

Appendix C-13: Desktop Wetland Assessment and Regulatory Review (June 6, 2013)

June 6, 2013

Melissa Peterson
Project Manager
EDF Renewable Energy
10 Second Street NE, Suite 400
Minneapolis, MN 55413

Desktop Wetlands Assessment and Regulatory Review
Stoneray Wind Project
Burns & McDonnell Project No. 62823

Dear Ms. Peterson:

Burns & McDonnell Engineering Company, Inc. (Burns & McDonnell) is providing environmental support services for the EDF Renewable Energy (EDF), formerly enXco Development Corporation, proposed 105-megawatt (MW) wind energy facility, Stoneray Wind Project (Project), to be located in Pipestone and Murray Counties in southwestern Minnesota (Figure 1). The Project will consist of up to 62 wind turbine generators (WTGs), access roads, an underground electrical collector system, and a small electrical switchyard situated within the Project area. The Project area is generally located north, east, and southeast of Woodstock, Minnesota, and consists of all or portions of the following Sections, which are also depicted in Figure 2.

Table 1. Project Location

Township	Range	Sections
107N	44W	8, 15-29, 32-36
107N	43W	30, 31
106N	44W	1-17, 19-21, 23-26
106N	43W	5-8, 17-20, 29, 30

This desktop wetland assessment and regulatory review was developed based on available mapping information and features, as well as information gathered from natural resource agencies. Because Project facilities have not been formerly sited yet, this study can be used to aid in siting facilities to avoid or minimize impacts to potential wetlands and watercourses.

Methods

In an effort to identify potential wetlands and watercourses within the Project area, a desktop wetland assessment was performed. A windshield survey from public roadways was also conducted in October 2011 to ascertain if the data collected as part of the assessment appeared to be relatively accurate. This assessment did not include any pedestrian surveys and does not account for the expanded Project area in 2013.

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The following available information was obtained and used as part of the assessment:

- National Wetland Inventory (NWI) data
- Minnesota Public Wetland Inventory (PWI) data
- Reinvest in Minnesota (RIM) data
- National Hydrology (NHD) data
- National Land Cover Data (NLCD) data
- Minnesota Department of Natural Resources (MDNR) Natural Heritage Information System (NHIS) review
- National Aerial Imagery Program (NAIP) aerial photography
- USGS 7.5-minute topographic maps
- USGS Soil Survey (SSURGO)
- Hydric soil lists for Pipestone & Murray counties

Figures identifying the location of potential wetlands and watercourses were generated using ArcGIS[®] software (2013) and are included with this assessment.

The regulatory review was conducted by researching federal, state, and county agency websites.

Results

The results of the desktop wetland assessment and the regulatory review are included in the following sections.

Desktop Wetlands Assessment

The revised Project area encompasses approximately 29,500 acres (Figure 2), although only a small fraction will be disturbed for construction, and an even smaller portion will host Project facilities. The expansion of the Project area will allow greater flexibility and provide for alternative WTG locations to be considered.

The Project area is in a region that is dominated by agricultural land uses, particularly row crop cultivation. The Project area has gently rolling topography that is intersected by numerous county roadways that extend both east to west and north to south. State roads (State Highways 30 and 23) are also located within and near the Project area. The majority of the Project area is located between Holland and Woodstock as well extending south of Woodstock and east of Hatfield, Minnesota (Figure 3).

There are numerous watercourses in the Project area, most notably Rock River, East Branch Rock River, and North Branch Chanarambie Creek. Watercourses generally flow north to south. Many farm ponds also occur, although there are no relatively large water bodies (lake, reservoir,

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etc.) within close proximity. The closest large water body appears to be Current Lake, approximately nine miles northeast of the Project area.

Based on the wetland data obtained from various sources, it appears that approximately 827 acres of wetlands could occur in the Project area (Table 2; Figure 4). This data was extrapolated from NWI data, PWI data, RIM data, and NLCD data; and does not include wetlands mapped from the October 2011 windshield survey.

Table 2. Wetland Inventory within Project Boundary

Wetland Source/Type	Acreage
NWI	
Palustrine Emergent Wetland (PEM)	657
Palustrine Forested/Shrub Wetland (PSS)	7
Palustrine Pond (PUB)	23
Riverine Wetland (R)	1
MN PWI*	63
RIM Wetland Areas*	14
NLCD Wetlands*	62
Total:	827

*classification of wetlands from these sources did not specify type of wetland.

NWI data is generated by the U.S. Fish and Wildlife Service (USFWS) and is the most common wetland resource for desktop reviews. According to NWI data, there are four types of wetlands in the Project area, Palustrine Emergent (PEM), Palustrine Scrub-Shrub (PSS), Palustrine Unconsolidated Bottom (PUB)/Pond, and Riverine Wetlands (R) (Figure 4). PEM wetlands typically include herbaceous marshes, fens, swales and wet meadows and are found in floodplain environments and irrigated terraces. PSS wetlands typically include moderate to heavily non-forested vegetated swamps and bogs and are found in floodplain environments. PUB wetlands (also known as ponds) are sparsely vegetated ponds with a mix of silt, clay, and organic matter as a substrate and are found along watercourses. Riverine wetlands are defined by location and are adjacent to a stream or river with perennial flow. PWI data is generated by the MDNR and provides a thorough inventory of state-protected wetlands and watercourses throughout Minnesota. RIM wetland areas are part of a MDNR program encouraging landowners to provide increased fish and wildlife habitat. PWI, RIM, and NLCD wetlands were not classified into the typical NWI categories. Based on a review of the high resolution aerial photography, the majority of these wetlands would mostly likely be considered PEM wetlands.

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As previously noted, a survey from public roadways was also conducted on October 14, 2011, based on a previous Project area, to ascertain if the data collected as part of the assessment appeared to be relatively accurate. Public roadways used for this survey mostly consisted of county roads within and around the Project area, including but not limited to 171st Street through 71st Street (from north to south) and 140th Avenue to 10th Avenue (east to west). State Highways 23 and 30 were also utilized. With a few exceptions, this NLCD data appears to be accurate based on the survey. The NLCD data overestimates both grass and range lands, while underestimating cultivated croplands. Additionally, there appear to be many more acres of herbaceous emergent wetlands than is indicated on both the NLCD and NWI datasets (Figure 5). It is difficult to accurately estimate the difference in acreages of these areas without doing a pedestrian survey. However, based on observations of vegetation type and hydraulic features from the windshield survey, there appear to be approximately 50 to 200 acres of additional area that may be considered wetlands and 50 to 150 acres of additional cultivated cropland areas that are categorized as grass or range lands. These observations are only applicable for the previous Project area, as it is likely that the current Project area contains additional wetlands and cultivated cropland that are unaccounted for in this desktop analysis.

The NHD data indicates that approximately 96 linear miles of intermittent streams and 13 linear miles of perennial streams occur within the Project area. Additionally, approximately three linear miles of other types of streams (categorized as connectors to lakes and wetlands) are also within the Project area (Figure 6). Many of these watercourses have Federal Emergency Management Agency (FEMA)-designated floodplains associated with them (Figure 6). Many of the identified wetlands are associated with these streams and floodplain areas. Pipestone and Murray counties also have designated PWI protection areas along some of the larger watercourses within the Project area (Figure 7).

Based on MDNR data, three types of rare wetland-related features, marsh, calcareous fen, and wet meadows, have been recorded in the Project area (Figure 8). A marsh is a type of emergent wetland that is frequently or continually inundated with water. Calcareous fens are a type of wetland fed by groundwater that supports a unique plant community and are considered to be exceptionally rare in both occurrence and the abundance of vegetation communities (often sensitive and protected species) that they support. Wet meadows are a type of wetland that occurs in poorly drained, often low lying areas that are saturated at the surface, but without standing water except for brief periods during the growing season.

Also based on MDNR data, one state managed conservation reserve enhancement riparian (CREP) area (T107N, R44W, Section 35) is included in the Project area (Figure 9). According to correspondence with MDNR, it is recommended that new wind turbines be located at a minimum of five rotor diameters (RD; dominant wind direction) by three RDs (non-dominant wind direction) from nonparticipating MDNR-administered lands.

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According to soil surveys for Pipestone and Murray Counties, 9,995 acres of hydric soils occur within the Project area, all of which could potentially contain wetlands (Figure 10). Hydric soils are one of three wetland characteristics as described in the Clean Water Act (CWA); the other two characteristics are vegetation and hydrology. To be deemed a wetland in most instances, all three characteristics must be present. Only an actual wetland field survey/delineation would provide an accurate measure if these characteristics are present and if the wetlands would likely be under the jurisdiction of the U.S. Army Corps of Engineers (Corps), state, and local agencies.

Regulatory Review

If wetlands or watercourses are impacted by the Project, it is possible that federal, state, or local permits could be required. Permitting requirements will be determined by the amount and quality of wetlands, watercourses, and/or other waters of the U.S. being impacted by the Project. General wetland-related regulatory requirements are summarized below.

Clean Water Act (CWA) Section 404 Dredge and Fill Permitting

Section 404 of the CWA authorizes the issuance of permits for the discharge of dredged or fill material into waters of the U.S. This includes traditional navigable waters, wetlands adjacent to traditional navigable waters, non-navigable tributaries of traditional navigable waters that are relatively permanent where the tributaries typically flow year-round or have continuous flow at least seasonally (three months), and wetlands that are directly associated with such tributaries.

In order to quantify and locate jurisdictional wetlands that could be impacted by the Project, a Jurisdictional Determination (JD) should be performed prior to a permit application with the Corps. The method for performing a JD, also referred to as a wetland delineation, employs a multi-parameter approach as defined in the Corps Wetland Delineation Manual and subsequent regional supplements. This approach requires positive verification of the presence of hydrophytic vegetation, hydric soils, and wetland hydrology for an area to be determined a wetland. Once a wetland delineation is completed, it would be reviewed by the Corps in order to verify the JD. Once the Corps accepts the JD, an appropriate permit would be required if the Project impacted jurisdictional wetlands.

Traditionally, Section 404 nationwide permits from the Corps would be required for projects that have limited impacts to the waters of the U.S. as noted in the CWA; however, in Minnesota, Letters of Permission (LOP) have replaced the nationwide permitting process since 2000.

Should the Project disturb or impact jurisdictional waters that are less than three total acres, a LOP may be required from the Corps, St. Paul District, according to LOP-05-MN. As part of this process, a Joint Permit Application for utility projects, NA-026620-03C, should be prepared and submitted to the Corps, MDNR, and the Local Governmental Unit (LGU). Depending upon

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the extent of wetland impacts, the application could also require the submittal of a Replacement Plan (Part II of the Joint Permit Application). The typical review period for a LOP is 30 days.

If this Project cannot meet the qualifications for an LOP due to impacts to waters of the U.S. that are greater than three total acres, an Individual Permit (IP) from the Corps may be required. This would entail further analysis of Project need, impact avoidance and minimization, public review and involvement, and probable mitigation for unavoidable impacts to jurisdictional waters. The review process for an IP is typically several months longer than that of an LOP. Impacts to non-jurisdictional wetlands and waterways do not require permitting through the Corps.

Minnesota Pollution Control Agency (MPCA)

The Joint Permit Application, NA-026620-03C, noted previously applies for the Section 401 water quality certification from the State in addition to Section 404 permitting. The Corps takes responsibility for passing this permit application on to the MPCA. Submittal to both agencies is not required.

If the project proposal qualifies for a LOP which the MPCA has precertified, no further certification action by the MPCA is required. If an IP is required, the Corps incorporates this information into a public notice that announces the official receipt of the application, describes the project, and serves as the notice for the Section 401 water quality certification. The public notice is sent to the MPCA, Environmental Protection Agency (EPA), USFWS, MDNR, and applicable LGU's.

If the MPCA grants a Section 401 water quality certification, the Corps will complete the public interest review before granting or denying any Section 404 permit. Any conditions required to meet water quality standards included in the Section 401 water quality certification become conditions of any Section 404 permit. If the MPCA denies the Section 401 water quality certification, the Corps must then deny all Section 404 permitting.

MDNR

A Public Waters Work Permit under the Public Waters Permit Program (PWPP) must be obtained from the MDNR for work affecting the course, current, or cross-section of public waters, including public wetlands. Public waters are any water bodies (basins, lakes, streams, rivers, and wetlands) identified as such on the Public Waters and Wetlands Maps (PWI). The Joint Permit Application, NA-026620-03C, noted previously, applies for the PWPP in addition to the Section 401 and 404 permitting. The permitting process is typically reviewed by MDNR staff, without a hearing. However, the MDNR does have authority to hold a contested case hearing prior to acting on a permit application if they deem it necessary.

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The MDNR may waive the requirement of a PWPP for projects within public waters that will be regulated under Wetland Conservation Act (WCA) standards to the applicable Local Government Units (LGU). Within 15 days after receiving the PWPP application, the MDNR decides if it will waive permit jurisdiction to the Wetland Conservation Act LGU.

Additionally, the MDNR requires an Application for License to Cross Public Lands and Waters (License #144-06) be submitted to the MDNR for passage of any utility over, under or across any state land or public water (as identified in PWI). Separate applications must be submitted, ensuring that crossings for public lands and waters are not in the same application.

Local Government

All wetlands that are not protected under the MDNR's PWPP are protected under the WCA. The WCA is administered through the Minnesota Board of Water and Soil Resources (BWSR), but implemented through LGU's at a local level. The WCA states that wetlands must not be drained or filled, wholly or partially, unless replaced by restoring or creating wetland areas of at least equal public value under an approved replacement plan. This definition protects isolated wetlands, which are traditionally unprotected in other states. No permits are required under the WCA. In lieu of a permit, a formal determination is provided by the LGU. The Joint Permit Application, NA-026620-03C, noted previously, applies for the WCA in addition to the PWPP and Section 401 and 404 permitting.

Conclusions

As currently designed, the turbine array is not anticipated to impact any wetland resources from a desktop perspective. Although the majority of the Project area is comprised of cultivated lands, there are some areas within the Project area that contain wetlands or other protected water resources. These wetlands should be avoided or impacts should be minimized where possible when further developing the Project layout. Other wetlands and protected water resources could also exist within the Project area that not identified as a part of this study. Desktop reviews are not always a good indication of where wetlands or protected resources may occur due to limited resources. Data used for the desktop review such as the NWI, NLCD, and SSURGO is often outdated and in some cases inaccurate when compared with results from field surveys. Additionally, the desktop review does not account for common variables in the data, which could include seasonal changes in vegetation, climate, and land use change. Therefore, at a minimum, a wetland delineation should be performed for areas that will host Project facilities and that will be disturbed during construction of the Project.

Whenever working in areas that contain wetlands and other waters of the U.S. it is important to avoid and minimize impacts or disturbances where possible. Impacts to wetlands and watercourses increase the potential for adversely impacting sensitive or protected species or their preferred habitats, increase the likelihood of the Project needing federal, state, or local permits,

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and increase coordination for Project development with pertinent natural resource agencies, such as USFWS, MDNR, or county regulatory agencies. Still, it is likely that some impacts to wetlands and other waters of the U.S. will occur on this Project based on the large scale. In the event that impacts do occur, applicable permitting and coordination with federal, state, and local agencies will be required.

To reduce the probability of impacting wetlands and other waters of the U.S., the following should be considered for further developing an array and layout for the Project:

- Locate facilities away from known wetlands and other waters of the U.S.
- Avoid or minimize land disturbance impacts to areas along streams or known wetland areas
- Conduct a wetland delineation to identify the boundaries of any wetland and other waters of the U.S.
- Bore or drill under known wetlands and watercourses where possible

If you have any questions or require any additional information, please contact me by phone at (816) 363-7251 or by email at reverard@burnsmcd.com.

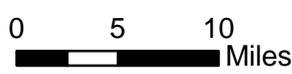
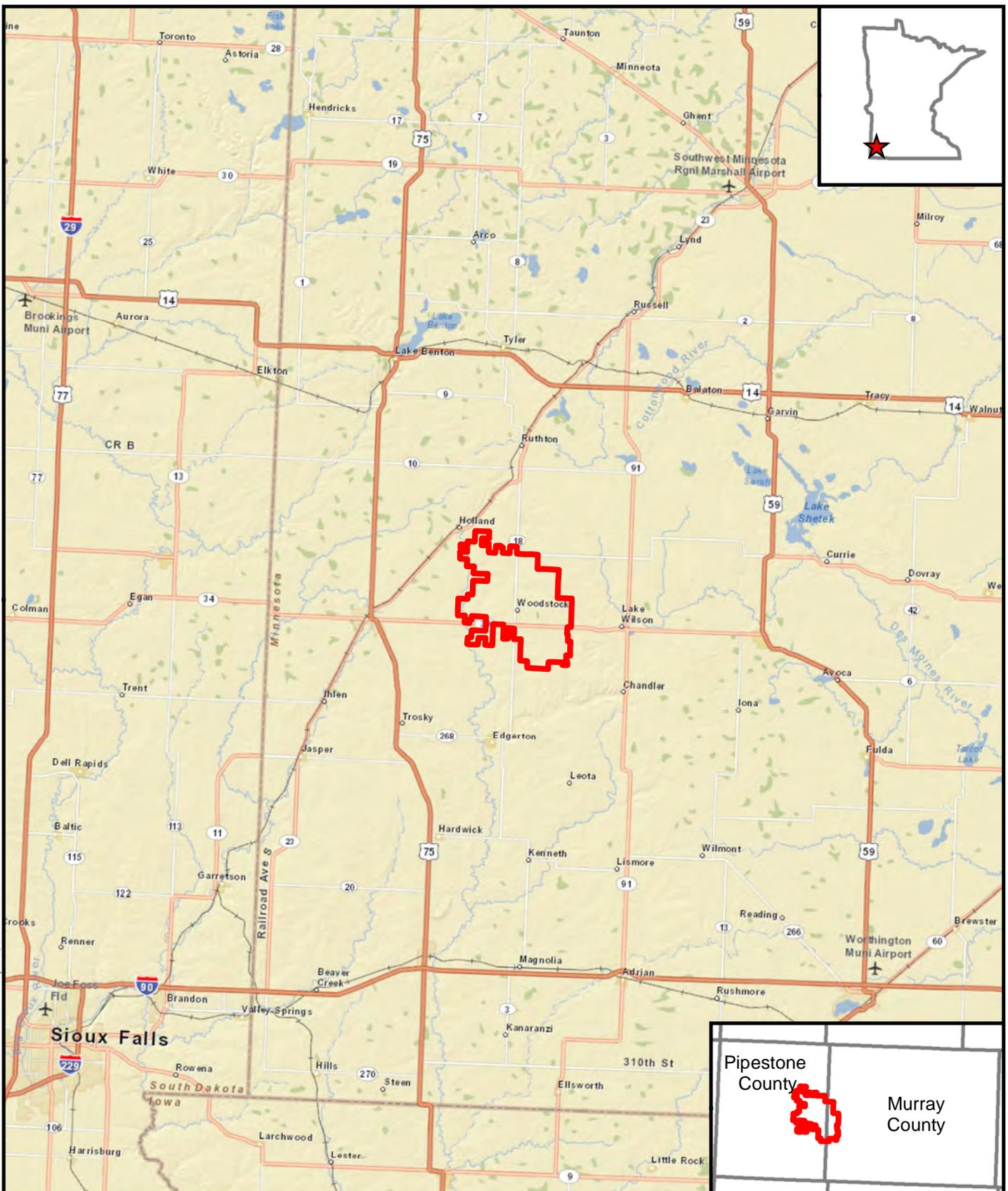
Sincerely,



Robert G. Everard
Environmental Project Manager

Encl.

cc: Andy Kim, EVS



Legend

 Proposed Project Boundary

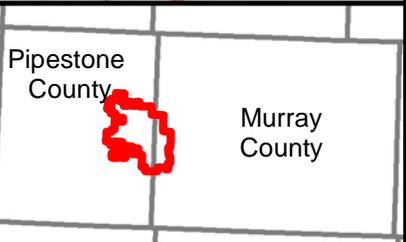
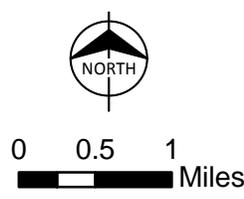
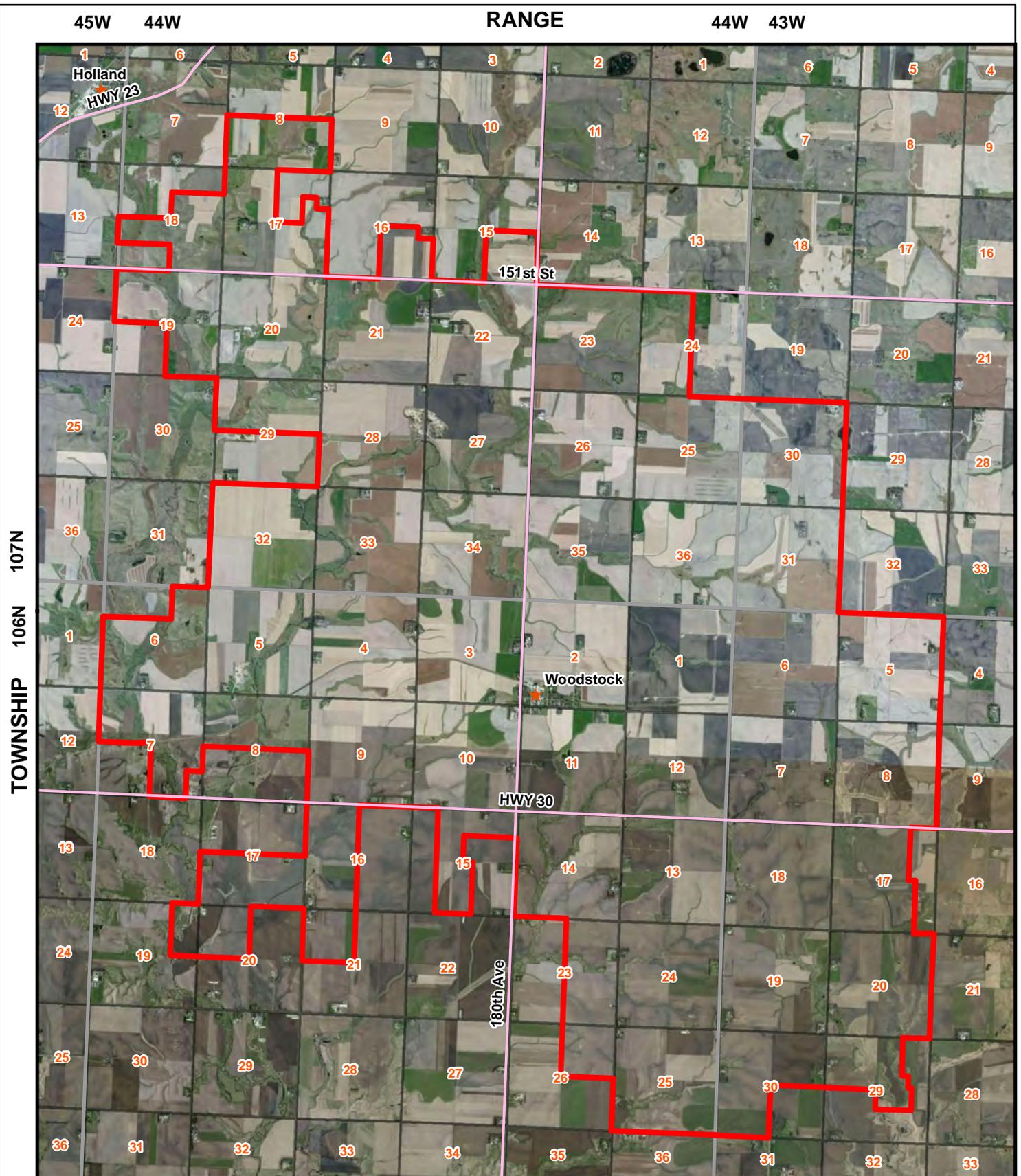


Figure 1
General Location Map
Stoneray Wind Project
Murray & Pipestone
Counties, Minnesota

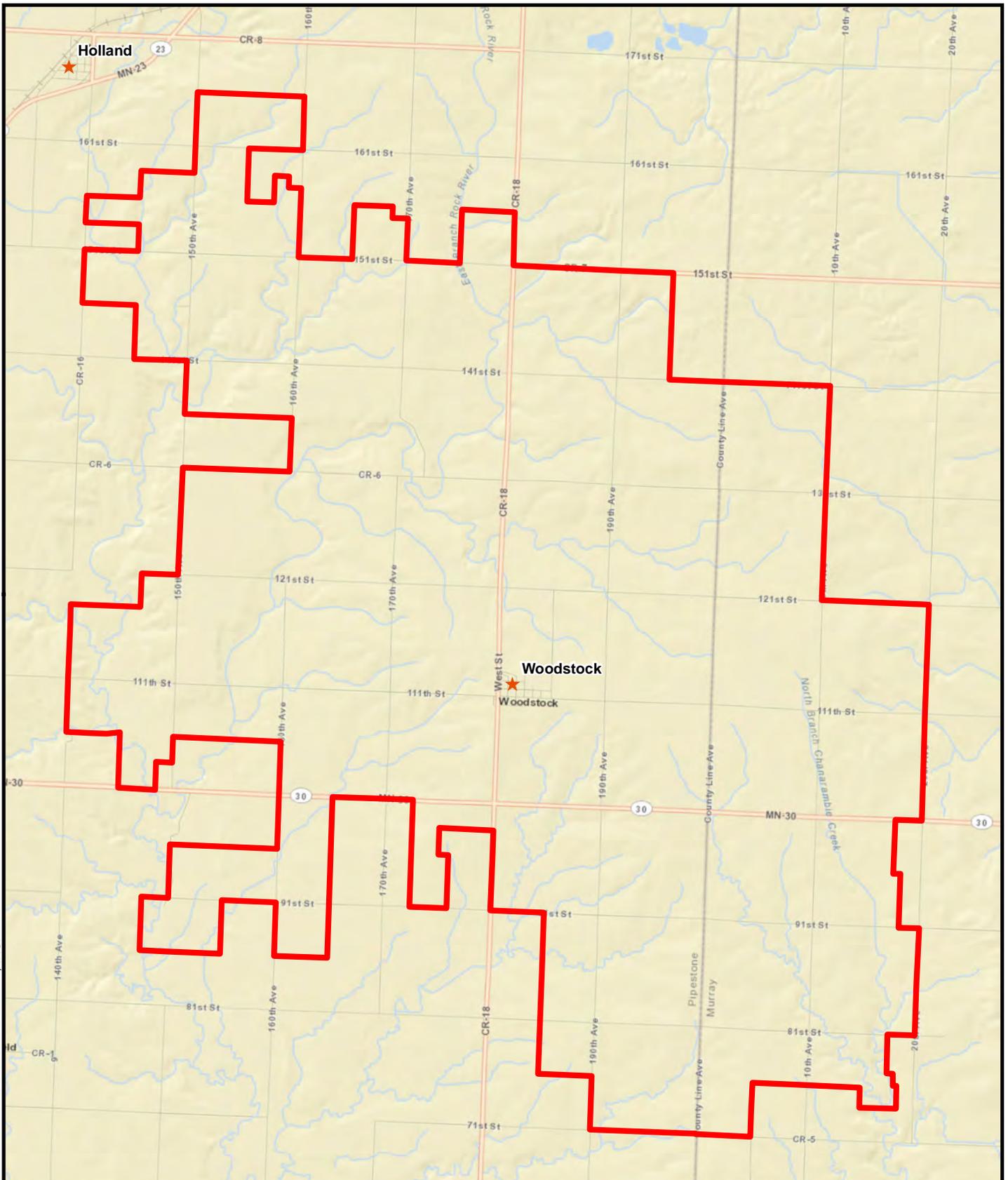
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- Legend**
-  Proposed Project Boundary
 -  Township and Range Sections
 -  Town
 -  Major Roads



Figure 2
Project Boundary &
Township and
Range Sections
Stoneray Wind Project
Murray & Pipestone
Counties, Minnesota



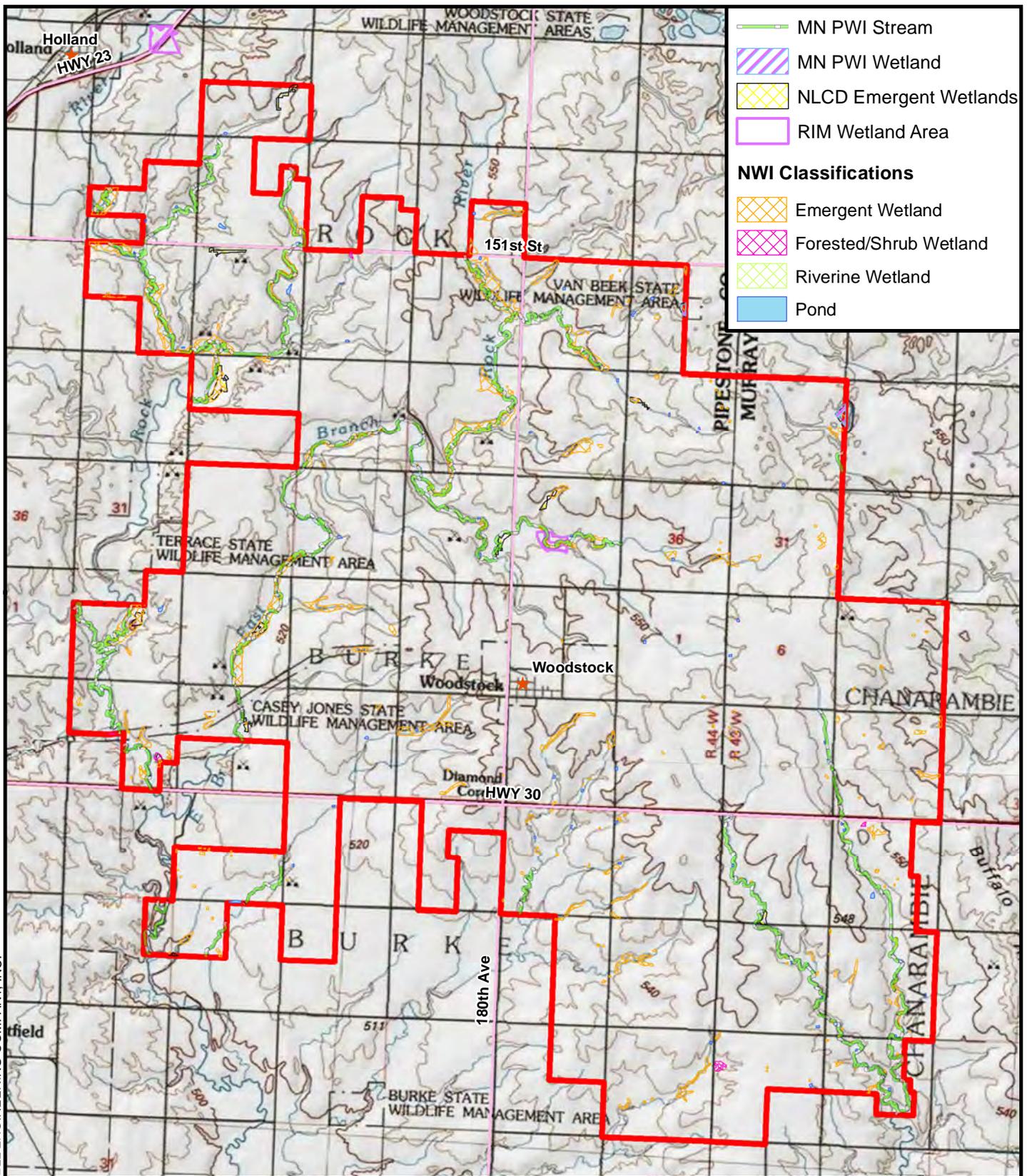
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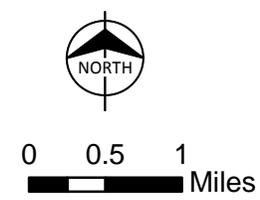
-  Proposed Project Boundary
-  Town



Figure 3
Nearby Towns and Roads
Stoneray Wind Project
Murray & Pipestone
Counties, Minnesota



	MN PWI Stream
	MN PWI Wetland
	NLCD Emergent Wetlands
	RIM Wetland Area
NWI Classifications	
	Emergent Wetland
	Forested/Shrub Wetland
	Riverine Wetland
	Pond

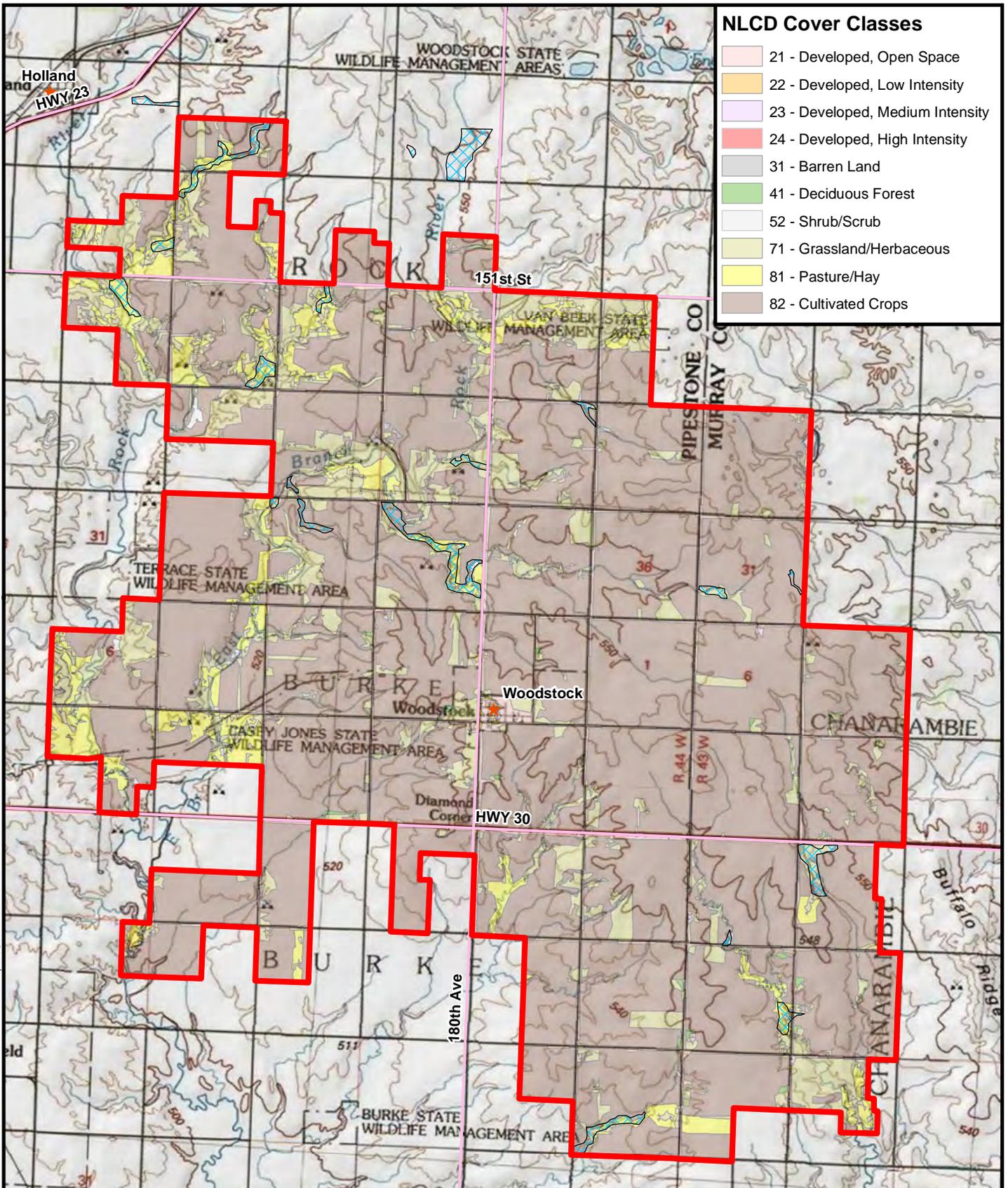


Legend

	Proposed Project Boundary
	Major Roads
	Town



Figure 4
 Wetland Resources Map
 Stoneray Wind Project
 Murray & Pipestone
 Counties, Minnesota



NLCD Cover Classes

	21 - Developed, Open Space
	22 - Developed, Low Intensity
	23 - Developed, Medium Intensity
	24 - Developed, High Intensity
	31 - Barren Land
	41 - Deciduous Forest
	52 - Shrub/Scrub
	71 - Grassland/Herbaceous
	81 - Pasture/Hay
	82 - Cultivated Crops



Legend

- Proposed Project Boundary
- Additional Estimated Wetland Areas*
- Town
- Major Roads

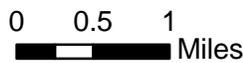
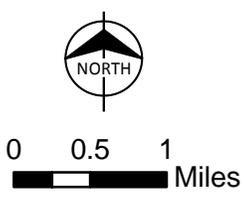
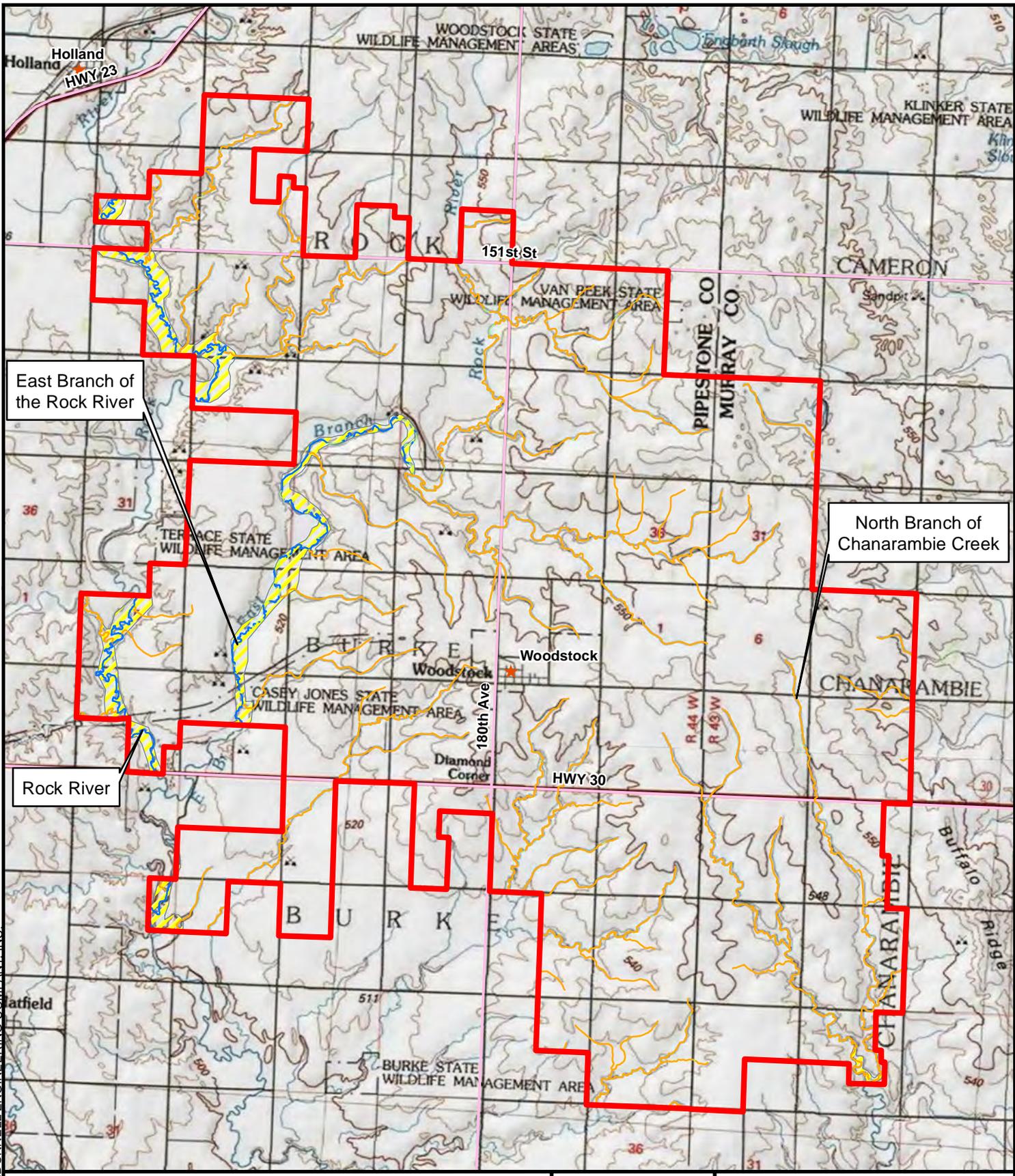


Figure 5
 National Land
 Cover Data Map
 Stoneray Wind Project
 Murray & Pipestone
 Counties, Minnesota

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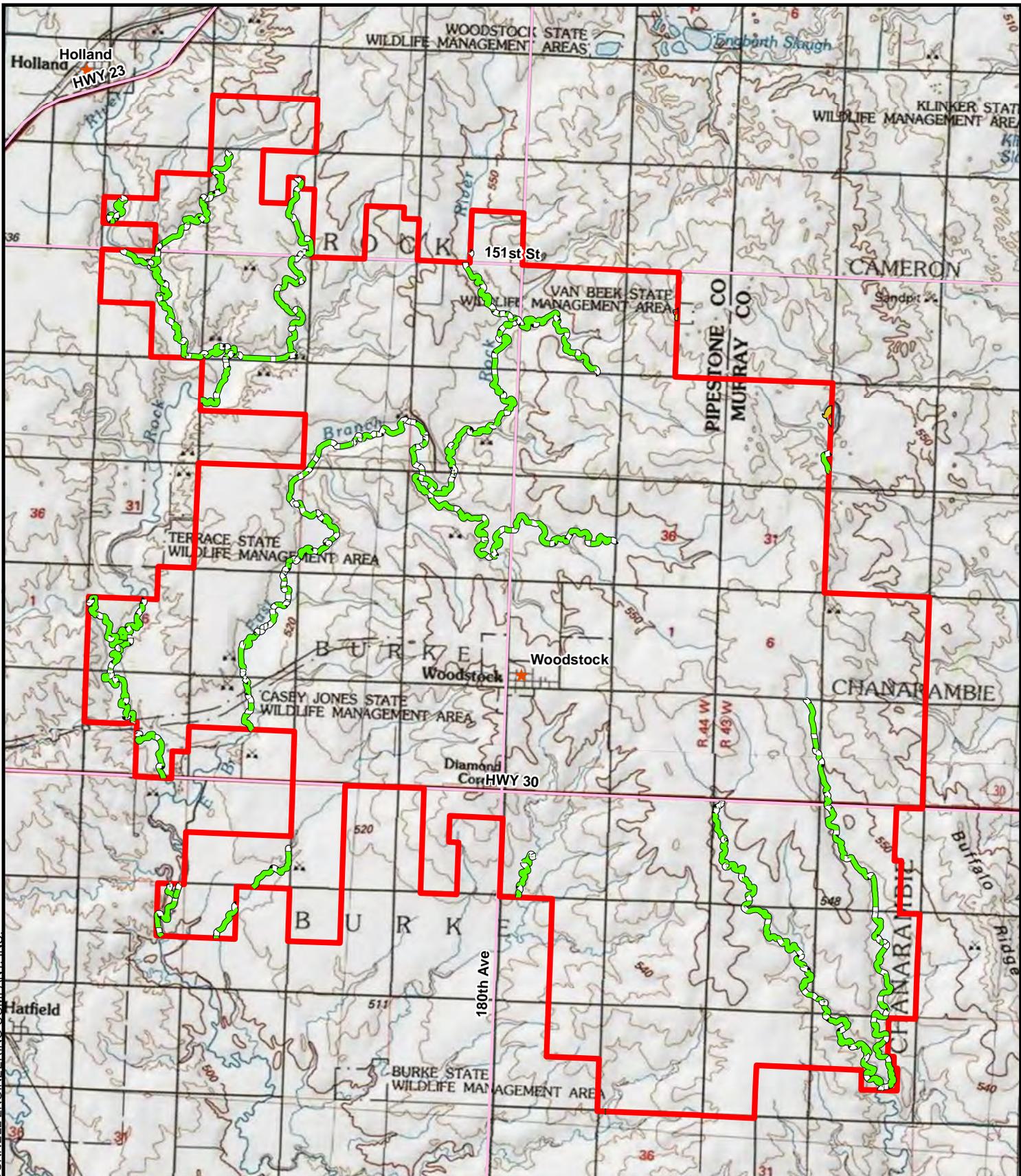


Legend		Stream Type	
	Proposed Project Boundary		Perennial
	FEMA Floodplain		Intermittent
	Major Roads		Other
	Town		



Figure 6
 National Hydrology Dataset
 & FEMA Floodplain
 Stoneray Wind Project
 Murray & Pipestone
 Counties, Minnesota

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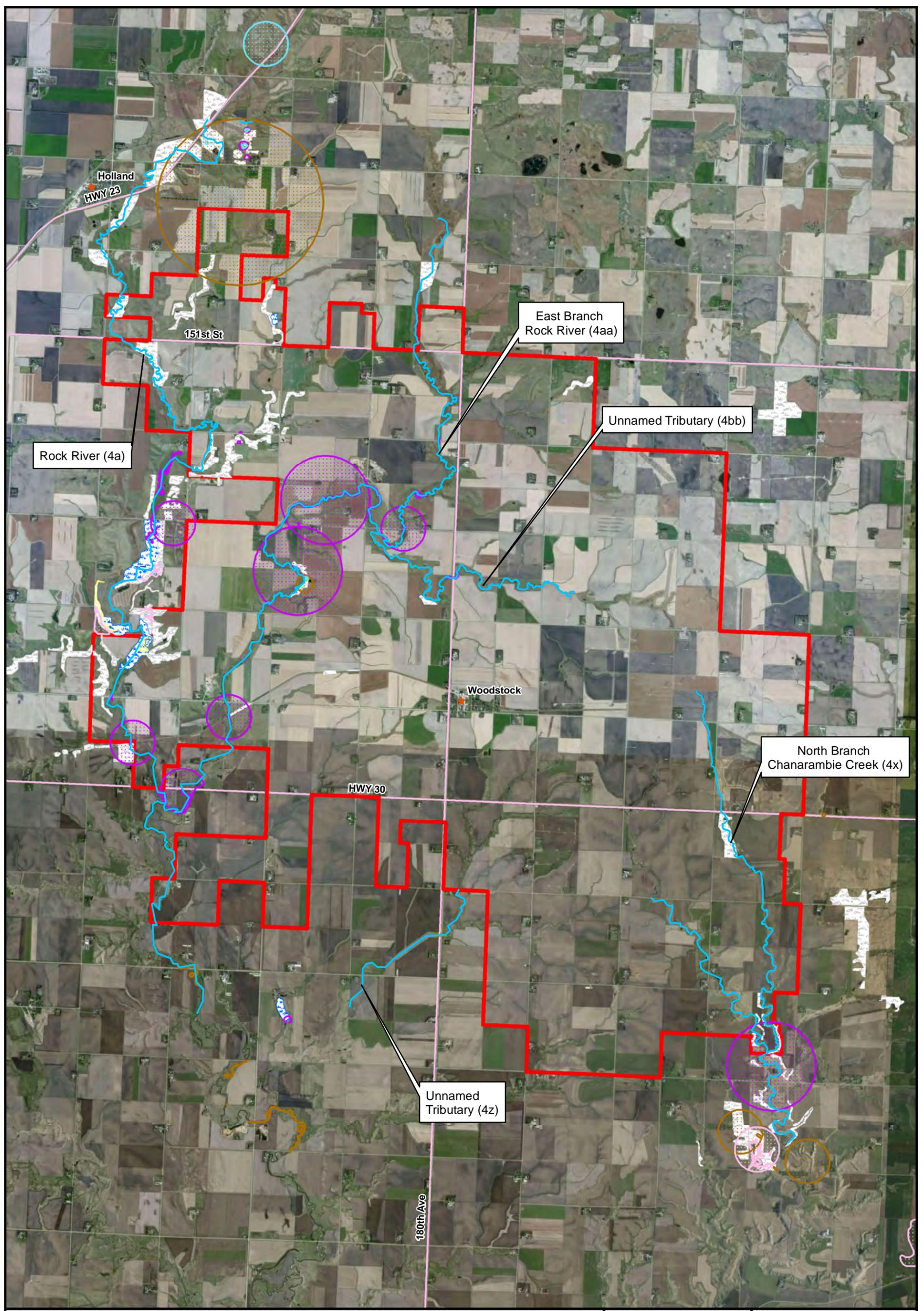
Legend

-  Proposed Project Boundary
-  PWI - Protected Wetland
-  PWI - Protected Waterway
-  Major Roads
-  Town



Figure 7
PWI Waterways
Stoneray Wind Project
Murray & Pipestone
Counties, Minnesota

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Legend

- Proposed Project Boundary
- ★ Town
- Critical Habitat for Topeka Shiner
- Major Roads

Natural Communities

- Marsh
- Calcareous Fen
- Upland Prairie
- Wet Meadow

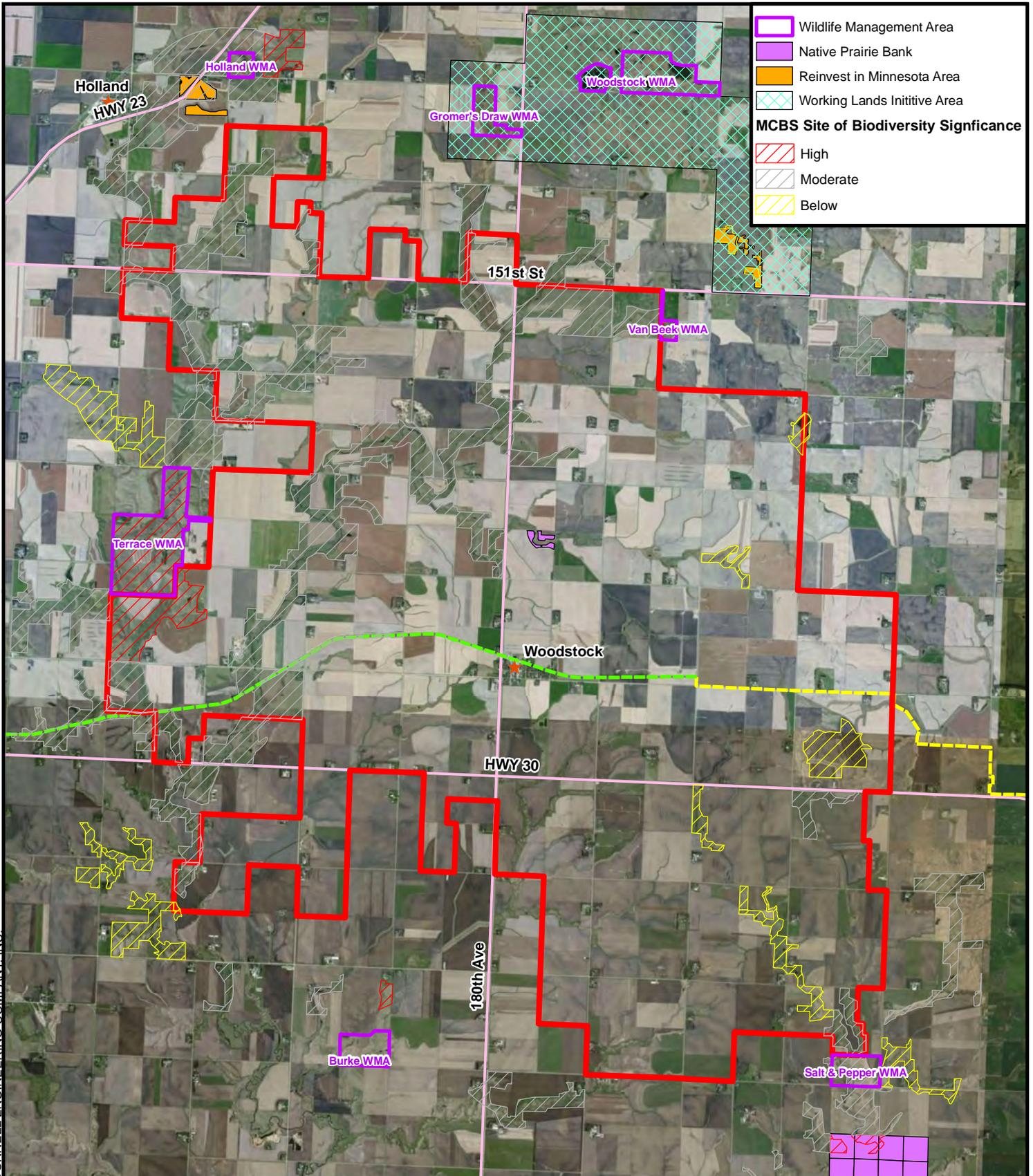
Rare Species

- Invertebrate Animal
- Vertebrate Animal
- Vascular Plant
- Community



Figure 8
 Rare Species & Natural Communities
 Stoneray Wind Project
 Murray & Pipestone Counties, Minnesota

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Wildlife Management Area

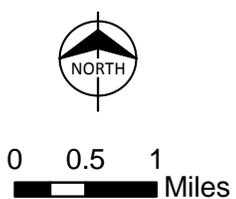
- Holland WMA
- Woodstock WMA
- Gromer's Draw WMA
- Van Beek WMA
- Terrace WMA
- Burke WMA
- Salt & Pepper WMA

MCBS Site of Biodiversity Significance

- High (Red diagonal lines)
- Moderate (White diagonal lines)
- Below (Yellow diagonal lines)

Working Lands Initiative Area

- Green cross-hatch pattern



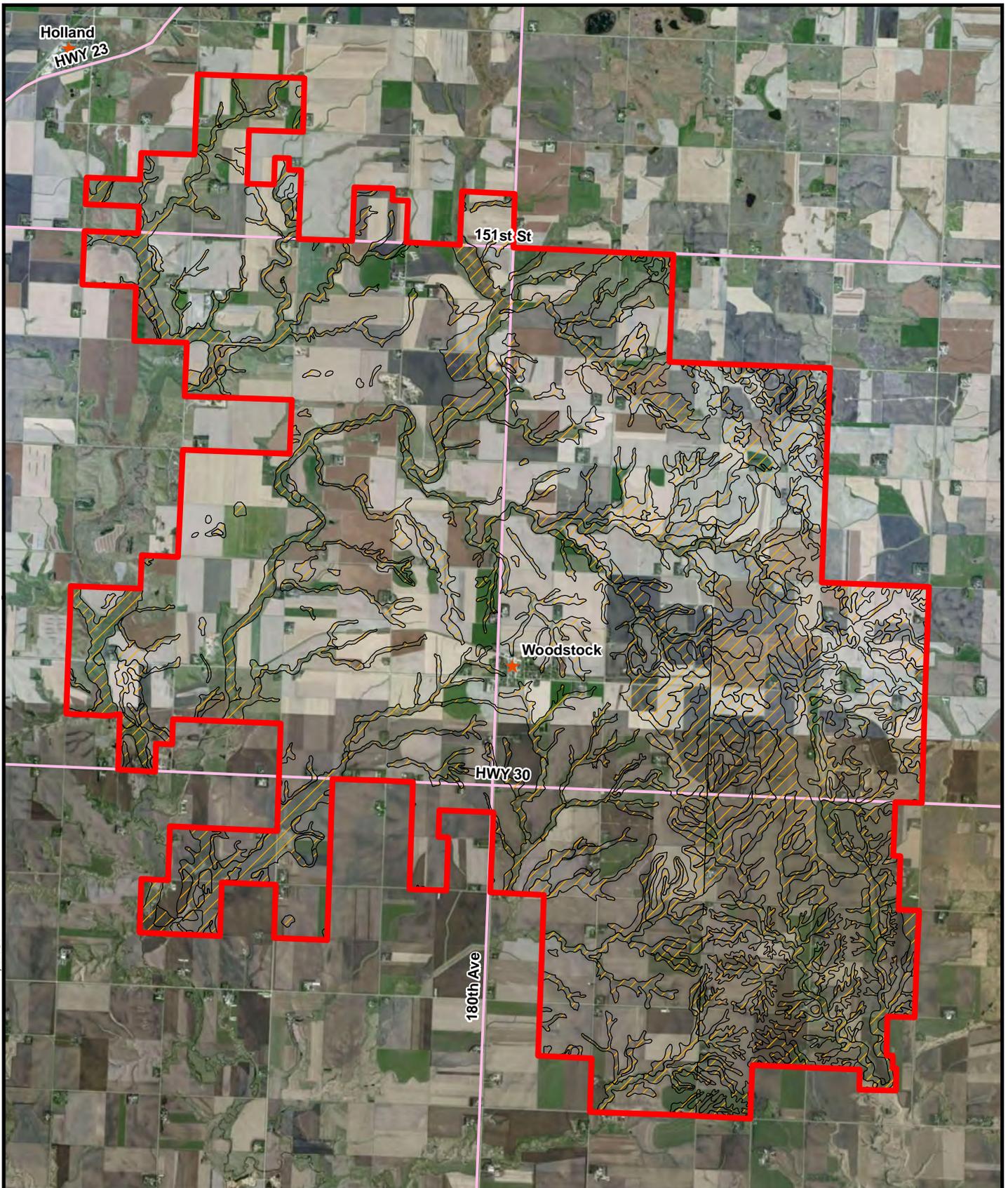
Legend

- Proposed Project Boundary (Red outline)
- Town (Star symbol)
- Casey Jones State Trail (Green dashed line)
- Casey Jones State Trail Potential Expansion (Yellow dashed line)
- Major Roads (Pink line)



Figure 9
 Minnesota Public Lands/
 Easements, Working Lands
 Initiative, Sites of Biological
 Significance & State Trail Map
 Stoneray Wind Project
 Murray & Pipestone
 Counties, Minnesota

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Miles

Legend

-  Proposed Project Boundary
-  Hydric Soil
-  Town
-  Major Roads



Figure 10
Hydric Soils
Stoneray Wind Farm Project
Murray & Pipestone
Counties, Minnesota