Appendix A:

DNR Forestry/Fish & Wildlife Archaeologist and State Historic Preservation Office

DEPARTMENT OF ADMINISTRATION
STATE HISTORIC PRESERVATION OFFICE

March 31, 2020

Mike Magner
DNR Forestry/ Fish & Wildlife Archaeologist
DNR Forestry Resource Assessment Office
483 Peterson Road
Grand Rapids, MN 55744

RE: Vermillion Riverbank Stabilization
T114 R18 S20 SE
Vermillion Twp., Dakota County
SHPO Number: 2014-0450

Dear Mr. Magner:

Thank you for the opportunity to review and comment on the above project. It has been reviewed pursuant to the responsibilities given the State Historic Preservation Office by the Minnesota Historic Sites Act (Minn. Stat. 138.665-666) and the Minnesota Field Archaeology Act (Minn. Stat. 138.40).

We have reviewed the cultural resources survey report that was prepared for this project. Based on the results of the survey, we conclude that there are no properties listed in the National or State Registers of Historic Places, and there are no known or suspected archaeological properties in the area that will be affected by this project.

Please note that this comment letter does not address the requirements of Section 106 of the National Historic Preservation Act of 1966 and 36 CFR § 800. If this project is considered for federal financial assistance, or requires a federal permit or license, then review and consultation with our office will need to be initiated by the lead federal agency. Be advised that comments and recommendations provided by our office for this state-level review may differ from findings and determinations made by the federal agency as part of review and consultation under Section 106.

Please contact our Environmental Review Program at (651) 201-3285 if you have any questions on our review of this project.

Sincerely,

Sarah J. Beimers
Environmental Review Program Manager

Appendix B:
Aquatic Management Area Management Guidance Document

Name of Unit: Vermillion River AMA (Miles Parcel)					AMA Unit Number: AMA00163		Use (General or Restricted): General Use
Fisheries Management Area and Contact Information: East Metro: TJ DeBates 651-259-5770			Region: 3		County: Dakota		Date Acquired: 12/16/2005
Township: 114	Range: 18	Section: 19	Gov Lot/ Quarter: S ½ SE ¼		County Parcel Number: 1		Deed Document Number: 581186
Name of Water Body: Vermillion River		Water Body ID: M-049			Acres: 177.4	Shoreline Feet: 8750	LSOHC Planning Region: Metropolitan-Urbanizing Area
Means of Acquisition (purchase in fee, gift in fee, easement): Donation					Cost: 0.00	Source of Funds: N/A	
Boundary Survey Done (Yes/No):		Date:			AMA Posted (Yes/No): Yes		Date:
Nearest Address and Driving Directions: 1287 200th St E Farmington, MN 55024 (From Farmington, head east on Vermillion River Trail/200th St E 3 miles)					Access Points (include GPS): Parking Area UTMs: E 493454 N 4945185		
Grantor's Name: The Trust for Public Land					Grantor's Specific Wishes: None		
Easements or Deed Restrictions (explain): None							
Baseline Assessment Completed On: 8/17/16					Next Assessment Due In: 2021		

Name of Unit: Vermillion River AMA (Otting Parcel)					AMA Unit Number: AMA00163		Use (General or Restricted): General Use
Fisheries Management Area and Contact Information: East Metro: TJ DeBates 651-259-5770			Region: 3		County: Dakota		Date Acquired: 10/21/2008
Township: 114	Range: 18	Section: 19	Gov Lot/ Quarter: S12		County Parcel Number: 2		Deed Document Number: 2619022
Name of Water Body: Vermillion River		Water Body ID: M-049			Acres: 43.8	Shoreline Feet: 4940	LSOHC Planning Region: Metropolitan-Urbanizing Area
Means of Acquisition (purchase in fee, gift in fee, easement): Purchase in fee					Cost: $195,250	Source of Funds: 500, 030, 200	
Boundary Survey Done (Yes/No):		Date:			AMA Posted (Yes/No): Yes		Date:
Nearest Address and Driving Directions: 3956 200th St E Farmington, MN 55024 (From Vermillion, head west on 190th St E 2 miles, left onto US-52 S 1					Access Points (include GPS): Parking Area UTMs: E 498151 N 4945109		
Grantor's Name: William and Jeannette Otting					Grantor's Specific Wishes: None		

Easements or Deed Restrictions (explain):	
None	
Baseline Assessment Completed On:	Next Assessment Due In:
[illegible]	[illegible]

Name of Unit:				AMA Unit Number:		Use (General or Restricted):
Vermillion River AMA (Butler Parcel)				AMA00163		General Use
Fisheries Management Area and Contact Information:			Region:	County:		Date Acquired:
East Metro: TJ DeBates 651-259-5770			3	Dakota		5/29/2008
Township:	Range:	Section:	Gov Lot/ Quarter:	County Parcel Number:		Deed Document Number:
114	19	23	NW NW	4		2606539 ***Deed includes WMA purchase***
Name of Water Body:		Water Body ID:		Acres:	Shoreline Feet:	LSOHC Planning Region:
Vermillion River		M-049		40	1750	Metropolitan-Urbanizing Area
Means of Acquisition (purchase in fee, gift in fee, easement):				Cost:	Source of Funds:	
Purchase in fee				$30,000	030	
Boundary Survey Done (Yes/No):		Date:		AMA Posted (Yes/No):		Date:
				Yes		
Nearest Address and Driving Directions:				Access Points (include GPS):		
1001 190th St W Farmington, MN 55024 (From Farmington, head east on Vermillion River Trail 1.2 miles, left onto Biscayne Ave 1.2 miles, right onto 190th St E 2 miles)				Parking Area UTMs: E 494039 N 4946704		
Grantor's Name:				Grantor's Specific Wishes:		
Janine D. Butler Trust				None		
Easements or Deed Restrictions (explain):						
None						
Baseline Assessment Completed On:				Next Assessment Due In:		
8/17/16				2021		

Name of Unit:				AMA Unit Number:		Use (General or Restricted):
Vermillion River AMA (Kummer Parcel)				AMA00163		General Use
Fisheries Management Area and Contact Information:			Region:	County:		Date Acquired:
East Metro: TJ DeBates 651-259-5770			3	Dakota		9/11/2009
Township:	Range:	Section:	Gov Lot/ Quarter:	County Parcel Number:		Deed Document Number:
114	18	20	NE SE	5		2685964
Name of Water Body:		Water Body ID:		Acres:	Shoreline Feet:	LSOHC Planning Region:
Vermillion River		M-049		64.7	1685	Metropolitan-Urbanizing Area
Means of Acquisition (purchase in fee, gift in fee, easement):				Cost:	Source of Funds:	
Purchase in fee				$450,000	239, 230, 234, 030	
Boundary Survey Done (Yes/No):		Date:		AMA Posted (Yes/No):		Date:
				Yes		
Nearest Address and Driving Directions:				Access Points (include GPS):		

5301 200th St E Hastings, MN 55033 (From Vermillion, head west on Fischer Ave/200th St E 2.3 miles)	Parking Area UTMs: E 500217 N 4945095
Grantor's Name: Estate of George Kummer	Grantor's Specific Wishes: None
Easements or Deed Restrictions (explain): Subject to road easement for 200th St East	
Baseline Assessment Completed On: 8/26/14	Next Assessment Due In: 2020

Name of Unit: Vermillion River AMA (Petrofske Parcel)					AMA Unit Number: AMA00163		Use (General or Restricted): General Use
Fisheries Management Area and Contact Information: East Metro: TJ DeBates 651-259-5770			Region: 3		County: Dakota		Date Acquired: 11/17/2011
Township: 114	Range: 18	Section: 20	Gov Lot/ Quarter: NW SE		County Parcel Number: 8		Deed Document Number: 2831153
Name of Water Body: Vermillion River		Water Body ID: M-049			Acres: 31.3	Shoreline Feet: 3400	LSOHC Planning Region: Metropolitan-Urbanizing Area
Means of Acquisition (purchase in fee, gift in fee, easement): Purchase in fee					Cost: $222,000	Source of Funds: 2050	
Boundary Survey Done (Yes/No):		Date:			AMA Posted (Yes/No): Yes		Date:
Nearest Address and Driving Directions: 4885 200th St E Hastings, MN 55033 (From Vermillion head west on Fischer Ave/200th St E 2.3 miles)					Access Points (include GPS): Easement Access UTMs: E 499626 N 4945089		
Grantor's Name: Ronald and Diane Petrofske					Grantor's Specific Wishes: None		
Easements or Deed Restrictions (explain): Perpetual easement for ingress/egress							
Baseline Assessment Completed On: Partial 8/17/16					Next Assessment Due In: 2021		

Name of Unit: Vermillion River AMA (Kamen East Parcel)					AMA Unit Number: AMA00163		Use (General or Restricted): General Use
Fisheries Management Area and Contact Information: East Metro: TJ DeBates 651-259-5770			Region: 3		County: Dakota		Date Acquired: 7/23/2013
Township: 114	Range: 19	Section: 23	Gov Lot/ Quarter: S ½ NE ¼		County Parcel Number: 9		Deed Document Number: 2968622
Name of Water Body: Vermillion River		Water Body ID: M-049			Acres: 51.5	Shoreline Feet: 4095	LSOHC Planning Region: Metropolitan-Urbanizing Area

Means of Acquisition (purchase in fee, gift in fee, easement):	Cost:	Source of Funds:
Purchase in fee	$135,000	2001, 3600

Boundary Survey Done (Yes/No):	Date:	AMA Posted (Yes/No):	Date:
		Yes	

Nearest Address and Driving Directions:	Access Points (include GPS):
19230 Blaine Ave Farmington, MN 55024 (From Farmington, head east on Vermillion River Trail/200th St E 4.2 miles, left onto Blaine Ave, 5 miles)	UTMs (No Parking Lot): E 495624 N 4946308

Grantor's Name:	Grantor's Specific Wishes:
David and Catherine Kamen	None

Easements or Deed Restrictions (explain):

None

Baseline Assessment Completed On:	Next Assessment Due In:
8/17/16	2021

Name of Unit:	AMA Unit Number:	Use (General or Restricted):
Vermillion River AMA (Kamen West Parcel)	AMA00163	General Use

Fisheries Management Area and Contact Information:	Region:	County:	Date Acquired:
East Metro: TJ DeBates 651-259-5770	3	Dakota	12/28/2010

Township:	Range:	Section:	Gov Lot/ Quarter:	County Parcel Number:	Deed Document Number:
114	19	23	E ½ NW ¼	10	2775175

Name of Water Body:	Water Body ID:	Acres:	Shoreline Feet:	LSOHC Planning Region:
Vermillion River	M-049	40	3030	Metropolitan-Urbanizing Area

Means of Acquisition (purchase in fee, gift in fee, easement):	Cost:	Source of Funds:
Purchase in fee	$440,000	350, 202, 030

Boundary Survey Done (Yes/No):	Date:	AMA Posted (Yes/No):	Date:
		Yes	

Nearest Address and Driving Directions:	Access Points (include GPS):
Access through parcel 4 or 9	4: Parking Area UTMs: E 494039 N 4946704 9: Site UTMs: E 495624 N 4946308

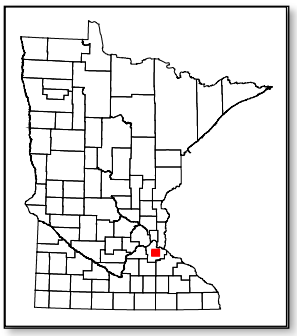
Grantor's Name:	Grantor's Specific Wishes:
Donald and Lisa Kamen	None

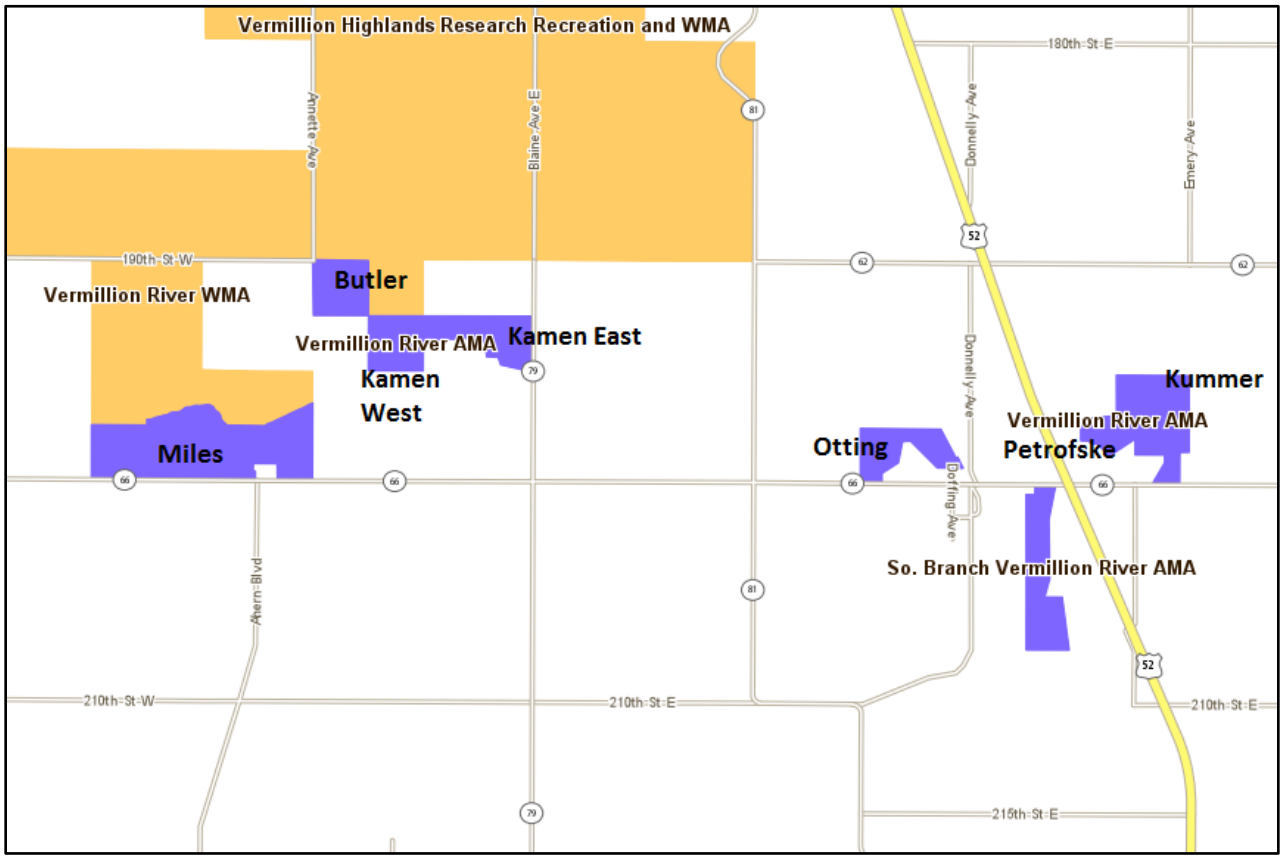
Easements or Deed Restrictions (explain):

None

Baseline Assessment Completed On:	Next Assessment Due In:
8/17/16	2021

Location Map:





Objectives/Purpose of Unit:

The purpose of Aquatic Management Areas (AMAs) is to protect, restore, and enhance natural habitat and to provide public access for recreational activities, including but not limited to hunting, fishing, hiking, and wildlife observation. Purpose for purchase?

The Vermillion River AMA management guidance document will be consistent with all AMA and Lessard-Sams Outdoor Heritage Council (LSOHC) statutes, rules, and requirements, including but not limited to the following:

MS 86A.05, Subd. 14. Item A: "*Aquatic management areas may be established to protect, develop, and manage lakes, rivers, streams, and adjacent wetlands and lands that are critical for fish and other*

aquatic life, for water quality, and for their intrinsic biological value, public fishing, or other compatible outdoor recreation uses."

MS 86A.05, Subd. 14. Item D: "*Aquatic management areas must be administered by the commissioner of natural resources in a manner consistent with the purposes of this subdivision to perpetuate and, if necessary, reestablish high quality aquatic habitat for production of fish, wildlife, and other aquatic species. Public fishing and other uses shall be consistent with the limitations of the resource, including the need to preserve adequate populations and prevent long-term habitat injury or excessive fish population reduction or increase. Public access to aquatic management areas may be closed during certain time periods.*"

MR 6270.0200, Subp. 2. *"The following activities are permitted in restricted use and general use aquatic management areas: A. angling; B. nonmotorized travel; C. wildlife observation; and D. other uses that are consistent with Minnesota Statutes, section 86A.05, subdivision 14, unless prohibited by posting signs or by subpart 5."*

Unit Description:

Vermillion River AMA is a seven parcel general use AMA. The parcel closest to town is located approximately 2.5 miles east of Farmington in Dakota County, MN. Vermillion River AMA protects and provides public angling access along a combined 5.2 miles of shoreline on the Vermillion River. Its combined 448.7 acres are accessible to the public for fishing, hunting, hiking, and wildlife observation.

The Vermillion River is a designated trout stream with many tributaries. It is the largest stream in Dakota County; traveling east, it discharges into the Mississippi River. It contains natural Brown Trout populations and is stocked annually with Rainbow Trout. The Vermillion River Aquatic Management Area protects important trout (and other aquatic and terrestrial species') habitat and provides the public with parking and access to the river.

The AMA is adjacent to the Vermillion River WMA and the Vermillion Highlands Research Recreation and WMA.

According to the Natural Heritage Information Systems (NHIS) Database, rare species have been found in and around the AMA. The Blandings Turtle (*Emydoidea blandingii*), a threatened species in Minnesota, was discovered on a roadway, in a wetland, and in a stream corridor within Vermillion River AMA, most recently in 2011. Also found near the AMA boundary but within the WMA: Wild Sweetwilliam (*Phlox maculate*) a species of special concern and Upland Sandpiper (*Bartramia longicauda*) a watch list species in 1992 and 2007, respectively.

In the Ecological Classification System (ECS), the AMA falls within the Eastern Broadleaf Forest Province, the Minnesota and NE Iowa Morainal Section, and the Oak Savanna Subsection. The unit is currently comprised of 4 distinct land cover types: prairie, forest, riparian areas, and non-native grassland.

There are two types of prairie found on the AMA, mesic prairie and dry prairie. These native plant communities are best described as a Southern Mesic Prairie Plant Community (UPs23a) and a Southern

Dry Prairie Plant Community (UPs13). The Miles parcel encompasses the most amount of prairie at approximately 105 acres, and it contains both mesic and dry prairies. The dry prairie is found on dry, sandy hills on the eastern portion of the parcel and is easily distinguished from the mesic prairie due to species such as dotted blazing star, penstemon, and little bluestem common to drier habitats. See Table 1 on page 28 for notable species found in the dry prairie. All the other prairies on the AMA (located on Miles, Kamen East, Petrofske, and Kummer) are characterized as mesic prairies with species including heath aster, prairie clover, false sunflower, wild bergamot, big bluestem, and Canada wild rye among many others found in Table 2 on page 28. The majority of the prairie on the AMA has been reconstructed, as the land had been farmed prior to acquisition. However, based on historical photos, some portions of prairie may be remnant. Such patches are on the Petrofske and Kummer parcels. Prescribed burns have been conducted on the Petrofske, Kummer, and Miles prairies in recent years. An area that was once enrolled in CRP on the Kamen West parcel contains some prairie features but is now dominated by competitive species such as goldenrod and switchgrass and has little else for diversity. This area is labeled as a degraded prairie, but with some attention, it could be restored to a healthy, diverse prairie.

There are two types of forest found on the AMA, terrace forest and floodplain forest. The terrace forest found on the AMA is best described as a Southern Terrace Forest and more specifically, an Elm-Ash-Basswood Terrace Forest (FFs59c). The terrace forest on the AMA is found on level, occasionally flooded areas adjacent to or near the river that have grown in with canopy trees such as boxelder, black ash, cottonwood, and elms. The understory is also thick with gooseberry and elderberry. For a list of species found in the terrace forest, see Table 3 on page 29. The floodplain forest found on the AMA is best described as a Southern Floodplain Forest, or a Silver Maple (Virginia Creeper) Floodplain Forest (FFs68a). The floodplain forest is found on the Petrofske parcel where there is low ground that is annually flooded adjacent to the river. The tree species common there include silver maple, green ash, cottonwood, and American elm. Vines are an important component of a floodplain forest such as Virginia creeper and wild grape. Ground cover is generally sparse due to the inundation of flooding, but some species present include nettles, tall coneflower, and creeping Charlie. See Table 4 on page 30 for a list of species identified in the floodplain forest.

In addition to the recognized forest types, there is also a semi-wooded area on the eastern part of the Otting parcel that appears to have been part of the terrace forest based on the historical aerial photograph of the site. It is unknown why this area is transitioning out of a forest type, but it could be due to the invading reed canary grass taking over the ground cover and eliminating important forest structure leaving only the trees. Due to this thinning, trees have been planted along both sides of the river on the eastern half of the Otting parcel to provide shade over the trout stream to help cool the water which is vital for trout survival.

The riparian areas found on the AMA are the areas surrounding the river characterized by native vegetation such as grasses and sedges, forbs, and shrubs. Most of these riparian areas are best described as river shore systems, specifically Willow Sandbar Shrubland (RVx32a). This native plant community is shrub-dominated with sandbar willow the dominant species along with false indigo and red osier dogwood as well as herbaceous species such as ironweed, swamp milkweed, hedge nettle, blue flag iris, and cattails, sedges, and bulrush. See Table 5 on page 30 for a list of species found in the shrubland. Other pockets of riparian areas are found on the AMA amongst the invading non-native

grasses. These pockets contain native grasses, sedges, and some forbs but are quickly being suppressed by non-natives.

The non-native grasslands found on the AMA almost entirely consist of reed canary grass. The semi-permanent wetness caused by flooding of the river into the flat floodplain is perfect habitat for reed canary grass that thrives in moist to flooded conditions. Native species can also thrive in these conditions but not so well when they are outcompeted by the aggressive reed canary grass. Therefore, many of the healthy riparian areas soon become degraded when reed canary overtakes and replaces native grasses and sedges leaving little diversity and eventually forms a monoculture of grass surrounding the river.

Besides the four land cover types, the Butler and Kamen West parcels also contain food plots managed by Area Wildlife staff. The food plots are planted annually and can vary in cover type but have been previously planted in alfalfa and sunflowers.

Unit History:

Pre-settlement Condition

Vermillion River AMA lies within the Oak Savanna Subsection. Historically, this region was composed of a mix of prairie and deciduous hardwood forests. Fire was the most important disturbance, creating fire-dependent plant communities and maintaining oak openings as it continued from the surrounding prairies through the hardwoods. Settlement of the area and associated land use changes have led to altered fire frequency and fire suppression, degrading the historical oak savannas and allowing the formation of closed canopy woodlands and monocultures of non-native grasses along riparian areas.

It can be helpful to look at renderings or models of what researchers think the landscape was like years ago. The Marschner Presettlement Vegetation map on page 18, which is based off original Public Land Survey notes, suggests the vegetation was dominated by a prairie community with nearby wet prairie, oak openings and barrens, and aspen-oak lands prior to settlement of the land.

Previous Property Use

Historical aerial photographs of the Vermillion River area from 1937 and 1940 show that land use in the past was focused much more on farming and/or grazing. Besides the areas that were cultivated and grazed, the land cover was relatively the same as the current land cover. Some of the changes noted from the historical photos include:

Miles parcel: It appears that all of the current prairie areas were farmed. The riparian areas around the river lacked the trees and shrubs common today. The river was previously ditched and much straighter. The main property use change is that there was a large farm site to the west of the current parking lot including a road that crossed the river.

Otting parcel: It is likely that the southwest corner of the property was grazed based on the difference in grass type in the photo. A present day indication of this is the fencing still left behind. The land cover has changed somewhat as well. The eastern wooded area was thicker, and there were more trees out in the grassy northwestern corner.

Butler parcel: This parcel has changed the most. In 1940, very little human activity was present on the property. The tributary was indistinct- just a seepage rather than the channel that bisects the land now. There were no wooded edges nor food plots. It does appear that the northeast corner may have been farmed.

Kamen parcels: These parcels have not changed considerably. A small portion near the south-central boundary was farmed. It appears that the property line was not accurate, and the farmer to the south was farming some of the Kamen land. The northeast corner appears to have been farmed or grazed too. Also, a road crossed through the land in that corner as well. The land cover was less wooded in the west but more wooded in the east than currently.

Petrofske parcel: This parcel does not appear to have had any human influences. The prairie in the north could possibly be remnant if the land was never plowed. The forest in the south has grown thicker over the years.

Kummer parcel: Some portions of the current prairies were farmed, but the central and northern prairies do not appear to have been cultivated and could be remnant. There were also more trees along the river in the past.

Three of the Vermillion River AMA parcels were enrolled in the Conservation Reserve Program (CRP). They were all enrolled in the CP-21 “Filter Strips” program in 2006/2007 to reduce erosion and trap sediments, intercept and filter nutrients from runoff, provide habitat and corridors for wildlife, and sequester carbon. The Butler parcel had 7.2 acres enrolled which expired in 2012, the Kamen West parcel had 8.75 acres enrolled which expired in 2013, and the Miles parcel had approximately 30 acres enrolled which expired in 2014. See map on page 19 for CRP locations.

Past Unit Management

12/16/2005: Miles parcel acquired

5/29/2008: Butler parcel acquired

10/21/2008: Otting parcel acquired

9/11/2009: Kummer parcel acquired

12/28/2010: Kamen West parcel acquired

11/17/2011: Petrofske parcel acquired

7/23/2013: Kamen East parcel acquired

4/9/2014: AMA Habitat Crew met with Area Fisheries Staff, Wildlife Staff, and Roving Crew to discuss projects

8/6/2014: AMA Habitat Crew visited site with Area Fisheries Staff to discuss past and future projects

8/26/2014: Partially Assessed by AMA Habitat Crew

7/2015-10/2015: Parking areas maintained by cutting and spraying weeds

7/27-28/16: Parking lot maintenance by CCM Crew

8/16-17/2016: AMA Habitat Crew finished assessing other parcels

7/26-27/2017: Parking lot maintenance by CCM Crew

2/7/2018: AMA Habitat Crew met with Area Wildlife staff to review past projects and discuss the possibility of signing a management agreement (MOU).

Miles parcel:

7/13/2006: Parking area constructed

6/4/2007: Prairie reconstruction completed by Wildlife

5/4/2009: Prescribed burn of entire prairie

2011: Project completed to re-meander the river that was previously ditched

4/12/2012: Prescribed burn of western prairies

4/23/2012: Prescribed burn of eastern prairie (east of house)

5/3/2017: Prescribed burn west of road to river

Otting parcel:

6/4/2011: Trees planted along stream to improve trout habitat

Kamen East parcel:

4/6-9/2015: CCM Crew conducted buckthorn control

4/27-30/2015: CCM Crew conducted buckthorn control

5/22/2015: Wildlife staff applied Rodeo to 6 acres for prairie reconstruction

6/8/2015: Wildlife staff seeded 6 acre prairie reconstruction

7/28/2015: Parking area constructed by Fisheries Construction Crew

8/11/2015: Wildlife staff mowed 6 acre prairie reconstruction

10/12-15/2015: CCM Crew conducted parking area maintenance and buckthorn control in southwest field

Petrofske parcel:

5/23/2012: Unit D seeded (See Burn Unit Map on page 20)

4/6-7/2015: Unit E sprayed to prep for burn and seeding

4/6-8/2015: Posts and barbed wire removed

4/8/2015: Buckthorn control

4/16/2015: Prescribed burn of Unit E to prep for seeding

5/22/2015: Unit E re-sprayed

6/2/2015: Unit E seeded

4/12/2016: Unit D burned

Summer 2017: Stream restoration project initiated but put on hold due to increased scope of work.

Kummer parcel:

6/14/2010: Wildlife sprayed, seeded, and mowed prairie reconstruction (Units A and B)

2012: Stream restoration project completed to repair erosion and improve trout habitat

5/23/2012: Unit C seeded

2012/2013: Parking area constructed

5/13/2013: Units A and B burned

2014: Roving crew completed tree removal north of river and burned piles

4/16/2015: Units C and E (eastern half) burned

4/12/2016: Unit A burned

6/7/2016: Stream restoration project completed to repair two banks and improve habitat structure due to rain events that caused parts of 2012 restoration to fail

5/3/2017: Unit B burned

8/2017: Stream restoration project started to repair erosion on past project and install rootwads, toe wood, and toe wood bench

Desired Future Habitat Condition:

The terrace and floodplain forests and the riparian areas will remain wooded/vegetated to provide thermal cover for wildlife, to enhance bank stability, and to minimize soil disturbance along the Vermillion River, as well as to protect the native plant communities. These communities will be allowed to progress through stages of natural succession. Efforts will be made to remove and control buckthorn and other invasive species.

The prairies will be maintained through a prescribed burn regimen and invasive species monitoring and control. The Miles prairie could be interseeded after a burn to increase forb diversity, and the degraded prairie on Kamen West could be restored/reconstructed.

At this time, the non-native grasslands are not considered a priority for invasive species control or restoration because the non-native species have created naturalized areas that provide adequate wetland filtration, and any control attempts on these species could cause more ecological harm than benefit.

Desired Future Grounds and Structure Development:

Fencing

The wire fencing in the southwestern portion of the Otting parcel should be removed to reduce safety hazards for the public and facilitate wildlife movement.

Garbage/Debris

The junk pile north of the parking lot on the Otting parcel should be removed and properly disposed of as soon as practical.

Operational Plan:

The operational plan includes initial, short-term, and long-term considerations for future habitat management of the unit.

Currently, the habitat management of Vermillion River AMA is part of an agreement between the Sections of Fisheries and Wildlife. A Memorandum of Understanding (MOU) has been written in which Wildlife will work cooperatively with the East Metro Fisheries Management Area and will take over the role of habitat management on select AMA's, Vermillion River included. This agreement is a pilot for the continued cooperation between Wildlife and Fisheries, and is good for three years. The MOU is attached below.

Forest Enhancement

1. Cut and stump treat buckthorn and other invasive woody species in the terrace and floodplain forest areas. Foliar spray small buckthorn trees and re-sprouts.

2. Continue with invasive species monitoring and control.

Prairie Enhancement

1. Control invasive species in the prairie reconstruction sites through a combination of hand pulling, mowing, and herbicide application.

2. Burn the prairie reconstruction sites as conditions dictate. Alter the seasonal timing of burns to maintain plant diversity. As a general guideline, late spring fires favor warm-season grasses; dormant-season (early spring and fall) fires benefit perennial forbs, cool-season grasses, and sedges. Fire frequency can influence species composition, with annual and biennial spring fires favoring warm-season grasses and longer intervals favoring forbs. Burns should be rotated on specific burn units to provide sufficient refuge for wildlife and to provide a patchwork of diverse native habitats. Revise the burn plan as necessary.

3. After a burn on the Miles prairie, let it green up and make an herbicide application of a grass-selective herbicide to set back some of the warm season grasses that are dominating the site, and interseed appropriate native forbs into the prairie to increase the richness and evenness.

Degraded Prairie Restoration/Reconstruction

1. If deemed necessary to start over on the degraded prairie on Kamen West, use a cooperative farming agreement with a neighboring landowner for site preparation if possible. If not, prepare the site through a sequence of mechanical tillage and herbicide treatments to ensure seed to soil contact. If it is not desired to till the land because there is still good quality habitat, interseed directly into the restoration area.

2. Seed the site to a Southern Mesic Prairie (UPs23a) using a native seed drill. As per pollinator habitat guidelines, ensure the native seed mix consists of a 25% grass and 75% forbs composition and includes a variety of early, mid, and late blooming species. The majority of the seed should be collected from adjacent native prairies to retain genetic fitness and local plant resilience and be in accordance with DNR Op Order 124: Plant Material Standards for Native Plant Community Restoration. All precautions for preventing the transfer and spread of invasive species will be taken as identified in DNR Op Order 113: Invasive Species.

3. Control invasive species in the prairie reconstruction/restoration site through a combination of hand pulling, mowing, and herbicide application.

4. Burn the prairie as conditions dictate. Revise the burn plan as necessary.

Future Monitoring Plan:

The AMA habitat crew will conduct the next complete habitat assessment in 2021. The management guidance document will be updated at that time based on information gathered during the assessment.

Area fisheries or wildlife staff should monitor the site for invasive species at least once per year to control and prevent further establishment of non-native vegetation on Vermillion River AMA. If problem areas are identified, invasive species control will occur on an as-needed basis and will follow the MN DNR best management practices. This work can be completed by volunteers, trained and available staff, or contracted out to Conservation Corps Minnesota crews or other available contractors.

Area fisheries staff should inspect signage at least once every 5 years. Boundary signs should be repaired and/or replaced as needed.

Area fisheries staff should inspect and maintain the parking areas at least once per year.

Debris removal should occur 1 to 3 times per year. Local sporting and/or environmental groups may volunteer to undertake this activity. If volunteers are not available, area fisheries staff are responsible for debris removal.

Future Land Acquisition Plan:

None at this time.

Present Limiting Factors:

Limited funding is available for additional acquisitions and the staff and resources needed to complete habitat enhancement projects on the AMA. Future acquisitions and success of habitat projects at this

site will depend on additional funding sources and strong partnerships with other DNR divisions, the general public, local units of government, and resource and recreation groups.

Social Considerations:

The site is in close proximity to the city of Farmington and near the metro and provides excellent outdoor recreational activities to the community in the form of fishing, hunting, hiking, and wildlife observation. Because the site may attract multiple user groups with differing opinions on land use, the potential for conflict exists. All use of the AMA must be consistent with MR 6270.0200: General Provisions for Use of Aquatic Management Areas, as well as all LSOH requirements.

Partnership Efforts:

Area Wildlife staff and Roving Crew members have taken on the habitat management of the AMA being it is adjacent to their WMA, and they have the staff and resources to commit to it. They have managed the prairies by seeding, mowing, and burning as well as installed food plots and monitored for invasive species. DNR Wildlife staff will be officially taking over the habitat management of Vermillion River AMA consistent with the MOU attached below.

Other partners who have contributed valuable time and resources to the Vermillion River AMA include: Trout Unlimited, Friends of the Mississippi River, the Dakota Ringnecks Chapter of Pheasants Forever, the Southern Dakota County Sportsmen's Club, and the Vermillion River Watershed Joint Powers Organization.

Special Regulations:

Vermillion River AMA is a general use AMA. The unit is open to hunting and trapping as well as the appropriate uses consistent with Minnesota Statutes outlined below.

MR 6270.0200, Subp. 2. *"The following activities are permitted in restricted use and general use aquatic management areas: A. angling; B. nonmotorized travel; C. wildlife observation; and D. other uses that are consistent with Minnesota Statutes, section 86A.05, subdivision 14, unless prohibited by posting signs or by subpart 5."*

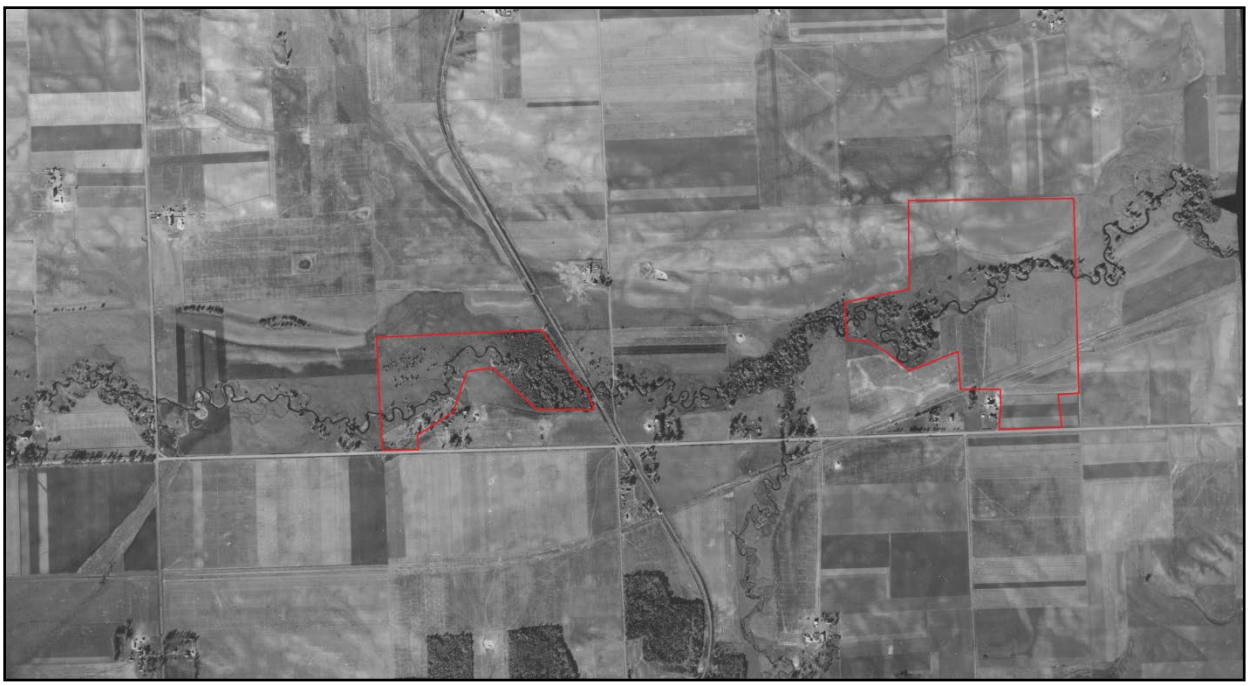
"General use aquatic management area" is a designation for identifying permitted and prohibited activities as described in part 6270.0200 on an aquatic management area acquired in fee simple by the commissioner and is open to angling, hunting, trapping, and other light use non-motorized activities, unless otherwise posted.

The Vermillion River AMA Kamen East parcel has special hunting regulations: For small game and turkey- firearms are restricted to shotguns with fine shot (BBB or smaller diameter); for deer hunting- no firearms are allowed, archery only. The regulations are intended to protect the nearby farm sites.

The Vermillion River AMA Miles parcel also contains a Restricted Area where shooting and hunting are prohibited near the boundary surrounding the adjacent farm site for their protection.

All reaches of the Vermillion River and its tributaries within the AMA have special fishing regulations: Brown trout are catch-and-release only, while regular statewide regulations apply to rainbow trout. From September 15 to October 15, angling for brown trout and rainbow trout is allowed but catch-and-release only. The regulations are intended to provide harvest opportunity for rainbow trout, protect brown trout, and expand the catch-and-release season in the fall.

Historical Aerial Photos: Vermillion River AMA (1940 & 1937)



Source: University of MN- MHAPO

Vermillion River AMA Parcel 1 Soil Types

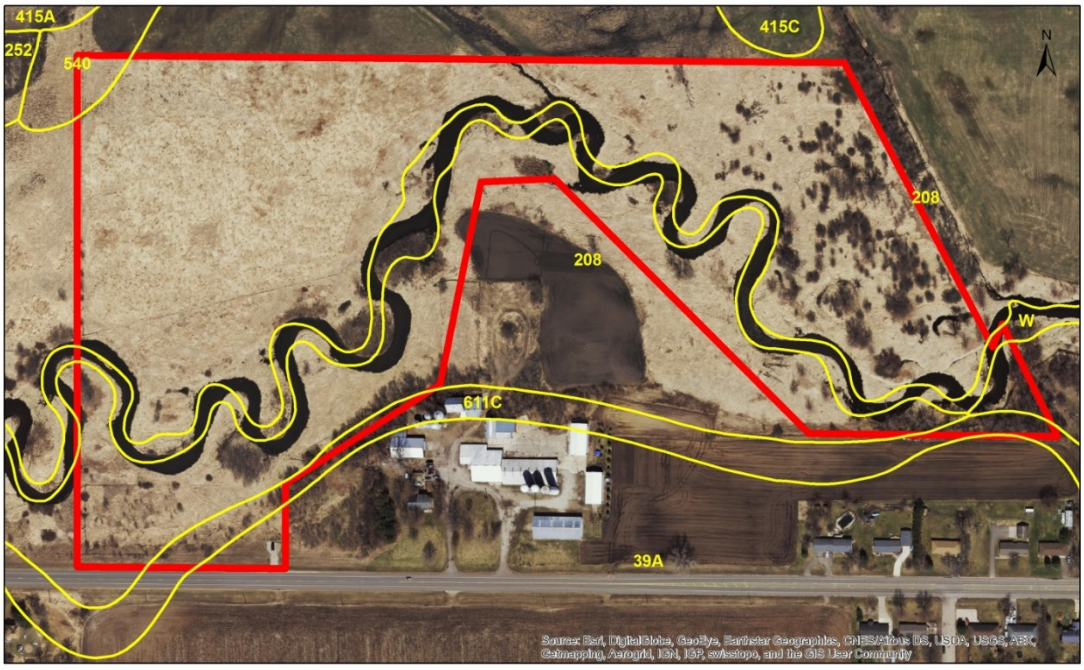
0 1,000 2,000 Feet

Map Created By: Laurinda Brown, DNR Fisheries
Map Date: 5/4/16

MNDNR

AMA Boundary
Soil Type

Vermillion River AMA Parcel 2 Soil Types



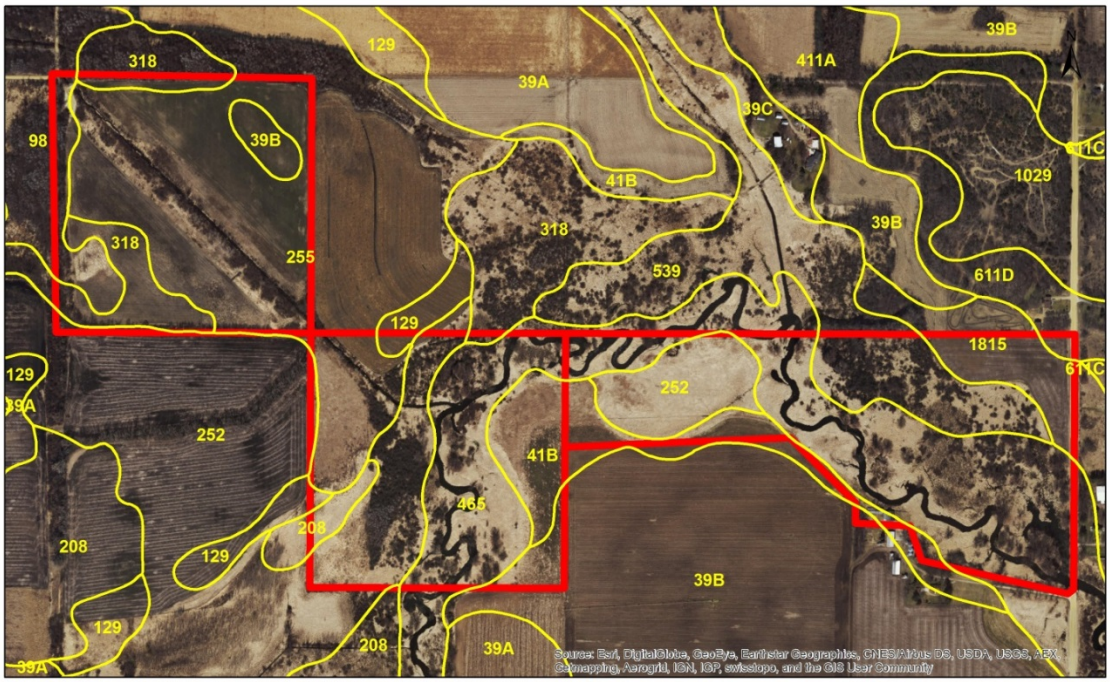
0 500 1,000 Feet

Map Created By: Laurinda Brown, DNR Fisheries
Map Date: 5/4/16

MNDNR

AMA Boundary
Soil Type

Vermillion River AMA Parcels 4, 9, and 10 Soil Types



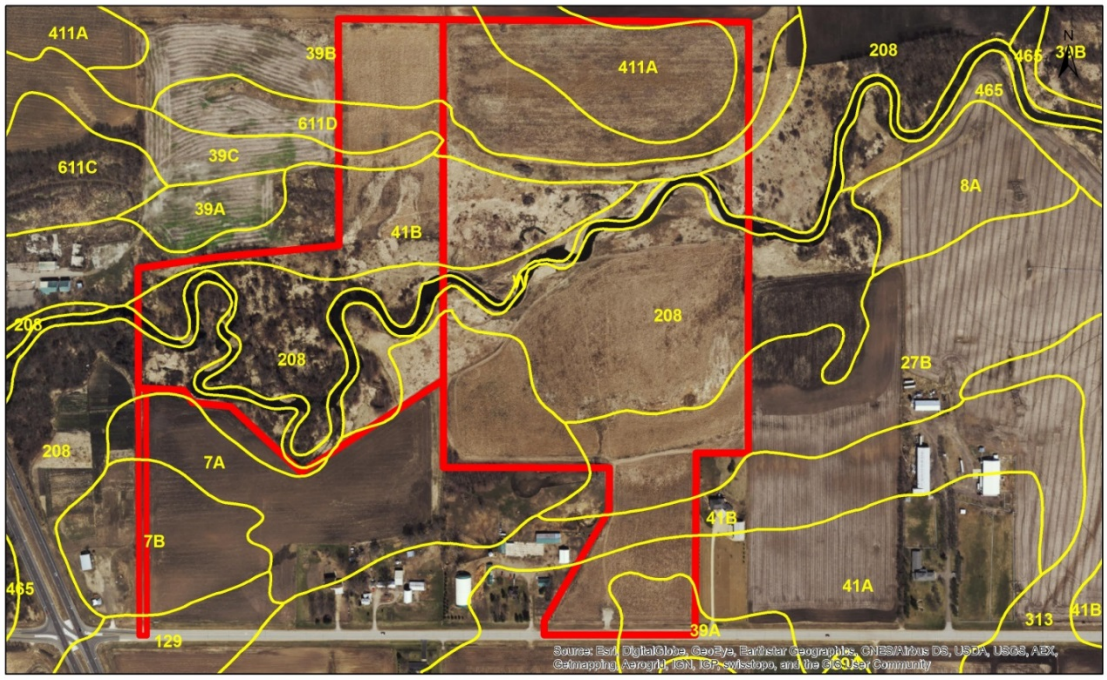
0 1,000 2,000 Feet

Map Created By: Laurinda Brown, DNR Fisheries
Map Date: 5/4/16

MNDNR

AMA Boundary
Soil Type

Vermillion River AMA Parcels 5 and 8 Soil Types



0 750 1,500 Feet

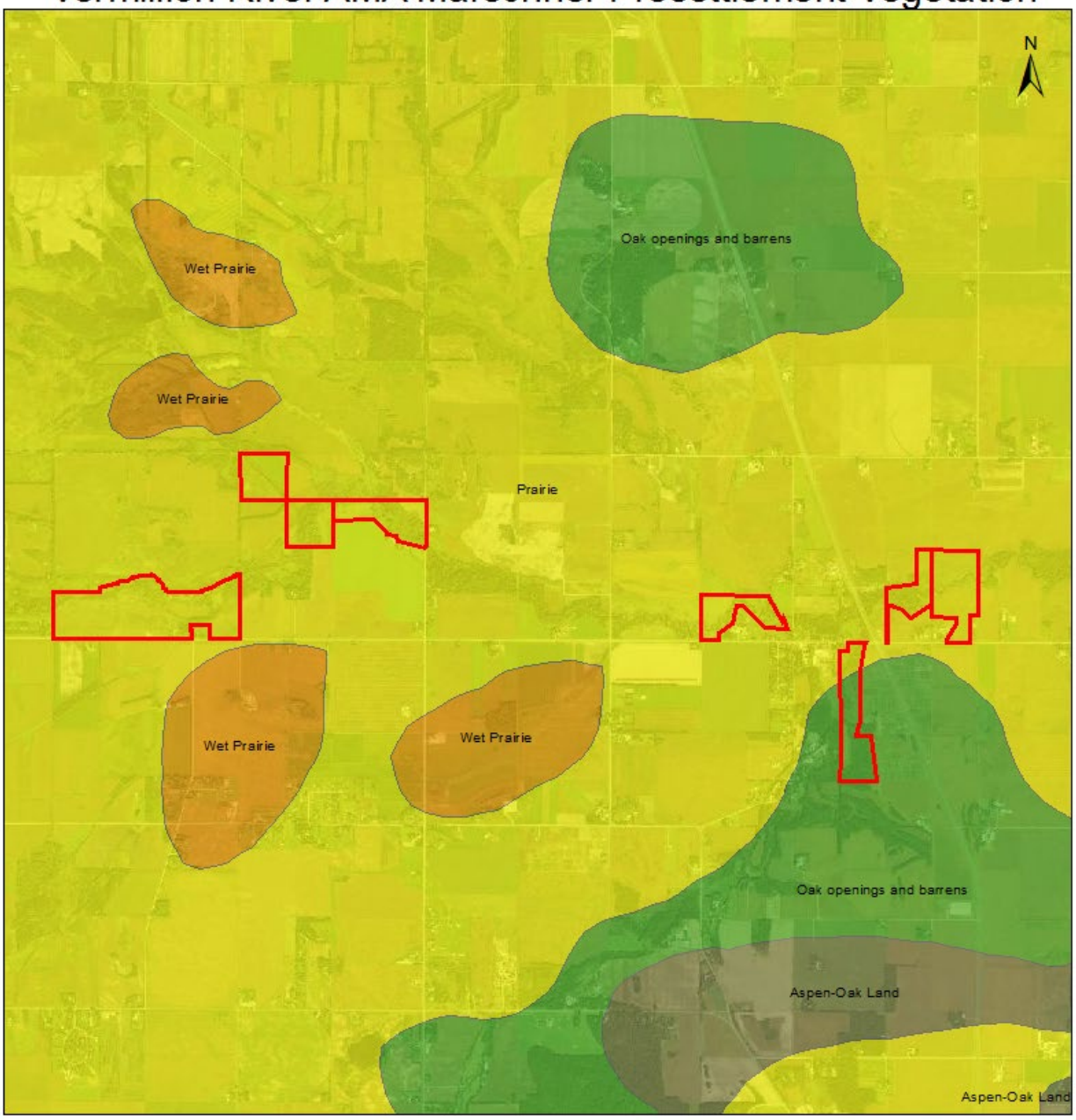
Map Created By: Laurinda Brown, DNR Fisheries
Map Date: 5/4/16

MNDNR

AMA Boundary
Soil Type

Dakota County, Minnesota (MN037)			
Map Unit Symbol	**Map Unit Name**	**Acres in AOI**	**Percent of AOI**
7A	Hubbard loamy sand, 0 to 1 percent slopes	7.4	1.6%
27B	Dickinson sandy loam, 2 to 6 percent slopes	21.6	4.8%
39A	Wadena loam, 0 to 2 percent slopes	45.4	10.1%
39B	Wadena loam, 2 to 6 percent slopes	34.5	7.7%
39C	Wadena loam, 6 to 12 percent slopes	0.8	0.2%
41A	Estherville sandy loam, 0 to 2 percent slopes	8.4	1.9%
41B	Estherville sandy loam, 2 to 6 percent slopes	22.6	5.0%
98	Colo silt loam, occasionally flooded	16.7	3.7%
129	Cylinder loam	11.1	2.5%
208	Kato silty clay loam	90.3	20.1%
252	Marshan silty clay loam	44.0	9.8%
255	Mayer silt loam	35.0	7.8%
301B	Lindstrom silt loam, 1 to 4 percent slopes	1.6	0.4%
318	Mayer loam, swales	18.6	4.1%
411A	Waukegan silt loam, 0 to 1 percent slopes	9.8	2.2%
415A	Kanaranzi loam, 0 to 2 percent slopes	3.6	0.8%
465	Kalmarville sandy loam, frequently flooded	47.2	10.5%
539	Klossner muck, 0 to 1 percent slopes	9.4	2.1%
540	Seelyeville muck	0.3	0.1%
611C	Hawick coarse sandy loam, 6 to 12 percent slopes	1.2	0.3%
611D	Hawick coarse sandy loam, 12 to 18 percent slopes	5.0	1.1%
611E	Hawick loamy sand, 18 to 25 percent slopes	0.5	0.1%
1815	Zumbro loamy fine sand	5.1	1.1%
W	Water	9.1	2.0%
Totals for Area of Interest		**449.3**	**100.0%**

Vermillion River AMA Marschner Presettlement Vegetation



0 5,000 10,000 Feet

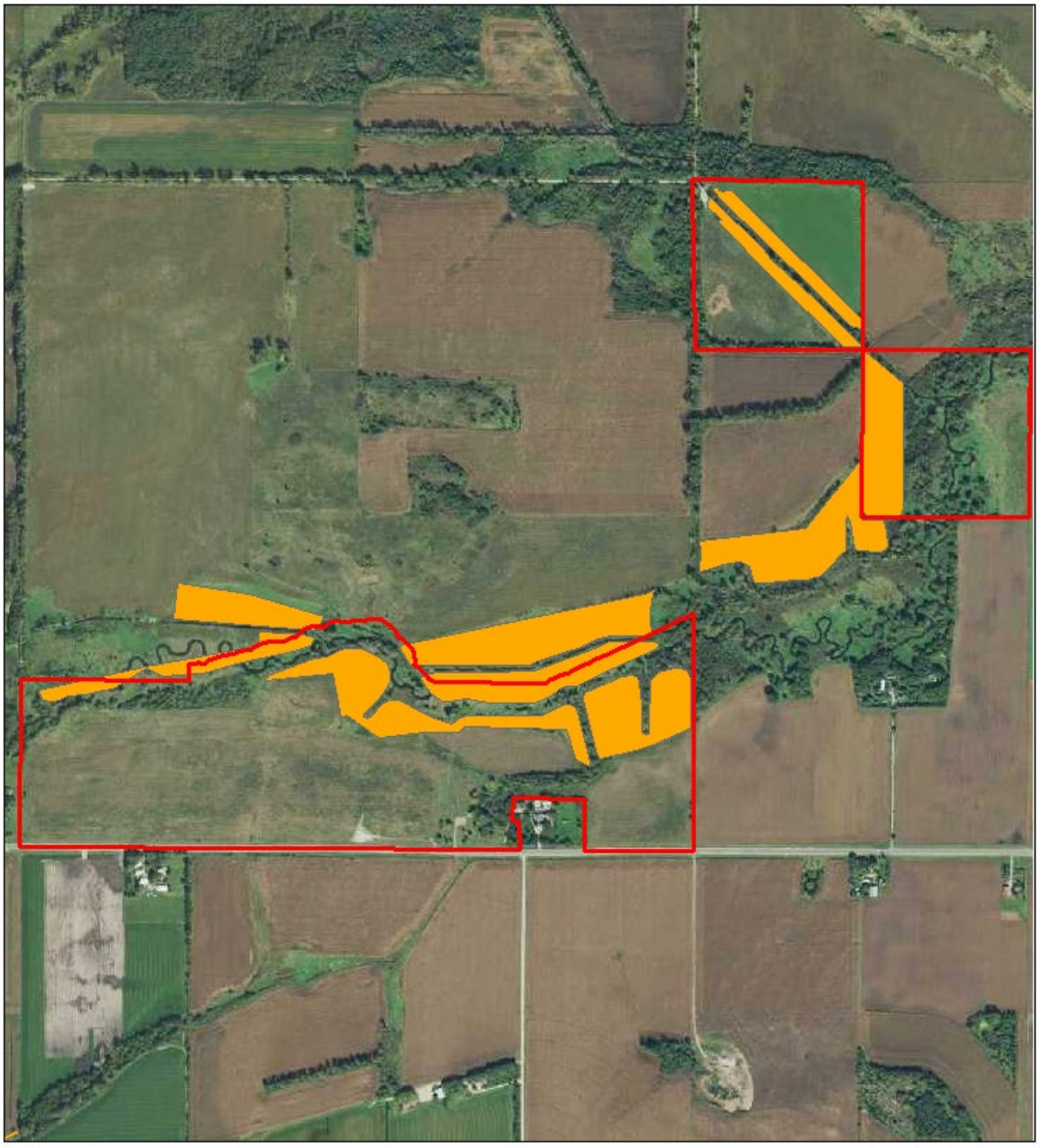
Legend

- AMA Boundary
- Prairie
- Wet Prairie
- Oak openings and barrens
- Aspen-Oak Land

Source: 2015 FSA Color Imagery
Map Created By: Hannah Swenson, DNR Fisheries
Map Date: 7/11/2017

DEPARTMENT OF NATURAL RESOURCES

Vermillion River AMA Conservation Reserve Program Parcels



0 1,250 2,500 Feet

N

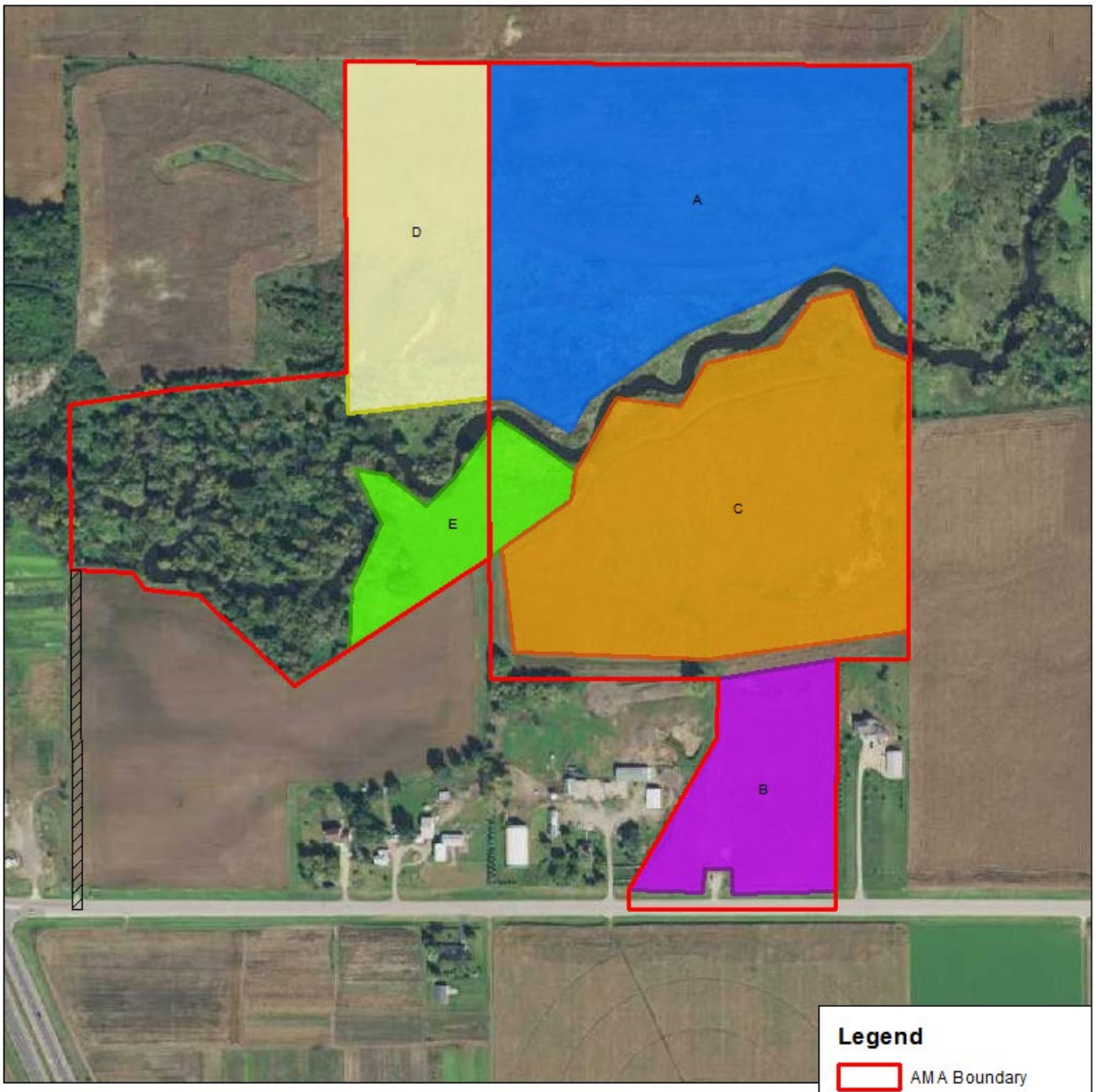
Legend

- AMA Boundary
- Easement Boundary
- MN Conservation Reserve Program (2006/07)

Source: 2015 FSA Color Imagery
Map Created by: Hannah Swenson, MN DNR
Map Date: 7/31/2017

DEPARTMENT OF NATURAL RESOURCES

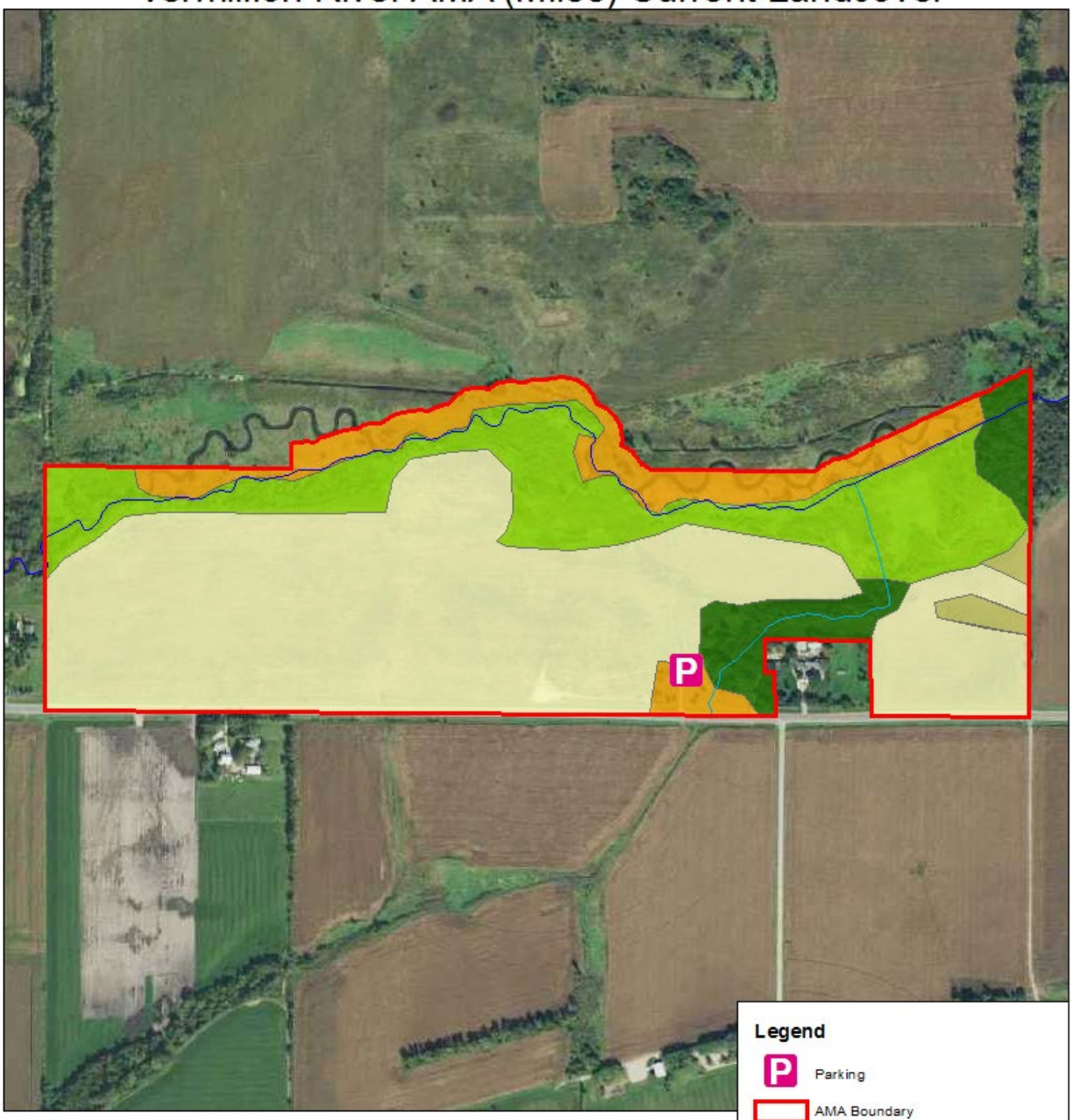
Vermillion River AMA (Petrofske and Kummer)
Burn Units



Source: 2015 FSA Color Imagery
Map Created By: Hannah Swenson, DNR Fisheries
Map Date: 10/5/2017

DEPARTMENT OF NATURAL RESOURCES

Vermillion River AMA (Miles) Current Landcover



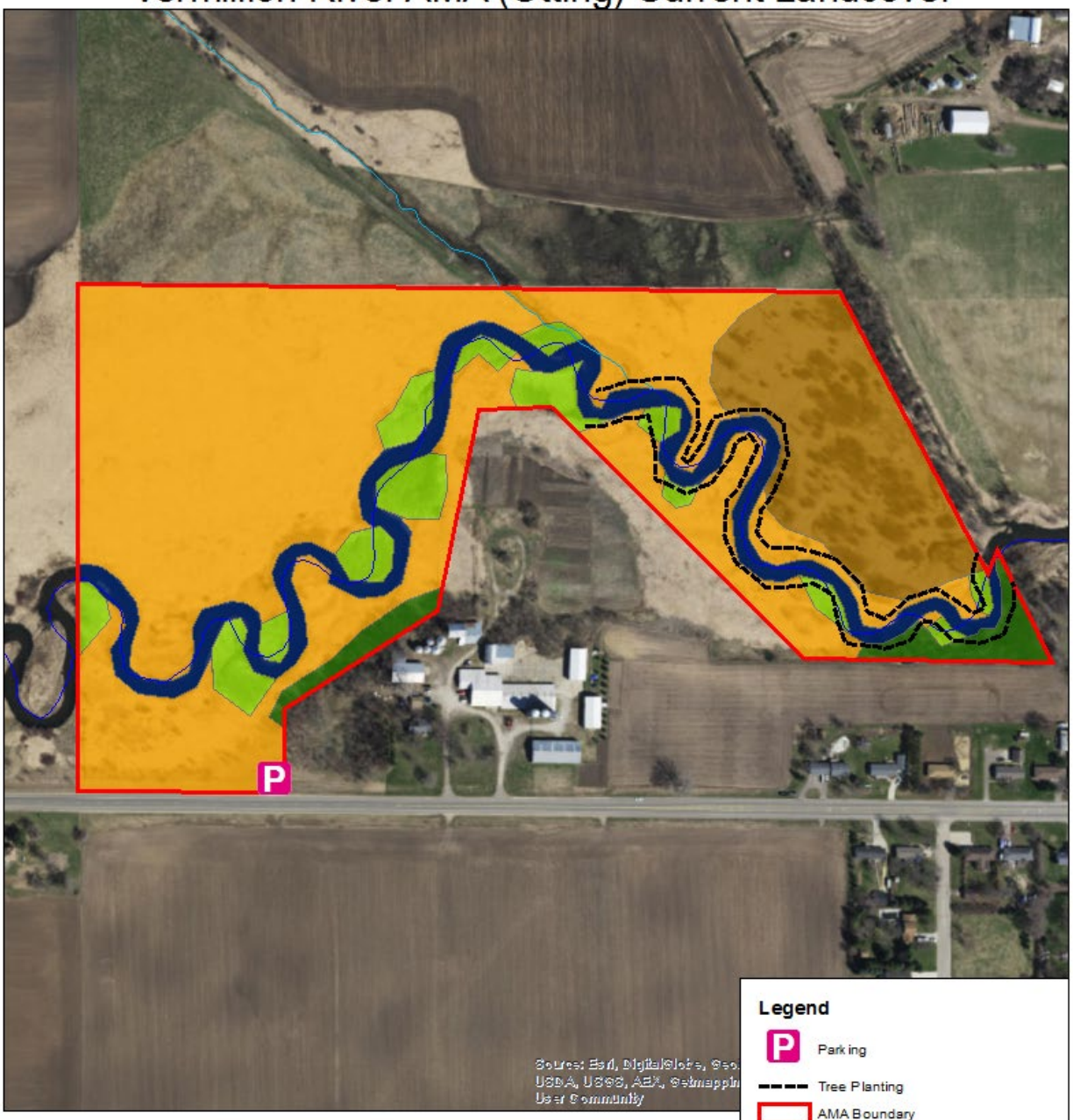
0 950 1,900 Feet

N

Source: 2015 FSA Color Imagery
Map Created By: Hannah Swenson, DNR Fisheries
Map Date: 7/14/2017

DEPARTMENT OF NATURAL RESOURCES

Vermillion River AMA (Otting) Current Landcover



0 475 950 Feet

N

Source: 2015 FSA Color Imagery
Map Created By: Hannah Swenson, DNR Fisheries
Map Date: 7/14/2017

DEPARTMENT OF NATURAL RESOURCES

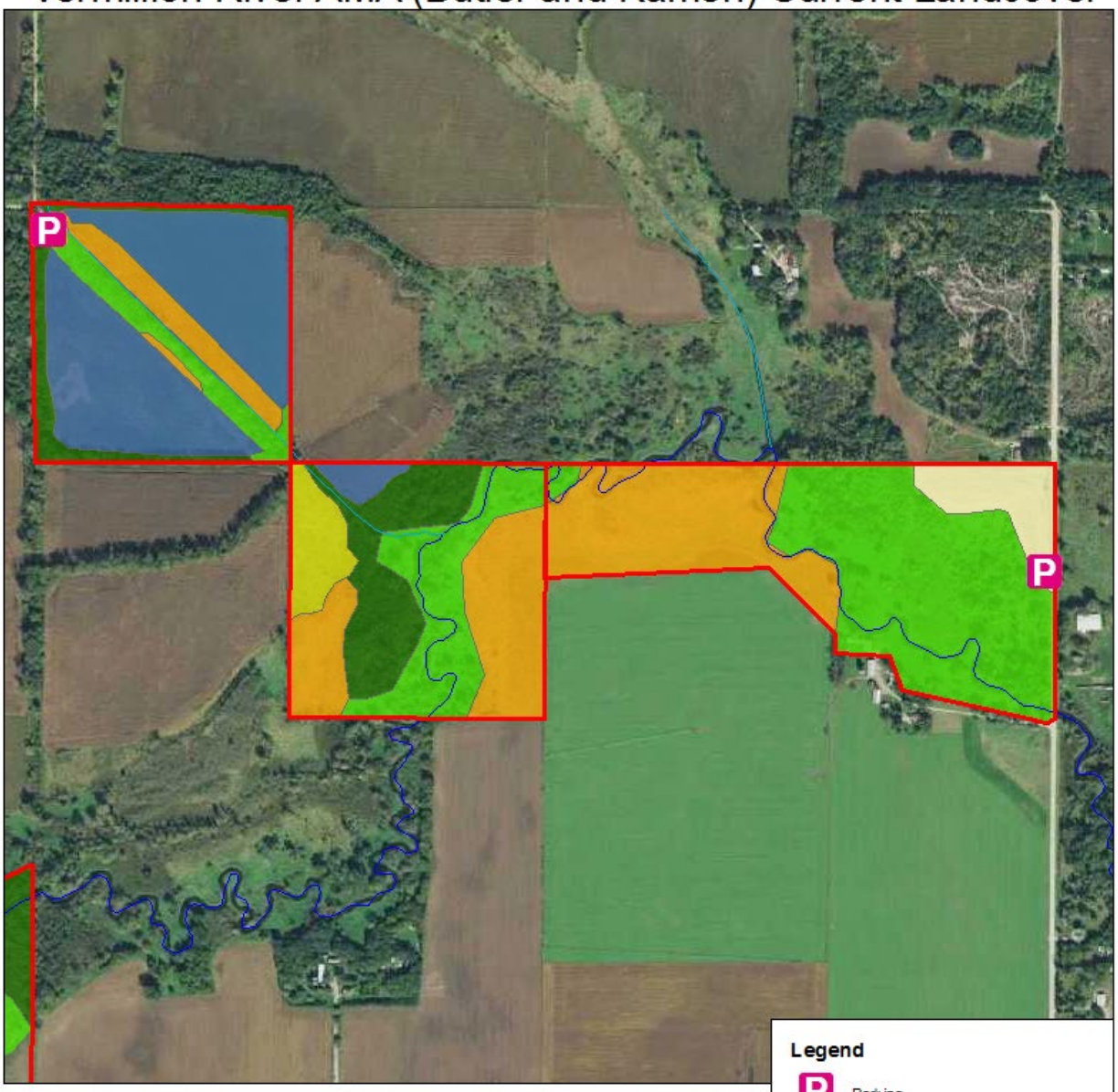
Legend

- Parking
- Tree Planting
- AMA Boundary
- Designated Trout Stream
- Protected Tributary of Trout Stream

Landcover

- Native Riparian Area
- Non-native Grassland
- Terrace Forest
- Semi-wooded Area
- River

Vermillion River AMA (Butler and Kamen) Current Landcover



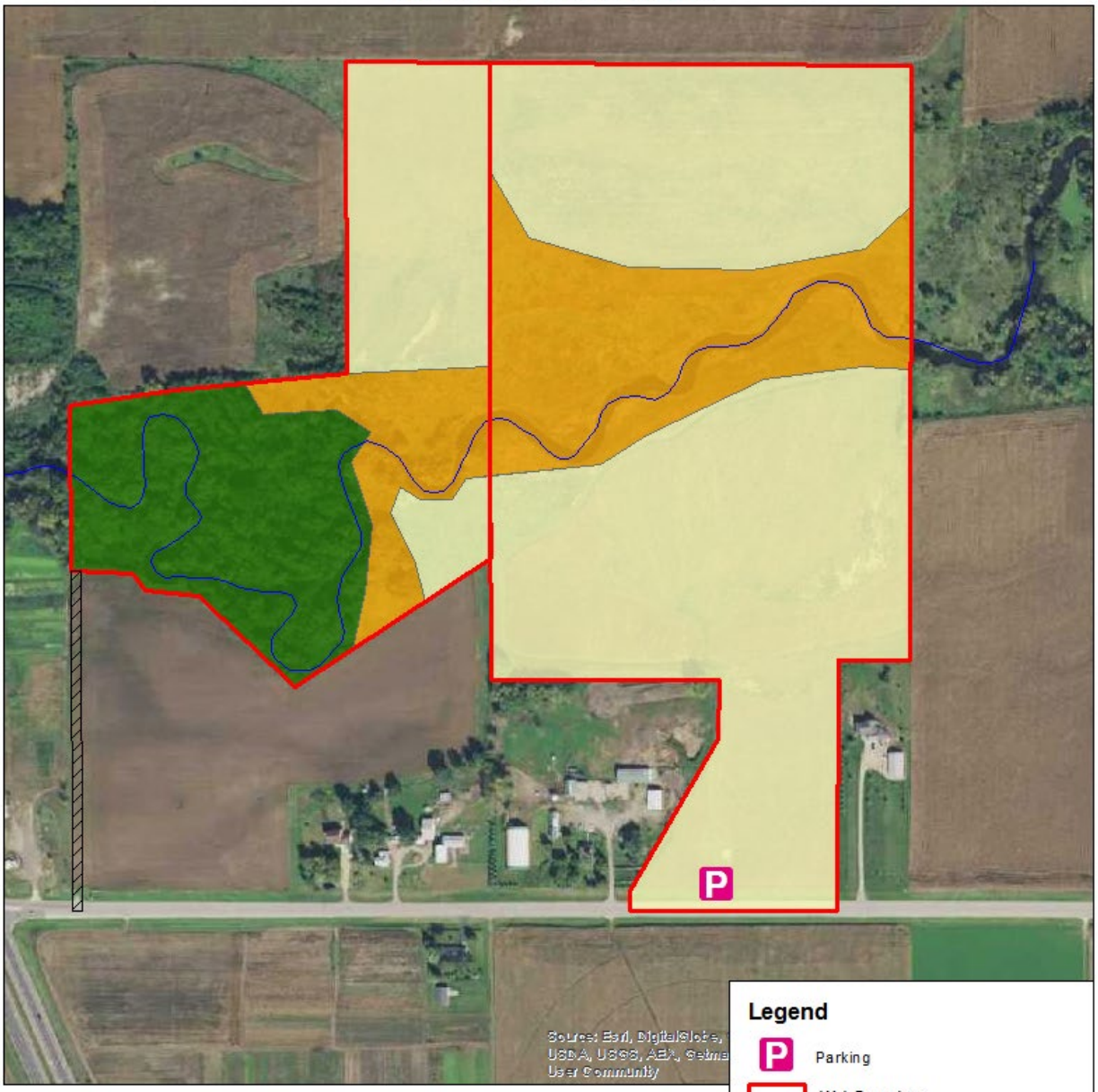
0 950 1,900 Feet

N

DEPARTMENT OF NATURAL RESOURCES

Source: 2015 FSA Color Imagery
Map Created By: Hannah Swenson, DNR Fisheries
Map Date: 7/14/2017

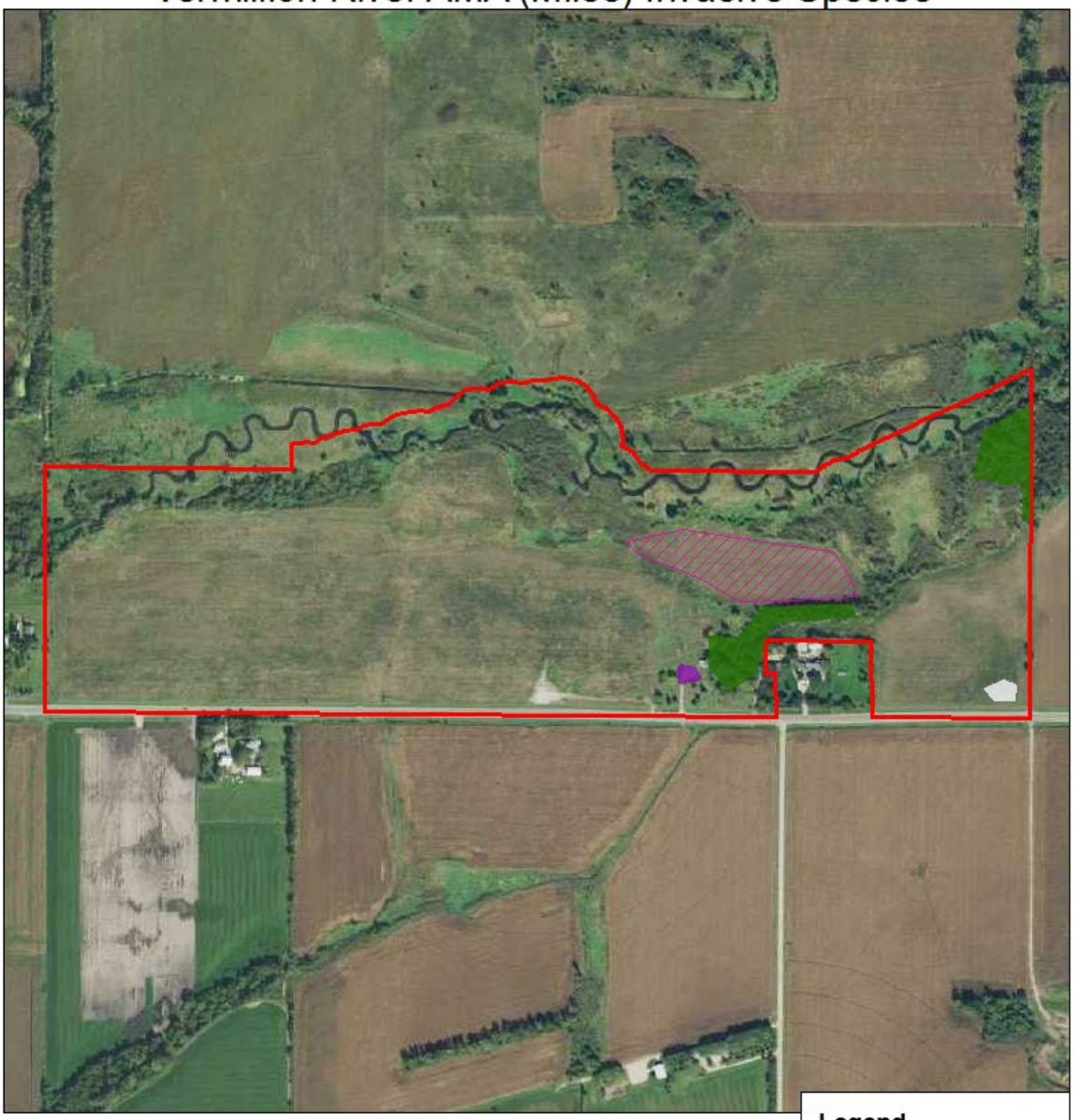
Vermillion River AMA (Petrofske and Kummer)
Current Landcover



Source: 2015 FSA Color Imagery
Map Created By: Hannah Swenson, DNR Fisheries
Map Date: 7/14/2017

DEPARTMENT OF NATURAL RESOURCES

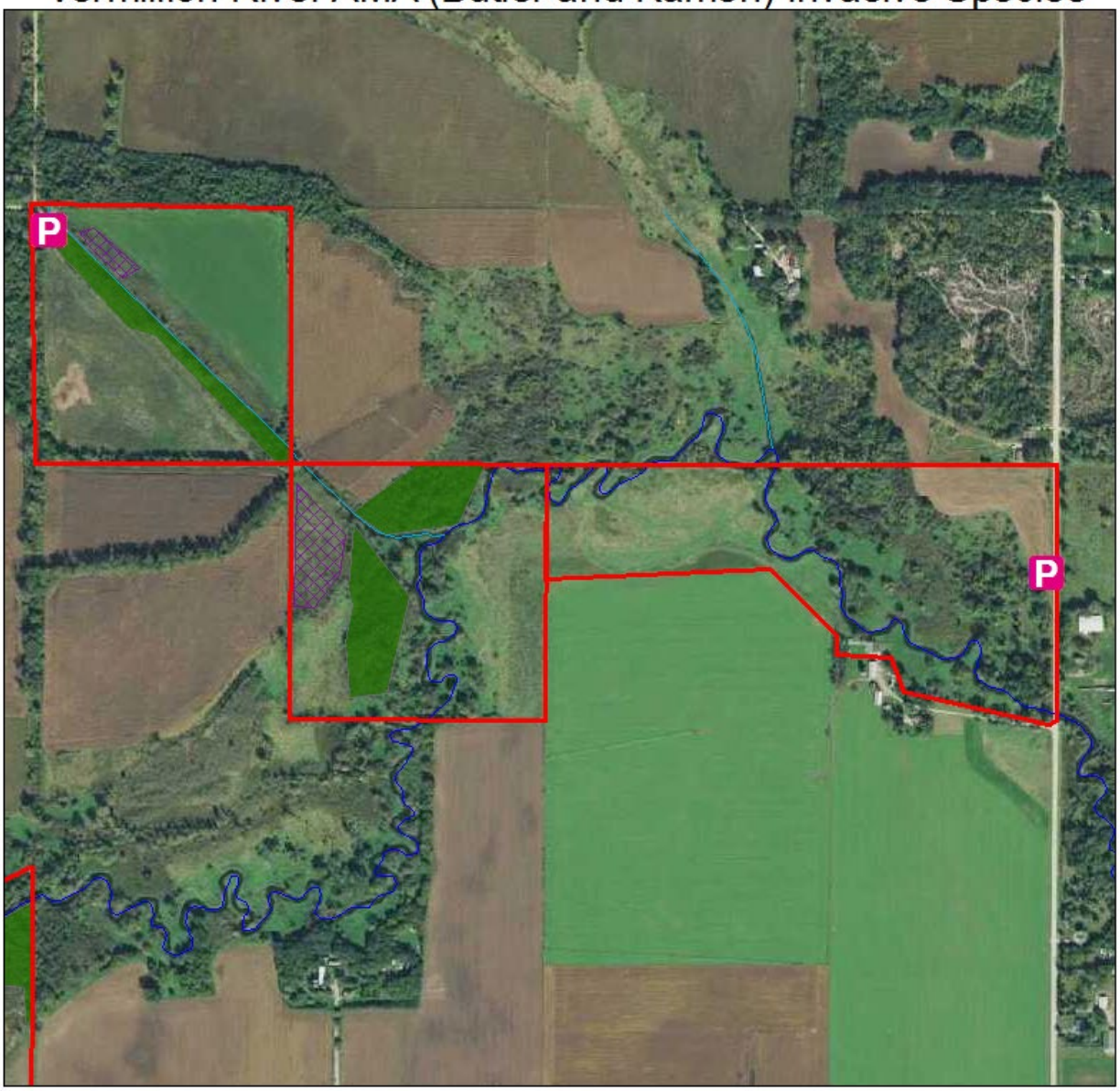
Vermillion River AMA (Miles) Invasive Species



Source: 2015 FSA Color Imagery
Map Created By: Hannah Swenson, DNR Fisheries
Map Date: 7/14/2017

DEPARTMENT OF NATURAL RESOURCES

Vermillion River AMA (Butler and Kamen) Invasive Species



0 950 1,900 Feet

N

Legend

- Parking
- AMA Boundary
- Designated Trout Stream
- Protected Tributary of Trout Stream

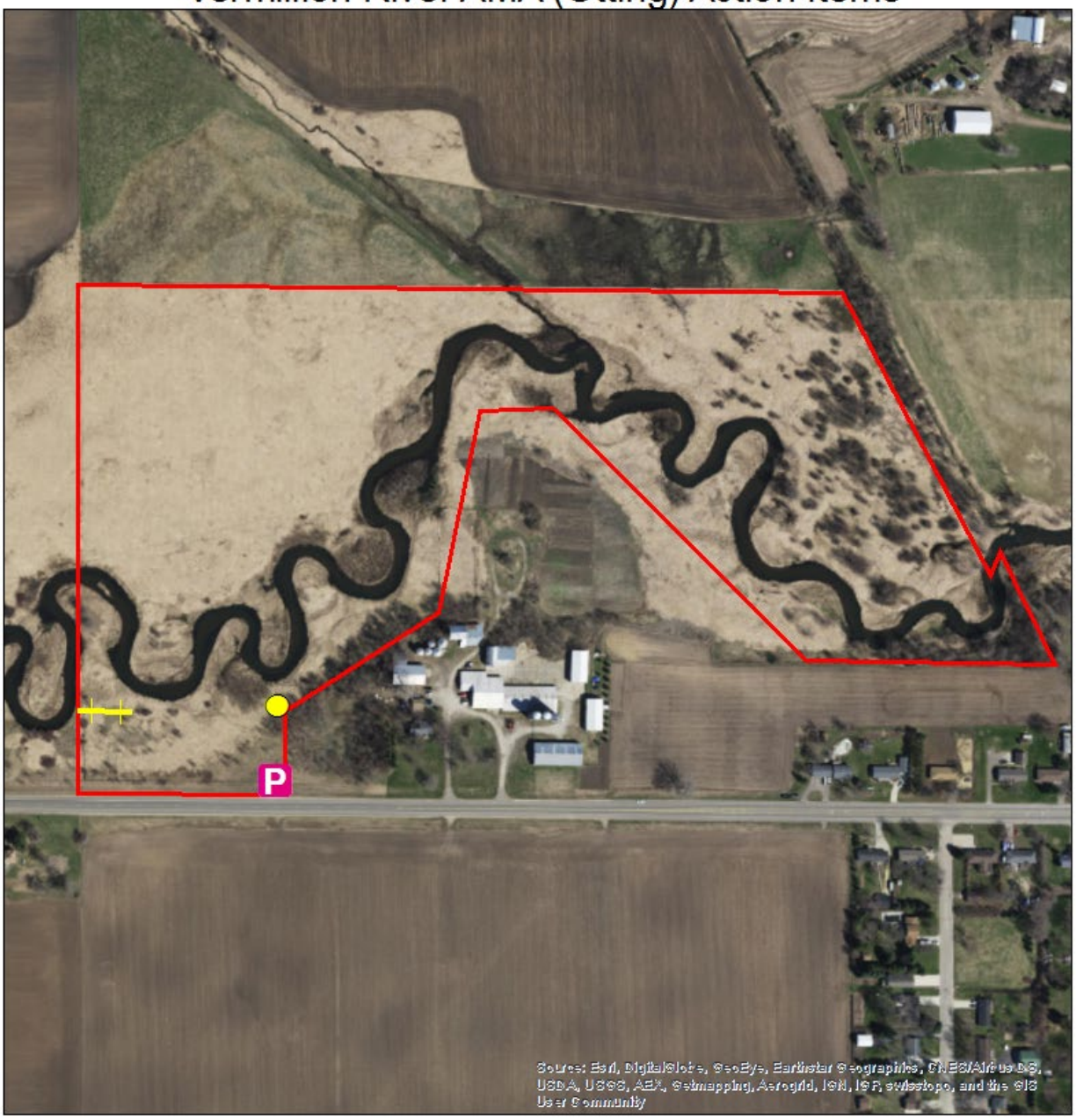
Species

- Buckthorn
- Scattered Thistles

Source: 2015 FSA Color Imagery
Map Created By: Hannah Swenson, DNR Fisheries
Map Date: 7/14/2017

DEPARTMENT OF NATURAL RESOURCES

Vermillion River AMA (Otting) Action Items



0 475 950 Feet

Source: 2015 FSA Color Imagery
Map Created By: Hannah Swenson, DNR Fisheries
Map Date: 7/14/2017

DEPARTMENT OF NATURAL RESOURCES

N

Legend

- Scrap Metal Pile
- Fencing
- Parking
- AMA Boundary

Table 1. Miles Southern Dry Prairie Plant Community (UPs13)

Forbs, Ferns, and Fern Allies

Scientific Name	Common Name
Achillea millefolium	yarrow
Liatris punctata	dotted blazing star
Penstemon grandiflorus	large-flowered beardtongue
Silphium laciniatum	compass plant
Solidago rigida	stiff goldenrod
Solidago sp	goldenrod sp
Zizia aptera	heart-leaved alexanders

Grasses, Sedges, and Rushes

Scientific Name	Common Name
Bouteloua curtipendula	side-oats grama
Schizachyrium scoparium	little bluestem
Sorghastrum nutans	indiangrass

Table 2. Miles Southern Mesic Prairie Plant Community (UPs23a)

Understory Trees and Shrubs

Scientific Name	Common Name
Cornus sericea	red-osier dogwood
Populus deltoides var. occidentalis	cottonwood
Vitis riparia	wild grape

Forbs, Ferns, and Fern Allies

Scientific Name	Common Name
Agastache foeniculum	blue giant hyssop
Asclepias syriaca	common milkweed
Asclepias tuberosa	butterfly milkweed
Aster ericoides	heath aster
Cirsium arvense	Canada thistle*≠
Conyza canadensis	Canadian horseweed
Dalea candida	white prairie clover
Dalea purpurea	purple prairie clover
Daucus carota	Queen Anne's lace*+
Erigeron sp	fleabane
Helianthus helianthoides	false sunflower

Scientific Name	Common Name
Lactuca canadensis	wild lettuce
Linaria vulgaris	yellow toadflax*
Lotus corniculatus	birdsfoot trefoil*
Melitotus alba	white sweet clover*
Monarda fistulosa	wild bergamot
Monarda puntcata	spotted horsemint
Oenothera sp	evening primrose
Rudbeckia hirta	black-eyed susan
Scrophularia lanceolata	lance-leaf figwort
Solidago canadensis	Canada goldenrod
Solidago rigida	stiff goldenrod
Symphyotrichum sericeum	silky aster
Symphyotrichum sp	aster
Trifolium pratense	red clover*
Verbena stricta	hoary vervain

Grasses, Sedges, and Rushes

Scientific Name	Common Name
Andropogon gerardii	big bluestem
Bouteloua curtipendula	side-oats grama
Bromus inermis	smooth brome*
Bromus kalmii	Kalm's brome
Elymus canadensis	Canada wild rye
Koeleria macrantha	junegrass
Phalaris arundinacea	reed canary grass*
Poa pratensis	Kentucky bluegrass*
Schizachyrium scoparium	little bluestem

Table 3. Elm-Ash-Basswood Terrace Forest Plant Community (FFs59c)

Overstory Trees

Scientific Name	Common Name
Acer negundo	boxelder
Fraxinus nigra	black ash
Populus deltoides var. occidentalis	cottonwood
Prunus serotina	black cherry
Salix nigra	black willow
Ulmus rubra	red elm

Understory Trees and Shrubs

Scientific Name	Common Name
Cornus sericea	red-osier dogwood
Fraxinus pennsylvanica	green ash
Lonicera sp	exotic honeysuckle*+
Prunus americana	American wild plum
Rhamnus cathartica	common buckthorn*+
Ribes cynosbati	prickly gooseberry
Rubus sp	raspberry
Sambucus canadensis	common elderberry
Smilax sp	smilax sp
Vitis riparia	wild grape

Forbs, Ferns, and Fern Allies

Scientific Name	Common Name
Apocynum androsaemifolium	spreading dogbane
Geum canadense	white avens
Leonurus cardiaca	common motherwort*
Urtica dioica	stinging nettle

Table 4. Silver Maple (Virginia Creeper) Floodplain Forest Plant Community (FFs68a)

Overstory Trees

Scientific Name	Common Name
Acer saccharinum	silver maple
Fraxinus pennsylvanica	green ash
Populus deltoides var. occidentalis	cottonwood
Salix sp	willow
Ulmus pumila	Siberian elm*

Understory Trees and Shrubs

Scientific Name	Common Name
Parthenocissus sp	Virginia creeper
Sambucus canadensis	common elderberry
Ulmus americana	American elm
Vitis riparia	wild grape

Forbs, Ferns, and Fern Allies

Scientific Name	Common Name
Asclepias incarnata	swamp milkweed
Calystegia sepium	hedge bindweed
Geum canadense	white avens
Glechoma hederacea	creeping charlie*
Laportea canadensis	wood nettle
Myosoton aquaticum	giant chickweed*
Prunella vulgaris	self-heal
Rudbeckia laciniata	tall coneflower
Symphyotrichum sp	aster
Urtica dioica	stinging nettle

Grasses, Sedges, and Rushes

Scientific Name	Common Name
Phalaris arundinacea	reed canary grass*

Table 5. Willow Sandbar Shrubland Plant Community (RVx32a)

Overstory Trees

Scientific Name	Common Name
Acer saccharinum	silver maple
Populus deltoides var. occidentalis	cottonwood
Salix sp	willow
Ulmus pumila	Siberian elm*
Ulmus rubra	red elm

Understory Trees and Shrubs

Scientific Name	Common Name
Acer negundo	boxelder
Amorpha fruticosa	false indigo
Cornus sericea	red-osier dogwood
Fraxinus nigra	black ash
Fraxinus pennsylvanica	green ash
Prunus americana	American wild plum
Rhamnus cathartica	common buckthorn*+
Salix sp	willow

Forbs, Ferns, and Fern Allies

Scientific Name	Common Name
Asclepias incarnata	swamp milkweed
Asclepias syriaca	common milkweed
Calystegia sepium	hedge bindweed
Cicuta maculata	water hemlock
Cirsium arvense	Canada thistle*≠
Epilobium ciliatum	northern willowherb
Helenium autumnale	sneezeweed
Hypericum pyramidatum	great St. Johnswort
Impatiens capensis	jewelweed
Iris versicolor	blue flag iris
Onoclea sensibilis	sensitive fern
Sagittaria latifolia	broad-leaf arrowhead
Silphium perfoliatum	cup plant
Solidago sp	goldenrod sp
Stachys palustris	marsh hedge nettle
Symphyotrichum sp	aster
Thalictrum dasycarpum	tall meadow rue
Urtica dioica	stinging nettle
Verbena hastata	blue vervain
Vernonia fasciculata	prairie ironweed

Grasses, Sedges, and Rushes

Scientific Name	Common Name
Calamagrostis canadensis	Canada bluejoint
Caryx sp	sedge
Elymus virginicus	Virginia wild rye
Phalaris arundinacea	reed canary grass*
Scirpus validus	softstem bulrush
Typha spp	cattails

*Non-native species

+Restricted noxious weed

≠Prohibited/control noxious weed

Photos:

AMA entrance sign

Cup plant along the Vermillion River

Spotted horsemint on Miles prairie

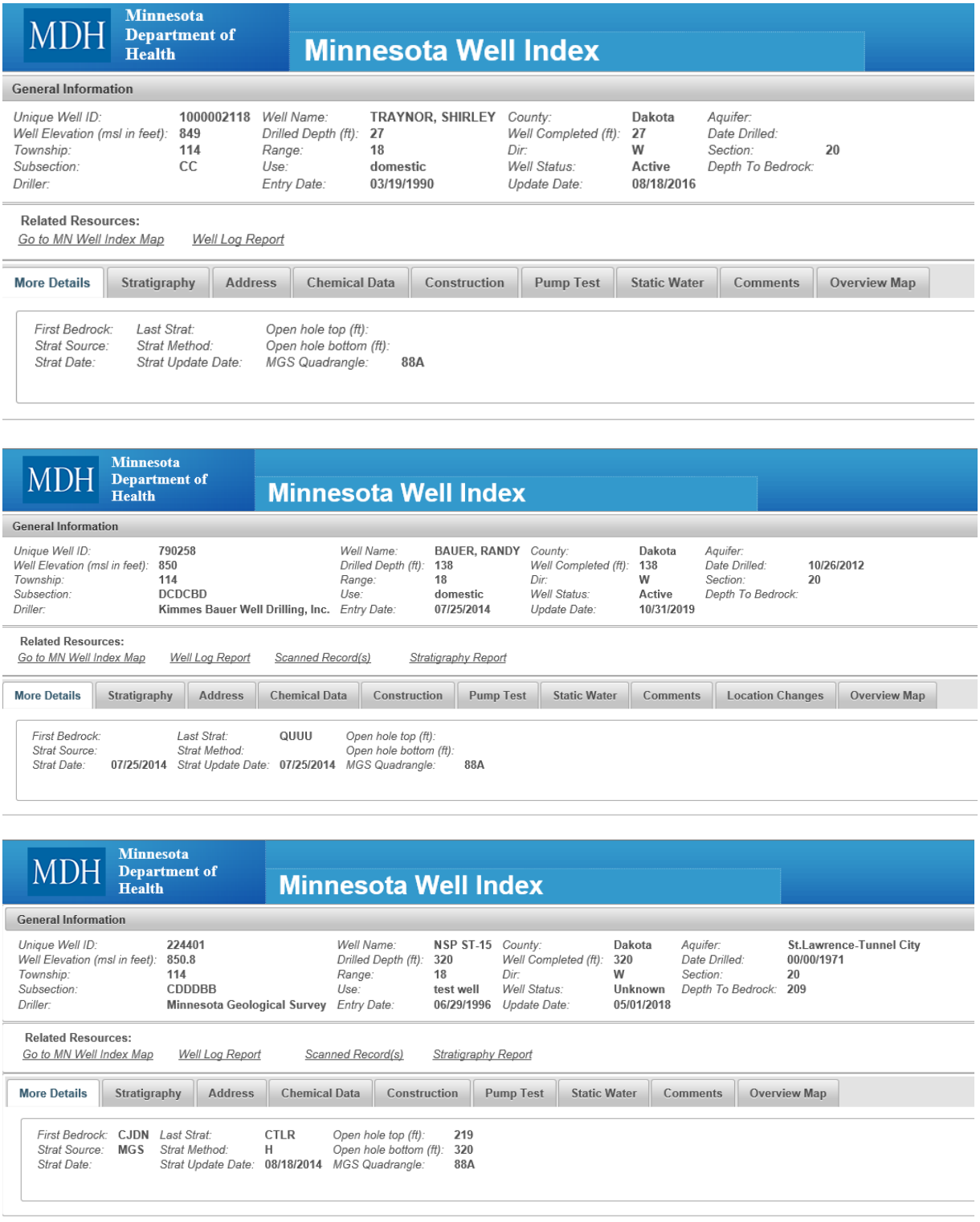
Sunflower food plot on Butler parcel

Special fishing regulations on the AMA

PREPARED BY: Hannah Swenson, AMA Specialist Mark Nemeth, Trout Stream Habitat Specialist Tim Pharis, Assistant Area Wildlife Manager	**DATE:** 12/2/2020
AREA SUPERVISOR SIGNATURE:	**DATE:**
REGIONAL MANAGER SIGNATURE:	**DATE:**

Appendix C:

Well logs.



MDH Minnesota Department of Health

Minnesota Well Index

General Information

Unique Well ID:	1000002118	Well Name:	TRAYNOR, SHIRLEY	County:	Dakota	Aquifer:	
Well Elevation (msl in feet):	849	Drilled Depth (ft):	27	Well Completed (ft):	27	Date Drilled:	
Township:	114	Range:	18	Dir:	W	Section:	20
Subsection:	CC	Use:	domestic	Well Status:	Active	Depth To Bedrock:	
Driller:		Entry Date:	03/19/1990	Update Date:	08/18/2016		

Related Resources:

Go to MN Well Index Map Well Log Report

More Details | Stratigraphy | Address | Chemical Data | Construction | Pump Test | Static Water | Comments | Overview Map

First Bedrock:	Last Strat:	Open hole top (ft):	
Strat Source:	Strat Method:	Open hole bottom (ft):	
Strat Date:	Strat Update Date:	MGS Quadrangle:	88A

MDH Minnesota Department of Health

Minnesota Well Index

General Information

Unique Well ID:	790258	Well Name:	BAUER, RANDY	County:	Dakota	Aquifer:	
Well Elevation (msl in feet):	850	Drilled Depth (ft):	138	Well Completed (ft):	138	Date Drilled:	10/26/2012
Township:	114	Range:	18	Dir:	W	Section:	20
Subsection:	DCDCBD	Use:	domestic	Well Status:	Active	Depth To Bedrock:	
Driller:	Kimmes Bauer Well Drilling, Inc.	Entry Date:	07/25/2014	Update Date:	10/31/2019		

Related Resources:

Go to MN Well Index Map Well Log Report Scanned Record(s) Stratigraphy Report

More Details | Stratigraphy | Address | Chemical Data | Construction | Pump Test | Static Water | Comments | Location Changes | Overview Map

First Bedrock:		Last Strat:	QUUU	Open hole top (ft):	
Strat Source:		Strat Method:		Open hole bottom (ft):	
Strat Date:	07/25/2014	Strat Update Date:	07/25/2014	MGS Quadrangle:	88A

MDH Minnesota Department of Health

Minnesota Well Index

General Information

Unique Well ID:	224401	Well Name:	NSP ST-15	County:	Dakota	Aquifer:	St.Lawrence-Tunnel City
Well Elevation (msl in feet):	850.8	Drilled Depth (ft):	320	Well Completed (ft):	320	Date Drilled:	00/00/1971
Township:	114	Range:	18	Dir:	W	Section:	20
Subsection:	CDDDBB	Use:	test well	Well Status:	Unknown	Depth To Bedrock:	209
Driller:	Minnesota Geological Survey	Entry Date:	06/29/1996	Update Date:	05/01/2018		

Related Resources:

Go to MN Well Index Map Well Log Report Scanned Record(s) Stratigraphy Report

More Details | Stratigraphy | Address | Chemical Data | Construction | Pump Test | Static Water | Comments | Overview Map

First Bedrock:	CJDN	Last Strat:	CTLR	Open hole top (ft):	219		
Strat Source:	MGS	Strat Method:	H	Open hole bottom (ft):	320		
Strat Date:		Strat Update Date:	08/18/2014	MGS Quadrangle:	88A		