques for Licensed Tree Experts.
- On a case-by-case basis, mowing ROW access lanes with a brush hog will be permitted to allow adequate clearance under conductors in Wire Zone, as well as work crews' access through areas of dense vegetation. Mowing lane location will be pre-approved by the Refuge staff in coordination with DPC.
- On a case-by-case basis, previously-mowed grassy portions of the transmission line ROW in border zone areas will be allowed to revert to shrub-scrub vegetation. Wire Zone portions of these grassy areas will continue to be mowed.
- Use of heavy equipment and vehicles will not be permitted on the transmission line ROW during wet and/or muddy conditions, except when emergency access is required to repair overhead lines or towers along the ROW.
- DPC will notify Refuge staff of intent to use herbicides and will provide a list of intended herbicides that includes trade name, active ingredient, target species, method of application, and rate of application. Staff will be notified at least 60-days in advance of application of herbicides to allow time for all approvals.

## 6.3 Clearance Between Vegetation and Transmission Conductors

Maximum operating conditions and design criteria, including conductor sag and blowout conditions, must be considered when designing a modified Wire-Border Zone vegetation management plan. Two types of clearances are required; clearances to be achieved at the time of vegetation management clearing activities and clearances that are to be maintained between vegetation and conductors under all circumstances. Established clearances are defined as the minimum distances stated in the Institute of Electrical and Electronics Engineers (IEEE) Standard 516-2009 (Guide for Maintenance Methods on Energized Power Lines).

| Nominal Voltage (kV phase to phase) | Scheduled Maintenance Clearance (Wire Zone) | Minimum Clearance (IEEE Standard 516) in all Circumstances |
|---|---|---|
| 161 kV | 14 feet | ANSI Z 133.1 |

# 7.0 Noxious Weeds and Invasive Species

Management of NWIS will occur as a part of vegetation management. New NWIS will be continually eradicated to limit infestation of native habitats. A listing of Chapter NR 40 regulated plant species can be found on the WDNR's web site. BMPs to control invasive species include:

- Prior to disturbance activities on the ROW (including vegetation clearing), locate and document NWIS infestation. Provide maps to Project managers, construction coordinators, contractors, and corridor workers performing activities.
- Establish staging areas and/or other temporary work facilities in locations that are free of NWIS or where NWIS can be avoided.
- Avoid contact between NWIS infestations and personnel and equipment when feasible. One option of this may include using matting underlain with geotextile where work areas coincide with infestation.
- Clean equipment prior to arrival on-site. Brush off visible dirt or remove with high pressure compressed air blowers. This is critical when moving equipment from infested areas to non-infested areas.
- Inspect and clean clothing, footwear, and gear for soil, seeds, or plant parts that may spread NWIS before and after activities. Dispose soils, seeds or plants parts properly.
- Use materials that are free of invasive species propagules (soil, aggregates, mulch, erosion control blankets, seed mixes). Use certified NWIS-free products when available.
- Leave NWIS onsite in infested areas. If you must transport plant material that may contain invasive species, ensure plant material is not dispersed during transport and bring them to a designated area for appropriate disposal.

# 8.0 Communication Plan

All work will be scheduled with the approval of Refuge and Wildlife Area staff through email or telephone notification to the appropriate personnel. A DPC representative will be on site or available to respond when work is being performed on the Refuge or Wildlife Area. The primary contact for DPC is Mike Mooney or the on-site foreman: Any work to modify existing vegetation conditions will first be discussed, mapped, and field-checked by Refuge staff, WDNR staff and the DPC representative prior to work commencing. USFWS and WDNR contacts are:

| Contact/Email | Office Phone | Mobile Phone |
|---|---|---|
| Melissa Tumbleson<br>Melissa.Tumbleson@Wisconsin.gov | (608)267-0862 | |
| Kendra Niemec<br>kendra_niemec@fws.gov | (608) 779-2386 | |
| Chuck Thompson<br>cat@dairynet.com | (608) 787-1432 | |
| Joleen Trussoni<br>jkt@dairynet.com | (608) 787-1472 | |

# 9.0 Drawings and Maps

DPC will develop a map book showing the transmission line structure and span locations, access points, location and width of access routes, ROW width, and agreed upon vegetation cover type and height (shrub and early succession, open meadow) in each segment, background vegetation imagery, and road and access gates. Prior to a vegetation management event, data collected regarding selected management techniques, location of hazard trees, specialized vegetation management requirements, such as removal of invasive or noxious species, or any timing restrictions due to breeding seasons or sensitive resource issues will be added to the IVM map book. The map book will then be used as a guide by field personnel performing vegetation management. The IVM plan and map books will be available on file at the refuge office and DPC office.

# Appendix D: Briggs Road-Marshland 161 kV Rebuild Transmission Study