

#1 Washburn Hay Creek Bridge

State of Wisconsin
 Department of Natural Resources
dnr.wi.gov

Motorized Recreation Grant Application

For: (choose all that apply)

Form 8700-159 (R 02/2024)

Page 1 of 5

Due Date: April 15

- ATV/UTV Trail Aid
 Snowmobile Trail Aid

Notice: Completion of this form is required under Wisconsin Statutes 23.09(26) and 23.33. Failure to complete this form will result in denial of financial assistance. Personally identifiable information found on this form is not intended to be used for any other purpose. The Department of Natural Resources (DNR) may provide this information to requesters as required by Wisconsin's Public Records law (ss. 19.31 – 19.39, Wis. Stats.).

Instructions: Applications may combine more than one source of funds. They may be submitted for consideration of traditional ATV, UTV, Snowmobile and Motorized Stewardship funding. Submit one copy of all forms and attachments. See Page 2 for necessary attachments. Send applications to your [Community Services Specialist](#).

DNR Use Only	
Category	Number

Section 1: Applicant Information

Applicant / Organization Name Washburn County Forestry			Check Recipient: Individual other than authorized individual to act on behalf of the applicant. <input checked="" type="checkbox"/> Select if the same as applicant.		
Individual Authorized to Act on Behalf of Applicant per Resolution Brandon Shutt			Check Recipient Name (Name to Appear on Check) Brandon Shutt		
Title Assistant Recreation Administrator			Title Assistant Recreation Administrator		
Address 1760 Roundhouse Road			Address 1760 Roundhouse Road		
City Spooner	State WI	ZIP Code 54801	City Spooner	State WI	ZIP Code 54801
Telephone Number (715) 635-4490		Email Address bshutt@co.washburn.wi.us			

Section 2: Project Information Required for all Projects

Project Title Hay Creek Bridge Replacement					Current Funded Miles 	New Miles (if applicable)
County Washburn	Township 40 N	Range 11	Section 1	¼ ¼ NW	¼ SE	GPS Coordinates: Lat. 45.9775 Long. -91.6687

Project Description Summary

This bridge is part of ATV/Snowmobile Trail 39 (year round ATV). It is 150' long, 12' wide rated 12,000. The bridge (installed in 2002) has a unique design with 3" white oak subdeck attached to steel girders, covered with 2" rough sawn pine. The sub deck is deteriorated and we applied for a grant in 2019 to replace. Costs increases and difficulty securing materials, especially through Covid, resulted in re-analysis of our project. Since the white oak performed miserably, we contracted with an engineer who determined that the decks were integral to the rating of the bridge. They recommended 4" x 10" treated, rough sawn pine. They also recommended replacement of the decking with the original configuration of over 1000 3/4" bolts through the girders on 8" intervals. Given the increased materials and increased costs, we are proposing to replace the bridge as a long-term cost saving measure. Engineers approved using existing abutments and pilings (2) and placing three 50' bridge segments on the existing support structures. The wood deck would likely require replacement again in 10 years so a modern bridge is recommended. The costs itemized below reflect monies requested in addition to funds currently awarded under ATV, Snow and RTP grants (\$61,268). Costs 50/50 with Snowmobile.

I certify that all maintenance land use agreements are on file.

Estimated Cost

Maintenance	Acquisition	Insurance	Development	Bridge Rehab.	Trail Rehab.	Total Estimated Cost
				\$77,866.00		\$77,866.00

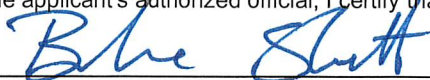
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Applicant Certification

Printed Name of Authorized Official	Official's Title

As the applicant's authorized official, I certify that, to the best of my knowledge, the information in this application is true and correct.


 Signature of Authorized Official


 Date Prepared

Appendix A – Required for Bridge Rehab/Replace, New, or Reroute with New Bridge

Bridge Rehab/Replace New Bridge Reroute with new bridge

County	Township	Range	Section	¼ ¼	¼	GPS Coordinates:
Washburn	40 N	11	1	NW	SE	Lat. 45.9775 Long. -91.6687
Water Body Name			Bridge Name		County Inventory Number	
Hay Creek			Hay Creek Bridge		N/A	
Funded Trail Name or Number (SNARS if applicable)			Has this bridge site ever received development or rehabilitation funds in the past? <input checked="" type="radio"/> Yes <input type="radio"/> No Year: <u>2002</u> \$ <u>88,500.00</u>			
Trail 39						
Bridge is located on: <input type="radio"/> Private property <input checked="" type="radio"/> Public property			Old Bridge/Culvert Size		150' x 12'	
			New Bridge/Culvert Size		150' x 12'	
Landowner Where Bridge is Located			Telephone Number		Length of Trail Use Agreement (5 year minimum)	
Washburn County			(715) 635-4490		perpetual	
Current maximum load		<u>12,000</u> lbs.	Age of Bridge		Bridge Material	
Proposed maximum load		<u>25,000</u> lbs.	23		Steel frame wood support and wood deck	
Sponsoring Club Name			Club Contact		Telephone Number	
Rolling Hills			Randy King		(612) 801-2084	
Do you have your trail bridges posted as to maximum load? <input type="radio"/> Yes <input checked="" type="radio"/> No			What is the maximum load of the other bridges on the system if groomed with this bridge?			
What is the weight of your puller & drag/grading equipment?			25,000			
What other recreational trail uses are planned for this bridge?						
ATV/Snowmobile						
If there are other Recreational uses planned, how much of the bridge cost will be paid for by non-snowmobile or non-ATV users?						

- Yes No Have you contacted your local [DNR Water Management Specialist \(WMS\)](#) regarding a permit?
- Yes No Is a permit needed? (Please provide any written correspondence from WMS.)
- Yes No Have you contacted your County Zoning Dept. regarding a floodplain determination?
- Yes No Will an H & H (hydrologic and hydraulic) study be required?

Bridge Project Detailed Description

This is an existing bridge constructed in 2002. The design is a steel I-beam frame with steel cross support members. There is a 3" thick rough-sawn white oak "sub-deck running perpendicular to I-beam direction with 3/4" bolts connecting the oak, through the "lip" of the I-beam at 8" intervals. This sub-deck is deteriorating and it is apparent that this was a poor design choice for the bridge surface. The white oak is covered with 2" rough sawn treated pine. Washburn County initially secured grants to replace all wooden components but we contracted with an engineer to determine if there were more feasible ways to attach the deck. They determined that the wood is integral to the design and needed to be bolted in the same manner. They also determined that a 4" x 10" treated pine deck was more suitable as a replacement, as well as 2" x 8" rough sawn (not dimensional) needed to be added as a surface course.

Materials were either impossible to acquire or they were prohibitively expensive. We also feel that rehabilitating this bridge as it was designed will lead to continual rehab costs as the wood deteriorates. The issue is that water gets trapped between the 2 surfaces causing rot. We are proposing to remove the bridge and place three 50' sections of prefabricated bridge sections onto the existing abutments and pilings (2). Our engineer has determined that the sub-structure is suitable for re-use.

We are proposing a scope change on 3 grants totaling \$61,268 (ATV, Snowmobile, RTP) and applying for grants split evenly between ATV and Snowmobile for the balance

Appendix A (continued)

Summarize Costs in Appropriate Categories:

Bridge Structure			
		Quote 1	Quote 2
		<input checked="" type="radio"/> Steel <input type="radio"/> Wooden	<input checked="" type="radio"/> Steel <input type="radio"/> Wooden
Bridge Dimensions:		<u>150' x 12'</u>	<u>150' x 12'</u>
Bridge Manufacturer:	<u>Anderson Bridge</u>		<u>Northwoods Bridge</u>
Design Weight Load		<u>25,000 lbs.</u>	<u>25,000 lbs.</u>
Cost of Structure:	1. Engineering	\$ <u>10,000</u>	\$ _____
	2. Structure	\$ <u>170,000</u>	\$ <u>473,398</u>
	Subtotal	\$ <u>180,000</u>	\$ <u>473,398</u>
		Quote 1	Quote 2
		<input checked="" type="radio"/> Contractor or <input type="radio"/> Sponsor Estimate	<input type="radio"/> Contractor or <input type="radio"/> Sponsor Estimate
Installation Costs:	1. Engineering	\$ _____	\$ _____
	2. Site Preparation	\$ <u>5,000</u>	\$ _____
	3. Abutments	\$ _____	\$ _____
	4. Pilings/Piers	\$ _____	\$ _____
	5. Approaches	\$ _____	\$ _____
	6. Riprap	\$ <u>2,000</u>	\$ _____
	7. Labor	\$ <u>20,000</u>	\$ _____
	8. Equipment Rental	\$ _____	\$ _____
	9. Culverts	\$ _____	\$ _____
	10. H & H Study	\$ _____	\$ _____
	11. Wetland Delineation	\$ _____	\$ _____
	12. Other <u>Demolition/disposal</u>	\$ <u>10,000</u>	\$ _____
	Subtotal	\$ <u>37,000</u>	\$ _____
	Total Cost	\$ <u>217,000</u>	\$ <u>473,398</u>

For the application grant, you must take the lowest of the two quotes.

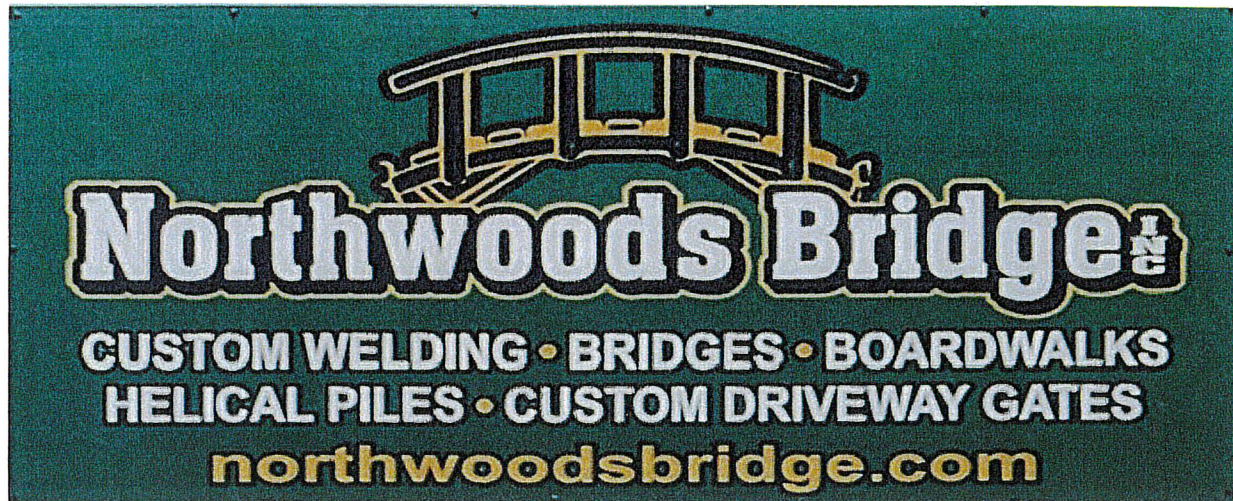
Entire Deck and Railing Projects		<input checked="" type="radio"/> Contractor <input type="radio"/> Sponsor <input type="radio"/> Club
Bridge Dimensions:	_____	
Design Weight Load	_____ lbs.	
1. Materials	\$ _____	
2. Labor	\$ _____	
Total	\$ _____	

Guidelines for Applicant

Complete this form for each bridge structure you are submitting a grant application for. Provide any additional documents not requested on application checklist to substantiate your points, including actual deeded easements.

Category		Possible Points	Actual Points
1	Condition of the Structure (max of 10 points)		
	Has a certified bridge inspection report that supports the project & demonstrates need (see example, must provide copy of report by August 1 for 2024 only)	10	10
2	Permits (maximum points 4)		
	Consultation with DNR Water Mgmt Specialist has occurred & permit is likely, if needed	1	
	Permit in hand / Bridge already permitted	3	3
3	Funding (maximum points 2) Are other funds already committed?		
	50% or greater from other funding source(s)?	2	2
	11% - 49% from other funding source(s)?	1	
4	Length of Written Easements or Land Use Agreement (max points 5)(ch. 23.09(26)(am)1 WI Stats)		
	On public land (County, State, Federal)	5	5
	10 or more year deeded easement on private land or other public land, for <u>all portions of that trail to the nearest road</u> on each side of the bridge	5	
	3-9 year deeded easement on private land or other public land, for <u>all portions of that trail to the nearest road</u> on each side of the bridge	4	
	10 or more year deeded easement on private land or other public land, for <u>just the bridge site</u>	3	
	3-9 deeded easement on private land or other public land, for <u>just the bridge site</u>	2	
	10 or more year land use agreement (LUA, not deeded) on private land or other public land	1	
	3-9 year land use agreement (LUA, not deeded) on private land or other public land	0	
5	Miles Impacted – How many miles will need to rerouted if the structure is not replaced? Measured from nearest intersection on both sides of the bridge. (max 4 points)		
	Less than 20 miles	1	
	20 miles or more	3	3
	No other snowmobile trails connect. Explain:	4	
	DEDUCTIONS		
6	County Active Project Deduction (maximum deduction 1 point) A snowmobile active project is one that has exceeded it's initial grant period.		
	Two or more active projects - deduct 1 point	-1	
GRAND TOTAL			23

Comments/Notes:



715-205-1269

A Division Of Extreme Landscape, LLC

January 18, 2024

Brandon Shutt

Washburn County Assistant Recreation Administrator

bshutt@co.washburn.wi.us

Work: 715-635-4497

Cell: 715-520-0948

I have enclosed the following documentation for the Washburn County Bridge Bid.

Bridge will be built to a state approved engineered drawing.

Bridge will be a free span truss style. Bridge will be set on current abutments & pilling.

This price includes structures, engineering, site prep, labor and rip rap.

The hardware that will be used in the project are:

3"x1/2" galvanized carriage bolts

1/2" galvanized washers

1/2" galvanized nuts

Grk 5/16"x2 3/4" screws

The first layer of treated 2x12x12 decking will be bolted down using 3"x1/2" galvanized carriage bolts with 1/2" galvanized washers and 1/2" galvanized nuts 10 per board.

The second layer of 2x12x12 treated decking will be fastened with Grk 2 3/4"x5/16" screws 10 per board. Welding standards.

The bridge will be constructed from core 10 structural steel and will be welded to D1.1 welding standards

I require 60% down payment to start the project and to order materials. The last 40% to be paid when bridge is completed and installed within 30 days.

The manufacture time will not start until down payment has been received.

To build and deliver and install the 150' Bridge with 2 15' approaches. Northwoods Bridge will do this work for **\$473,397.50**.

Pat Hover Owner
Northwoods Bridge, Inc
715-205-1269



111 Willow Street
Colfax, WI 54730
(715) 962-2800
FAX: (715) 962-2801

PROPOSAL

January 23, 2024

To: Washburn County Snowmobile Trail Administrator

Re: Hay Creek Snowmobile Bridge Budget

3 @ 50' x 12' (clear width) steel truss bridges w/ (2) 15' Approaches

- Design Standards: **AASHTO**
- Diagonals per Panel: **1**
- Clear width: **Inside face structural elements at deck level**
- End Vertical: **Square**
- Bearings: **Equal Elevations**
- Steel Grade: **A588/A847 (Unpainted self-weathering)**
- Deck: **#1 Southern Yellow Pine (.40 MCA)**
- Safety Rails: **Horizontal (4" opening)**
- Installation: **Existing abutments/piers**
- Loads: **85 psf live load - 35 psf wind load – 25,000 lbs. vehicle load**
- FOB: **Washburn County, WI**
- Engineered Drawings State Seal: **Wisconsin**

Price-----\$217,000

• Structures (Steel Truss)	\$170,000
• Engineering	\$10,000
• Soil Testing	\$0
• Site Prep	\$5,000
• Abutments	Existing
• Labor	\$20,000
• Rip Rap	\$2,000
• Demolition/Disposal	\$10,000

*****This price is for budgetary purposes only*****

Please call with any questions.

Thank you,

Kory S. Weathers

Anderson, Patrick A - DNR

From: Peterson, Mike <MLPETERS@co.washburn.wi.us>
Sent: Thursday, August 8, 2024 9:43 AM
To: Anderson, Patrick A - DNR
Cc: Shutt, Brandon
Subject: Snowmobile Council Information Request - Hay Creek Bridge
Attachments: Shelby Co STL STR 0118.pdf

**CAUTION: This email originated from outside the organization.
Do not click links or open attachments unless you recognize the sender and know the content is safe.**

Pat, the Snowmobile Council sub-committee wanted cost information on deck replacement versus new clear-spans on the Hay Creek Bridge. As I stated in the meeting, Washburn County does not want to replace the wood subdeck/stingers and deck as the bridge was originally designed. I do not think this double layer design has an appropriate longevity and the labor costs of lining up and re-drilling for several thousand lag bolts will be quite high.

I contacted Wheeler Lumber about sourcing the lumber as depicted in our Northland Engineering report and their suggestion was to not use regular lumber products (confirming my opinion on longevity). They are suggesting a timber transverse deck panels. These panels are 12' x 4' x 3.5" thick, pressure treated Douglas fir to be installed with deck clips that attach to existing steel stringers. Product photos attached. Wheeler indicates that this product is much more durable than regular pressure treated lumber.

They will not give us a weight rating for the bridge with this product as they cannot give us an engineered opinion on someone else's sub-structure, but do indicate they are comfortable stating that it should give us a slightly better weight rating than the Northland opinion of 14,000#. Wheeler supplies materials only. Price quotes/estimates:

Wheeler panels and hardware - \$83,100
Larson Construction installation - \$56,945
Disposal of old decking (County) - \$1,000

Total cost estimate for re-deck with Douglas fir deck panels = \$141,045. Our preference remains the original grant submission of new clear-span segments for \$217,000 (a difference of \$76,000 that would achieve a 25,000# weight rating). We would settle for the timber transverse deck panels but we will not consider replacement of deck as originally designed.

Let me know if you need any additional information.

Mike Peterson
Washburn County Forest Administrator
1760 Roundhouse Road
Spooner, WI 54801
(715) 635-4490

SHELBY COUNTY SECONDARY ROADS DEPARTMENT
TIMBER DECK PANELS ON STEEL STRINGERS

HARLAN, IA



Westphalia Bridge

100' long x 24' wide

Work performed by Shelby County Secondary Roads Department in June, 2016



952.929.7854

wheeler1892.com



New Timber Deck Panels



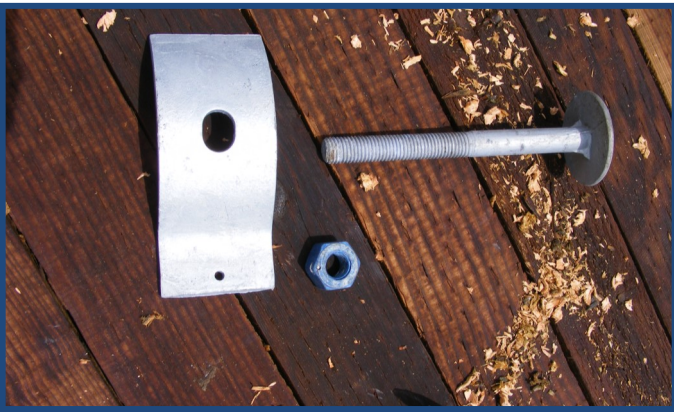
Handled w/ Small Crane



Panels Set on Steel Stringers



Panels Interconnect via Ship-lap



Hardware for Connecting Panels to Stringers



Finished Panel/Stringer Connection



Hardware Installation

August 12, 2020

Mr. Mike Peterson
Washburn County Forest Administrator
1760 Roundhouse Road
Spooner, WI 54801

**Re: Hay Creek Snowmobile Bridge – Re-Decking and Capacity Review
NCE Job No. 20-383**

Dear Mr. Peterson:

At your request we have reviewed the structural design capacity for the existing three-span (plus approaches) bridge. We have reviewed only the gravity loads, as the current lateral load requirements match the stated lateral design loads from the original construction documents. The structure was designed and constructed in approximately 2002. The existing structure consists of (4) steel girders per span with 3x white oak wood decking and 2x wood surface decking. The original construction documents state the bridge was designed for 60 psf snow, 14,000# vehicle (8'x10') with 30 psf live load also applied. No wheel loading was described and no overload provision were described.

Structural calculations have been performed based on the current gravity load design standards (described below).

The bridge is to receive new structural and surface decking due to deterioration. As requested, we did consider a new fastener system. However, it is not recommended to use surface screws for fastening primary deck structure. Screws rely only on thread bite, which tends to deteriorate with long term moisture issues leading to loss of strength and poor performance. Therefore, we recommend that the primary decking be through bolted. This report also includes a sketch for requested revised decking size, material specification and connection methods in order to meet or exceed the recommended wheel loading under the current design standard.

A) Structural gravity load analysis:

Basis of Calculations:

1. Current Bridge Design Guidelines PUB-CF-005 2017.
 - a) 60 psf Pedestrian Load (PL)
 - b) 60 psf snow load (SNL)
 - c) 14,000# Vehicle load (VL) – This vehicle is assumed to be a power unit plus drag.
 - d) Overload Provision – The Vehicle load must be increased by 145% for infrequent loading or 20,000#
 - e) Wheel loads – specific wheel loading is not defined. However, the document refers to a minimum 5T (10,000#) vehicle and therefore we assume the intent to be AASHTO H5 loading with a maximum rear wheel load of 4000#.
 - f) 20 psf Wind Load (WL)
2. Load combinations:
 - a) DL (self weight) + 0.80(PL + SL + WL)
 - Or
 - b) DL (self weight) + 0.75(SNL + WL + VL) [Note VL = 20,000#]
3. The results of our analysis conclude the following

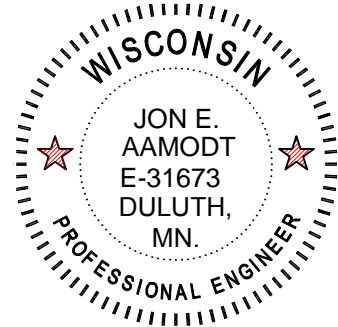
- a) The new decking shall be 4x (match existing width for holes) rough sawn Southern Yellow Pine (SYP) Machine Evaluated (M-35) or Machine Stress Rated 1050f-1.6E decking.
- b) The top wear course of decking shall be 2x8 min. rough sawn SYP #1 dense decking or better.
- c) Assuming like new condition, the existing bridge design meets the current required design criteria described above.
- d) Predicted deflection of the bridge under the described design loading is span / 600 which also meets current design standards.

Respectfully,



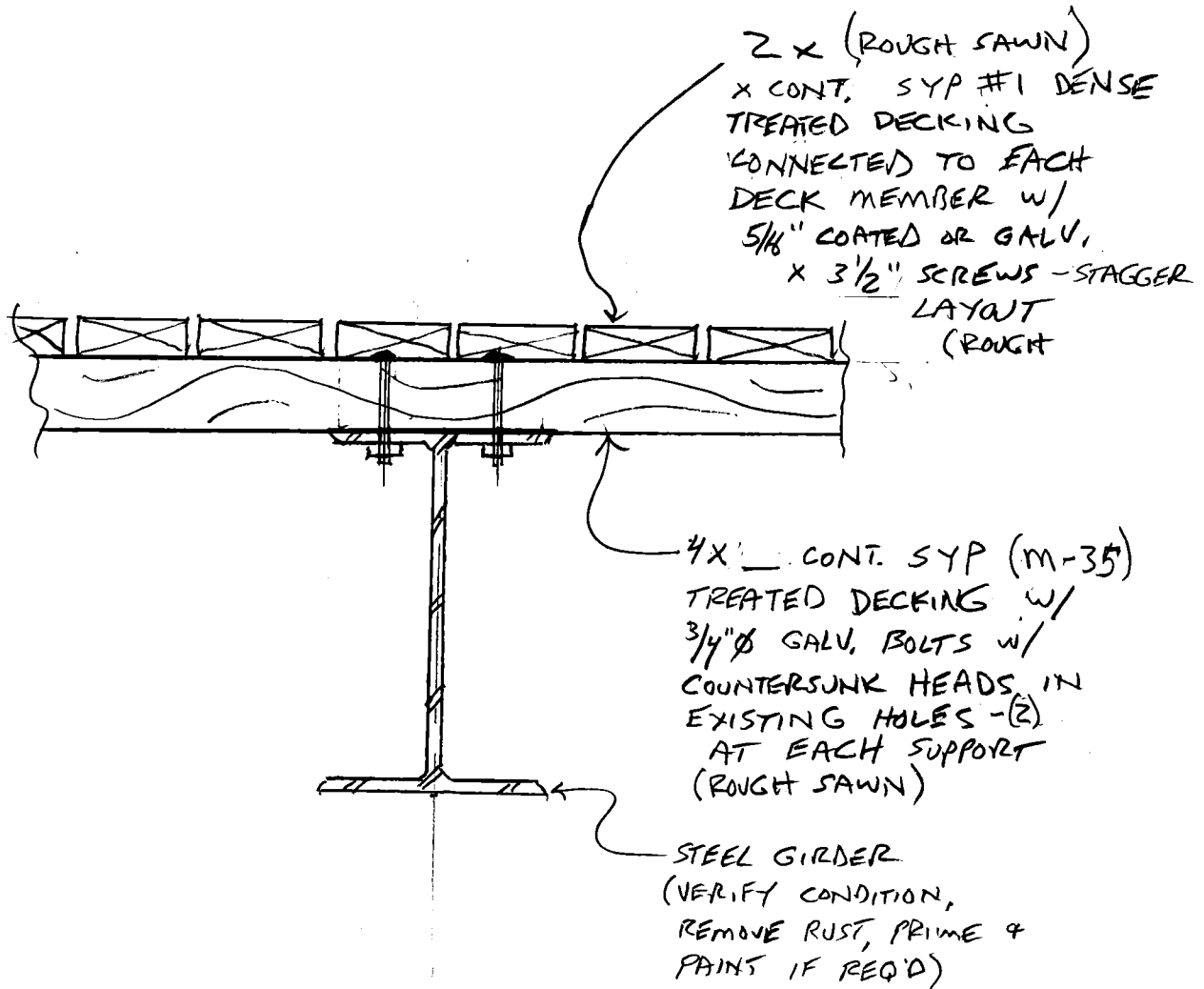
Jon E. Aamodt P.E.

Attached: Recommended decking fastening detail "A"





PROJECT#	DATE:	BY:	PAGE



(A) DECKING DETAIL
1/2" = 1'-0"



WASHBURN COUNTY FOREST

FOREST ADMINISTRATOR

1760 Roundhouse Road
SPOONER, WISCONSIN 54801
(715) 635-4490 Fax (715) 388-7947

PROJECT NARRATIVE HAY CREEK BRIDGE PROJECT SCOPE CHANGE

INTRODUCTION: Washburn County secured grants in 2019 to re-deck a 150' long snowmobile/ATV trail bridge. Due to bridge design quirks, availability of materials, price of materials and excessive labor requirements, we are proposing to remove the bridge structure and place new pre-fabricated bridge segments on the existing footings and pilings.

BACKGROUND: The Hay Creek Bridge is part of ATV/Snowmobile Trail 39 in Washburn County. This trail is a critical connection between Spooner, Trego, Minong and Hayward. The bridge is steel frame, 150' long, with steel abutments and two steel pilings in the stream and wetlands. It was constructed on-site by Spooner Machine in 2002, and is weight rated for 12,000 pounds.

The bridge deck began to deteriorate and Washburn County applied for bridge rehabilitation grants in 2019. We secured \$15,317 from the snowmobile program (S-5411), \$15,317 from the ATV program (ATV-4099) and \$30,634 from RTP (93619M). Our intention was to replace all of the wood components on the bridge.

ENGINEERING: Before starting the project, we consulted with the engineer that initially designed the bridge to determine if there was a feasible way to increase the weight rating of the bridge and simplify the anchoring system that attached the wood to the steel. The bridge has 3" white oak attached to steel with 2" treated pine deck over the top. The white oak is attached with an extensive bolt system as shown in the attached Image 1 & 6. Their review included the following:

- The 3" white oak "sub-deck" fastened directly to steel is integral to the function of the bridge and would need to be replaced with same.
- They recommend substituting 3" white oak with 4" treated pine (rough sawn, not dimensional).
- Surface decking shall be at least 2" x 8" rough sawn treated southern yellow pine.

ISSUES:

- White oak has not proven to be a viable deck material due to rot/deterioration
- 4" treated pine is difficult to source and was impossible to secure during Covid

- Surface decking would require special order rough sawn treated (this is not dimensional lumber).
- Anchoring system is large bolts through the sub deck and I-beams. Bolt holes would need to be aligned on 8" intervals lengthwise across 4 beams (almost 1,000 ¾" bolts to align from beneath the bridge).
- The cost of materials has increased substantially since we applied for the grant in 2019. It is evident that we would need to secure a major funding increase on the project just to replace with an in-kind bridge deck, and we question the long-term viability of this bridge design.

PROPOSAL: After extensive review, we feel that removing the bridge structure and replacing it with pre-fabricated clear span structures would be the most viable and cost effective long term approach based on the following:

- Engineer review shows that the existing abutments and pilings are suitable to place a new bridge structure
- Three 50' bridge spans can be placed on the existing substructure
- Life span of commercially manufactured clear-span segments will be much longer than the wooden components designed in the original bridge
- Future re-decking projects can be done with commonly available dimensional treated lumber.
- We feel that replacing the bridge materials as designed will result in a need to rehabilitate the project in 10 years.
- New bridge would be rated to 25,000 lbs.

We respectfully request a scope change of S-5411, ATV-4099 and RTP 93619M from Hay Creek Bridge rehabilitation to Hay Creek Bridge partial replacement. Our low estimate for this project is \$217,000. Scope change of the grants would allocate \$61,268 to the new project.

Hay Creek Bridge Replacement – Photos

Image 1



Image 2



Hay Creek Bridge Replacement – Photos

Image 3



Image 4



Hay Creek Bridge Replacement – Photos

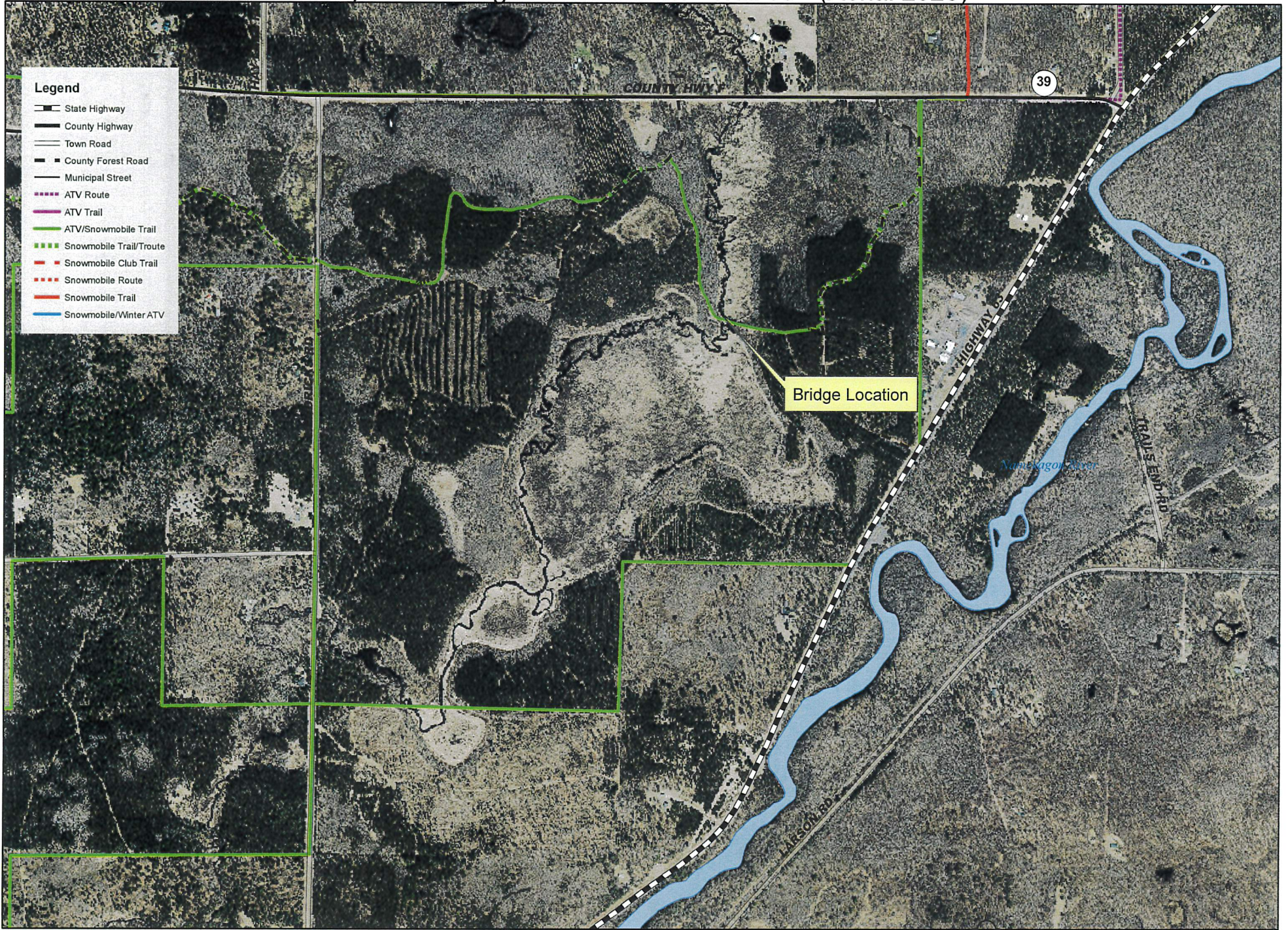
Image 5



Image 6



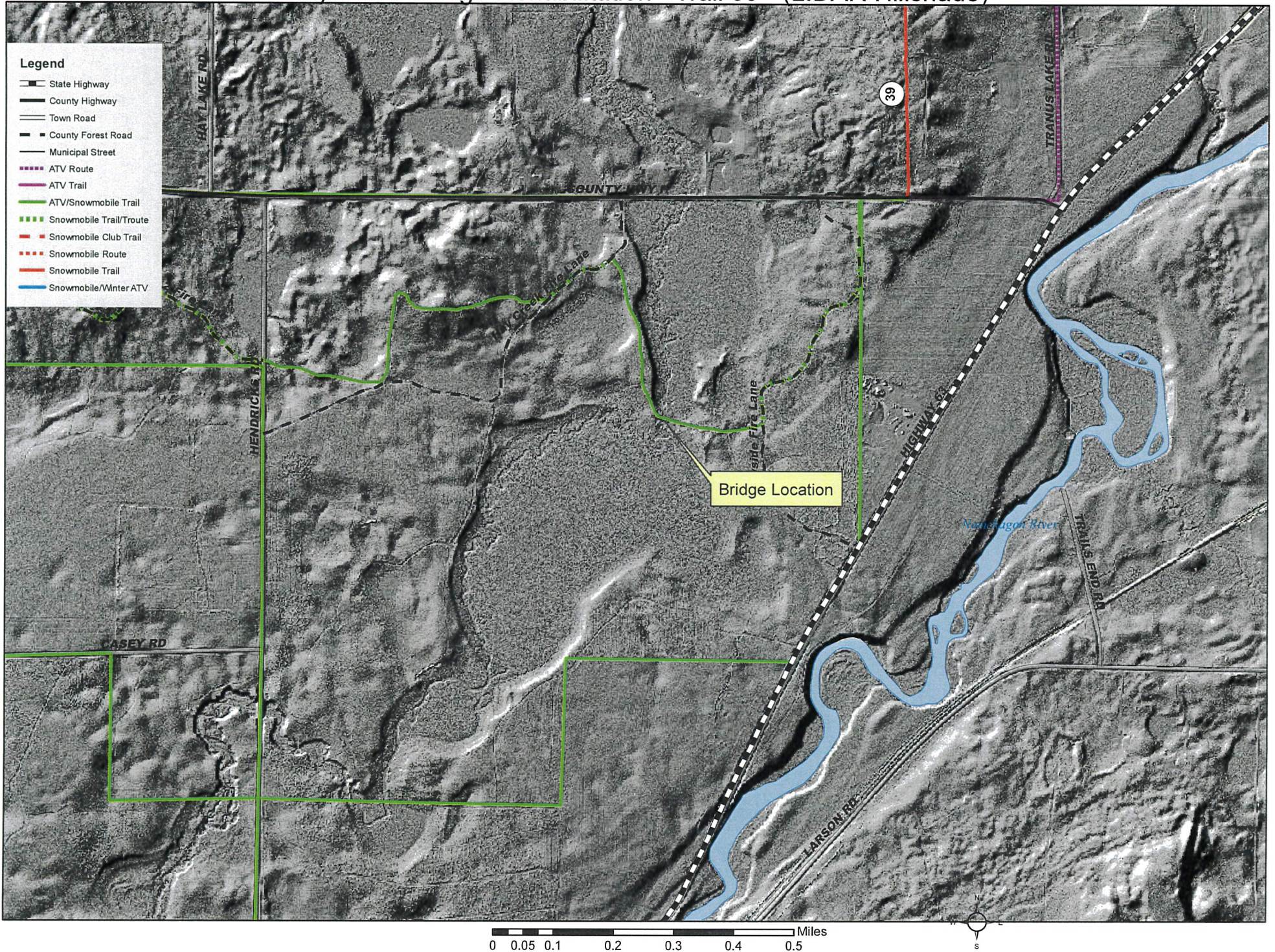
Hay Creek Bridge Rehabilitation - Trail 39 - (Aerial 2020)



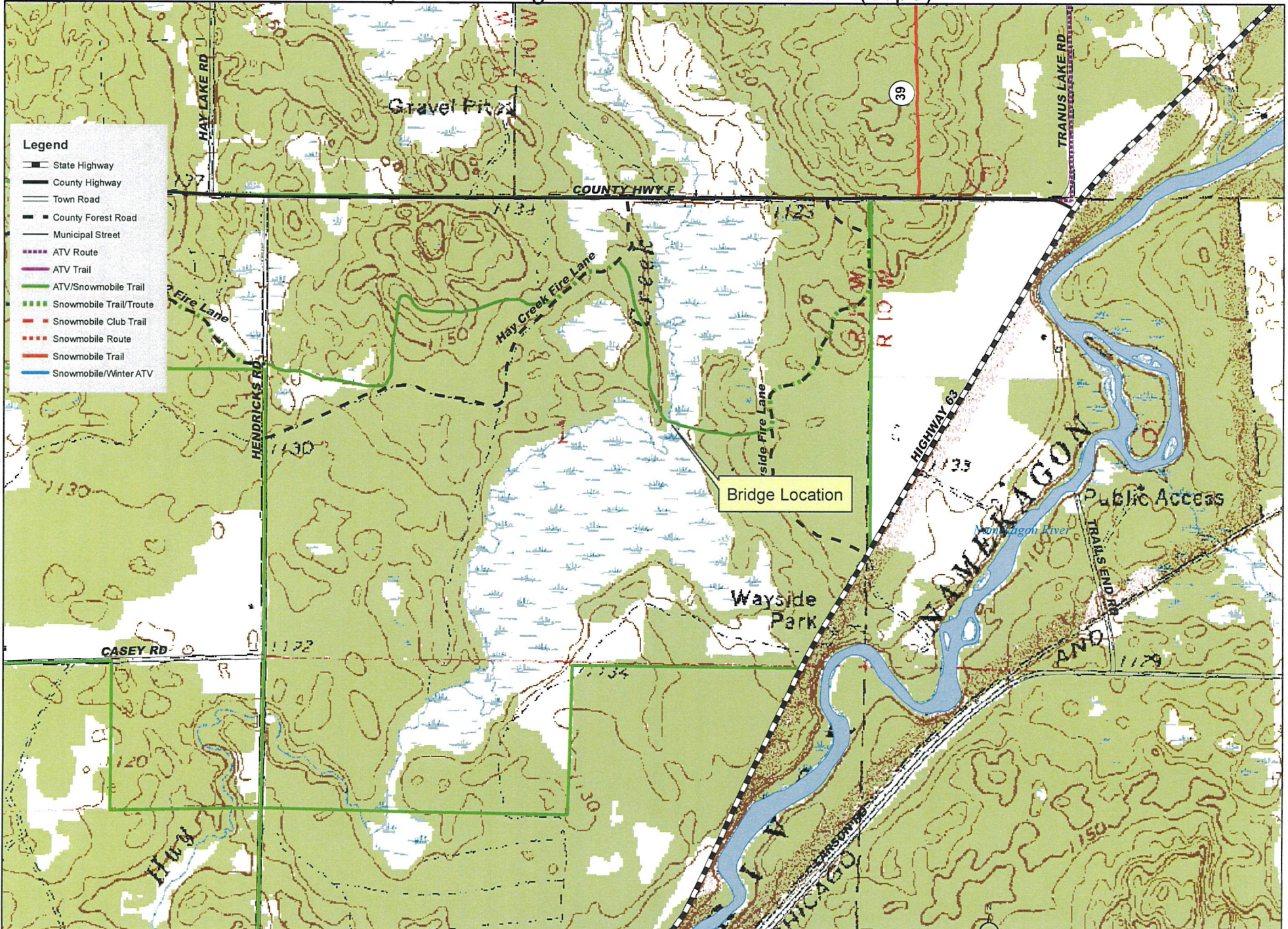
0 0.05 0.1 0.2 0.3 0.4 Miles



Hay Creek Bridge Rehabilitation - Trail 39 - (LIDAR Hillshade)

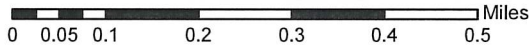


Hay Creek Bridge Rehabilitation - Trail 39 - (Topo)

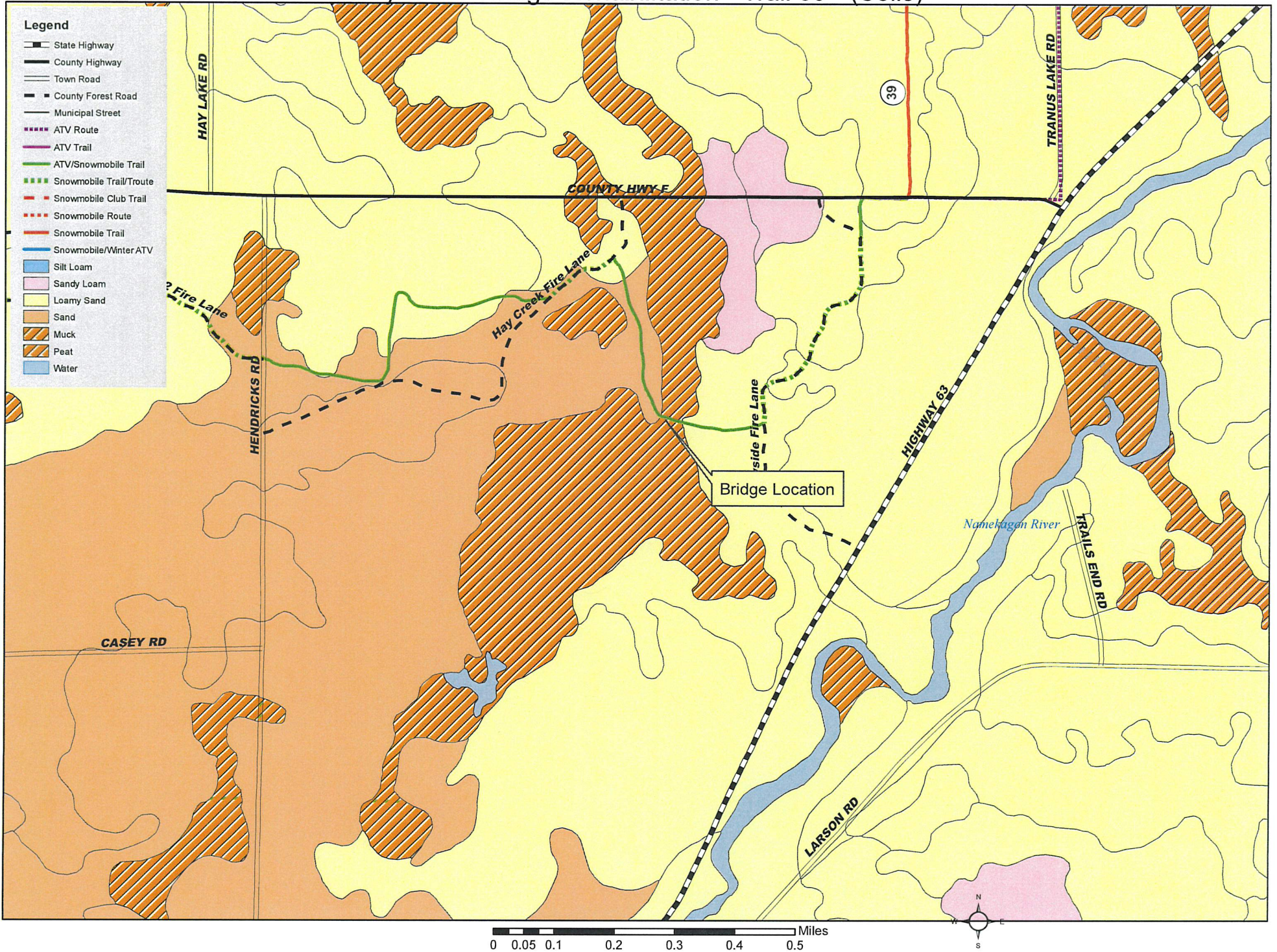


- Legend**
- State Highway
 - County Highway
 - Town Road
 - County Forest Road
 - Municipal Street
 - ATV Route
 - ATV Trail
 - ATV/Snowmobile Trail
 - Snowmobile Trail/Troute
 - Snowmobile Club Trail
 - Snowmobile Route
 - Snowmobile Trail
 - Snowmobile/Winter ATV

Bridge Location



Hay Creek Bridge Rehabilitation - Trail 39 - (Soils)



Hay Creek Bridge Rehabilitation - Plat (Springbrook)

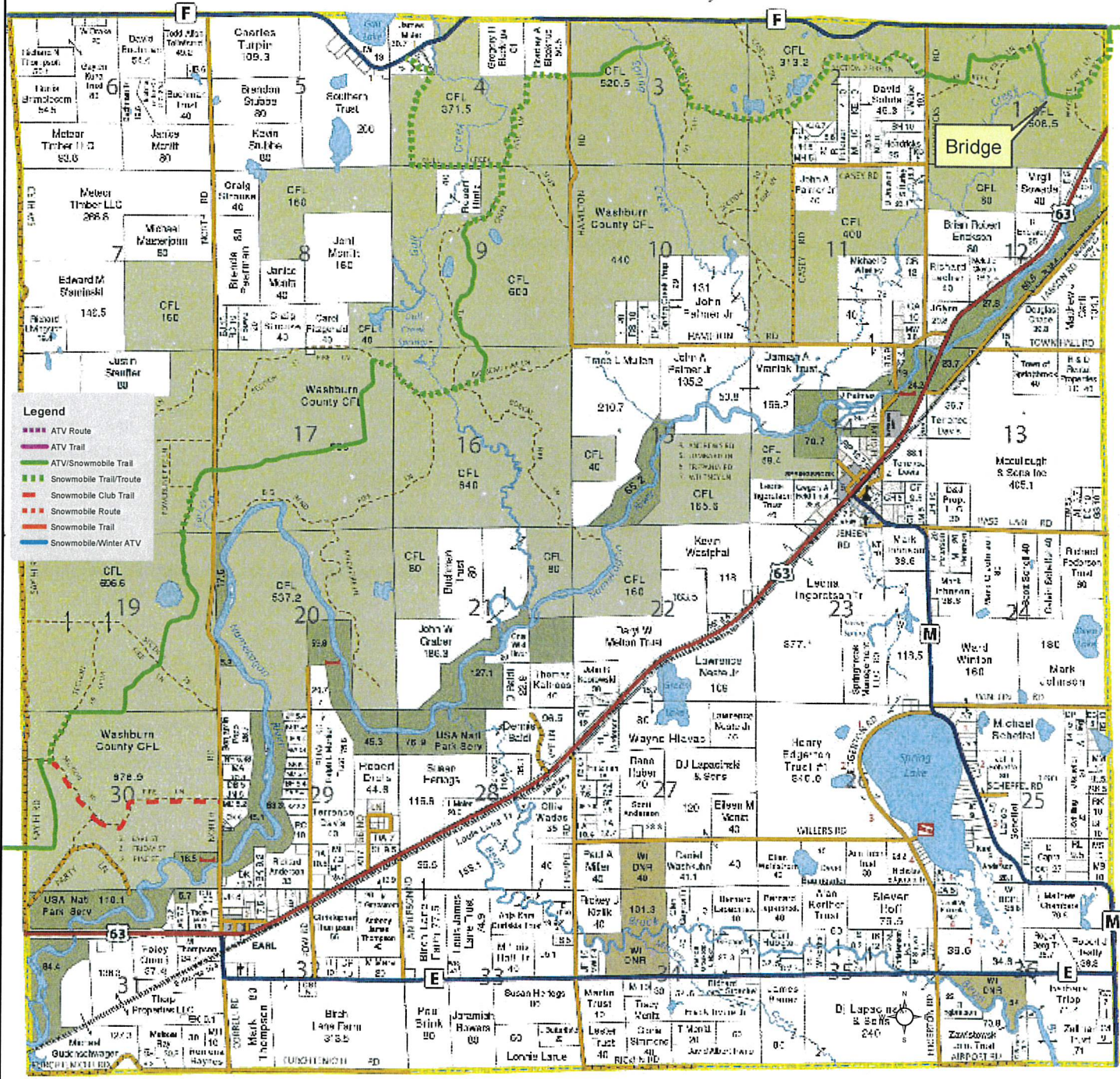
Springbrook

T.40N.-R.11W.

Washburn County Land Information Office Shell Lake, WI

See Page 42

39



See Page 38

See Page 28

W4900 W4800 W4700 W4600 W4500 W4400 W4300 W4200 W4100



**Septic Tank Servicing • Holding Tanks Pumped
Portable Restroom Rental • Sewer Line Thawing
Drain Cleaning (electric roter)**