

ENVIRONMENTAL ASSESSMENT  
FOR THE PROPOSED  
TAMARAC 115 KV TRANSMISSION  
LINE

By  
Clay County, Minnesota

MARCH 27, 2012

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# 1. PROJECT SUMMARY

## 1.1. PROJECT OWNER

Tamarac Line, LLC is a Minnesota special purpose company that will build, own and operate the new 115 kV single circuit transmission line and associated facilities.

The Permittee for the proposed Project is:

Permittee: Tamarac Line, LLC  
Contact: Chief Manager  
Address: Tamarac Line, LLC  
618 2<sup>nd</sup> Avenue SE  
Minneapolis, MN 55414  
Phone: (612) 331-1486  
E-mail: [paul.white@prcwind.com](mailto:paul.white@prcwind.com)

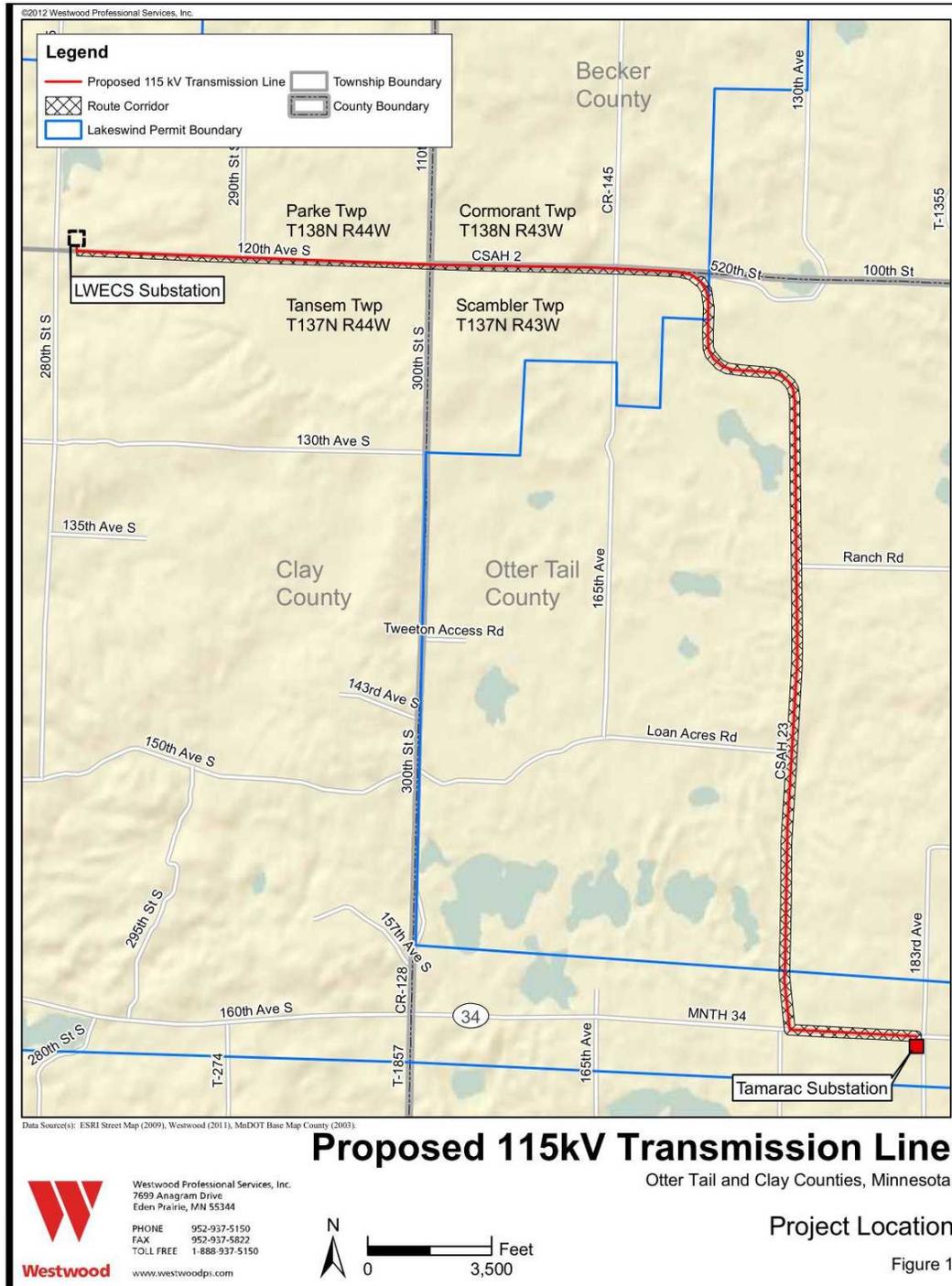
## 1.2. PROJECT NEED

Lakeswind Power Partners, LLC has successfully permitted and is planning construction of a less than 50MW large wind energy conversion system (LWECS) located in Clay, Otter Tail and/or Becker Counties in Minnesota. The purpose of the proposed 115kV transmission line will be to transmit energy from the LWECS to the existing Otter Tail Power Tamarac Substation located in Scambler Township in Otter Tail County, Minnesota.

## 1.3. PROJECT DESCRIPTION

The proposed feeder line is approximately 8.5 miles of new single circuit overhead 115kV transmission line. The proposed line will run from the LWECS substation near the intersection of 120<sup>th</sup> Ave. So. and County Road 125 (280th Street South) in Clay County to the existing Tamarac Substation located in Scambler Township in Otter Tail County, Minnesota. Approximately 2.0 miles of the new line will be located in Clay County and approximately 6.5 miles will be located in Otter Tail County (Figure 1).

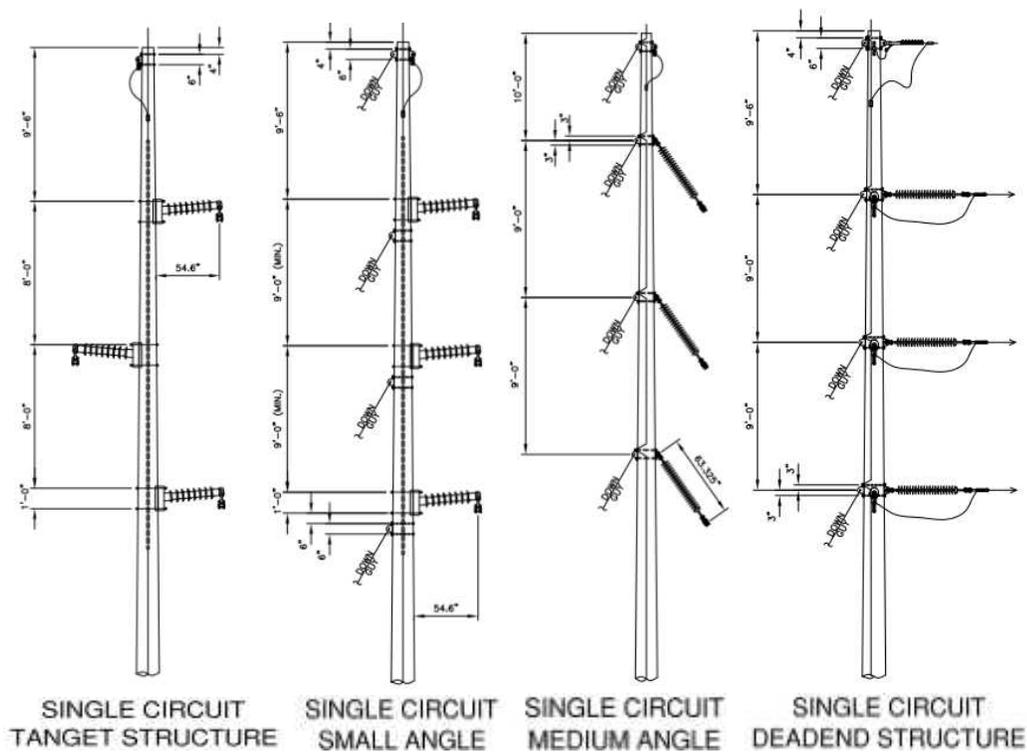
FIGURE 1  
GENERAL VIEW OF PROPOSED PROJECT



To minimize potential impact on residential, commercial, or agricultural property along the proposed route, Tamarac proposes to locate most of the proposed line parallel to public roads/highways already host to similar transmission facilities. Tamarac is also working in coordination with another transmission owner along much of the path to consolidate and minimize transmission line poles. No alternate routes were formally considered as part of the planning process because of the ability to coordinate with the existing transmission line operated by Lake Region Electric Cooperative. This route offers readily available easements and proved to present no minimal environmental. Additionally, no alternate routes were presented by local land owners or interested parties at the public scoping meeting, discussed below. One alternate route was considered during the permitting of the LWECS project, but was discounted because of greater environmental risk. This route place the primary north-south alignment west of County Road 23 within private lands. The density of wetlands and proximity to species of concern were primary factors in dropping that route.

The proposed Tamarac 115kV transmission line will consist of wood or metal single pole structures. Typical structures are illustrated in Figure 2. If wood poles are used, laminated poles may be utilized where the route changes directions. Effort will be taken to minimize the footprint of the facility.

FIGURE 2  
TYPICAL 115KV SINGLE CIRCUIT STRUCTURES



#### 1.4. PROJECT LOCATION

The path of the proposed transmission line begins at the LWECS project substation near the intersection of 120<sup>th</sup> Ave. So. and County Road 125 (280th Street South) in Clay County, and runs to the existing Tamarac Substation located in Scambler Township in Otter Tail County, Minnesota is depicted in Figure 1 (the "Project Area"). Table 1 identifies the counties, cities and townships ("Local Government Units" or "LGUs"), in addition to the Public Land Survey ("PLS") designation of areas occupied by the proposed route.

County/Township/City	PLS Township (N)	PLS Range (W)	PLS Sections
Otter Tail/Scambler TWP	137	43	28, 21, 16, 9, 6, 5, 4
Clay/ Tansem TWP	137	44	1 and 2
Clay/Parke TWP	138	44	35 and 36

#### 1.5. PROJECT DESIGN AND RIGHT-OF-WAY

The transmission line will be constructed in a mix of private and public land easements. The general design parameters specify that poles be placed adjacent to highway right-of-way (ROW) on private land, typically within five feet of the highway ROW. The line will occupy a nominal 60 ft. easement to accommodate physical intrusion of the poles and overhang and blow-out of the wires. County highway ROW in the project area is typically 100 ft, (50 ft. from centerline). The transmission line easement will therefore extend into the Highway ROW for 25 feet and occupy 35 feet of private land. These easements have been secured. . The transmission line will be strung on a series of approximately 122 structures with an average span between structures of 370 foot.

Three areas of the transmission line design will deviate from this typical scenario. First, a section of the line will route around a residential dwelling along County Highway 2. Second, several poles locations fall directly within the County Highway ROW in the area of the 'S' curve on County Highway 23. Lastly, a 0.75 mile segment of the line parallels the ROW along Minnesota State Highway 34, which carries a state ROW through MnDOT rather than a county ROW. This section follows the typical ROW-offset design used along county highway ROW. Drawings of the design can be found in Appendix E.

In the current design the transmission line initiates at the LWECS substation located along the southern edge of Section 35 in Parke Township (T138N, R44W), Clay County,

Minnesota. The line will likely exit the substation from the southeast corner at Structure #1 (Appendix E, Sheet 1 of 10). The line proceeds to the east along the northern edge of 120<sup>th</sup> Ave. So. for approximately 1.84 miles to Structure #24, immediately west of the Clay County, Otter Tail/Becker County Border (Appendix E, Sheet 3 of 10). From Structure #24, the line extends to the south approximately 100 feet, crossing to Structure #25 located on the south side of 120<sup>th</sup> Ave. So. From Structure #25, the line extends to the east approximately 80 feet where it crosses the Clay County border into Otter Tail County (Appendix E, Sheet 3 of 10).

The transmission line enters Otter Tail County along the south side of Otter Tail County Highway 2. The line extends to the east approximately 1,500 feet (from the county border to Structure #29). Between Structures #29 and #30, the line turns to the south and extends approximately 400 foot to Structure #31. At Structure #31, the line turns back towards the east and extends approximately 1,100 foot to Structure #34. At Structure #34, the line turns to the north and extends approximately 400 to Structure #35, located along the southern edge of Otter Tail County Highway 2 (Appendix E, Sheet 3 of 10).

Between Structures #35 and #36, the line turns toward the east and extends approximately 2,500 feet to Structure #43 (Appendix E, Sheet 4 of 10). For the portion of the line between the county border and Structure #43, the proposed pole locations are located approximately 5 feet external (south) to the existing Otter Tail County Highway 2 ROW requiring a 25 foot overhang easement to the County Highway 2 ROW. The remaining 35 of the transmission ROW will consist of private easements abutting the county highway ROW.

From Structure #43, the line extends to the east approximately 75 foot where it crosses 165<sup>th</sup> Ave. Passing 165<sup>th</sup> Ave. the line continues to extend towards the east along the southern side of Otter Tail County Highway 23 approximately 1,700 feet to Structure #48 (Appendix E, Sheet 4 of 10). For the portion of the line between the Structure #43 and Structure #48, the proposed pole locations are located approximately 5 feet external (south) to the existing Otter Tail County Highway 23 ROW requiring a 25 foot overhang easement to the County Highway 23 ROW. The remaining 35 of the transmission ROW will consist of private easements abutting the county highway ROW.

Between Structure #48 and Structure #51 the transmission line parallels County Highway 23 for approximately 1,000 feet as it curves towards the south (Appendix E, Sheet 5 of 10). The transmission line maintains a position on the south and west side of County Highway 23 with pole locations situated approximately 5 feet external (south/west) to the existing Otter Tail County Highway 23 ROW requiring an overhang easement between 5 and 25 feet to the

County Highway 23 ROW. The remaining 55 to 35 of the transmission ROW will consist of private easements abutting the county highway ROW.

Between Structures #51 and #55 the transmission line extends to the south approximately 1,000 feet, paralleling the west side of County Highway 23 (Appendix E, Sheet 5 of 10). The proposed pole locations are located approximately 5 feet external (west) to the existing Otter Tail County Highway 23 ROW requiring a 25 foot overhang easement to the County Highway 23 ROW. The remaining 35 feet of the transmission ROW will consist of private easements abutting the County Highway 23 ROW.

Between Structure #55 and Structure #63 the transmission crosses an area of curving road and irregular ROW for approximately 2,100 feet as it curves towards the east (Appendix E, Sheet 5 of 10). The transmission line maintains a position on the south and west side of County Highway 23 with pole locations situated generally 5 feet external (south/west) to the existing Otter Tail County Highway 23 ROW requiring an overhang easement between 5 and 35 feet to the County Highway 23 ROW. The remaining 55 to 25 of the transmission ROW will consist of private easements abutting the County Highway 23 ROW. Structures 56-57 are located within the county ROW.

Between Structures #58 and #61 the transmission line extends to the east approximately 1,000 feet, paralleling the south side of County Highway 23 (Appendix E, Sheet 5 of 10). The proposed pole locations are located approximately 5 feet external (west) to the existing Otter Tail County Highway 23 ROW requiring a 25 foot overhang easement to the County Highway 23 ROW. The remaining 35 of the transmission ROW will consist of private easements abutting the County Highway 23 ROW. Structures 61-63 are located within the county ROW.

Between Structures #61 and #62 the transmission line extends to the east approximately 350 feet, crossing from the south/west side to the north/east of County Highway 23. The proposed pole locations are located approximately 5 feet external to the existing Otter Tail County Highway 23 ROW requiring an overhang easement with the County Highway 23 ROW.

Between Structure #62 and Structure #64 the transmission line parallels County Highway 23 for approximately 1,100 feet as it curves towards the south (Appendix E, Sheet 5 of 10). The transmission line maintains a position on the north and east side of County Highway 23 with pole locations situated approximately 5 feet external (south/west) to the existing Otter Tail County Highway 23 ROW requiring an overhang easement between 5 and 35 feet to the

County Highway 23 ROW. The remaining 55 to 25 of the transmission ROW will consist of private easements abutting the County Highway 23 ROW.

Between Structures #64 and #111 the transmission line extends to the south approximately 17,850 feet (approximately 3.4 miles), paralleling the east side of County Highway 23 (Appendix E, Sheets 6-9 of 10). The proposed pole locations are located approximately 5 feet external (east) to the existing Otter Tail County Highway 23 ROW requiring a 25 foot overhang easement to the County Highway 23 ROW. The remaining 35 of the transmission ROW will consist of private easements abutting the County Highway 23 ROW. Between Structures #111 and #112, the line turns toward the east and extends approximately 3,600 feet to Structure #122 (Appendix E, Sheets 9 & 10 of 10).

The line will connect from Structure #122 on the north side of Minnesota State Highway 34 to the Tamarac Substation via an underground cable. This cable will be installed by means of horizontal directional drilling beneath the highway. The cable entry and exit points will be outside of the MnDOT ROW. An easement for this land use will be secured from MnDOT.

## 1.6. CONSTRUCTION DETAILS

Construction of the transmission line is anticipated to commence in late summer 2012. Construction activities will adhere to industry standards. These best practices address ground, utility, structure, and right-of-way clearance, as well as staging, erecting transmission pole structures and stringing transmission line. Typical construction equipment used on transmission projects includes but is not limited to mowers, cranes, backhoes, digger-derrick line trucks, track-mounted drill rigs, dump trucks, front-end loaders, bucket trucks, bulldozers, flatbed tractor-trailers, flatbed trucks, pickup trucks, concrete trucks and various trailers. Many types of excavation equipment are set on wheel or track-driven vehicles. Wood or steel poles are transported on tractor-trailers.

Wood pole tangent structures would be directly embedded into the ground if soil conditions warrant. Rock-filled culvert foundations may be required in areas with poor soils. This method typically involves digging a three to four foot diameter hole ten to twelve foot deep, filling it partially with crushed rock and then setting the pole on top of the rock base. The area around the pole is then backfilled with crushed rock and/or soil. Long span, angle and dead end structures along the route will require concrete foundations. Drilled pier foundations may vary from five to eight feet in diameter and 20 to 30 feet deep, depending on soil conditions. Wood pole structures are hauled unassembled on pole trailers to the staked location and placed within the right-of-way until the arms attached. Insulators and

other hardware are attached while the pole is on the ground. The pole is then lifted, placed and secured on the foundation using a crane. Pole structures at turning locations will be supported by guy wires.

Construction staging areas are usually established for transmission projects. Structures are delivered to staging areas and materials are stored until they are needed for the project and then sorted and loaded onto structure trailers for delivery to the staked location. These areas will be selected for their location, access, security and ability to efficiently and safely warehouse supplies. The areas are chosen to minimize excavation and grading.

Access to the transmission line right-of-way corridor is typically made directly from existing roads or trails that run parallel or perpendicular to the transmission line right-of-way. In some situations, private field roads or trails may be used. Where easements exist, the Company notifies the property owner that it will access the easement area. Where necessary to accommodate the heavy equipment used in construction, including cranes, concrete trucks and foundation drilling equipment, existing access roads may be upgraded or new roads may be constructed.

During construction, crews will attempt to limit ground disturbance. However, areas are typically disturbed during the normal course of work, which can take several weeks in any one location. As construction on each parcel is completed, disturbed areas will be restored. The right-of-way agent contacts each property owner after construction is completed to determine whether any damage has occurred as a result of the project. Erosion control and vegetation establishment practices are regularly used in construction projects and are referenced in the construction storm water permit plans. Long-term impacts are also minimized by utilizing these construction techniques.

## 2. REGULATORY REQUIREMENTS

### 2.1. PERMIT REQUIREMENTS

The Minnesota Public Utilities Commission (MPUC) is the Minnesota State Agency responsible for reviewing and permitting power plant, transmission lines, pipelines and wind turbine siting. Under the Power Plant Siting Act, a permit from the MPUC is required to be obtained for transmission line projects in excess of 100 kV (Minn. Stat. § 216E). However, eligible projects may opt to pursue local review and permitting. For such project a utility may apply to a local unit of government (named the responsible governmental unit or RGU) instead of the MPUC for a permit to build the project. The current project is proposed to

traverse portions of Otter Tail County and Clay County. After discussing the details of the project with the LGU entities, Ottertail and Clay County Board of Commissioners have both agreed that Clay County will act as the lead RGU.

Per Minn. Stat. § 216E.05, subd. 3 and Minn. Rules 7850.5300Subp. 3, Tamarac Line, LLC has provided notice to the MPUC that a Conditional Use Permit had been applied for with Clay County and a Highway Right-of-Way Permit has been applied for with Otter Tail County as the local review process and that Clay County Board of Commissioners agreed to serve as the RGU (Appendix A.1). The Otter Tail Board of Commissioners provided a letter agreeing to have Clay County serve as the LGU for the review of the required environmental assessment (Appendix A.2). A letter was received from the Department of Commerce, Office of Energy Security (OES) to the Clay County Board of Commissioners and Tamarac Line, LLC confirming the proposed Project was eligible for local review (Appendix A.3). Notice of the project was also sent to those persons on the Power Plant Siting General Notification list as required under Minn. Rules 7850.5300, Subp. 3 (Appendix A.4).

The permitting for the line will be accomplished as a single project within two jurisdictions. Clay County will permit under its CUP process and Otter Tail County under its Highway ROW Permit Process. The Clay County CUP encompasses all portions of the route within that county. The Otter Tail County permit directly encompasses the majority of the project. The two areas described in Section 1.5 above fall outside of the physical lands covered by the County Highway ROW Permit. The intent of the permitting process is to allow public participation, evaluate the project for impacts to human health and the environment and ensure prudent design appropriate for the intended regional land uses. These requirements have been met for the overall project through this EA and the respective county permits. Primarily, this is ensured through standardized design consistent with industry standards and presentation of design details in this Environmental Assessment. Any portion of the project falling under the jurisdiction of each county affirms the need for such permit within each county. For these reasons the ordinances within each county, supported by the environmental assessment process, provide for reviewing and authorizing the project at the county level.

## 2.2. ENVIRONMENTAL ASSESSMENT

In accordance with Minn. Rules 7850.5300 Subp. 5, the RGU is required to prepare an Environmental Assessment (EA). The EA contains information on the human and environmental impacts of the proposed project and addresses methods to mitigate any such indicated impacts.

A copy of the EA is required to be provided to the MPUC by Clay County, and a notice must be published in the Minnesota Department of Administration Environmental Quality Board (EQB) Monitor stating that the EA is available for public review, how a copy of the document may be reviewed, that the public may comment on the document, and the procedure for submitting comments to the Clay County Board of Commissioners. A final decision (i.e. conditional use permit) on the proposed Project cannot be made by the Clay County Board of Commissioners until at least 10 days after the notice appears in the EQB Monitor.

### 2.3. ENVIRONMENTAL ASSESSMENT SCOPING/PUBLIC INPUT

Minn. Rule 7850.5300 requires that, prior to completion of the EA, the general public must be afforded the opportunity to participate in developing the scope of the EA. A public meeting was held on February 24, 2012 in Barnesville, Minnesota to provide an opportunity for the public to provide input on the scope of the EA. Notice of the public meeting was given directly via mail to all landowners within 200 feet of the proposed project, and by a published notice on February 19th, 2012 in the Fergus Falls Daily Journal, the Barnesville Records Review, and the Fargo Forum newspapers. A copy of the published notice, affidavit of publication and an example landowner letter are included in Appendix B.

A total of 43 people attended the Public Meeting. The attendance form, meeting handouts, and comment forms are included in Appendix B.

## 3. ENVIRONMENTAL ASSESSMENT

This section provides a description of the environmental setting, potential impacts, and mitigative measures Tamarac Line, LLC has proposed, where appropriate, to minimize the impacts of siting, constructing and operating the Project. If the proposed transmission line is removed in the future, the land could be restored to its prior condition and/or put to a different use. The majority of the measures proposed are part of the standard construction process for transmission lines. Unless otherwise identified in the following text, the costs of the mitigative measures proposed are considered nominal.

Environmental features discussed in this section include features up to one mile from the proposed transmission route. Discussions of potential impacts to sensitive resources are limited to the Route Corridor which is an area within 150 feet of the Project centerline. Sensitive resources along the proposed route are depicted in Appendix C.

Tamarac proposes to locate the line in agricultural areas, with most of the proposed line parallel to public roads/highways already host to similar transmission facilities. Tamarac is also working in coordination with another transmission owner along much of the path to consolidate and minimize transmission line poles. The northernmost 1.5 miles of the route inside Otter Tail County lies adjacent to a gravel mining operation.

The Project is located within the Minnesota and Northeast Iowa Morainal Section (222M), a section within the biogeographic province known as the Eastern Broadleaf Forest Province under the Ecological Classification System ("ECS") developed by the Minnesota Department of Natural Resources ("MnDNR") and the United States Forest Service ("USFS") (MNDNR, 2010). The Project Area is further located within the Hardwood Hills subsection of the Minnesota and Northeast Iowa Morainal Section.

Dominant landscape features in this subsection are described as steep slopes, high hills and lakes formed from outwash plains and glacial end moraines. The topography of the Project Area is undulating and ranges from 1350 feet above mean sea level in elevation in the central portion of the project to 1450 feet above mean sea level near the western terminus of the project. A majority of the proposed line generally fluctuates near 1400 feet above mean sea level.

Presettlement vegetation included maple basswood forests interspersed with oak savanna, oak forests, and tall grass prairies (MnDNR). The majority of the transmission route has now been converted to primarily agricultural use with only a small portion of either upland forest or wetlands near the Project Area in the vicinity of MnDNR Public Water Wetland 56-1667W. The agricultural areas are utilized mainly for pasture and hay production, except in the southern portion of the project area where row crops are more common. Several gravel mines are located immediately adjacent to the northern part of the proposed path.

### 3.1. AIR QUALITY

Minor temporary effects on air quality are anticipated during construction of the proposed new transmission line as a result of exhaust emissions from construction equipment and other vehicles, and from fugitive dust that becomes airborne during dry periods of construction activity. The majority of the roads within the project areas are paved and will not produce significant amounts of fugitive dust. Minimal vehicle traffic is anticipated on unpaved surfaces. Based upon this, Tamarac Line, LLC anticipates nominal impacts to air quality during construction activities. No long-term mitigative measures are proposed. However, during construction water trucks will be available to wet exposed surfaces should excessive construction event dust production become evident.

### 3.2. WATER RESOURCES

One large wetland complex and several small isolated wetlands are scattered along the Project Area. The National Wetlands Inventory (“NWI”) and aerial photography was reviewed to assess which wetlands may be present within the Project Area. Based on NWI mapping, a total of sixteen wetlands comprised of six different wetlands types intersect the Route Corridor of the Project (Appendix C).

All of the wetlands present within the Route Corridor are classified as Palustrine type wetlands. The Palustrine System includes all nontidal wetlands dominated by trees, shrubs, emergents, mosses or lichens (Cowardin et al. 1979). Of those wetlands the majority contain emergent vegetation with some displaying a mixture of shrubs and herbaceous vegetation. Additionally, some of the Palustrine wetlands have an open water components and contain unconsolidated bottoms.

The MnDNR Public Waters Inventory (PWI) identifies Public Wetlands, Waters and Watercourses. The Project Area intersects one Public Water Wetland (56-1667W). No other Public Waters, Wetlands, or Watercourses are intersected by the proposed route. The Public Water Wetland intersect is shown in Appendix C.1c. The proposed transmission route does not cross the 100- or 500-year floodplain of any water feature according to FEMA Flood Insurance Rate Maps (FEMA, 1992).

The proposed transmission line construction will have minor, mostly short term effects on surface water resources. Most potential effects on surface waters will be related to the construction of the transmission line across wetlands proximal to the existing transmission corridor. The Project could require wetland and water resource approvals from the U.S. Army Corps of Engineers (USACE), MnDNR, and several Local Government Units (LGU’s). These agencies administer regulatory programs of the federal Clean Water Act and Rivers and Harbors Act, the Minnesota Public Water Resources Act and Utility Crossing Licenses, and the Minnesota Wetland Conservation Act (WCA).

#### Mitigative Measures

Tamarac Line, LLC will design the Project to avoid and minimize wetland impacts, and will apply erosion control measures identified in the MPCA Storm Water Best Management Practices Manual, such as using silt fence to minimize impacts to adjacent water resources. During construction, Tamarac Line, LLC and their contractors will control operations to minimize and prevent material discharge to surface waters. If materials do enter water resources they will be promptly removed and properly disposed of to the extent feasible. Disturbed surface soils will be stabilized at the completion of the construction process to

minimize the potential for subsequent effects on surface water quality. Tamarac Line, LLC will minimize impacts to wetlands to the greatest extent possible. By maximizing the typical span length in these areas, permanent impacts to these areas can be avoided or minimized. If impacts to wetlands are unavoidable, it is likely those impacts will be temporary. Temporarily impacted wetlands will be returned to their pre-construction elevations and revegetated with a suitable native wetland seed mix.

### 3.3. WILDLIFE AND VEGETATION

#### 3.3.1 Flora

Land cover consists primarily of agricultural land along the proposed route. The Minnesota County Biological Survey indicates four areas of significant biological diversity that intersect the Route Corridor; however, three of the four sites are below the MCBS minimum biodiversity significance threshold. The other site, located in Parke Township, is listed as having moderate biological diversity. Two sites, the Nelson WPA and the Burton Lake Prairie, are located approximately 200 feet outside of the Route Corridor and are listed as sites with moderate and high biodiversity significance, respectively. These two areas also contain native plant communities identified by the MCBS. The Nelson WPA is a Dry Sand-Gravel Prairie (Southern) and the Burton Lake Prairie contains native northern cattail marsh and tamarack swamp.

Native grassland is relatively scarce within the Route Corridor since the majority of it is comprised of existing utility and road rights-of way and agricultural land. Areas of wetland, grassland and forest are interspersed along the extent of the Route Corridor with concentrations of wetland areas in the central portion of the route. Reed canary grass, cattail, cottonwood, aspen, willow, and sedges are the primary species in wetlands. Wooded areas that are present are generally associated with farmsteads, and to a lesser extent, with wetlands in the central portion of the route corridor. A portion of a pine plantation intersects the southern part of the Route Corridor. Otherwise common species in wooded areas include box elder, sugar maple, red maple, basswood, American elm, , green ash, bur, red, and white oak, aspen and eastern cottonwood.

#### Mitigative Measures

The Project consists of new construction primarily parallel to public roads/highways already host to similar transmission facilities. Transmission line construction impacts to trees, woodlands, and prairies will be minimized because the transmission line construction will follow existing rights-of-way. To minimize impacts to trees in the Project Area, Tamarac Line, LLC will limit tree clearing and removal to the transmission line right-of-way, areas that

limit construction access to the Project Area, and areas that impact the safe operation of the facilities.

As indicated earlier in the text, the Project will be constructed within or proximal to existing utility and road rights-of way which are already disturbed and host to non-native and invasive species. To minimize the potential introduction or spread of invasive species to area native plant communities, construction traffic will be limited to existing access routes to the extent practicable. Disturbed areas will be stabilized following construction and seeded with an appropriate MnDOT/BWSR recommended seed mix.

### 3.3.2 Fauna

As indicated earlier in the text, there are three Waterfowl Production Areas (WPA's) within one mile of the proposed route, one of which is approximately 300 feet from the central portion of the proposed project. The Northern Tallgrass Prairie National Wildlife Refuge is less than ½ mile from the central portion of the proposed route, and the Scambler Wildlife Management Area (WMA) is just over one mile from the southern end of the proposed project (Appendix C).

The croplands, grasslands, wetlands, and woodlands within the Project Area provide habitat for a variety of wildlife. Wildlife and other organisms that inhabit the Project Area include small mammals such as mice, voles, and ground squirrels; large mammals such as white-tailed deer, red and gray fox, coyote, beaver, and badger; waterfowl and other water birds like pelicans and egrets, songbirds, raptors, upland gamebirds; and reptiles/amphibians such as frogs, salamanders, snakes, and turtles. Wildlife that resides within the construction zone will be temporarily displaced to adjacent habitats during the construction process.

The newly constructed transmission line may affect raptors, waterfowl and other bird species. Birds have the potential to collide with all elevated structures, including power lines. Avian collisions with transmission lines can occur in proximity to wetlands and water features and agricultural fields that serve as feeding areas. The electrocution of large birds, such as raptors, is more commonly associated with small distribution lines than large transmission lines. Electrocution occurs when birds with large wingspans come in contact with two conductors or a conductor and a grounding device. Transmission and distribution line design standards provide adequate spacing to eliminate the risk of raptor electrocution and will minimize potential avian impacts of the proposed Project.

### Mitigative Measures

It is anticipated that most wildlife displacement and habitat impacts will be temporary. Consequently, no wildlife population mitigation measures are proposed.

Tamarac Line, LLC will include designs and other measures aimed at preventing avian electrocutions, as described in guidance provided by the Avian Power Line Interaction Committee ("APLIC" 2006). Tamarac Line, LLC further addresses avian issues related to transmission projects by:

- Working with resource agencies such as the MnDNR and the USFWS to identify areas that may be appropriate for marking transmission line shield wires with bird diverters; and
- Attempting to avoid areas known as primary migration corridors or migratory resting areas.

The Project has been assessed for areas with potential avian issues. Areas where bird diverters might be warranted have been identified. The part of the transmission line that runs along HWY 23 between MnDNR Protected Waters 56-927P and 56-1662W on the west side of the road and 56-1667W and 56-926P on the east side of the road. In most cases, the shield wire of an overhead transmission line is the most difficult part of the structure for birds to see. A common bird diverter that is used is a SFD, which is a pre-formed spiral shaped device made of polyvinyl chloride that is wrapped around the shield wire.

### 3.3.3 Rare and Unique Species

A request for a Natural Heritage Database Search and comments regarding rare species and natural communities for the Project Area was submitted to the MnDNR on December 22, 2011. The results of the MnDNR Natural Heritage Database Search are included in Appendix D.2. The following assessment is based on MnDNR response, a review of the Natural Heritage Database that is licensed to Westwood Professional Services, Inc. by the MnDNR, and other state and federal rare species and natural community information. There are eight (8) known occurrences of rare species within the Route Corridor and those include two records of the greater prairie chicken, two records for Nutall's Ground-rose, two records for Oat-grass, one record for Prairie Moonwort, and one record for a terrestrial community.

In the February 17, 2012 response from the MnDNR regarding the Natural Heritage Review of the proposed Project (Appendix D.2), it was noted that trumpeter swans were documented within two miles of the proposed Project. Recommendations were made for the use of bird diverters on overhead lines near lakes and rivers or other areas that may attract large concentrations of waterfowl.

In the March 5, 2012 response from the MnDNR Division of Ecological and Water Resources (Appendix D.3) the potential for avian mortality due to collisions with power lines was noted, as well as the need to avoid and minimize impacts to wetlands, and the need to prevent the introduction of invasive species to area native plant communities.

#### Mitigative Measures

The Project and construction process will be designed to avoid or minimize encroachment and effects on rare species and unique natural resources. The proposed line will be constructed parallel to public roads/highways already host to similar transmission facilities, which are typically disturbed habitats. Although there are records of sensitive species in close proximity of the proposed line, it is unlikely they would be impacted by the Project due to its location in already disturbed areas. If rare species or unique natural resources will be affected, Tamarac Line, LLC will coordinate with the MnDNR and consider modifying either the construction footprint or the construction practices to minimize impacts.

### 3.4. NOISE

Transmission lines can generate a small amount of sound energy during corona activity where a small electrical discharge caused by the localized electric field near energized components and conductors ionizes the surrounding air molecules. Noise levels produced by a 115 kV transmission line are generally less than outdoor background levels and are therefore not usually audible. Therefore, noise levels from the new line should not be noticeably greater than existing levels. The transmission line will be operated within the Minnesota Pollution Control Agency (MPCA) Noise Pollution Control Rules, Chapter 7030.

Noise will also be generated from construction equipment used during the installation of the Project, however, because an increase in noise levels from construction traffic will be temporary, no mitigative measures are proposed.

### 3.5. CULTURAL RESOURCES

An archaeological survey was conducted in conjunction with the environmental review for the Lakeswind Wind Energy Power Project in the fall of 2011. The proposed 115kV transmission route corridor was included in that survey. The Minnesota State Historic Preservation Office (SHPO) reviewed the summary report for the archaeological investigations as part of the PUC permitting process for the wind Power Plant. In a letter dated January 12, 2012, the SHPO concurred with the recommendation that no sites of cultural or historic significance will be impacted by this project and that the project could proceed as proposed. This clearance included the proposed transmission corridor.

### 3.6. SOILS AND GEOLOGY

The Project is located within the Minnesota and Northeast Iowa Morainal Section (222M), a section within the biogeographic province known as the Eastern Broadleaf Forest Province under the Ecological Classification System ("ECS") developed by the Minnesota Department of Natural Resources ("MnDNR") and the United States Forest Service ("USFS") (MNDNR, 2010). Bedrock geology in the area consists of Late Archean metasedimentary rock and is covered by 200 to 400 feet of Wisconsin glacial deposits. Geomorphic landforms in the region include drumlin fields, stagnation moraines, till plains, pitted outwash plains, and glacial lake plains (Hobbs and Goebel, 1982). Dominant landscape features in the area include steep slopes, high hills and lakes .

### 3.7. AESTHETICS AND VISUAL IMPACTS

Because the proposed Project will mainly follow existing distribution line route, the Project will have nominal effects on the visual and aesthetic character of the area. The proposed structures for the 115 kV single circuit lines will be up to approximately 70 feet tall and will have an average span of 325 feet. The new 115 kV single circuit transmission line will be visible to area residents. The majority of the landscape in the Project Area is rural residential and agricultural. The distribution line and substation that already exist in the Project Area will limit the extent to which the new line is viewed as a disruption to the area's scenic integrity.

### 3.8. HUMAN SETTLEMENT

The proposed transmission line, as designed, will be located within or proximal to a combination of established public road right-of-way or on easements established with private landowners. The construction of the transmission line will have no impacts on human settlement in the region. Easement occupation on both public right-of-way and private property will consist of pole location and equipment overhang. Easement agreements will include provisions of property access during transmission line construction and maintenance activities, including vegetation control. Easements established for the current project will provide for the continued use of the easement for agricultural activities and associated public facility maintenance activities.

### 3.9. PUBLIC HEALTH AND SAFETY

The Project will be designed in compliance with local, state, and NESC regarding clearance to ground, clearance to crossing utilities, clearance to buildings, strength of materials, and right-of-way widths. Tamarac Line, LLC's construction crews and/or contract crews will comply with local, state, and NESC standards regarding installation of facilities and standard construction practices. Established industry safety procedures will be followed during and

after installation of the transmission lines. This will include clear signage during all construction activities.

The proposed transmission line will be equipped with protective devices to safeguard the public from the transmission lines if an accident occurs, such as a structure or conductor falling to the ground. The protective devices include breakers and relays located where the line connects to the substation(s). The protective equipment will de-energize the line should such an event occur. Proper signage will be posted warning the public of the risk of coming into contact with the energized equipment.

#### Electric and Magnetic Fields

The term electromagnetic fields ("EMF") refer to electric and magnetic fields that are coupled together such as in high frequency radiating fields. For the lower frequencies associated with power lines (referred to as "extremely low frequencies" ("ELF")), EMF should be separated into electric fields ("EFs") and magnetic fields ("MFs"), measured in kilovolts per meter ("kV/m") and milliGauss ("mG"), respectively. These fields are dependent on the voltage of a transmission line (EFs) and current carried by a transmission line (MFs). The intensity of the electric field is proportional to the voltage of the line, and the intensity of the magnetic field is proportional to the current flow through the conductors. Transmission lines operate at a power frequency of 60 hertz (cycles per second).

#### Electric Fields

There is no federal standard for transmission line electric fields. The Public Utilities Commission, however, has imposed a maximum electric field limit of 8 kV/m measured at one meter above the ground. The standard was designed to prevent serious hazards from shocks when touching large objects parked under AC transmission lines of 500 kV or greater.

#### Magnetic Fields

There are presently no Minnesota regulations pertaining to MF exposure. Considerable research has been conducted throughout the past three decades to determine whether exposure to power-frequency (60 hertz) magnetic fields causes biological responses and health effects. Epidemiological and toxicological studies have shown no statistically significant association or weak associations between MF exposure and health risks. Public health professionals have also investigated the possible impact of exposure to MF upon human health for the past several decades. While the general consensus is that electric fields pose no risk to humans, the question of whether exposure to magnetic fields can cause biological responses or health effects continues to be debated.

In 1999, the National Institute of Environmental Health Sciences (“NIEHS”) issued its final report on “Health Effects from Exposure to Power-Line Frequency Electric and Magnetic Fields” in response to the Energy Policy Act of 1992 (Olden, 1992). The NIEHS concluded that the scientific evidence linking MF exposures with health risks is weak and that this finding does not warrant aggressive regulatory concern. However, because of the weak scientific evidence that supports some association between MF and health effects and the common exposure to electricity in the United States, passive regulatory action, such as providing public education on reducing exposures, is warranted.

### 3.10. PUBLIC FACILITIES AND TRANSPORTATION

Water and sewer service are provided to the area residents via private wells and septic systems. Electrical service is provided by Lake Region Electrical Cooperative. No impacts to public services are anticipated to occur as a result of the proposed project. Coordination is already under way with Clay and Otter Tail County to coordinate structure placement on Otter Tail County Highway 23, Otter Tail County Road 2, and 120<sup>th</sup> Ave. So. in Clay County. No significant conflicts are anticipated. Transmission line planning will be conducted in accordance with MnDOT policies.

## 4. AFFILIATED PERMITS AND APPROVALS

Minnesota Statutes Section § 216E.04 and Minnesota Rules 7850.2800 to 7850.3900 provide for an Alternative Permitting Process for certain high voltage transmission line (“HVTL”) facilities. The proposed 115 kV transmission line qualifies for consideration under the Alternative Permitting Process because the proposed new transmission line is between 100 and 200 kV. Minn. Stat. § 216E.04, subd. 2(3); Minn. R. 7850.2800, Subp. 1(C) (authorizing alternative process for HVTLs between 100 and 200 kV). This Application is submitted pursuant to the Alternative Permitting Process. Additionally, according to Minn. Stat. 216E.05 and Minnesota Rules 7850.5300 an applicant ...has the option of applying to those local units of government that have jurisdiction over the site or route for approval to build the project. If local approval is granted, a site or route permit is not required from the Minnesota Public Utilities Commission (PUC).

### 4.1. AGENCY CONTACTS

Tamarac Line, LLC sent letters to various regulatory and governmental authorities to request review of the Project Area for applicable comments and concerns. Tamarac Line, LLC also sent letters to local governmental units (“LGUs”) within the Project Area giving LGUs notice of the Project, requesting comments, and allowing LGUs the opportunity to request a

meeting to discuss the Project (Appendix D.1). Tamarac Line, LLC met with Clay County Board of Commissioners on January 31, 2012 to review the project.

#### 4.1.1 Minnesota Department of Natural Resources (“MnDNR”)

A request for a Natural Heritage Database Search and comments regarding rare species and natural communities for the Project Area was submitted to the MnDNR on December 22, 2011. Additionally, Tamarac Line, LLC sent a letter to the MnDNR Natural Heritage and Nongame Research Program on January 13, 2012, requesting a review of the Project Area for state threatened and endangered species and rare natural features. On February 17, 2012, Tamarac Line, LLC received comments from MnDNR related to the proposed Project (See Appendix D.2).

On March 5, 2012 Tamarac Line, LLC received comments from the MnDNR Division of Ecological and Water Resources related to the proposed Project (Appendix D.3).

#### 4.1.2 Minnesota Department of Transportation (“MnDOT”)

Tamarac Line, LLC sent a letter to the Minnesota Department of Transportation (“MnDOT”) on January 13, 2012, requesting comments on the proposed Project. On January 24, 2012, Tamarac Line, LLC received comments from MnDOT related to the proposed Project (See Appendix D.4). Jim Utecht, MnDOT District 4 Property Management Supervisor, stated that there are no scheduled road or bridge projects in the immediate area but did cite a potential impact of Minnesota State Trunk Highway 34 in the vicinity of the Tamarac substation. He stated that MnDOT’s approach to projects such as the Tamarac Line is to work to accommodate transmission lines within or as near to the defined highway right-of-way.

As discussed in Section 4.2.1, Utility work within MnDOT right of ways should be designed based on that agency’s Accommodation Policy. MnDOT right-of-ways within the Project Area vary in width from 46 to 74 feet along the proposed route. Generally, where the Project is located greater than 100 feet from the centerline of the roadways, no MnDOT permit will be required. Tamarac, LLC will work with MnDOT and determine which areas of the Project will require a MnDOT permit as the Project moves forward.

#### 4.1.3 Army Corps of Engineers (“USACE”)

Tamarac Line, LLC sent a letter to the Corps of Engineers (“USACE”) on January 13, 2012, requesting comments on the proposed Project. On January 26, 2012, Tamarac Line, LLC received comments from USACE related to the proposed Project (See Appendix D.5). Tamara Cameron, Regulatory Branch Chief of the St. Paul District, did not provide specific

comment on the Project, but did offer several issues to consider regarding the need for USACE permits for impacts to navigable waters of the United States, dredge or fill of navigable waters, and compliance with NEPA. The Project design is not anticipated to involve such impacts.

#### 4.1.4 United States Fish and Wildlife Service (“USFWS”)

Tamarac Line, LLC sent a letter to the USFWS on January 13, 2012 requesting a review of the Project Area for federally listed threatened and endangered species. On March 2, 2012 Tamarac Line, LLC received comments from Nick Rowse, Fish and Wildlife Biologist of the Twin Cities ES Field Office (See Appendix D.6). According to current records the proposed project will have no impact on federally listed or proposed species or any designated or proposed habitat areas.

#### 4.1.5 Otter Tail, Clay, and Becker Counties and Townships

On January 17, 2012 Tamarac Line, LLC sent letters to representatives of Otter Tail, Clay, and Becker counties, the townships of Scambler (Otter Tail), Tansem and Parke (Clay), and Cormorant (Becker), requesting comments on the proposed Project. On January 10, 2012, Tamarac Line, LLC met with representatives from Otter Tail county to introduce the Project. The county staffs were generally in favor of the need for the Project. On January 26, 2012, Tamarac Line, LLC received comments from the Otter Tail Land and Resource Management Administrator, Bill Kalar related to the proposed Project (See Appendix D.7). On February 29, 2012, Tamarac Line, LLC submitted an application for a Conditional Use Permit to the Clay County Planning and Environmental Programs. Tamarac Line, LLC will continue working with local governments on the Project. As currently designed, the project will not be located on any land within the jurisdiction of Becker County and, therefore, requires no action from that LGU.

## 4.2. REQUIRED PERMITS AND APPROVALS

### 4.2.1 Federal Permits

#### U.S. Army Corps of Engineers

The U.S. Army Corps of Engineers (“USACE”) administers the regulatory programs of the federal Clean Water Act and the Rivers and Harbors Act. The USACE may require authorization of the Project under the utility line discharge provision of a Regional General Permit (RGP-3-MN). RGP-03-MN authorizes discharge dredge and fill material into water of the United States for specific activities and are subject to certain terms conditions and limitations. Activities authorized by RGP-3-MN, specific to the Tamarac Line, LLC Project,

include utility line discharges associated with excavation, backfilling or placement of bedding material for the construction of utility lines.

#### 4.2.2 State of Minnesota Permits

##### Minnesota Public Utilities Commission

Minnesota Statutes Section 216E.03, subd. 2. provides that no person may construct a high-voltage transmission line without a route permit from the Commission.

##### Minnesota Department of Natural Resources

The MnDNR Division of Lands and Minerals regulates utility crossings on, over or under any state land or public water identified on the Public Waters and Wetlands Maps. A license to cross Public Waters is required under Minnesota Statutes Section 84.415 and Minnesota Rules Chapter 6135. Tamarac Line, LLC will work closely with the MnDNR on these permits and will file for them once the line design is complete. The MnDNR Division of Waters requires a Public Waters Work Permit for any alteration of the course, current, or cross-section below the ordinary high water level of a Public Water or Watercourse. No such alterations are anticipated.

Utility crossings over or under public waters or public waters wetlands are subject to the statutory authority of both Minnesota Statutes 103G and Minnesota Statutes 84.415. However, by administrative agreement (December 11, 1974 and July 6, 1981), DNR Waters has delegated its Minnesota Statutes 103G regulatory authority to the DNR Division of Lands and Minerals. The Division of Lands and Minerals Management "license," which is issued under Minnesota Statutes 84.415 and Minnesota Rules Parts 6135.0100 to 6135.1800, also constitutes the "permit" required under Minnesota Statutes 103G. In short, by virtue of completing an application for a license to Cross Public Waters, there is no need to submit a separate Public Water Work Permit.

##### Minnesota Department of Transportation

MnDOT requires the Application for Utility Permit on County Highways Right-of-Way form for the vast majority of utility placements and relocations. Utility owners use this form to request permission to place, construct, and reconstruct utilities within trunk highway right-of-way, whether longitudinal, oblique, or perpendicular to the centerline of the highway. Tamarac Line, LLC will determine if such permit is required, and, if so, obtain the permit from the MnDOT.

##### Minnesota Pollution Control Agency

MPCA requires an NPDES construction storm water permit and Stormwater Pollution Prevention Plan ("SWPPP") if you are the owner or operator for any construction activity disturbing: 1) one acre or more of soil; 2) less than one acre of soil if that activity is part of a "larger common plan of development or sale" that is greater than one acre; or 3) less than one acre of soil, but the MPCA determines that the activity poses a risk to water resources. Most construction activities are covered by the general NPDES storm water permit for construction activity, but some construction sites need individual permit coverage. Tamarac Line, LLC will determine if such a permit is required, and, if so, obtain the permit from the MPCA.

#### 4.2.3 Local Permits

The proposed transmission line will require permits from both Local Government Units. Clay County requires a Conditional Use Permit. Otter Tail County requires a county highway ROW permit as the proposed line will directly occupy county highway ROW or will share ROW easements.

Otter Tail and Clay counties locally administer the Minnesota Wetland Conservation Act ("WCA") within the Project Area. It is likely that wetland impact minimization will allow the Project to be eligible for a WCA de minimis or utilities exemption. If that is not the case, WCA certification of wetland replacement could be required. Otter Tail and Clay counties may also require a county road access permit.

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