

Appendix K

Native Prairie Desktop Assessment

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Rose Creek Wind Project

Native Prairie Desktop Assessment



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1.0 INTRODUCTION

Consolidated Edison Development, Inc., a renewable energy development and operations company doing business as Rose Creek Wind, LLC (“**Rose Creek**”), is planning to repower the existing 17.4-megawatt (MW) Rose Wind Project in Mower County, Minnesota (Figure 1). The existing Rose Wind Project, which is owned by Consolidated Edison Development, Inc. via a holding company (Rose Wind Holdings, LLC), contains 11 turbines built in 2004 and 2005. The new wind facility, called the Rose Creek Wind Project (“**Project**”), would consist of up to seven wind turbines and their associated infrastructure, and would deliver up to 17.4 MW of electricity to Dairyland Power Cooperative (Dairyland). Prior to constructing the Project, CED will decommission the 11 existing Rose Wind Project turbines. Construction is anticipated to begin in the third quarter of 2022 with commercial operation commencing in the third quarter of 2023.

Due to the larger rotor diameter and setback requirements, the new turbines will not be built in the same locations as the existing turbines, but will be in the general vicinity. Rose Creek has assessed multiple options for turbine models and layout designs, and is considering two scenarios, with multiple turbine models per scenario. Scenario 1 contains six turbines, including one General Electric (GE) 2.3-MW turbine and five GE 2.82-MW turbines; Scenario 1 also includes one alternate GE 2.82-MW turbine location. Scenario 2 contains seven turbines, including four Gamesa G97 2.0-MW turbines, one GE 2.3-MW turbine, and two GE 2.82-MW turbines. The two scenarios will have similar construction footprints, including identical turbine locations, collector lines, access roads, and crane paths.¹

The current layout (Figure 2) depicts the proposed locations of Project turbines and permanent Project infrastructure such as turbine pads, access roads, and underground electrical collection and communication systems, as well as a temporary construction laydown yard, within the current Project area (“**current Project area**”). The existing Project substation (connected to Dairyland’s transmission system) will be upgraded with new equipment and is expected to cover a slightly larger footprint. Since the final turbine scenario is pending, and the upgraded substation footprint has not been finalized, the original Project area (“**original Project area**”) was evaluated in this document. The current and original Project areas are defined and discussed in detail in Section 2.

As a part of the Large Wind Energy Conversion Systems (LWECS) site permitting process, the Minnesota Public Utilities Commission requires that Rose Creek identify any native prairies (as defined in Minnesota Statute § 84.02, subd. 5) that could potentially be affected by Project construction. On behalf of Rose Creek, Western EcoSystems Technology, Inc. (WEST) conducted a desktop assessment to identify potentially undisturbed grasslands within the Project area that may contain native prairie. Aerial imagery and other publicly available data sources were reviewed to identify existing native prairies and native plant communities; additional undisturbed

¹ Cranes used during turbine construction will be broken down between each turbine and transported via Project access roads; therefore, temporary impacts from crane paths are not anticipated.

grassland areas were delineated and classified as either potential prairies or probable degraded grasslands (see Section 3).

This Native Prairie Desktop Assessment describes potentially undisturbed grasslands identified within the Project area during desktop analysis and discusses the potential for impacts to these features, based on the current Project layout. No state-designated native prairies, native plant communities, or sites of biodiversity significance were documented within the current Project area; however, impacts to potentially undisturbed grasslands (including potential prairies and probable degraded grasslands, as defined in this document) are possible.

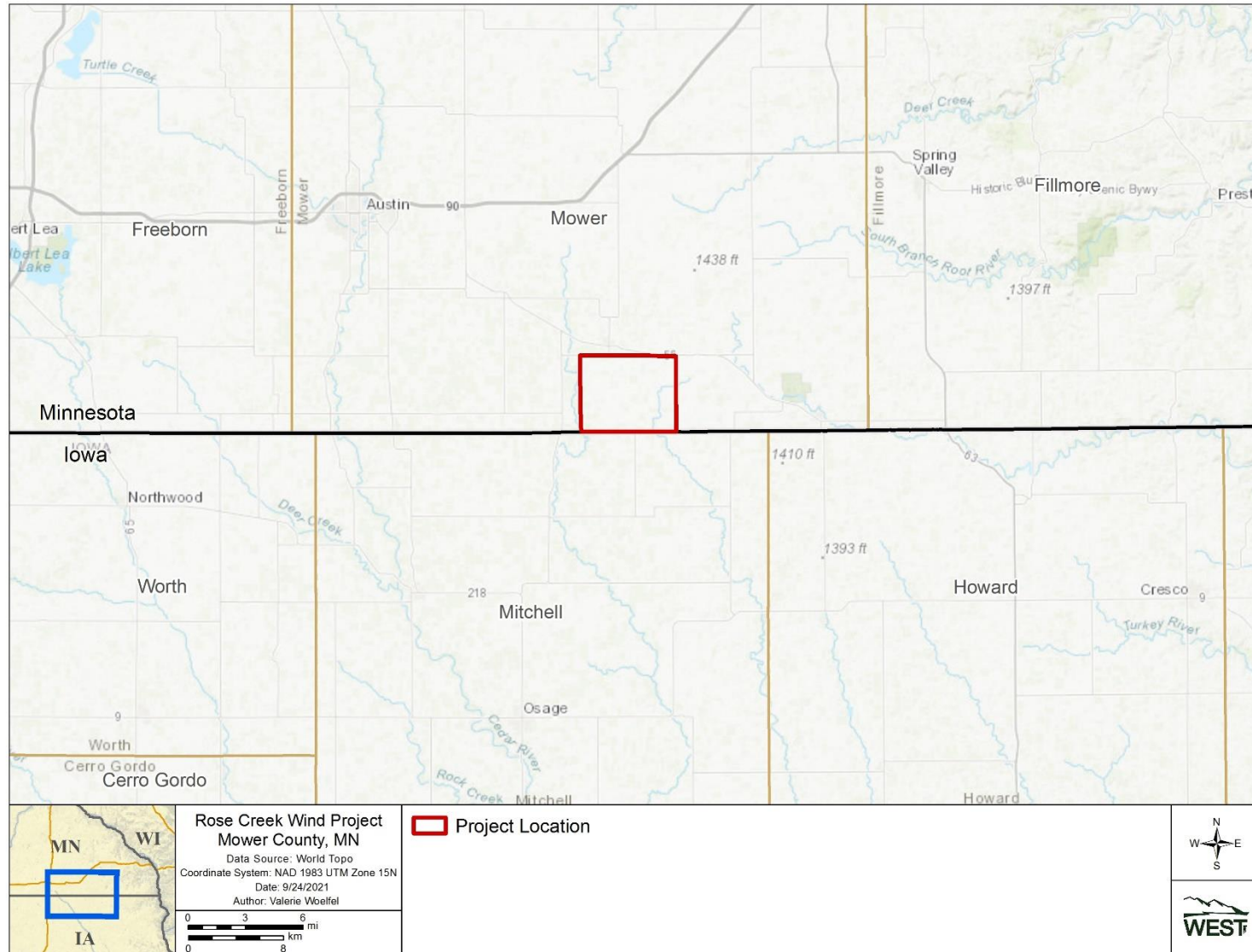


Figure 1. Location of the Rose Creek Wind Project in Mower County, Minnesota.

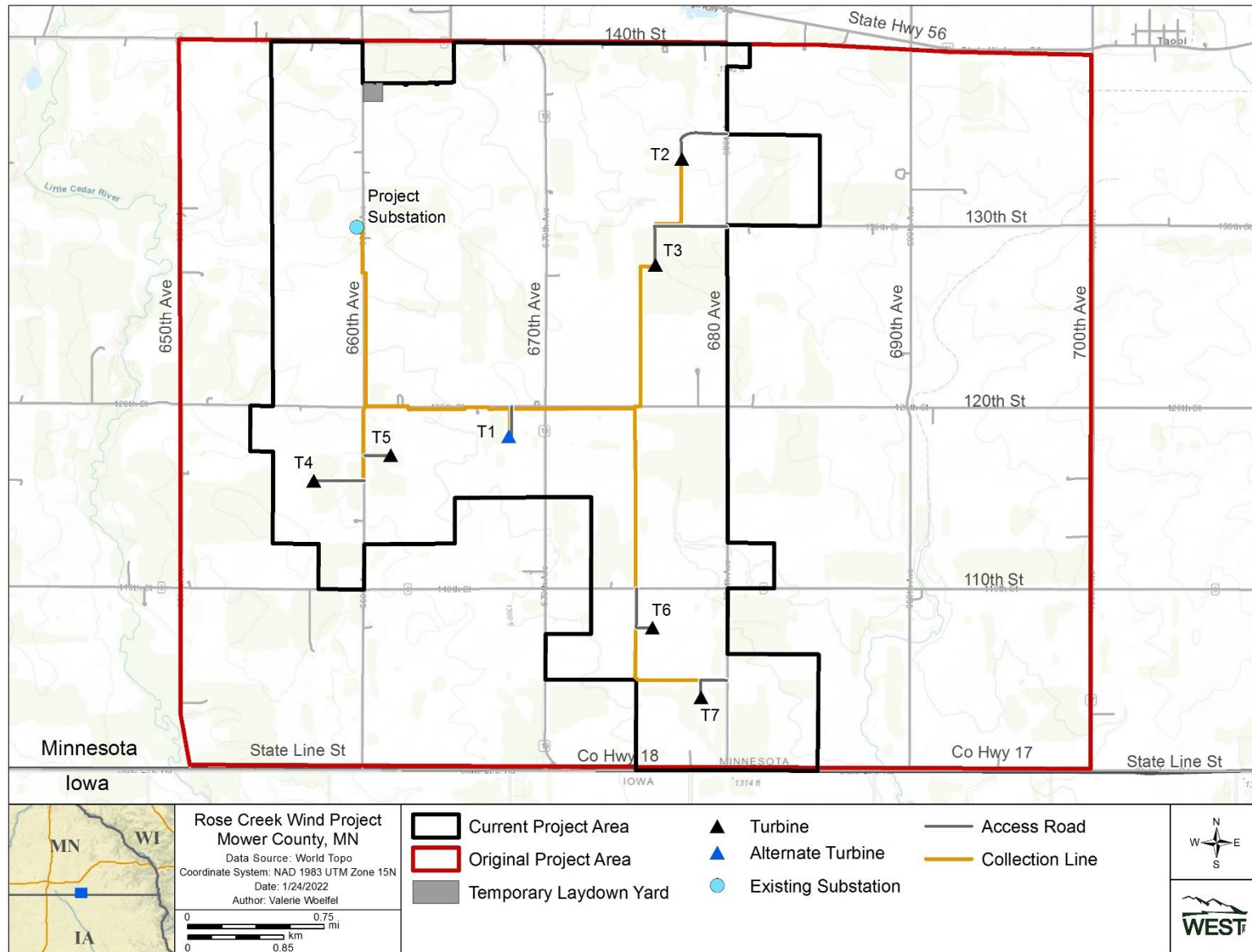


Figure 2. Proposed turbine layout for the Rose Creek Wind Project.

2.0 PROJECT AREA

The current Project area encompasses approximately 5,258 acres in Mower County, Minnesota, east of Little Cedar River. The Project is located approximately 0.5 mile south of the City of Adams, Minnesota, and abuts the Iowa border (Figures 1 and 2). The original Project area was larger, covering approximately 12,745 acres; this larger Project area was utilized for the Project baseline surveys and desktop analyses, including this Native Prairie Desktop Assessment.

The current and original Project areas lie within the Western Corn Belt Plains Level III Ecoregion and the Eastern Iowa and Minnesota Drift Plains Level IV Ecoregion (U.S. Environmental Protection Agency 2012), which are characterized by undulating to relatively flat topography. Historically, the ecoregion was dominated by tallgrass prairies and oak savannas, although the majority of the area has since been converted to row-crop agriculture (White 2020). Recent wetland and tallgrass prairie restoration efforts within the region offer suitable habitat for waterfowl nesting and migration (Auch 2015).

Today, much of this region has been converted to agricultural uses, including cultivated row-crop (e.g., corn, soybeans) and livestock production. According to the 2016 National Land Cover Database (NLCD), land cover within the current and original Project areas is dominated by cultivated crops (95.8% and 93.9%, respectively; Figure 3). The current Project area also contains other land cover types, including developed open space (2.4%). The remaining land cover types (hay/pasture, developed, herbaceous, emergent wetlands, deciduous forest, mixed forest, and barren lands) each comprise less than 1% of the current Project area.

Waterbodies within the original Project area include several tributaries to the Little Cedar River, Wapsipinicon River and its tributaries, and a tributary to the North Branch Upper Iowa River; waterbodies within the current Project area are more limited, and include tributaries to the Little Cedar River and Wapsipinicon River (Figure 4). Emergent, forested/scrub shrub, and riverine wetlands within the original and current Project areas are primarily concentrated adjacent to waterbodies.

No county, state, or federally protected areas such as state or county parks, scientific natural areas, wildlife refuges, or wildlife management areas are located within the original or current Project areas (U.S. Geological Survey [USGS] 2020, Minnesota Board of Water and Soil Resources [BWSR] 2019). No state or federal conservation easement lands (such as Reinvest in Minnesota Reserve or Conservation Reserve Enhancement Program lands) are located within the original or current Project areas (BWSR 2019).

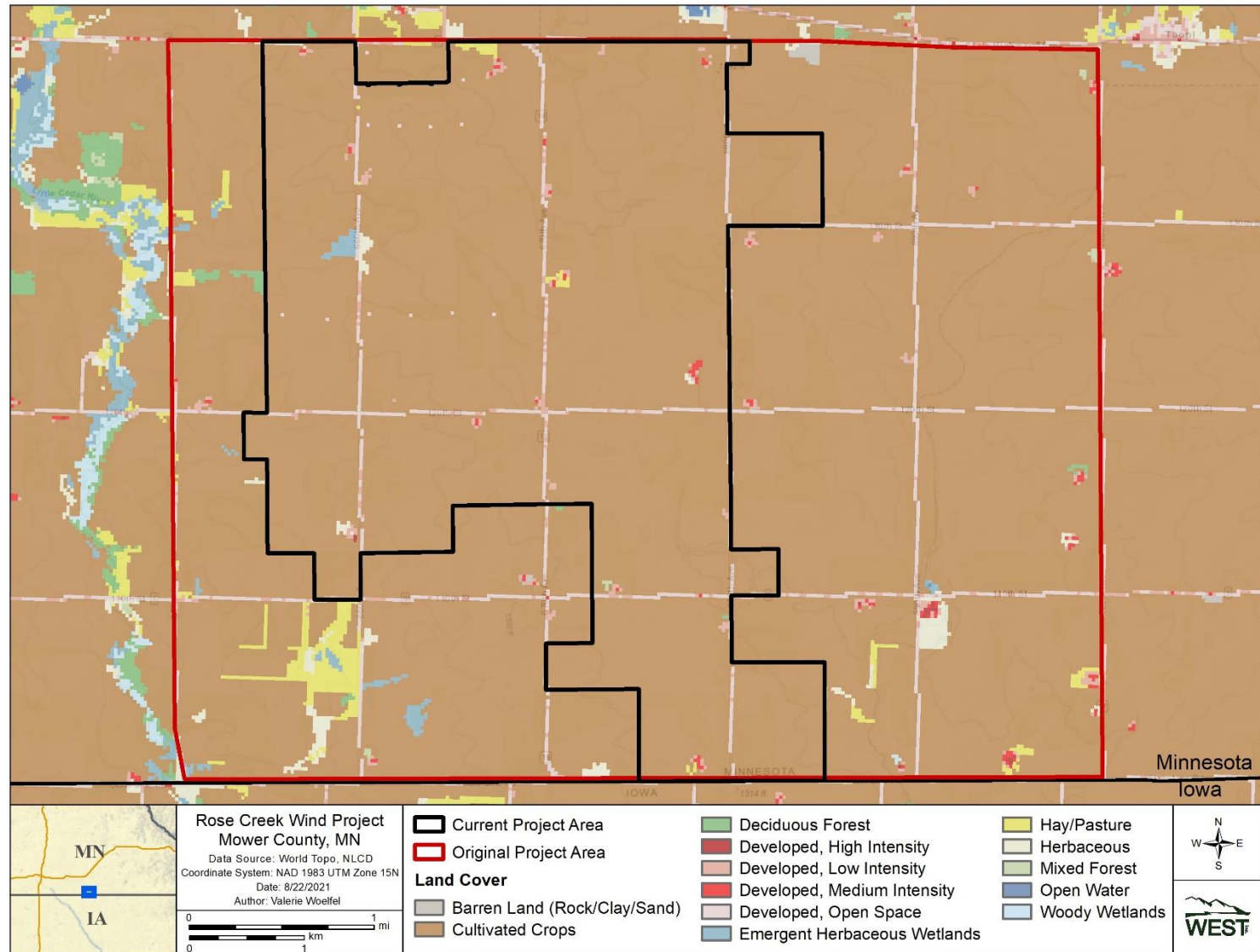


Figure 3. Land cover types in and near the Rose Creek Wind Project.

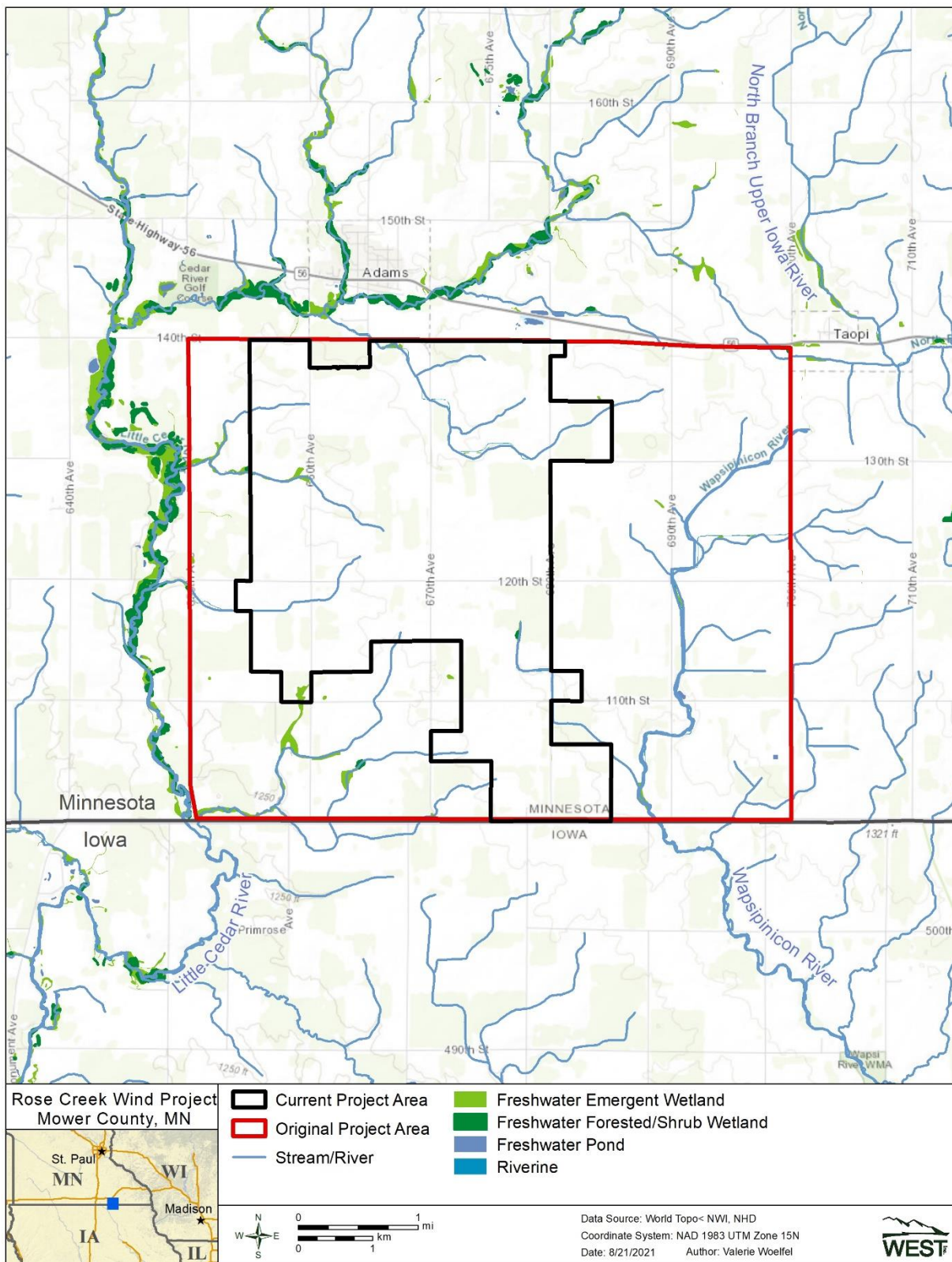


Figure 4. Wetlands and waterbodies in and near the Rose Creek Wind Project.

3.0 DESKTOP REVIEW METHODS

WEST biologists reviewed publicly available datasets to locate known, state-designated native prairies and to delineate potentially undisturbed grassland areas that may contain undocumented native prairies. The following georeferenced desktop data sources were compiled to identify known native prairies and potentially undisturbed grasslands within the original Project area:

- **Black-and-white aerial imagery (1991)** – The earliest available high-resolution imagery for the original Project area, in the form of USGS digital orthophoto quadrangles (DOQs; USGS 1992);
- **Natural color and color-infrared aerial imagery (2003 – 2019²)** – Available high-resolution aerial imagery included several years of U.S. Department of Agriculture (USDA) Farm Service Agency (FSA) National Agricultural Imagery Program (NAIP) DOQs collected between 2003 and 2019, and region-specific orthophotos collected by Minnesota Department of Natural Resources (MNDNR) in 2011;
- **NLCD cover types** – Potential grasslands were identified within areas categorized as hay/pasture and herbaceous cover (Figure 3; NLCD 2016);
- **MNDNR National Wetlands Inventory (NWI)** – Wetland areas with emergent vegetation have the potential to contain native wet prairie vegetation (Figure 4; MNDNR 2019);
- **Project Wetland and Waterbody Survey Data** – Potentially jurisdictional wetland and waterbody resources identified during Project field surveys (Merjent 2021);
- **Public Lands and Conservation Easements** – Public lands and conservation easements are more likely to contain restored grasslands or native prairie remnants than adjacent lands (Figure 5; BWSR 2019, USGS Gap Analysis Project 2020);
- **MNDNR Sites of Biodiversity Significance** – Areas identified by the MNDNR's Minnesota Biological Survey (MBS) due to the presence of important native plant communities, rare plants and animals, and intact landscape-level ecological functions (Figure 6; MNDNR 2021a);
- **MNDNR Natural Heritage Information System (NHIS)** – Provides records of rare and federally or state-listed species occurrences and sensitive native plant communities in Minnesota (MNDNR 2020);
- **MNDNR Native Plant Communities** – Potential native prairies and rare natural plant communities delineated by the MNDNR MBS (Figure 6; MNDNR 2021b); and
- **MNDNR Railroad Rights-of-Way Prairies and Native Prairies** – Active railroad rights-of-way were surveyed for native prairie remnants in 1998, as directed by the Minnesota legislature in 1997 (MNDNR 2017). The native prairies dataset (MNDNR 2021c) is a

² At the time of desktop analysis, the most recent publicly available, high-resolution imagery was collected in 2019.

subset of the native plant community layer classified primarily by vegetation and major habitat features (Figure 6).

The MBS provides several relevant datasets for high-resolution grassland and native prairie identification based on field surveys and observations, namely the sites of biodiversity significance, NHIS, and native plant community datasets. The MNDNR may designate either protected (regulated/managed) lands or private lands as native plant communities or sites of biodiversity significance (Figure 6).

During analysis, biologists placed particular emphasis on assessing whether each identified grassland area had a previous history of cultivation, drainage ditch installation, or other substantial disturbance (e.g., existing underground utility lines, evidence of frequent mowing, haying, or ground disturbance). Areas deemed unsuitable for native grassland vegetation due to agricultural row-crop land use, other confirmed ground disturbances, or a lack of herbaceous vegetation were excluded from further consideration.

Potentially undisturbed grassland areas within the original Project area were digitized and classified as either potential prairies or probable degraded grasslands. Polygons were classified as potential prairies if the area appeared to be both untilled and suitable to support native prairie vegetation, based on a preponderance of evidence from the data sources listed above. All potential native prairies within the original Project area were included as part of the desktop analysis, regardless of distance to proposed Project infrastructure in the current layout.

Undisturbed grassland areas with likely (but unconfirmed) ground disturbance histories and a low probability of containing native prairie vegetation based on desktop and/or field data sources (where available) were classified as probable degraded grasslands. These features included areas such as grassed agricultural ditches that were identified only from aerial imagery and road right-of-ways containing lacking connectivity to higher quality habitats. Probable degraded grasslands were digitized and included in the analysis if they were crossed by or adjacent to (i.e., within 100 feet) Project layout features. Probable degraded grasslands completely avoided by the Project layout (i.e., greater than 100 feet from any Project components) were not digitized.

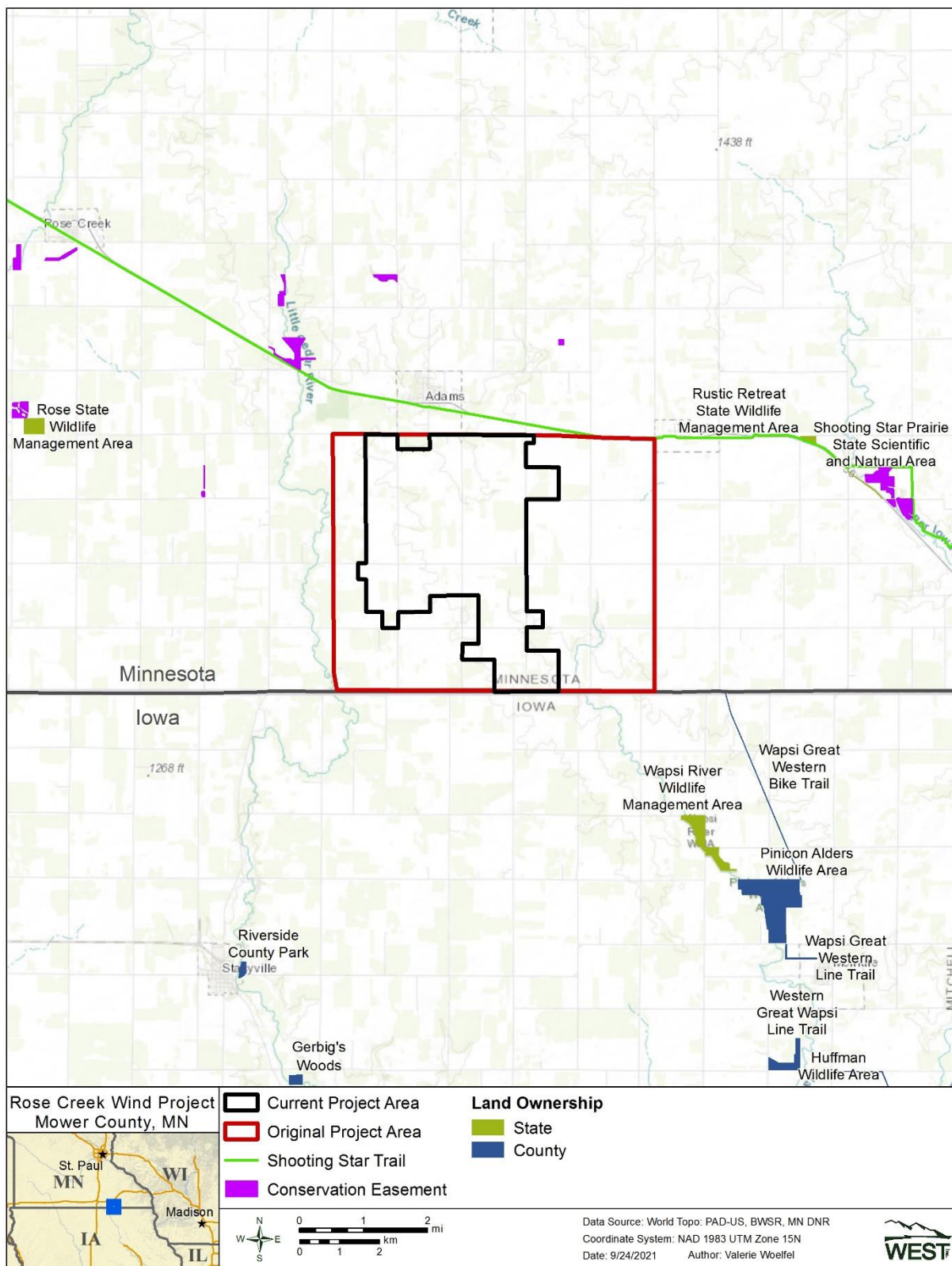


Figure 5. Protected areas in and near the Rose Creek Wind Project.

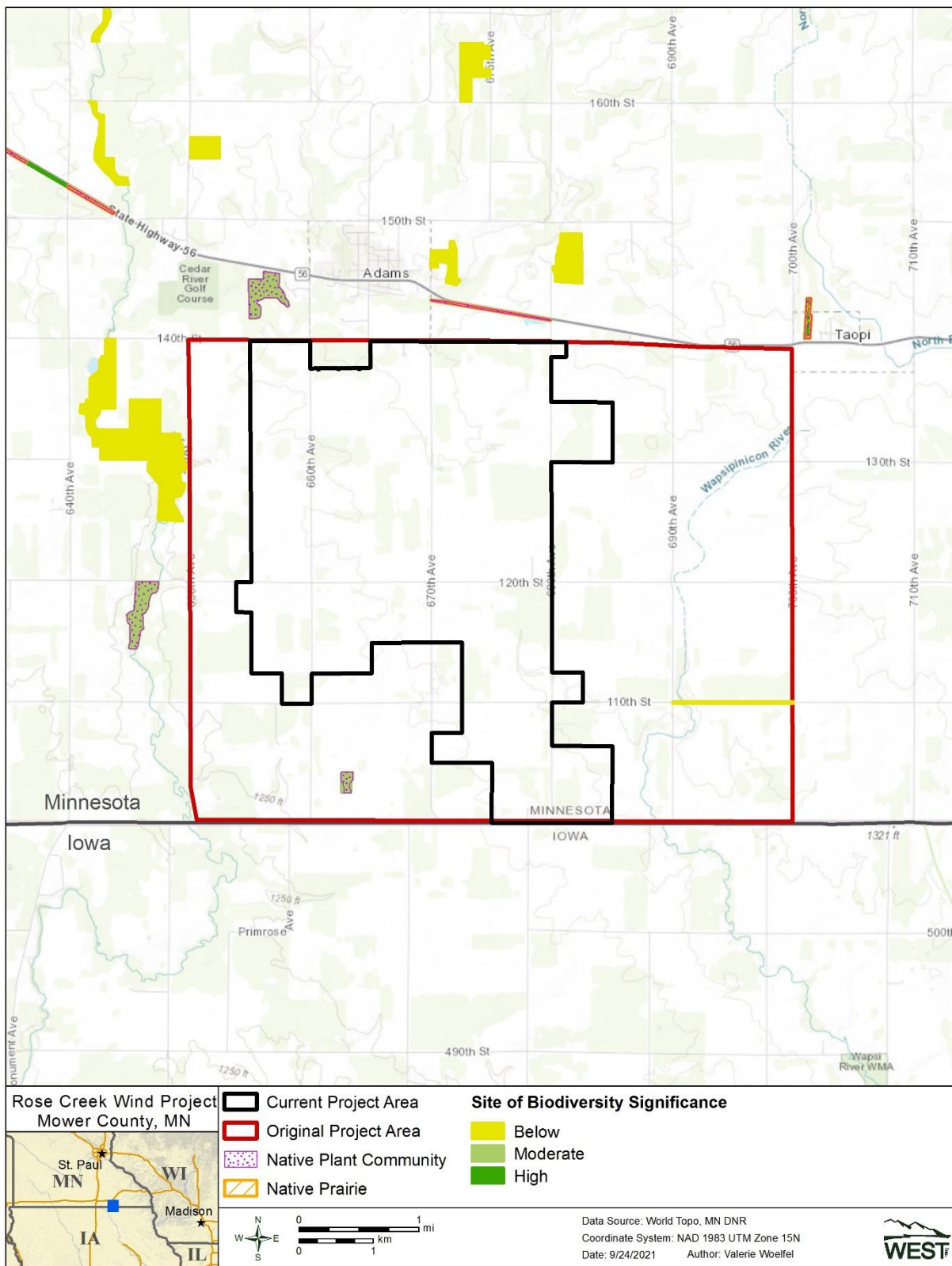


Figure 6. Minnesota Sites of Biodiversity Significance, Native Plant Communities, Railroad Right-of-Way Prairies, and Native Prairies at the Rose Creek Wind Project.

4.0 DESKTOP REVIEW RESULTS

Based on the desktop review of the original Project area and proposed Project layout, WEST biologists identified and delineated potentially undisturbed natural vegetation features in 19 areas (P1, P2a, etc. in Figure 7 and Table 1), including 13 potential prairies and six probable degraded grasslands (Figure 7). These areas are summarized in Table 1; additional detail for each area is provided in the following sections and depicted in Figures 8a-8r.

Within the original Project area, two small areas totaling 24 acres were evaluated for their biodiversity significance by the MNDNR (Figure 6; MNDNR 2021a). One approximately 14-acre polygon is ranked as “below” and lacks the rare species occurrences necessary to meet the minimum MBS standards for statewide biodiversity significance (Potential Prairie P9; MNDNR 2018). Areas ranked as below may also exhibit evidence of previous tilling or other disturbance. The remaining area is ranked as “moderate” biodiversity significance (Potential Prairie P8). Moderate sites contain occurrences of rare species, moderately disturbed native plant communities, and/or landscapes that have strong potential for recovery of native plant communities and characteristic ecological processes (MNDNR 2018). Both of these sites are located outside the current Project area. No sites of “high” or “outstanding” biodiversity significance occur within the original or current Project areas.

No state-designated native prairies, including railroad right-of-way prairies (MNDNR 2017) or MBS native prairies (MNDNR 2021c), were located within the original or current Project areas. One MBS-mapped native plant community is located within the original Project area and classified as seepage meadow/carr (MNDNR 2021b). This community is associated with the site ranked as having moderate biodiversity significance (Potential Prairie P8), and is located outside the current Project area. The NHIS database search also identified four historic occurrences of state-listed threatened or endangered native plants within the original Project area, associated with Potential Prairies P3, P8, and P9 (MNDNR 2020). None of these native plant occurrences are located within 100 feet of proposed Project infrastructure, and only one of the three associated potential prairies (P3) is located within the current Project area.

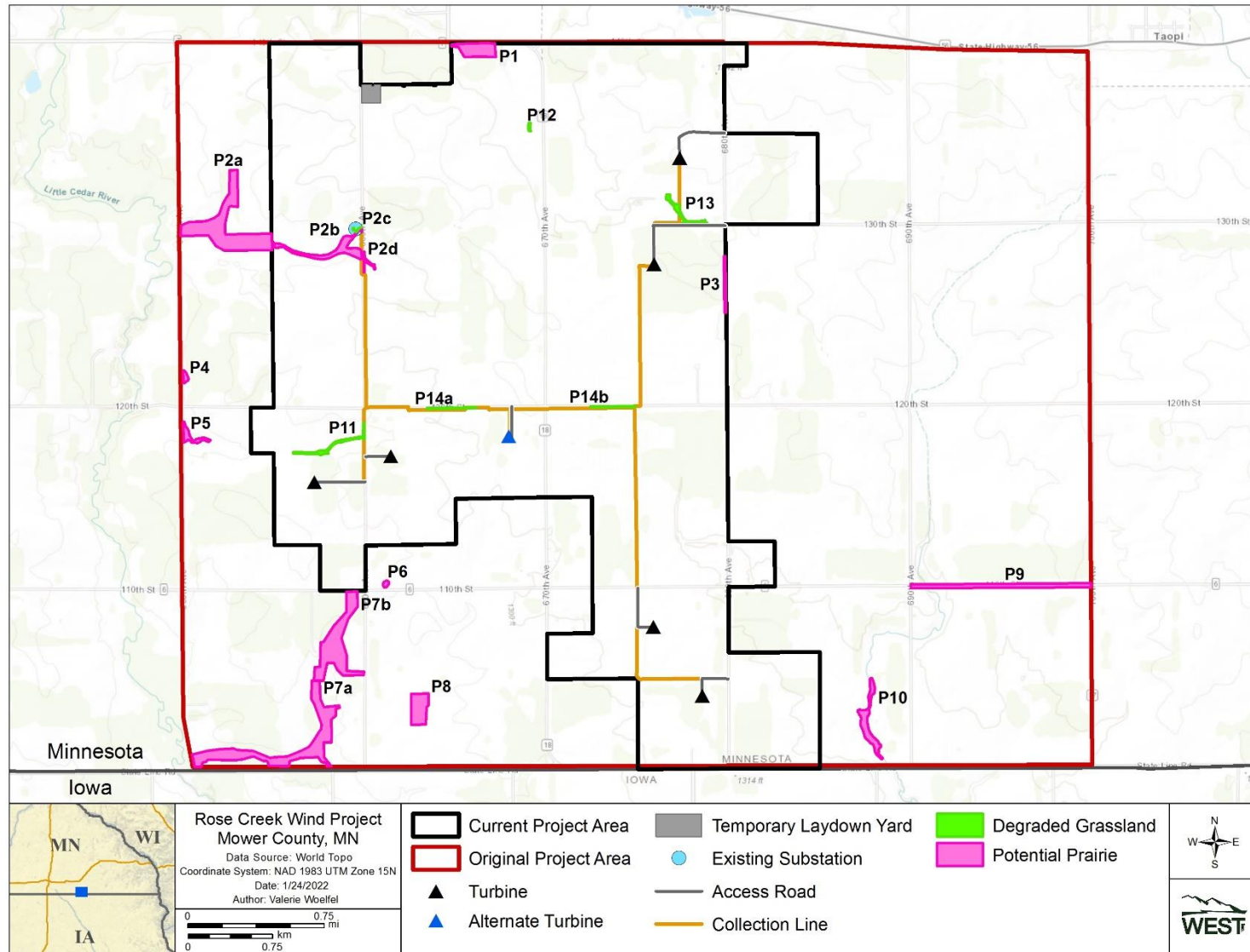


Figure 7. Potential prairies and probable degraded grasslands identified at the Rose Creek Wind Project.

Table 1. Potential prairies and probable degraded grasslands identified at the Rose Creek Wind Project.

Polygon	Feature Type	Project Layout Feature	Desktop Assessment Notes	Crossing Length from Current Layout	Potential Impacts
P1	Potential Prairie	None	Area contains emergent and riverine NWI wetlands, pasture, and a small woodlot. Contains a potentially restored forested habitat area and was untilled as far back as 1991.	Not crossed	None
P2a	Potential Prairie	None	Area contains emergent and forested NWI wetlands. Untilled as far back as 1991.	Not crossed	None
P2b	Potential Prairie	Substation Collection Line	Area contains emergent and forested NWI wetlands, as well as a Project-surveyed wetland. Untilled as far back as 1991.	Two collection line crossings of P2b are limited to approximately 119 feet (northern crossing) and 134 feet (southern crossing). Both are primarily within the existing road right-of-way and adjacent to an existing overhead distribution line.	<p>P2b will be crossed twice.</p> <p>Wetland impacts within the northern crossing of P2b will be avoided by directional drilling; however, temporary impacts to P2b at both crossings are possible during collection line installation.</p> <p>P2b will be surveyed in 2022 to verify the presence or absence of native prairie vegetation prior to construction. Rose Creek will avoid native prairie, if confirmed present.</p>
P2c	Probable Degraded Grassland	Substation Collection Line	Area is upslope of the wetland in P2b and directly adjacent to the existing substation and access road; past soil disturbance is likely. Mapped based on aerial imagery and NLCD herbaceous land cover. Untilled as far back as 1991.	Two collection line crossings of P2c are limited to approximately 12 feet in the road right-of-way (north of P2b) and 21 feet (between the substation and P2b).	<p>P2c will be crossed twice.</p> <p>Collection line impacts to P2c (adjacent to the wetland) will likely be avoided by directional drilling; however, temporary impacts from collection line construction are possible.</p>

Table 1. Potential prairies and probable degraded grasslands identified at the Rose Creek Wind Project.

Polygon	Feature Type	Project Layout Feature	Desktop Assessment Notes	Crossing Length from Current Layout	Potential Impacts
					Temporary and permanent impacts to P2c from substation construction are possible.
P2d	Potential Prairie	None	NWI and Project- surveyed wetlands to the west were extended east to include Potential Prairie P2d based on aerial imagery and NLCD herbaceous land cover. Untilled as far back as 1991.	Not crossed	None
P3	Potential Prairie	None	Mapped NHIS occurrence in a roadside ditch, existing distribution line present, potentially disturbed area that was reseeded.	Not crossed	None
P4	Potential Prairie	None	Mapped as an emergent NWI wetland area between tilled agricultural fields and a roadside ditch. Untilled as far back as 1991, appears to be hayed in recent years.	Not crossed	None
P5	Potential Prairie	None	Untilled as far back as 1991; recent aerials show evidence of some potential haying, and several trees may have been planted.	Not crossed	None
P6	Potential Prairie	None	Mapped as emergent NWI wetland; contains potential shrub-scrub or forested wetlands. Untilled as far back as 1991.	Not crossed	None

Table 1. Potential prairies and probable degraded grasslands identified at the Rose Creek Wind Project.

Polygon	Feature Type	Project Layout Feature	Desktop Assessment Notes	Crossing Length from Current Layout	Potential Impacts
P7a-b	Potential Prairie	None	Mapped as multiple emergent NWI wetlands, connected by NLCD hay/pasture and herbaceous land cover. Untilled as far back as 1991.	Not crossed	None
P8	Potential Prairie	None	Mapped emergent NWI wetland, site of moderate biodiversity significance, and a seepage meadow/carr native plant community. Untilled as far back as 1991. Mapped NHIS occurrences.	Not crossed	None
P9	Potential Prairie	None	Mapped site of below biodiversity significance crossing a riverine NWI wetland. Untilled as far back as 1991. Mapped NHIS occurrences.	Not crossed	None
P10	Potential Prairie	None	Mapped emergent and riverine NWI wetlands; contains some potential pasture. Untilled as far back as 1991.	Not crossed	None
P11	Probable Degraded Grassland	Collection Line	Agricultural drainage ditch/riverine NWI wetland with narrow grassed buffer; likely degraded. Untilled as far back as 1991.	The crossing of P11 is limited to 484 feet within the existing road right-of-way.	Wetland and waterbody impacts within the crossing of P11 will be avoided by directional drilling; however, temporary impacts to P11 from collection line construction are possible.
P12	Probable Degraded Grassland	None	Agricultural drainage ditch/riverine NWI wetland with narrow grassed buffer; likely degraded. Untilled as far back as 1991.	Not crossed.	None.

Table 1. Potential prairies and probable degraded grasslands identified at the Rose Creek Wind Project.

Polygon	Feature Type	Project Layout Feature	Desktop Assessment Notes	Crossing Length from Current Layout	Potential Impacts
P13	Probable Degraded Grassland	Access Road Collection Line	Agricultural drainage ditch/riverine NWI wetland with narrow grassed buffer; likely degraded. Untilled as far back as 1991.	<p>The collection line crossing of P13 is limited to 184 feet.</p> <p>The access road is proposed adjacent to the degraded grass buffer of the drainage ditch for approximately 740 feet.</p>	<p>Waterbody impacts within the collection line crossing of P13 will be avoided by directional drilling and temporary impacts to the waterbody will be avoided during access road workspace siting.</p> <p>Temporary impacts to P13 from access road and collection line construction are possible.</p>
P14a-b	Probable Degraded Grassland	Collection Line	Roadside swale within existing road right-of-way. Some wet prairie indicator species present, based on Project wetland/waterbody field survey information.	<p>The collection line crossing of P14a is limited to 320 feet. Additionally, approximately 1,125 feet of P14a and 1,300 feet of P14b are located adjacent to the proposed collection line.</p>	<p>Temporary impacts to the wetlands within P14a and P14b will be avoided during workspace siting; however, temporary impacts to P14a and P14b from collection line construction are possible.</p>

4.1 Potential Prairies

4.1.1 Potential Prairie P1

Desktop review identified emergent and riverine NWI wetlands, pasture, and a small woodlot adjacent to several cultivated fields on the far northern edge of the original and current Project areas (Figure 8a, Table 1). Based on aerial photo reviews, the area appeared to have been untilled as far back as 1991, and had some evidence of potential forested habitat planting and restoration. The stream system is a tributary to the Little Cedar River (Figure 4). The current Project layout will completely avoid this potential prairie.

4.1.2 Potential Prairie P2 (P2a – P2d)

Desktop review identified a stream system with a large, grassy riparian buffer area containing emergent and forested NWI wetlands and located along the western edge of the original and current Project areas (Figures 8b-8d, Table 1). Potential Prairie P2 consists of four polygons, P2a – P2d, each of which was identified via desktop analysis. While P2a and P2b were identified primarily based on mapped NWI and NLCD wetlands and aerial imagery, P2c and P2d were identified from aerial imagery as extensions to the mapped stream system containing NLCD herbaceous land cover. P2c was considered a degraded grassland feature.³ One small emergent wetland (w04) was identified along the southern edge of P2d during Project wetland surveys. Based on high-resolution aerial imagery, all four P2 areas appeared to be untilled as far back as 1991. The stream system is a tributary to the Little Cedar River (Figure 4).

Potential Prairie P2a is almost entirely outside the current Project area, and the current Project layout will completely avoid this potential prairie. A collection line is currently proposed in the right-of-way along 660th Avenue, beneath an existing overhead distribution line. The collection line does not cross P2d, and has been adjusted to avoid temporary disturbance to P2d during construction.

Project wetland surveys identified an emergent wetland (w06) east of the existing substation on the northern end of Potential Prairie P2b. The proposed collection line currently crosses Potential Prairie P2b twice, once to the north of the feature for approximately 119 feet, and once further south for approximately 134 feet (Figure 8c). Temporary impacts to P2b within the northern and southern crossings (within the existing road right-of-way) are possible during collection line installation. Wetland impacts within the northern collection line crossing will be avoided by directional drilling. The collection line crossings of P2b will be surveyed in the spring of 2022 to verify the presence or absence of native prairie vegetation in the crossing areas prior to construction. Rose Creek has committed to avoiding impacts to native prairies, and will avoid field-verified native prairie within P2b, if confirmed present.

Degraded Grassland P2c lies upslope of the wetland in P2b and directly adjacent to the existing substation and access road. Although previous disturbance within P2c could not be confirmed

³ P2c was classified as a degraded grassland, but is discussed in this section due to its location within the larger P2 complex.

through either aerial imagery or review of field survey information, this area was likely disturbed during substation construction. Wetland survey data indicated that P2c was dominated by invasive, disturbance-tolerant plant species, thus this low-quality habitat area was mapped as a degraded grassland.

The proposed collection line crosses Degraded Grassland P2c twice, once along the road right-of-way for approximately 13 feet, and once between the substation and Potential Prairie P2b for 31 feet (Figure 8c). Impacts to P2c from collection line installation (adjacent to the wetland) will likely be avoided by directional drilling; however, temporary impacts from collection line construction are possible. Additionally, the Project substation is located west of 660th Avenue and adjacent to P2c. Potential modifications to the Project substation have not yet been finalized, but Rose Creek has committed to avoiding impacts to potential jurisdictional wetlands (w06, as described above) near the substation. Permanent and temporary impacts to Degraded Grassland P2c from substation construction are possible.

4.1.3 Potential Prairie P3

Desktop review identified a roadside ditch in the east-central portion of the original Project area and eastern edge of the current Project area containing a documented NHIS (2019) occurrence of state-listed threatened Sullivant's milkweed (*Asclepias sullivantii*; Figure 8e, Table 1). Based on the aerial imagery, this ditch/potential swale has an existing overhead distribution line running north-south along the road, and was therefore likely disturbed and potentially reseeded after construction. The current Project layout will completely avoid this potential prairie.

4.1.4 Potential Prairie P4

Desktop review identified an emergent NWI wetland between a roadside ditch and tilled agricultural fields along the western edge of the original Project area, outside the current Project area (Figure 8f, Table 1). Based on aerial imagery, the wetland area appeared to be untilled as far back as 1991; however, recent aerials showed evidence of regular haying. The current Project layout will completely avoid this potential prairie.

4.1.5 Potential Prairie P5

Desktop review of high-resolution aerial imagery identified a stream system with a large, grassy riparian area along the western edge of the original Project area, outside the current Project area (Figure 8g, Table 1). The area appeared to be untilled as far back as 1991; however, recent aerials show evidence of some potential haying, and several trees may have been planted. The stream system is a tributary to the Little Cedar River (Figure 4). The current Project layout will completely avoid this potential prairie.

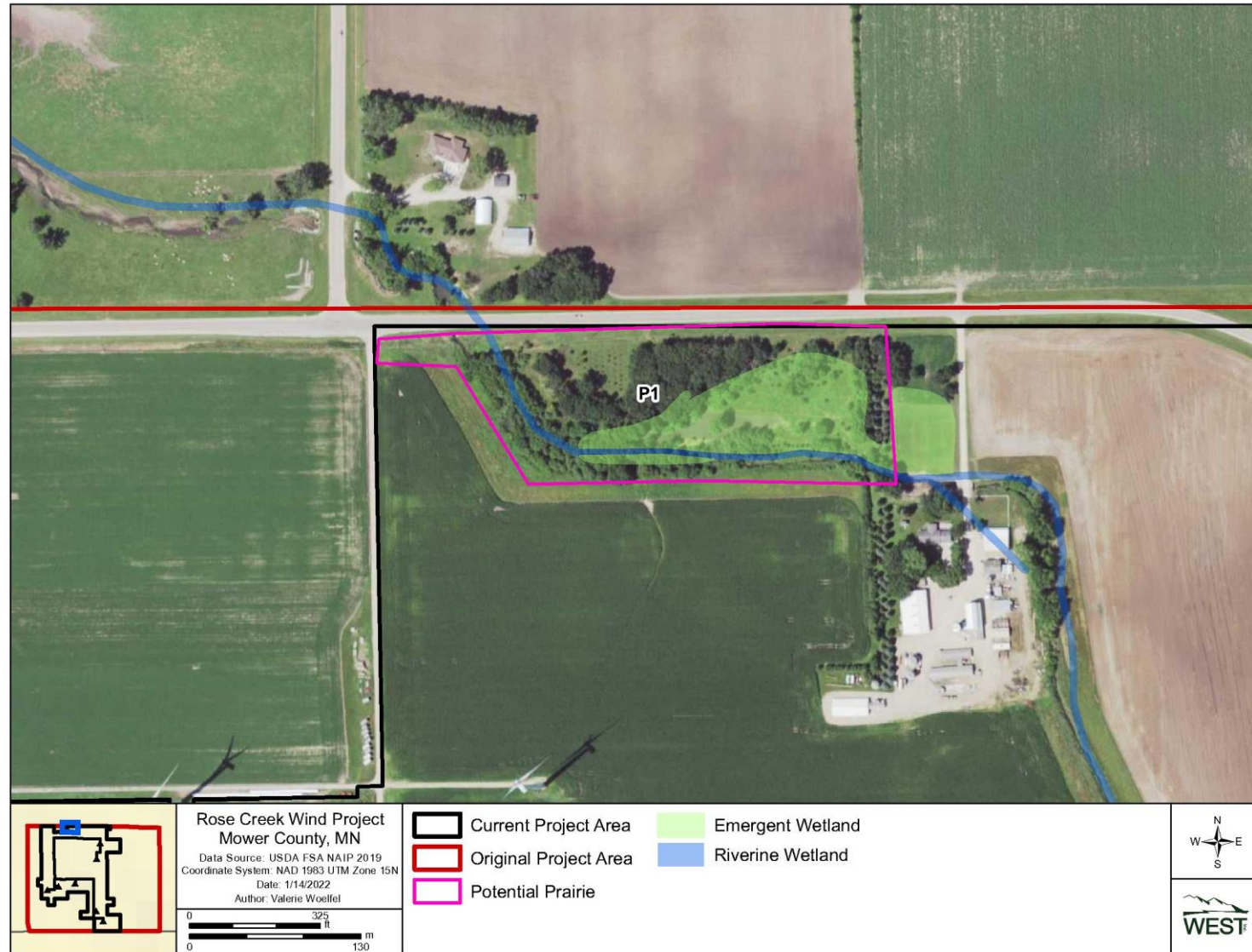


Figure 8a. Potential Prairie P1 identified at the Rose Creek Wind Project based on desktop analysis.

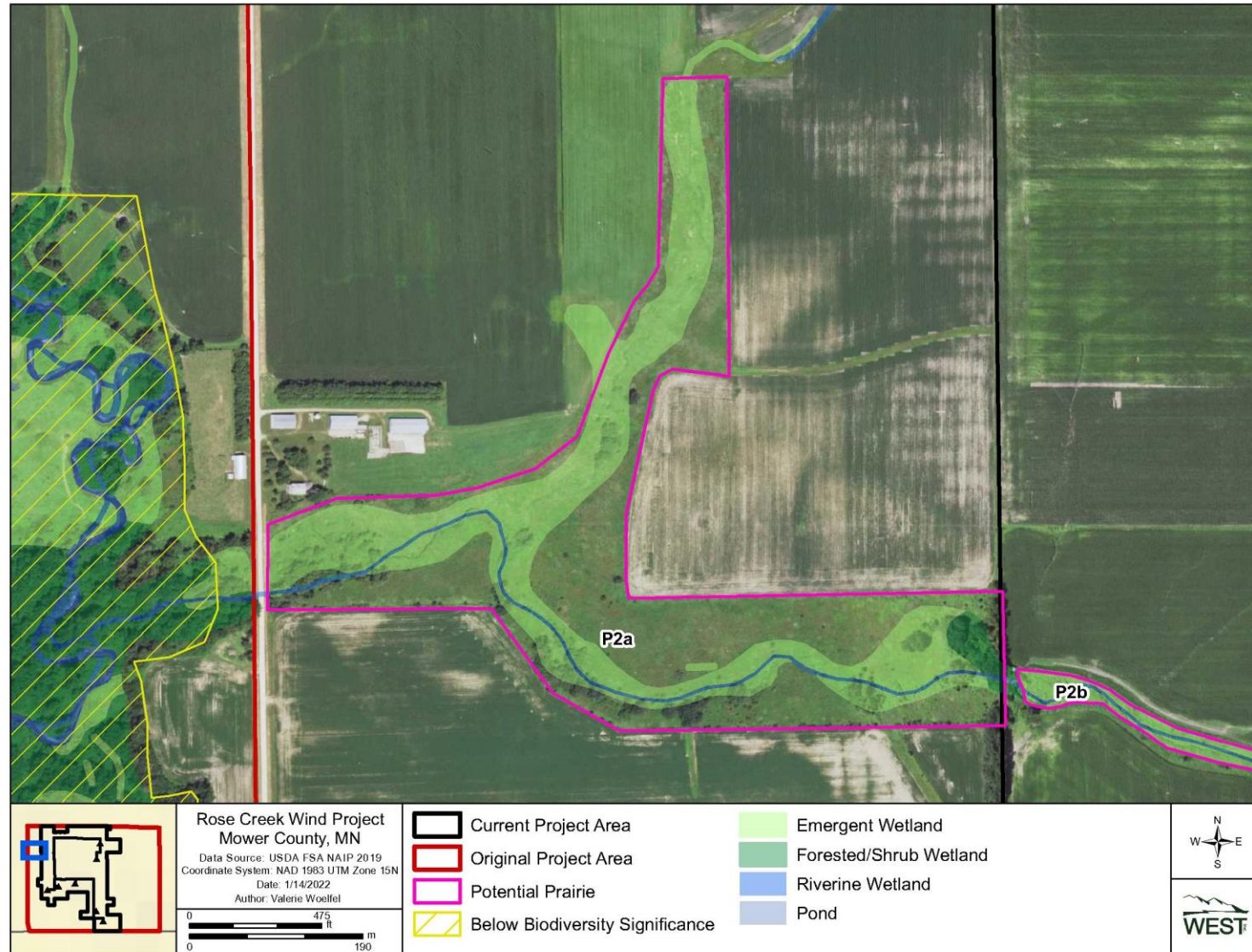


Figure 8b. Potential Prairie P2a identified at the Rose Creek Wind Project based on desktop analysis.

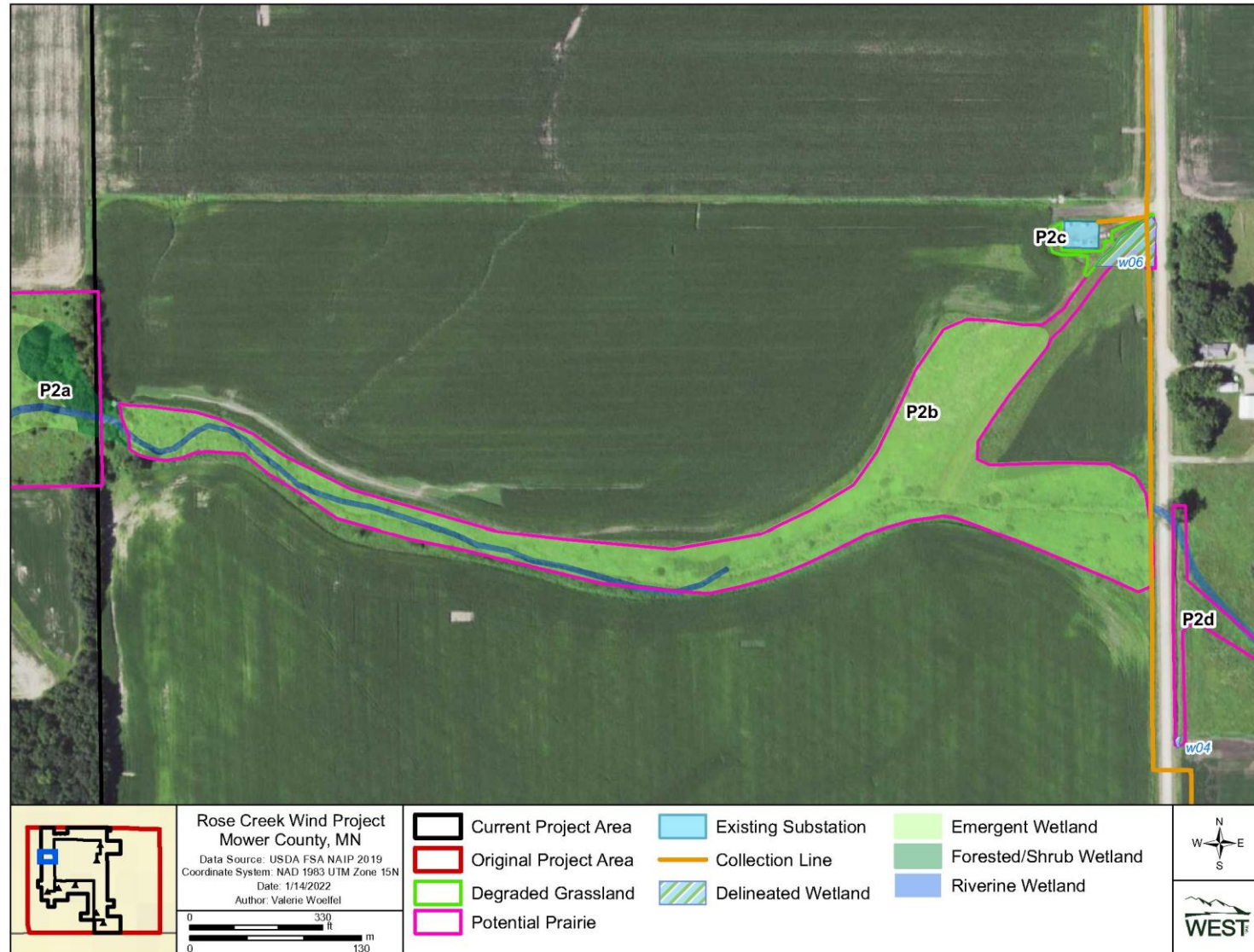


Figure 8c. Potential Prairie P2b and Degraded Grassland P2c identified at the Rose Creek Wind Project based on desktop analysis.

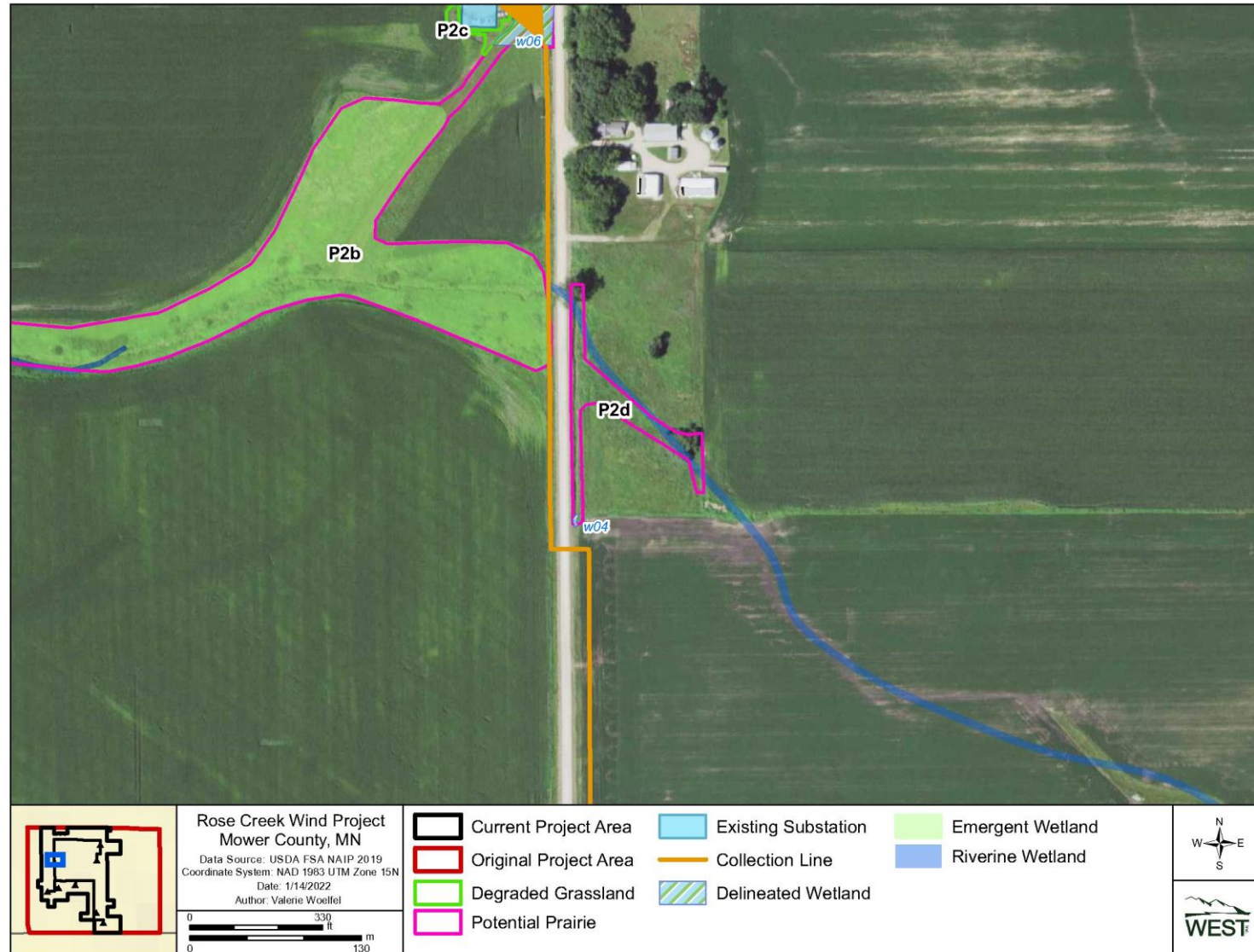


Figure 8d. Potential Prairie P2d identified at the Rose Creek Wind Project based on desktop analysis.



Figure 8e. Potential Prairie P3 identified at the Rose Creek Wind Project based on desktop analysis.

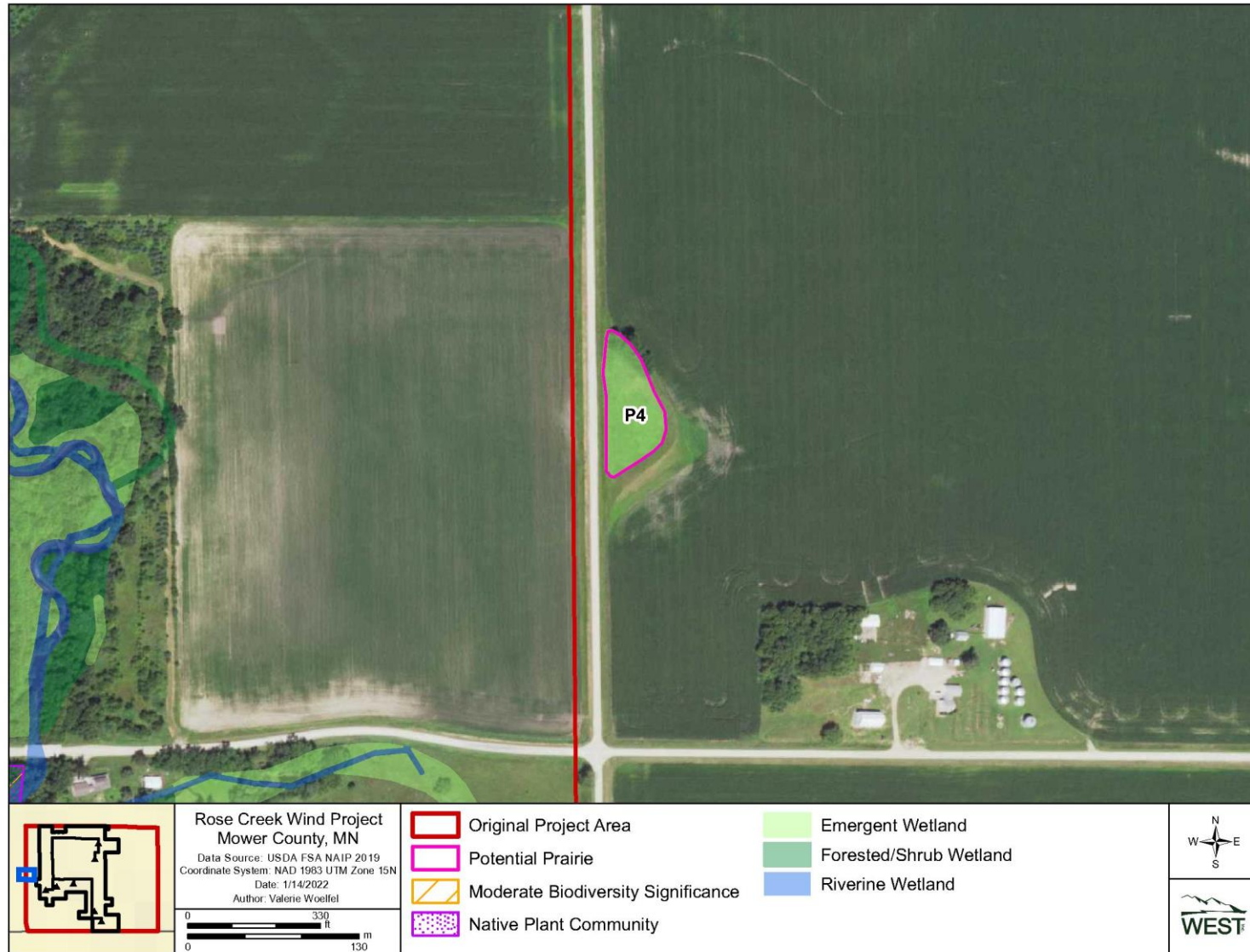


Figure 8f. Potential Prairie P4 identified at the Rose Creek Wind Project based on desktop analysis.

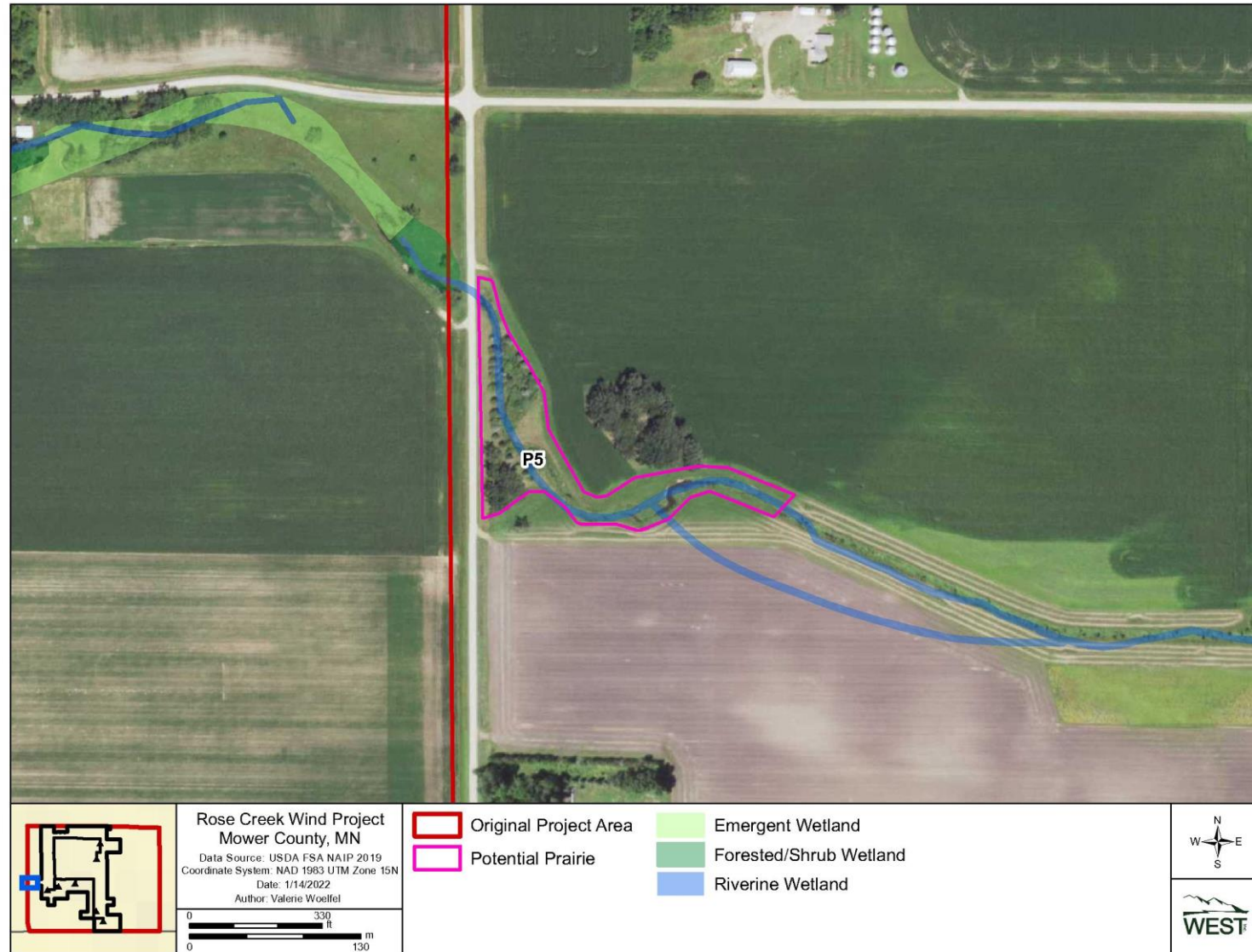


Figure 8g. Potential Prairie P5 identified at the Rose Creek Wind Project based on desktop analysis.

4.1.6 Potential Prairie P6

Desktop review identified a small area containing emergent NWI wetlands and surrounded by a large, cultivated field in the southwestern quadrant of the original Project area and outside the current Project area (Figure 8h, Table 1). The area appeared to be untilled as far back as 1991, and appeared to contain shrub-scrub or forested wetlands, based on aerial imagery. The current Project layout will completely avoid this potential prairie.

4.1.7 Potential Prairie P7 (P7a – P7b)

Desktop review identified a stream system with a large, grassy riparian area containing emergent NWI wetlands and pasture in the southwestern corner of the original Project area and outside the current Project area (Figures 8i and 8j, Table 1). Potential Prairie P7 consists of two polygons, P7a and P7b, each of which were identified based on mapped NWI wetlands connected by NLCD-mapped herbaceous and hay/pasture land covers. Based on high-resolution aerial imagery, the area appeared to be untilled as far back as 1991. The stream system is a tributary to the Little Cedar River (Figure 4). The current Project layout will completely avoid potential prairies P7a and P7b.

4.1.8 Potential Prairie P8

Desktop review identified an herbaceous area in the southwestern portion of the original Project area and outside the current Project area, which was mapped as a site of moderate biodiversity significance containing an emergent NWI wetland and coincident seepage meadow/carr native plant community (Figure 8k, Table 1). According to the native plant community data, the site is primarily wet meadow and was previously disturbed by a transmission line upgrade (MNDNR 2021b). Site vegetation was dominated by *Carex stricta*, with *Calamagrostis canadensis* and some wet prairie species present. Two documented occurrences of the state-listed threatened plant edible valerian (*Valeriana edulis* var. *ciliata*) were also identified within this area (MNDNR NHIS 2019). High-resolution aerial imagery confirmed the overhead distribution line running through Potential Prairie P8; thus, the area was likely disturbed and potentially reseeded after transmission line construction. The area appeared to be untilled as far back as 1991, based on review of aerial imagery. The current Project layout will completely avoid this potential prairie.

4.1.9 Potential Prairie P9

Desktop review identified a roadside swale in the southeast portion of the original Project area and outside the current Project area, which was mapped as a site of below biodiversity significance; the western end of the area crossed a riverine NWI wetland and tributary to the Wapsipinicon River (Figure 8l, Table 1). Documented occurrences of state-listed threatened three-leaved coneflower (*Rudbeckia triloba* var. *triloba*) and state-listed endangered wild quinine (*Parthenium integrifolium*) were identified within this area (MNDNR NHIS 2019). Based on aerial imagery, these roadsides appeared to be untilled as far back as 1991. The current Project layout will completely avoid this potential prairie.

4.1.10 Potential Prairie P10

Desktop review identified a stream system with a large, riparian area containing emergent and riverine NWI wetlands and pasture in the southeastern portion of the original Project area, outside the current Project area (Figures 8m, Table 1). The stream system is a tributary to the Wapsipinicon River (Figure 4). Based on aerial imagery, this stream system and grassy riparian buffer appeared to be untilled as far back as 1991. The current Project layout will completely avoid this potential prairie.

4.2 Probable Degraded Grasslands

4.2.1 Degraded Grassland P11

Desktop review of high-resolution aerial imagery identified an agricultural drainage ditch (riverine NWI wetland) with a narrow, grassy buffer in the west-central portion of the original Project area and southwestern corner of the current Project area (Figure 8n, Table 1). One emergent wetland (w01) and one perennial waterbody (s01) were identified within P11 during Project wetland surveys. This area is located east of Potential Prairie P5, along the same tributary to the Little Cedar River, and extends north along the west side of 660th Avenue within the existing road right-of-way. However, this drainage ditch appeared to be man-made and low-quality degraded grassland habitat is likely based on the drainage construction, proximity to surrounding farm fields, and lack of connection to higher-quality undisturbed habitats. Based on aerial imagery, this narrow grassy strip appeared to be untilled as far back as 1991. A proposed collection line crosses approximately 484 feet of Degraded Grassland P11 within the road right-of-way. Wetland and waterbody impacts at this crossing will be avoided by directional drilling; however, temporary impacts to P11 from collection line construction are possible.

4.2.2 Degraded Grassland P12

Desktop review of high-resolution aerial imagery identified an agricultural drainage ditch (riverine NWI wetland) with a narrow, grassy buffer in the north-central portion of the original and current Project areas (Figure 8o, Table 1). One emergent wetland (w05) and one perennial waterbody (s03) were identified within P12 during Project wetland surveys. This area is located southeast of Potential Prairie P1 and along the same tributary to the Little Cedar River; however, the drainage ditch appeared to be man-made and low-quality, degraded grassland habitat is anticipated based on the drainage construction, proximity to surrounding farm fields, and lack of connection to higher-quality undisturbed habitats. Based on aerial imagery, this grassy buffer area appeared to be untilled as far back as 1991. Due to a reroute, the current Project layout will completely avoid this probable degraded grassland.

4.2.3 Degraded Grassland P13

Desktop review of high-resolution aerial imagery identified an agricultural drainage ditch (riverine NWI wetland) with a narrow, grassy buffer in the east-central portion of the original and current Project areas (Figure 8p, Table 1). One perennial waterbody (s02) was identified within P13 during Project wetland surveys. This area is located southeast of Degraded Grassland P12 and along a ditch that may connect to the same tributary to the Little Cedar River. As with the other

degraded grasslands, this drainage ditch appeared to be man-made and low-quality, degraded grassland habitat is anticipated based on the drainage construction, proximity to surrounding farm fields, and lack of connection to higher-quality undisturbed habitats. Based on aerial imagery, this grassy buffer area appeared to be untilled as far back as 1991.

The proposed collection line between turbines T2 and T3 crosses approximately 184 feet of Degraded Grassland P13. Waterbody impacts within the collection line crossing of P13 will be avoided by directional drilling. In addition, a proposed access road for turbine T3 has been sited adjacent to P13 for approximately 740 feet. Temporary impacts to the waterbody within P13 will be avoided during access road workspace siting. Temporary impacts to P13 from collection line and access road construction are possible.

4.2.4 Degraded Grassland P14 (P14a – P14b)

Desktop review of high-resolution aerial imagery identified a roadside swale on the south side of 120 Street, adjacent to where approximately one mile of underground collection line is proposed and within the current Project area (Figure 8q and 8r, Table 1). Degraded Grassland P14 consists of two polygons, P14a and P14b, both which are completely within the existing road right-of-way. The area lacks mapped NWI wetlands and other typical indicators of untilled grassland or native prairie; however, Project wetland surveys identified two emergent wetlands (w03 and w02) within P14a and P14b, respectively.

Based on their locations, features P14a and P14b were likely disturbed by road construction and are subject to ongoing disturbance through periodic mowing and spraying. Though the wetlands contained some wet prairie indicator species, the areas lacked species diversity and may support high concentrations of invasive species, such as reed canary grass (*Phalaris arundinacea*) or quackgrass (*Elymus repens*). For these reasons, and due to the lack of connection to higher-quality undisturbed habitats, these areas were classified as probable degraded grasslands.

The proposed collection line crosses P14a for 320 feet, and parallels the degraded grassland for an additional 1,125 feet along the road right-of-way. The collection line is also adjacent to P14b for approximately 1,300 feet. The Project workspace will be sited to avoid temporary impacts to the wetlands within these two degraded grasslands during construction; however, temporary impacts to P14a and P14b from collection line construction are possible.

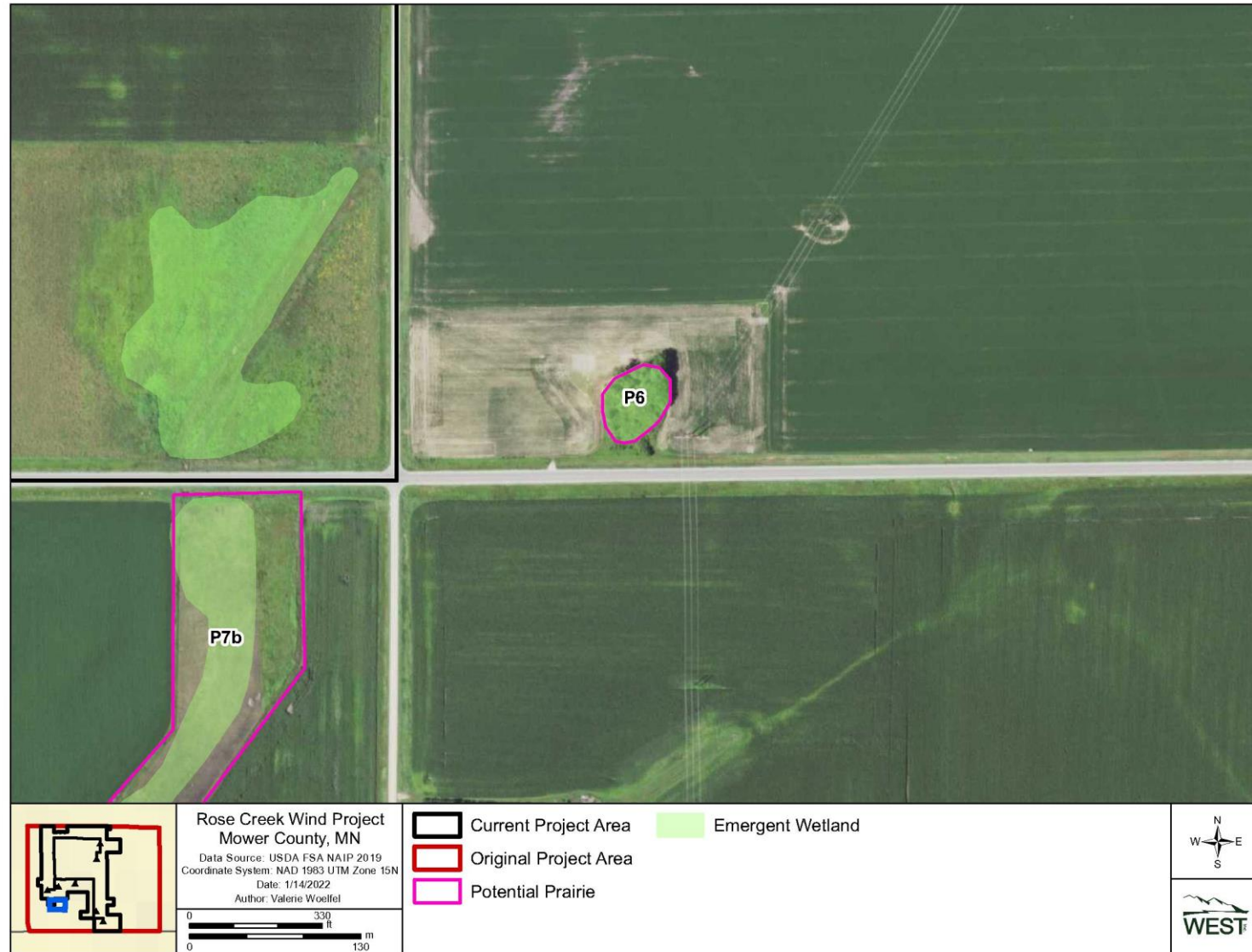


Figure 8h. Potential Prairie P6 identified at the Rose Creek Wind Project based on desktop analysis.

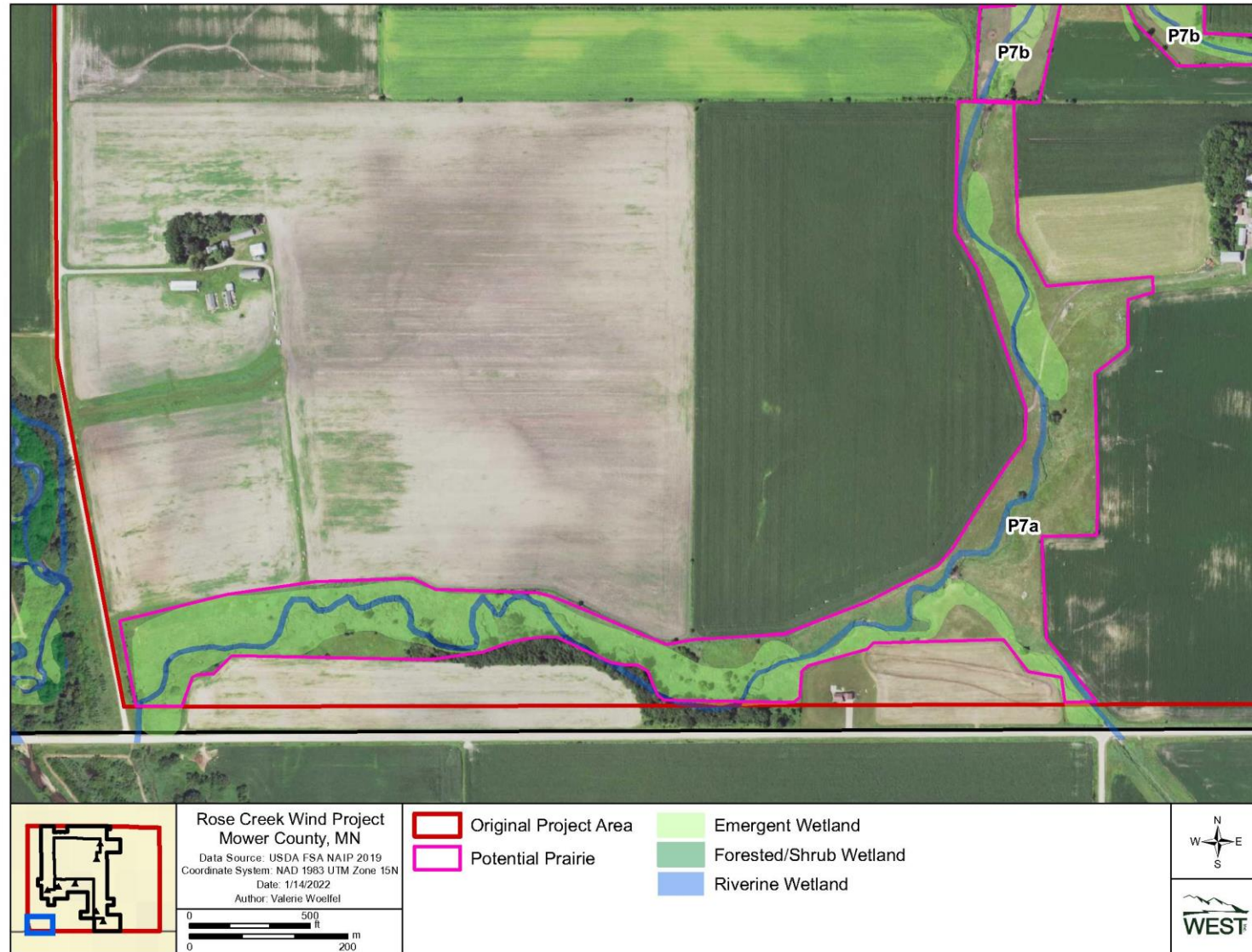


Figure 8i. Potential Prairie P7a identified at the Rose Creek Wind Project based on desktop analysis.

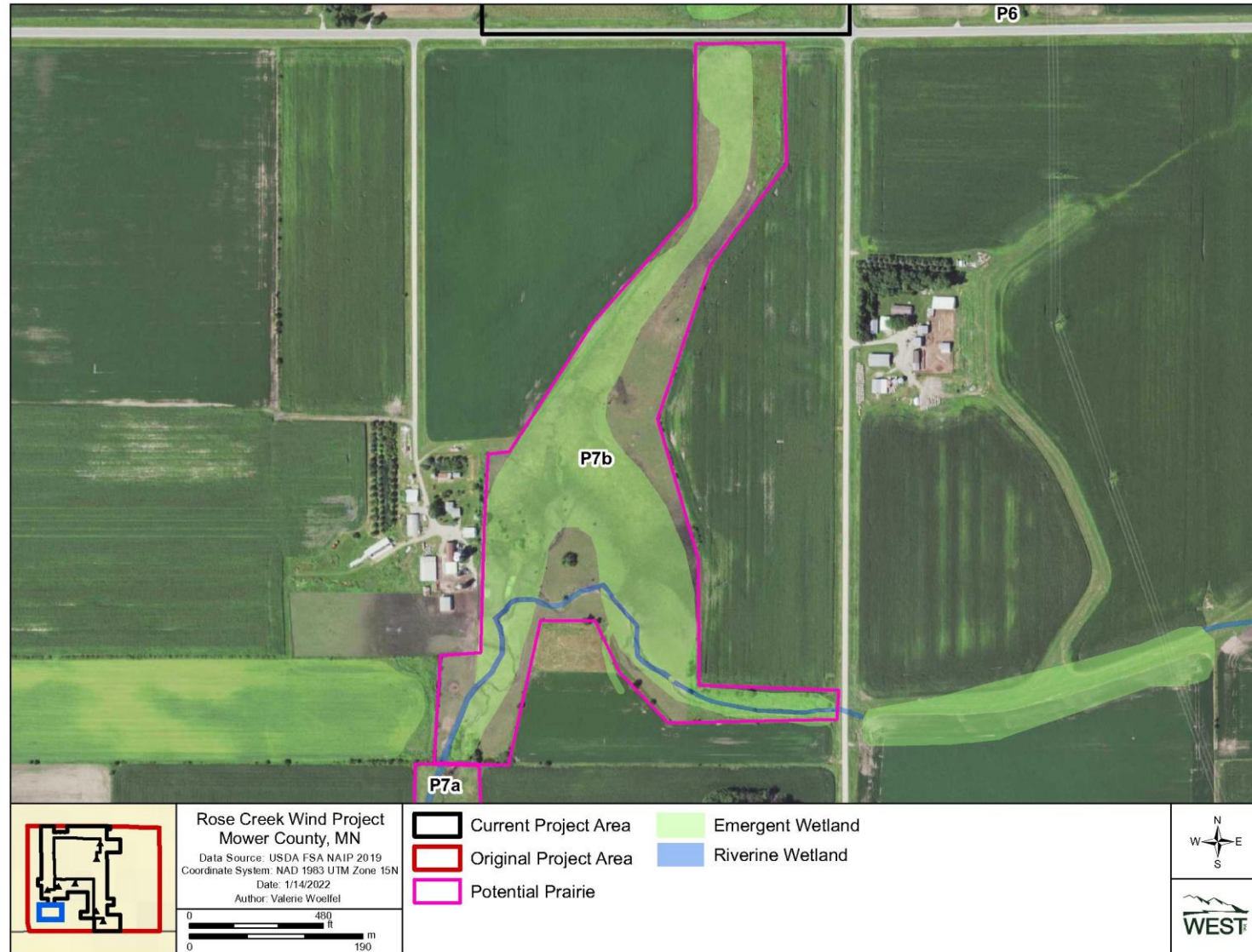


Figure 8j. Potential Prairie P7b identified at the Rose Creek Wind Project based on desktop analysis.

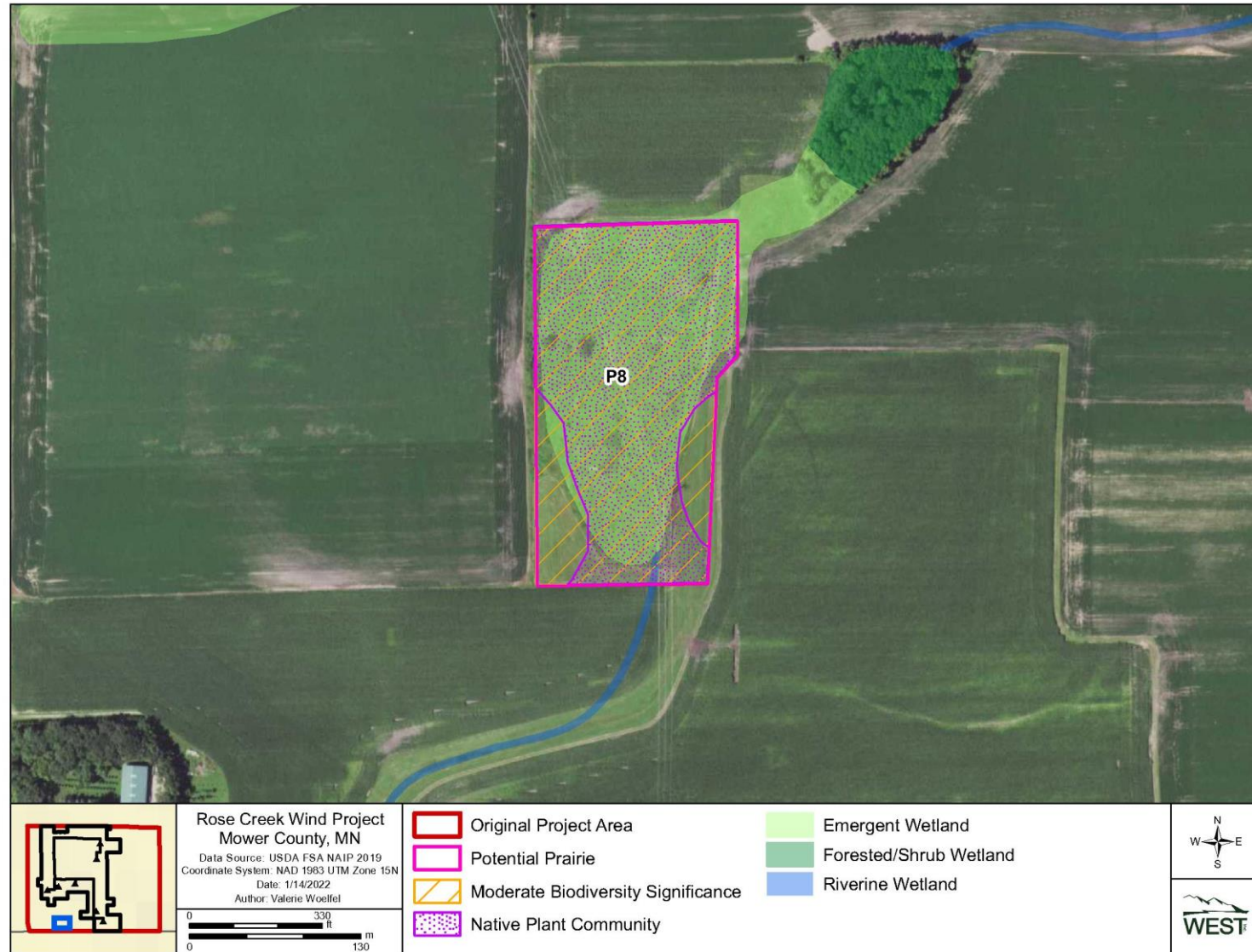


Figure 8k. Potential Prairie P8 identified at the Rose Creek Wind Project based on desktop analysis.

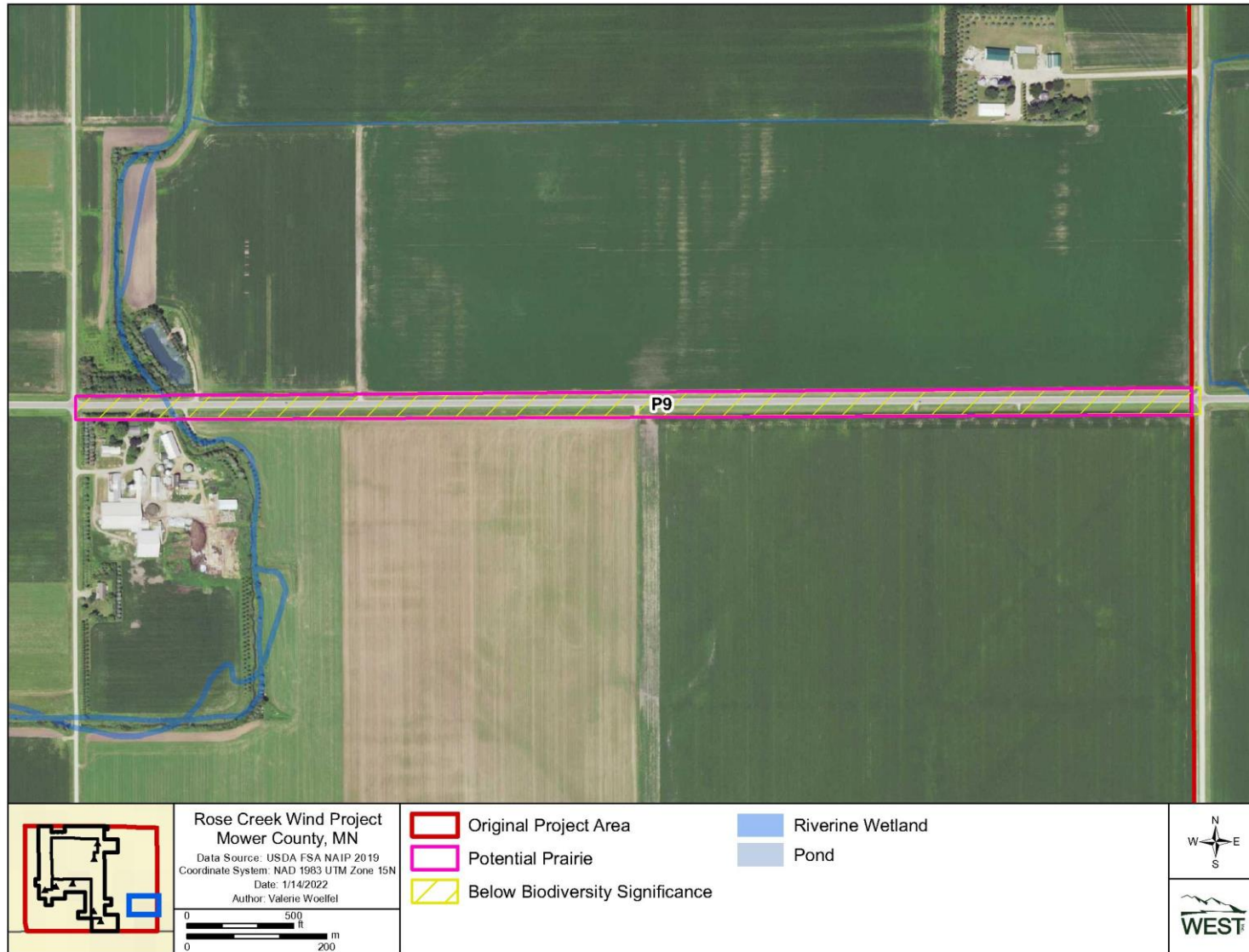


Figure 8I. Potential Prairie P9 identified at the Rose Creek Wind Project based on desktop analysis.

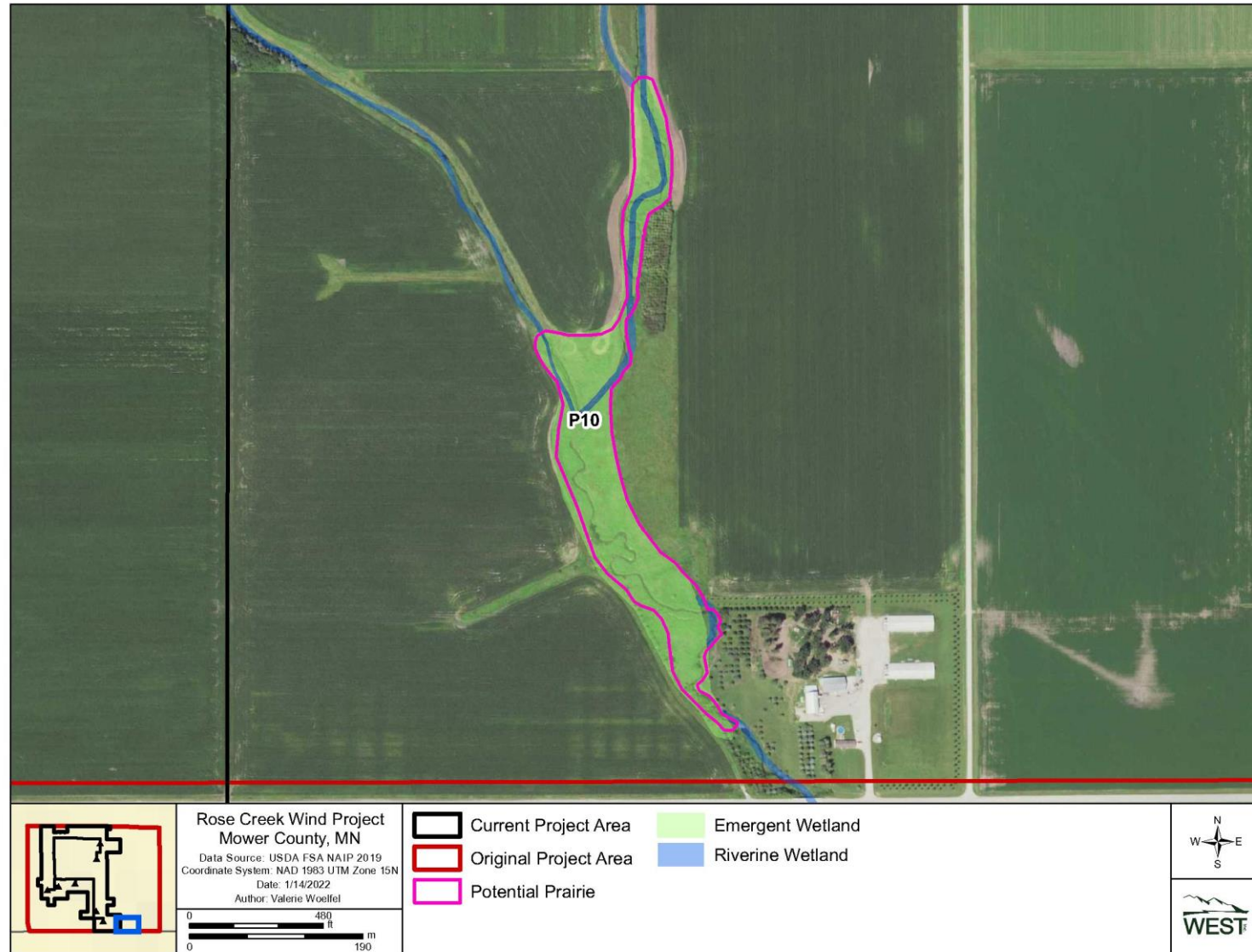


Figure 8m. Potential Prairie P10 identified at the Rose Creek Wind Project based on desktop analysis.

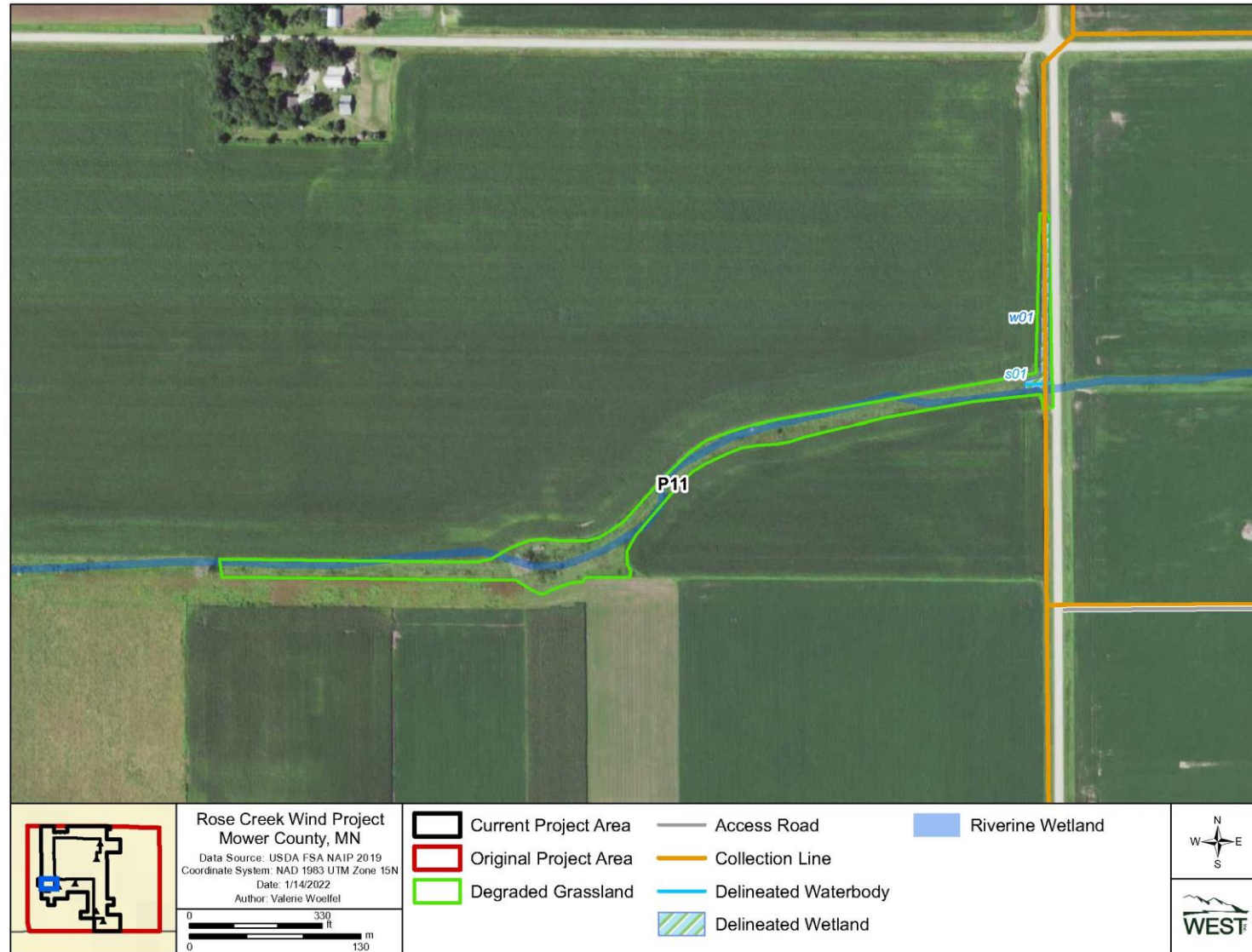


Figure 8n. Probable Degraded Grassland P11 identified at the Rose Creek Wind Project based on desktop analysis.

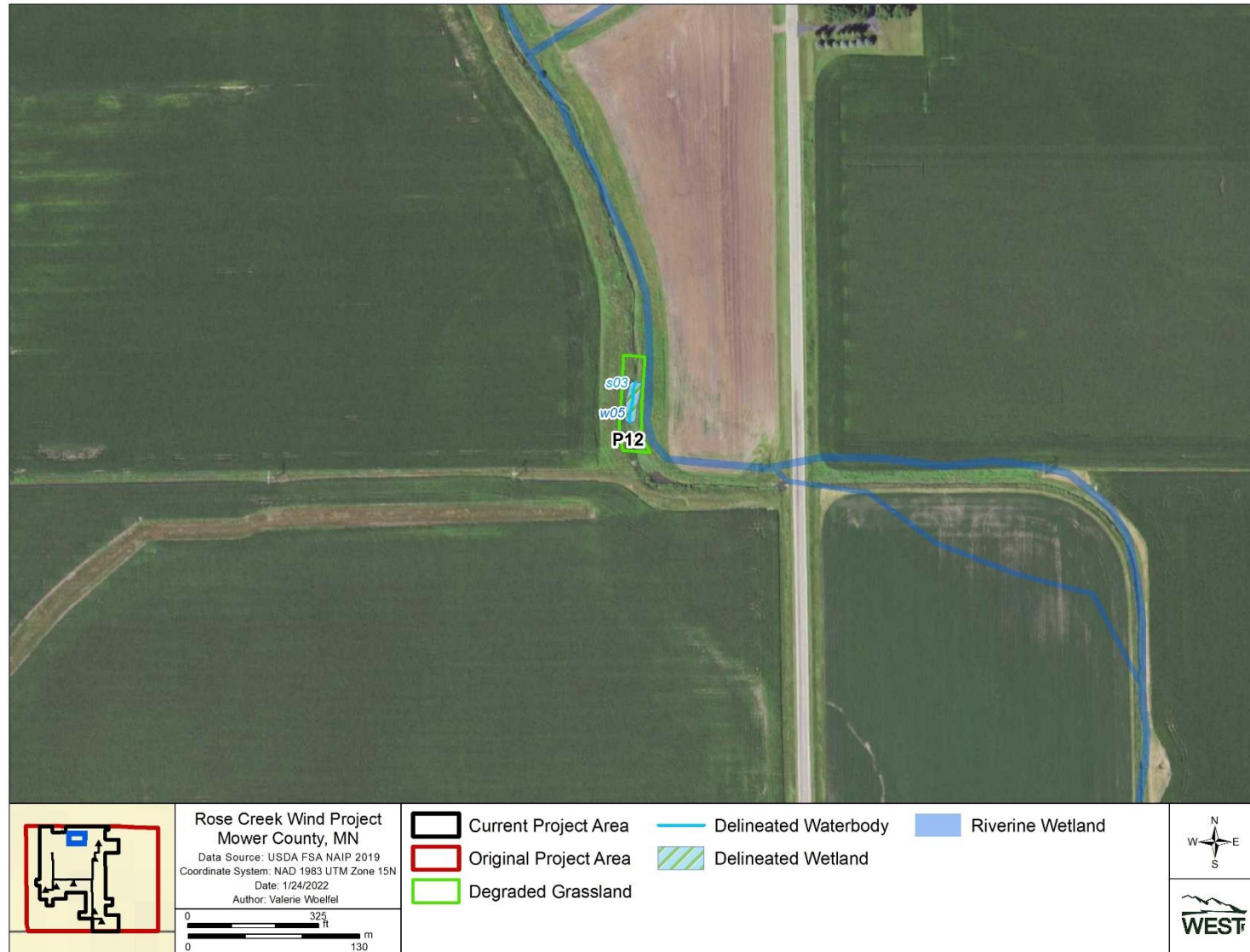


Figure 8o. Probable Degraded Grassland P12 identified at the Rose Creek Wind Project based on desktop analysis.

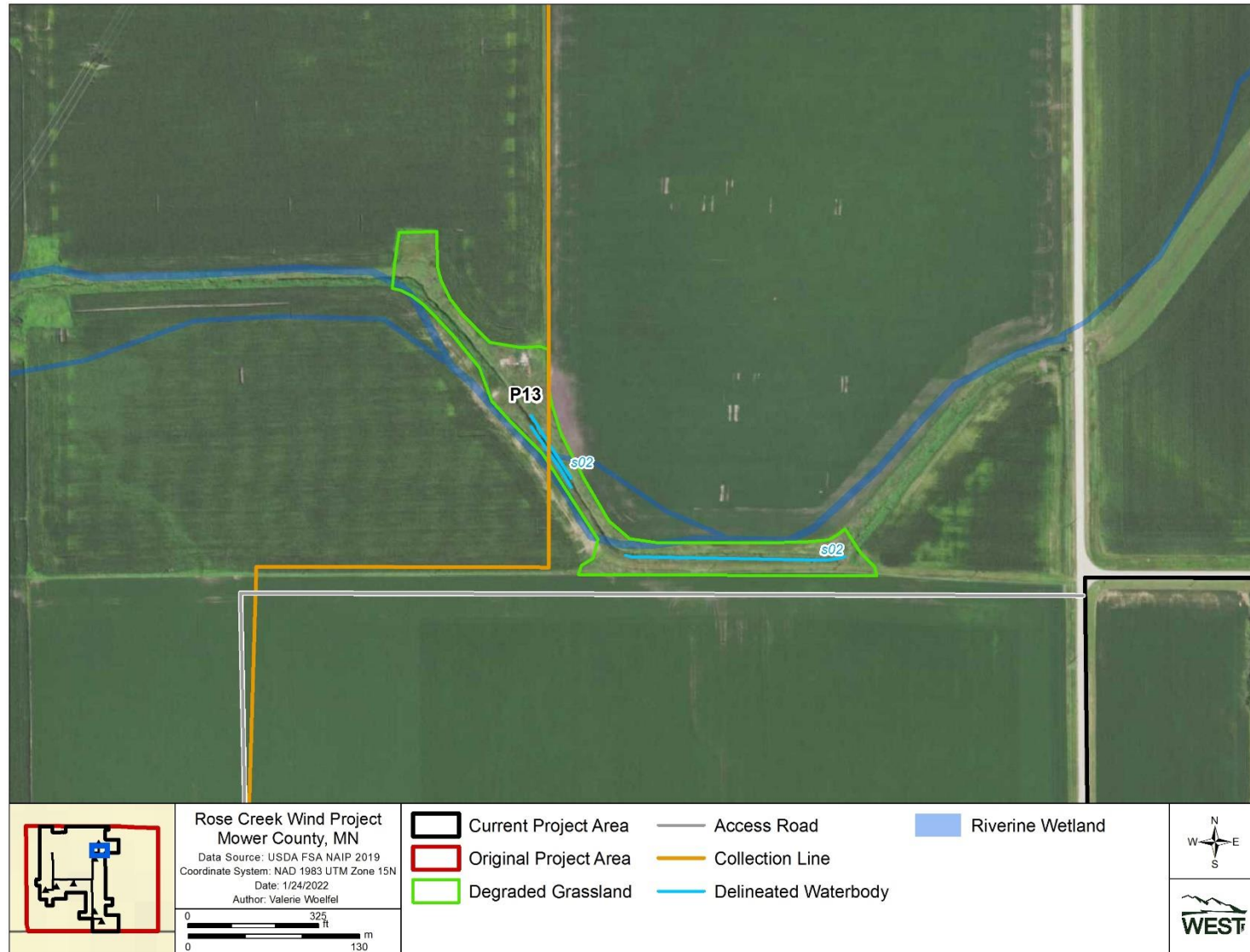


Figure 8p. Probable Degraded Grassland P13 identified at the Rose Creek Wind Project based on desktop analysis.

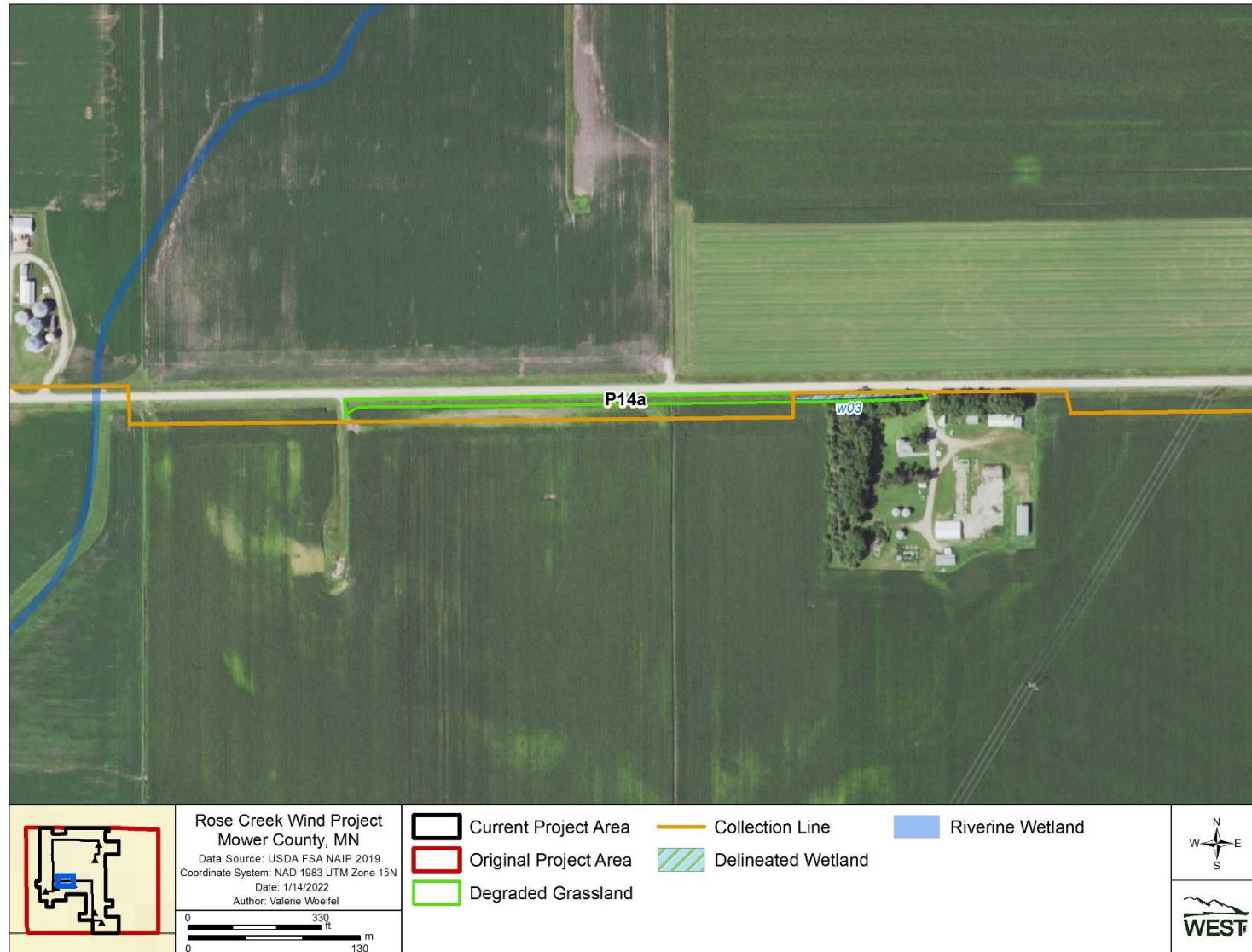


Figure 8q. Probable Degraded Grassland P14a identified at the Rose Creek Wind Project based on desktop analysis.

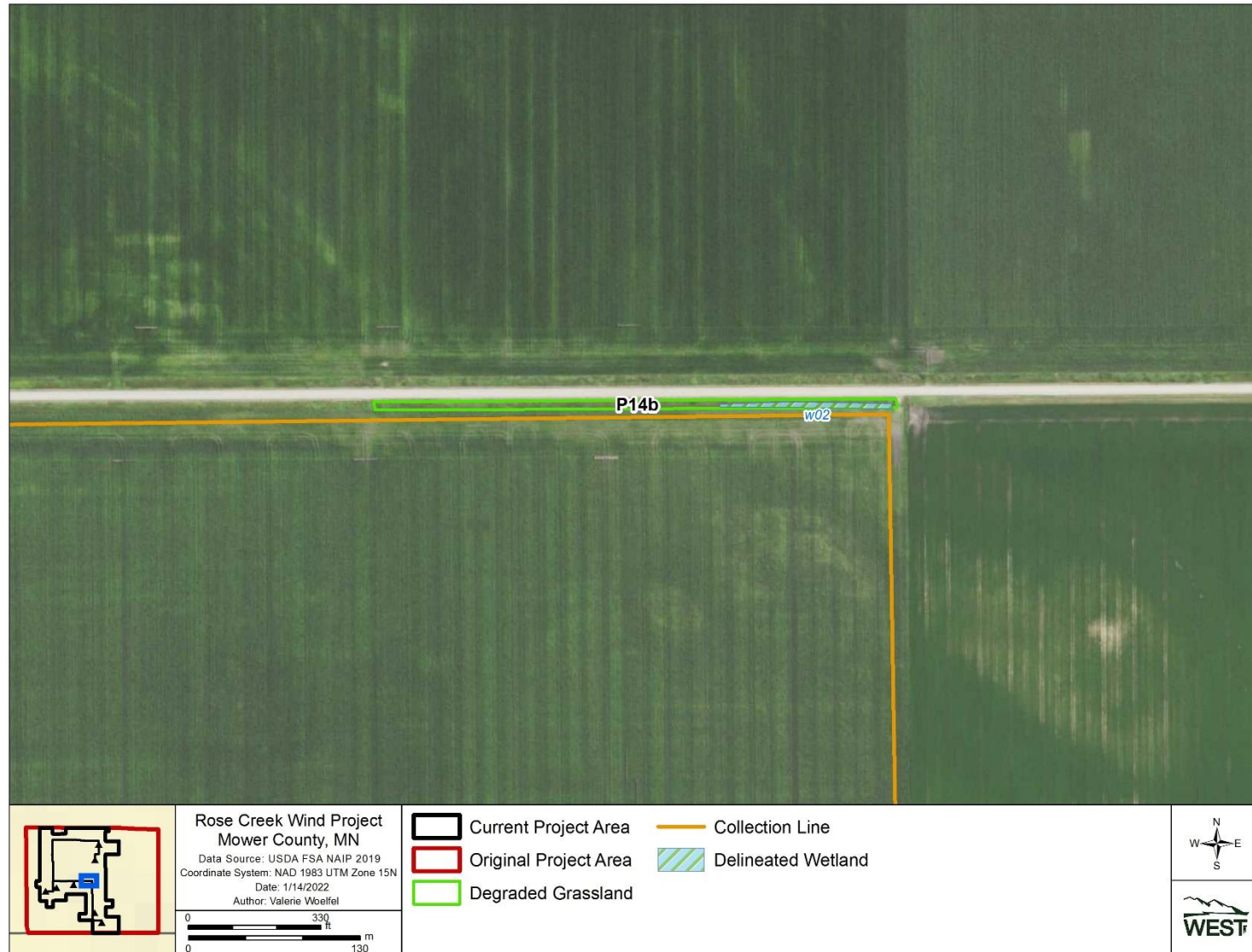


Figure 8r. Probable Degraded Grassland P14b identified at the Rose Creek Wind Project based on desktop analysis.

5.0 SUMMARY OF POTENTIAL IMPACTS TO NATIVE PRAIRIES AND POTENTIALLY UNDISTURBED GRASSLANDS

As a part of the Project siting design process, Rose Creek has attempted to avoid impacts to sensitive habitats, including native plant communities and undisturbed grasslands, by siting the majority of the proposed Project infrastructure within previously disturbed agricultural lands. The current layout completely avoids areas containing NHIS sensitive species occurrences (Potential Prairies P3, P8, and P9), MBS-identified native plant communities (Potential Prairie P8), MBS sites of biodiversity significance (Potential Prairies P8 and P9), and state-designated native prairies. No temporary or permanent impacts to state-designated native prairies or other documented sensitive native plant communities from the Project are anticipated. In addition, Project impacts to potentially jurisdictional wetland and waterbody features will be avoided by directional drilling.

Rose Creek will avoid impacts to undisturbed grasslands, including desktop-derived potential prairies and degraded grasslands, to the extent practicable. Of the 13 potential prairie polygons delineated, 12 will be completely avoided by the current layout, and no permanent impacts to desktop-derived potential prairies are anticipated. One potential prairie area (P2b) will be crossed twice by a proposed Project collection line. Temporary impacts to Potential Prairie P2b at these crossings are possible; however, the collection line will be installed in the road right-of-way beneath the existing overhead distribution line, where vegetation may have previously been disturbed. The proposed crossings locations will be surveyed in spring 2022 to verify the presence or absence of native prairie vegetation in P2b prior to Project construction. Rose Creek has committed to avoiding impacts to native prairies, and will avoid field-verified native prairie within P2b, if confirmed present during the field assessment.

The Project layout crosses or encroaches upon five probable degraded grasslands identified by desktop review and containing Project-surveyed wetland and/or waterbody features. Temporary impacts to all five degraded grasslands are possible during access road and/or collection line construction; however, the Project will reduce impacts to four of these degraded grasslands by avoiding the wetlands and waterbodies within them during construction. Project impacts to wetlands and waterbodies within two of the five degraded grasslands will be avoided by directional drilling for collection line installation (P11 and P13). In addition, temporary impacts to wetlands and waterbodies within P13, P14a, and P14b will be avoided by siting access road and collection line workspaces outside the delineated features. Temporary and permanent impacts to P2c are possible, though the substation design and extent of these impacts has not been finalized; no other permanent impacts to probable degraded grasslands are anticipated.

Should minor, unavoidable temporary impacts to desktop-derived potential prairies or probable degraded grasslands occur from Project construction, Rose Creek will restore these areas to pre-construction conditions using a seed mix consistent with state requirements (subject to landowner agreement, see LWECS site permit application Section 8.19.3).

If Project layout changes would alter the proposed impacts to these or any newly identified desktop-derived potential prairies or probable degraded grasslands, Rose Creek will coordinate with the MNDNR and Minnesota Department of Commerce. If deemed necessary, a Native Prairie Protection Plan will be developed prior to Project construction. The Native Prairie Protection Plan would document the steps taken to avoid and minimize impacts to potential prairies and degraded grasslands during Project design and describe conservation measures that would be implemented to reduce adverse effects to potentially undisturbed grasslands during Project construction, restoration, and operation.

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