



Conservation Resource Alliance

**Pere Marquette River Restoration Committee Meeting Minutes
October 27, 2023 at 2:00 pm (Friday)
Lake Osceola State Bank – Baldwin, MI**

IN ATTENDANCE:

Kimberly Balke, Conservation Resource Alliance (CRA)
Gavin MacDonald, Conservation Resource Alliance
Jim Bos, Pere Marquette Watershed Council (PMWC)
Tom Johnson, Lake County Riverside Property Owner's Association (LCRPOA)
John Wilkinson, US Geological Survey
Steven Sendek, US Geological Survey
Dave Peterson, Great Lakes Fly Fishers International
Mark Anderson, Pere Marquette Watershed Council
Kenny Wawsczyk, Pere Marquette Trout Unlimited
Len Todd, Baldwin River Property Owner and Pine/PM Zoning Boards
Doug Bacon, Flint Rainbow Club (FRC)
Indy Bacon, Flint Rainbow Club
Peter Neithercut, Flint Rainbow Club
Pat Kelly, Flint Rainbow Club and CRA
Archie Martell, Little River Band of Ottawa Indians (LRBOI)
Scott Courts, Little South Branch Property Owner
Nancy Ryan, Baldwin and PM River Property Owner
Dave Jaunese, US Forest Service (USFS)
Terry Flaherty, US Forest Service

Introductions were made and everyone was welcomed. Mark Tonello, Michigan Department of Natural Resources Fisheries Division (MDNR) contacted Kim B. prior to let her know he was unable to attend the meeting, however he sent along the most recent fish survey information (attached). Dani M. with Mason Lake Conservation District and Julia Chambers, AFFEW were also unable to attend. Kim B. scrolled through a presentation of the happenings in the PM Watershed that are River Care related from the last couple years plus up and coming projects. The following are highlights:

RR TRESTLE STREAMBANK

Construction has begun at the project site; a press release is included with these meeting notes and slides on the project are also included for added details on design, funding, costs, partners, etc. Kim B. emphasized major accolades to the partners and funders that made this project come to fruition. The project was bid out in May 2023, with two bids received and the bid was awarded to Knoop Excavating Services out of Reed City. Knoop began mobilizing equipment this week, licensed and local river guides have been notified and signs put up at all access points, and the bulk of the major earthwork is intended to be completed by year end with post restoration and revegetation efforts in spring and fall 2024. Press releases on the project starting are/have been distributed by USFS and CRA, too.

SCOTTVILLE PARK STABILIZATION PROJECT

This site was completed under the CRA project management of DJ Shook with partnering the Village of Scottville in summer 2022, with additional plantings yet this fall season. Funding provided by USFWS and the Village. Included in attached slide presentation.

INSTREAM HABITAT & STREAMBANK STABILIZATION

CRA project manager, Nate Winkler worked with PM TU (also provided funding) and the PM Rod and Gun Club on woody debris placement and stabilization in the summer 2022. Included in attached slide presentation. Kim B. noted that her and Nate W. have been working with landowners in the overall watershed on streambank stabilization projects using either fieldstone and/or instream wood 2020-2023 of which the projects are landowner funded. The Chinnery streambank

stabilization project by Mason Lake Conservation District was also included in the slides for those not familiar with it and since it was a significant, multi-year, multi-faceted endeavor.

BALDWIN DAM OPTIONS ANALYSIS

CRA secured grant funding from MDNR and Great Lakes Fishery Commission (GLFC) to coordinate this analysis of the Baldwin Dam site in 2022-2023. Meetings with partners and interested stakeholders have been held virtually during 2021-2023, as well. Information on the analysis to date is included in the attached slide presentation. Len Todd is a property owner on the Baldwin River downstream of the dam site and expressed his concerns over sediment migration that resulted from the boards being removed due to MEGLE's concern for dam safety during high water events and over bank erosion at a site previously stabilized in the 1960-70s with log riprap. He is also concerned with the passive sediment management approach recommended in the last design report. Kim B. noted that it will be included in the project scope for the next design stage to consider log riprap structures downstream of the dam and to recommend active sediment management for the dam removal project (estimated 2,900 cyd still impounded behind dam). CRA has secured grants from MDNR and MEGLE for the next phase of design along with the GLFC committing funds. If anyone wants to be on the mailing list for this project and its meetings please contact Kim B.

ROAD/STREAM CROSSING IMPROVEMENTS

CRA has made continued progress on the N. Cole Creek (Baldwin River headwaters tributary) and 24th Street crossing replacement project. Design for a timber bridge to replace the triple culverts is complete and state permits (EGLE and Natural Rivers) are secured. A bottomless arch structure was not possible due to 12' of muck found in the soil borings. Construction funds from MDNR through America the Beautiful Challenge grant and through the Grand Traverse Band of Ottawa and Chippewa Indians from National Oceanic Atmospheric Administration have been secured to date. The Lake County Road Commission and CRA executed an agreement with the design engineer, Spicer Group, to bid the project out to construction contractors later this fall. CRA has also been working with NOAA to perform a NEPA analysis of the project which will include an archaeological review of the site. Once NEPA is completed, all regulatory compliance requirements will have been satisfied, at which point Spicer Group will let the project for bid.

WILD ROOTS

CRA is participating in the Statewide Forest to Mi Faucet Project, a handout is included with these meeting notes and CRA staff will be contacting the City of Luddington staff in the coming months as the City sources its drinking water from Lake Michigan. This is in an effort to keep the PM watershed healthy and treatment costs at their water treatment plant low. CRA also has a Wild Roots grant that includes assessing sites in the PM Watershed on federal land for significant emerald ash borer impacts and planting them with diverse tree and shrub species; more to come next year as CRA needs to ground truth sites mapped by the USFS. CRA project managers, DJ Shook and Michael Seefried, are the contacts for these projects.

PARTNER UPDATES

- Dave J. reported that USFS Lower Bridge access project is in the final stages of receiving Section 7 approval, and the permit applications with MEGLE and MDNR Natural Rivers are in the public comment stage. Construction is intended to start in spring 2024. USFS is looking at the Green Cottage access site including the boat slide, fisherman trails, boardwalks and rest stops. Design is underway with their engineer, Heather Jamison, and more details will be provided in the spring 2024. USFS will cooperate with all permitting entities, the zoning review board and others on the Green Cottage redesign effort. Terry F. is the new USFS Fisheries Biologist to the Baldwin Station, a warm welcome to her.
- Archie M. noted reported the Little River Band's Natural Resources Department has found the New Zealand Mudsail in the neighboring watershed of the Pine River arm of Tippy Pond. He also noted that the Tribe celebrated their 20th year of collecting sturgeon larvae, raising them at their sturgeon facility, and releasing them at Rainbow Bend on the Manistee River. This year was their largest release yet at 515 sturgeon into the Big Manistee River. Thank you to the Tribe for nurturing and growing this program to ensure that sturgeon, a native fish species, remains in the Great Lakes and its tributaries.
- Scott Quartz and Tom Johnson live on the Little South and discussed the effort of Nate W. cooperating with a group of landowners on the Little South Branch exploring instream large wood habitat opportunities for 2 miles or more/less of stream dependent on funding availability and landowner involvement. Nate W. met with landowners in September 2023 and the next meeting is anticipated for January 2024. They are looking at the reaches of the Little South from Foreman Road to James Road. Tom Johnson has property where a former partially remaining water control structure, constructed artificial channel and a sensitive streambank are collectively on his and his neighbors' properties.

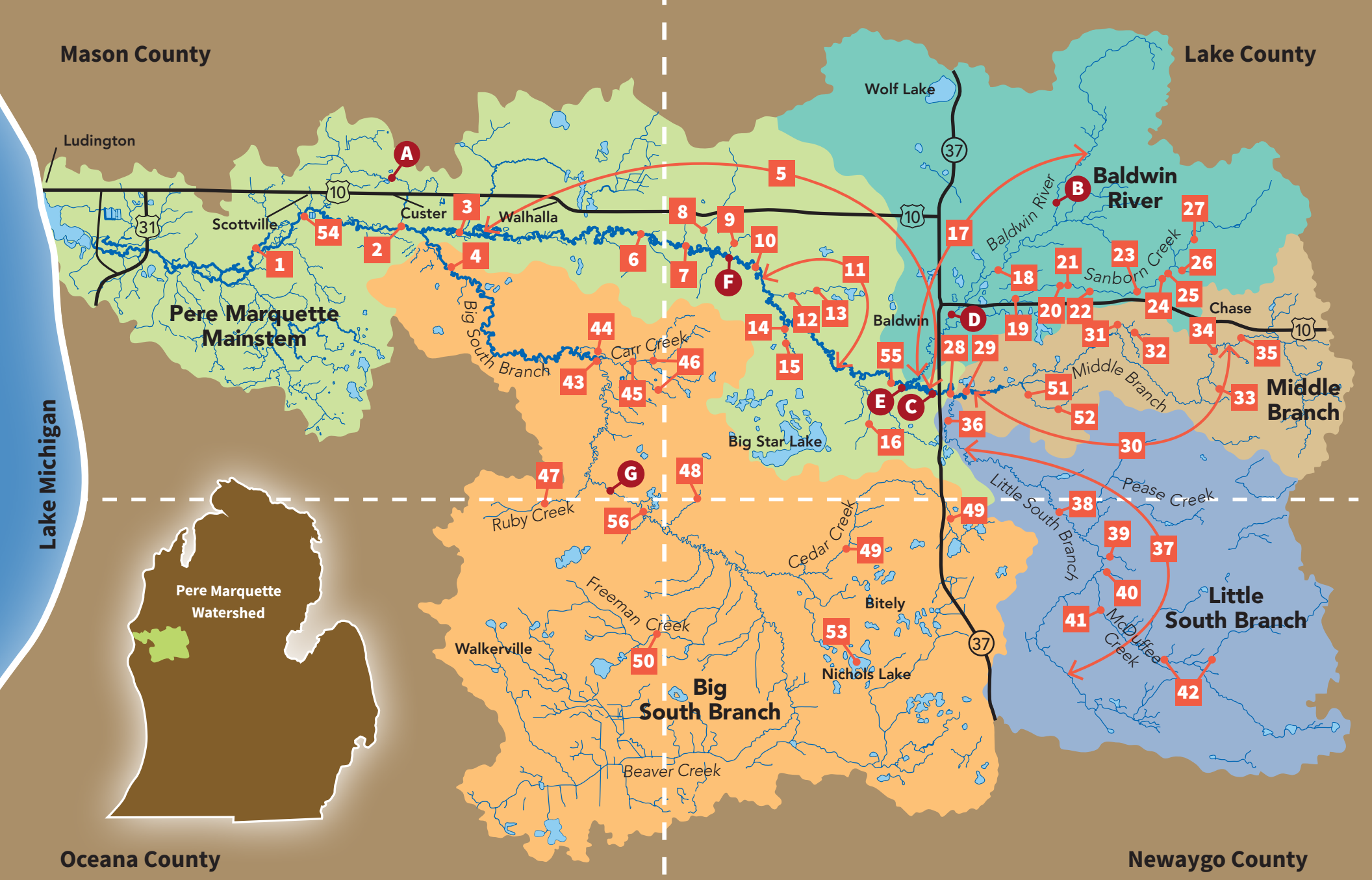
- Questions arose regarding the dams on Pease Creek owned by the Grass Lake Hunting Club. After the meeting, looking online at the MEGLE Dam inventory map one of the dams is due for inspection in 2023. Someone had heard that 76 million gallons of water a day flows out of one of the dams.
- John W., USGS, noted that they are supportive of establishing more gage stations in the watershed, however funding would be needed to establish and maintain such a station. USGS staff are able to help with other endeavors including hydrology and water quality aspects.
- Kenny W., reported that PMTU planted 20 temperature gages in the watershed and just pulled them to upload data collected. Stay tuned on data reporting. Kristen Thomas with TU installed a mayfly gage at M-37 PM river crossing, too.
- Jim B. with PM Watershed Council and PMTU wants to focus next on an eroding claybank on the Sessions property as a next project. Jim B. has already spoken with USFS and MDNR Natural Rivers about exploring a fieldstone recommendation and initial reactions are supportive.
- Peter N. with Flint Rainbow Club noted that the Club is thankful and looking forward to seeing the RR stabilization project completed.
- After the meeting, Mark A. noted to Kim B. that a culvert crossing south of Indian Bridge has steep embankments and is an erosion concern, he is talking with Dana Castle about it. It is site #PM-M005 in the inventory.
- Julia Chambers, AFFEW, couldn't make the meeting however, she wanted to invite CRA and others to their Annual Earth Day Event April 20th, 2024. They have workshops and speakers, activities for all ages, along with educational booths, relating to the environment. There is no cost for the booth. Groups can contact her at president@affew.org or go to affew.org and fill out a form.

RIVER CARE PERE MARQUETTE FUND (add-on to meeting items)

CRA does maintain a River Care Program Fund for specific rivers; this mechanism serves helpful for those donors wanting to donate to a specific watershed. Currently, the PM River Care Fund has \$5,048 in funds available; the most recent contribution was a \$1,000 from the Vogt Foundation, CRA sent a thank you to them for their generosity.

NEXT MEETING

The meeting concluded at 4:00 pm. The next meeting will be in spring 2024, I hope everyone has a nice holiday and winter season. Agendas will be mailed out in advance and feel free to contact CRA with questions/concerns in the meanwhile. Meeting notes provided by Kim B, please contact her with any changes. Thank you, everyone!



Pere Marquette River Care™

COMPLETED PROJECTS

1. Chinnery Logslide - Streambank Stabilization (MLCD)
2. Custer Weir - Access Site Restoration
3. Pere Marquette River & Reek Rd - Indian Bridge (MDOT)
4. Big South Branch & Wilson Rd - Bridge Improvements
5. Mainstem - Streambank Stabilization Projects (115)
6. Pere Marquette River & Landon Rd - Bridge (MDOT)
7. Upper Branch - Streambank Stabilization
8. Tank Creek & Wingleton Rd - Culvert Replacements & Tank Creek Dam Removal
9. Sweetwater Creek & Wingleton Rd - Timber Bridge
10. Streambank Stabilization & Instream Habitat
11. Gleason's Landing to Rainbow Rapids - Instream Habitat
12. PM Tributary & Mac Rd - Road/Stream Crossing Replacement
13. Kinney Creek & Wingleton Rd - Timber Bridge
14. Freeman Creek & Maple Island Rd - Bridge Improvements
15. Pere Marquette Tributary & Mac Rd - Culvert Replacement
16. Jenks Creek & Jenks Rd - Culvert Replacement
17. Baldwin River - Streambank Stabilization Projects (21)
18. Baldwin River & 40th St - Streambank Stabilization
19. Sanborn Creek & Foreman Rd - Culvert Replacement
20. Sanborn Creek & Broadway St - Culvert Replacement
21. Sanborn Creek & Nelson Rd - Culvert Replacement
22. Sanborn Creek & Spruce Rd - Culvert Replacement
23. Sanborn Creek & Kings Hwy - Culvert Replacement
24. Sanborn Creek & Queens Hwy - Culvert Replacement
25. Sanborn Creek & 40th St - Culvert Replacement
26. Sanborn Creek Tributary & 40th St - Culvert Replacement
27. Sanborn Creek & State Rd - Culvert Replacement
28. Jarvis - Island & Instream Habitat
29. Middle Branch/Little S Branch & James Rd - Forks Timber Bridge
30. Middle Branch - Streambank Stabilization Projects
31. Baker Creek & 56th St - Culvert Replacement

32. Baker Creek & Kings Hwy - Culvert Replacements (4)
33. Middle Branch Tributary & Bonney Rd - Culvert Replacement
34. Middle Branch & Depot St - Timber Bridge Replacement
35. Middle Branch & Baker Rd - Timber Bridge
36. Little South Branch & 76th St - Kennedy Timber Bridge (MDOT)
37. Little South Branch - Streambank Stabilization Projects (18)
38. Little South Branch & 17 Mile Rd - Bridge Improvements
39. Little South Branch Tributary & Spruce Ave - Culvert Replacement
40. Little South Branch Tributary & Spruce Ave - Culvert Replacement
41. McDuffee Creek & 14 Mile Rd - Bridge Improvements
42. McDuffee Creek & 12 Mile Rd - Culvert Replacements (2)
43. Big South Branch & Hawley Rd - Bridge Improvements
44. Carr Creek & Hawley Rd - Streambank Stabilization
45. Carr Creek Tributary & Hawley Rd - Culvert Replacement
46. Carr Creek Tributary & Tyndall Rd - Culvert Replacements (2)
47. Ruby Creek & 176th St - Culvert Replacement
48. Woody Creek & 18 Mile Rd - Culvert Replacement
49. Cedar Creek incl. tributaries & 16 Mile Rd - Culvert Replacements (4)
50. Cedar Creek & Beaver Rd - Culvert Replacement
51. Blood Creek & 72nd St - Culvert Replacement
52. Blood Creek & Broadway Ave - Culvert Replacement
53. Nichols Lake - Wildlife Habitat
54. Scottville Riverside Park - Streambank Stabilization
55. Large Wood Instream Habitat & Streambank Stabilization
56. Large Wood Instream Habitat & Streambank Stabilization

FUTURE NEEDS

- A. Black Creek & Custer Rd - Road/Stream Crossing Replacement
- B. N Cole Creek & 24th St - Timber Bridge
- C. Pere Marquette River Railroad - Streambank Stabilization
- D. Baldwin River Dam Removal, River Restoration, Sea Lamprey Barrier & 8th St Bridge Projects
- E. Large Wood Instream Habitat & Streambank Stabilization
- F. Large Wood Instream Habitat & Streambank Stabilization
- G. Streambank Stabilization

MDOT = Michigan Department of Transportation
MLCD = Mason Lake Conservation District

Pere Marquette River Streambank Stabilization & Floodplain Restoration Project



Conservation
Resource Alliance

CRA's Workplan 2022-2024

We are active
on 15 rivers &
their
tributaries

2022-2024 Workplan Map

Garp Lake River Watershed

Prioritize Next Improvements or Restoration Needs

Maple River Watershed

1. Van Creek & Bike Trail - Trail/Stream Crossing Improvement
2. E Branch Maple River & Douglas Lake Rd -Road/Stream Crossing Improvement
3. E Branch Maple River & Robinson Rd - **COMPLETED** Road/Stream Crossing Improvement
4. Lake Kathleen - Post Dam Removal and Monitoring

Jordan River Watershed

5. Jordan River & Jordan River Rd - East and West Rd Road/Stream Crossing Improvement
6. Deer Creek & Fuller Rd - Road/Stream Crossing Improvement

Boyerne River Watershed

Prioritize Next Improvements or Restoration Needs

Boardman Watershed

7. N Branch Boardman River & Broomhead Rd **COMPLETED** Road /Stream Crossing Improvement
- Prioritize Next Improvements or Restoration Needs

Mitchell Creek Watershed

8. Mitchell Creek & GTRLC Property Instream Habitat Improvements

Platte River Watershed

Prioritize Next Improvements or Restoration Needs

Crystal River Watershed

- 9, 10 & 11. Crystal River & County Rd 675 Road/Stream Crossing Improvement
12. Tucker Lake Outlet Channel & County Rd 675 Road/Stream Crossing Improvement

Betsie River Watershed

13. Betsie River & Haze Rd - Stream Crossing Improvement
- Prioritize Next Improvements or Restoration Needs

Manistee River Watershed

14. Buttermilk Creek & N 39 Road/Stream Crossing Improvement **COMPLETED**
15. Buttermilk Creek & N 37 Road/Stream Crossing Improvement **COMPLETED**
16. Trib. of N. Branch Manistee & Grass Lake Road/Stream Crossing Improvement
17. Fletcher Creek & 4 Rd Road/Stream Crossing Improvement **COMPLETED**
18. Fife Lake Creek & County Line Road/Stream Crossing Improvement
19. Adams Creek & 14 Rd Road/Stream Crossing Improvement

Bear Creek Watershed

Prioritize Next Improvements or Restoration Needs

Fine River Watershed

Prioritize Next Improvements or Restoration Needs

Little Manistee Watershed

Prioritize Next LMWCC Improvements or Restoration Needs

Big Sable Watershed

Prioritize Next Improvements or Restoration Needs

Pere Marquette Watershed

20. PM Railroad - Streambank Stabilization & Floodplain Restoration
21. Scottville Riverside Park - Streambank Stabilization **COMPLETED**

Stony Creek Watershed

22. Stony Creek Marshville Dam Removal

Baldwin River Watershed

23. Baldwin River Dam Removal, Sea Lamprey Barrier, & River Restoration Project
24. N Cole Creek & E 24th St - Road/Stream Crossing Improvement



www.rivercare.org



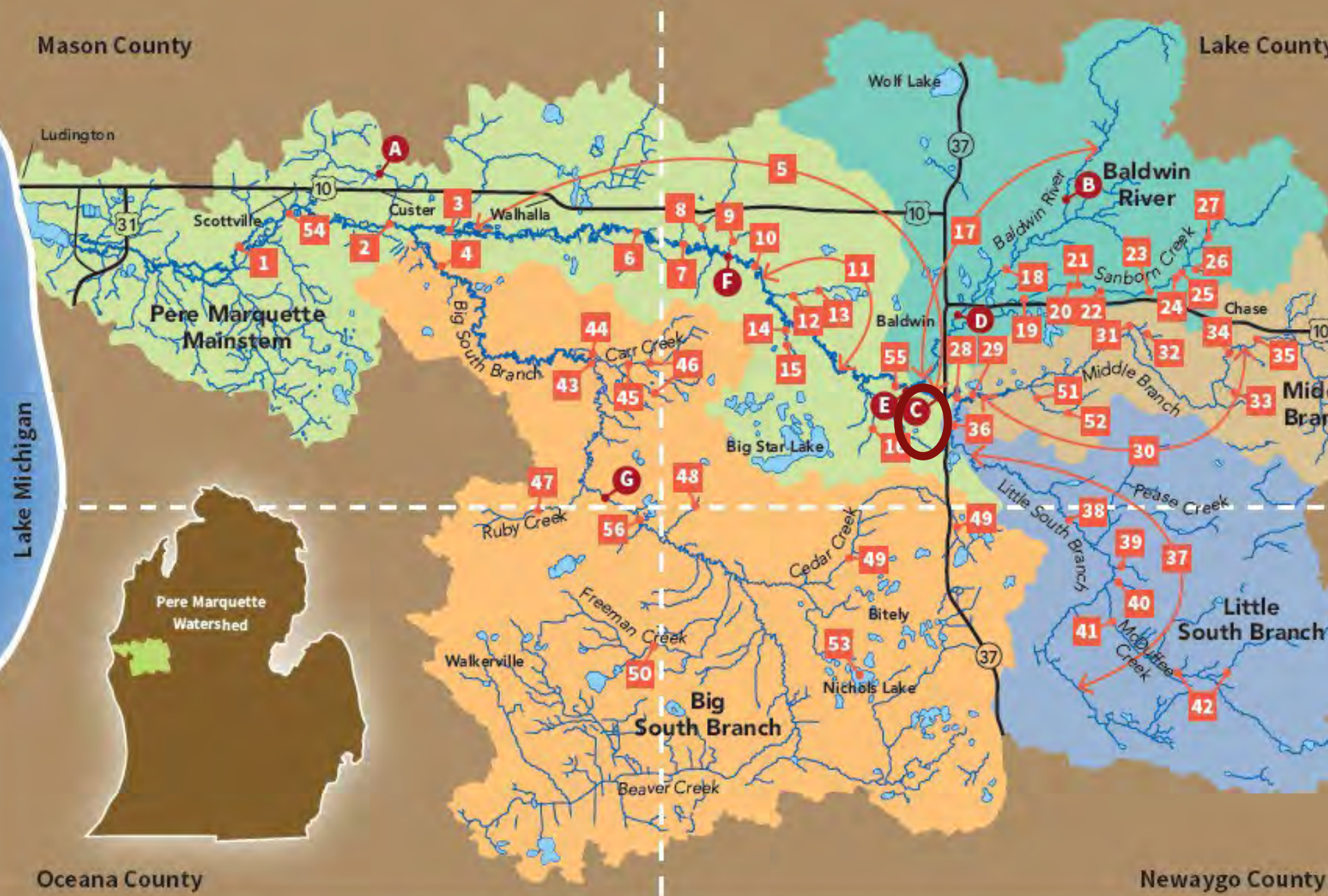
WILD ROOTS

Over 5 years,
115,000 trees
planted in 20
watersheds!



Our Crew





Pere Marquette River Care™

Pere Marquette River Care™

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Conservation Resource Alliance

Contact us at 231-946-6817 or visit www.rivercare.org for more information



Pere Marquette streambank, 65 river miles downstream

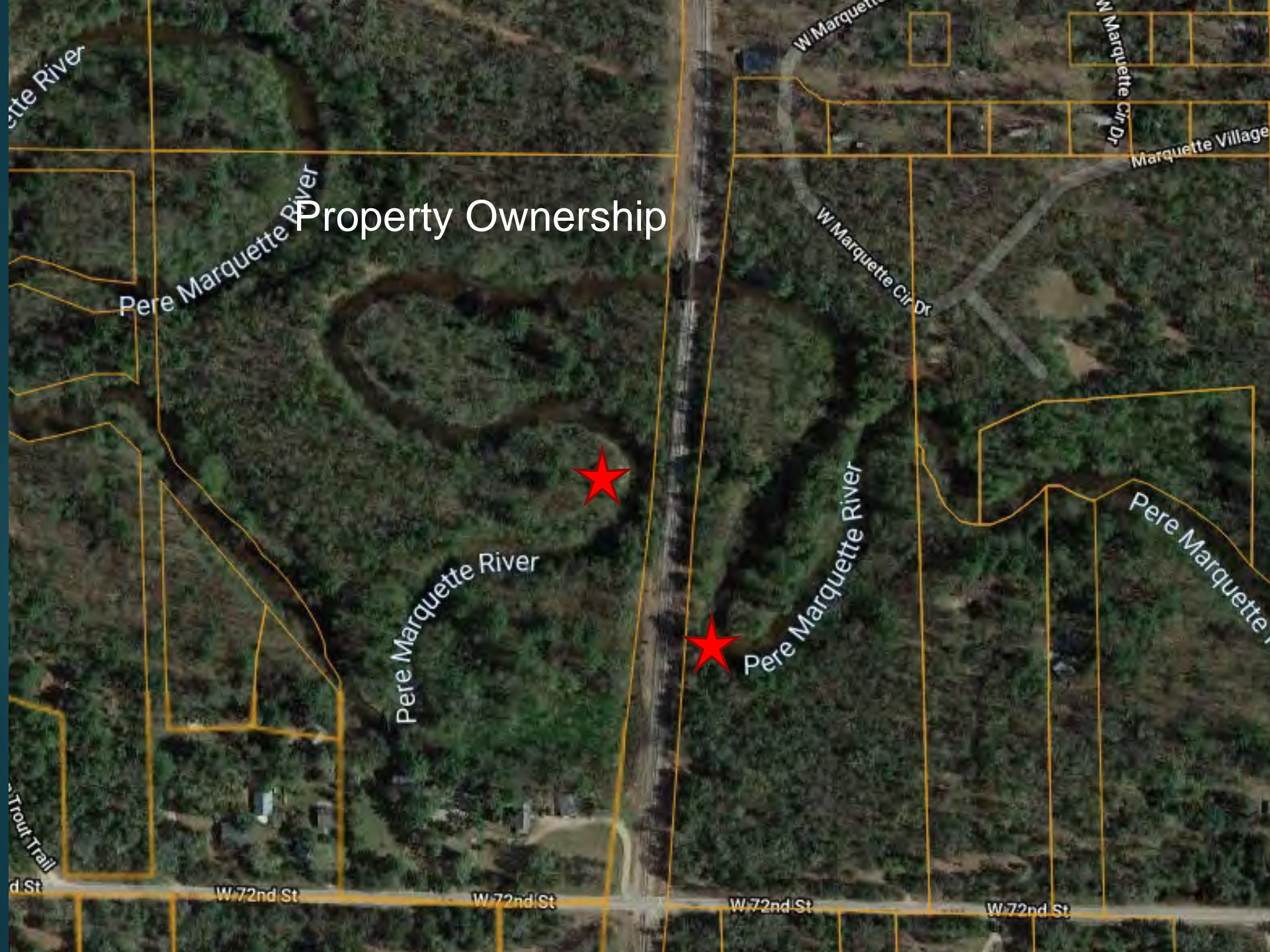


Slope Instability

Peninsula opposite of the embankment



“These (log) jams date back in buried centuries. As evidence, we find deep-worn trails around them, where Indians have dragged their canoes... Cutting to the heart of a cedar 20 inches in diameter, growing over the center of the river. I counted 160 years of growth.” – History of Manistee County, In 1869 an exploration of the river was made under the direction of the River Improvement Company to figure out how to float logs down the Manistee River.



Property Ownership

Pere Marquette River

Pere Marquette River

Pere Marquette River

Pere Marquette River

W 72nd St

W 72nd St

W 72nd St

W 72nd St

W Marquette Cir Dr

W Marquette Cir Dr

Marquette Village

W Marquette Cir Dr

Trout Trail

Field Investigation:

- Topographic survey
- Channel survey
- Cross sections of the river
- Longitudinal profiles

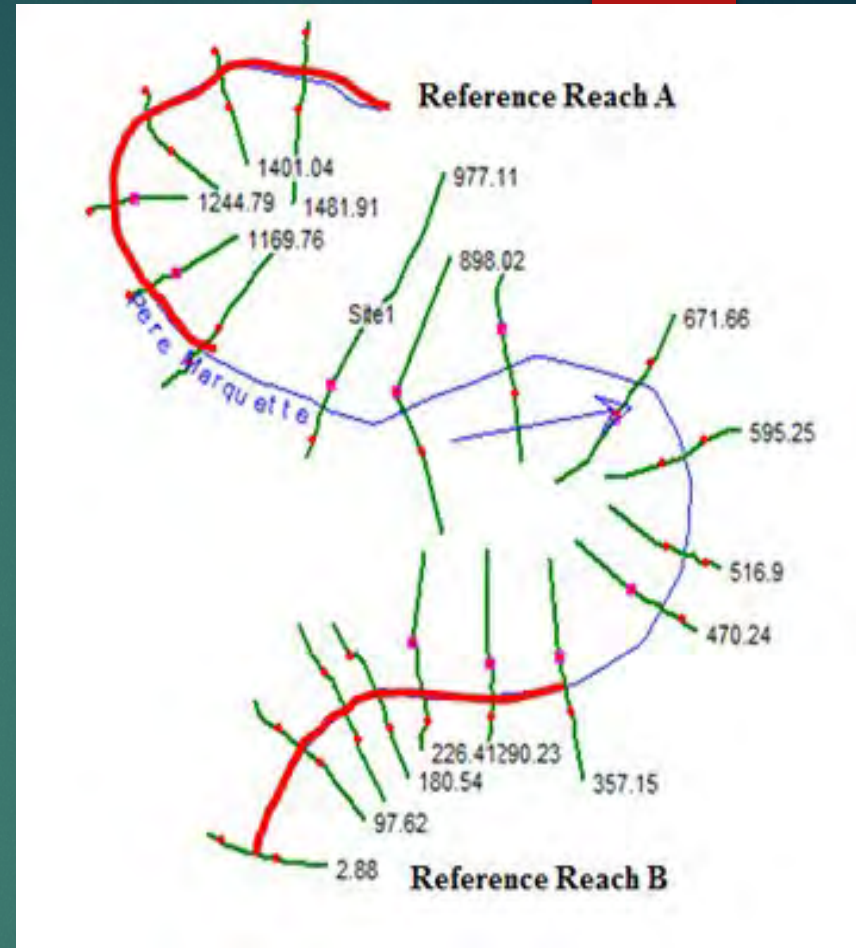


Analysis:

- Reference Reach Data
- HEC-RAS Modeling

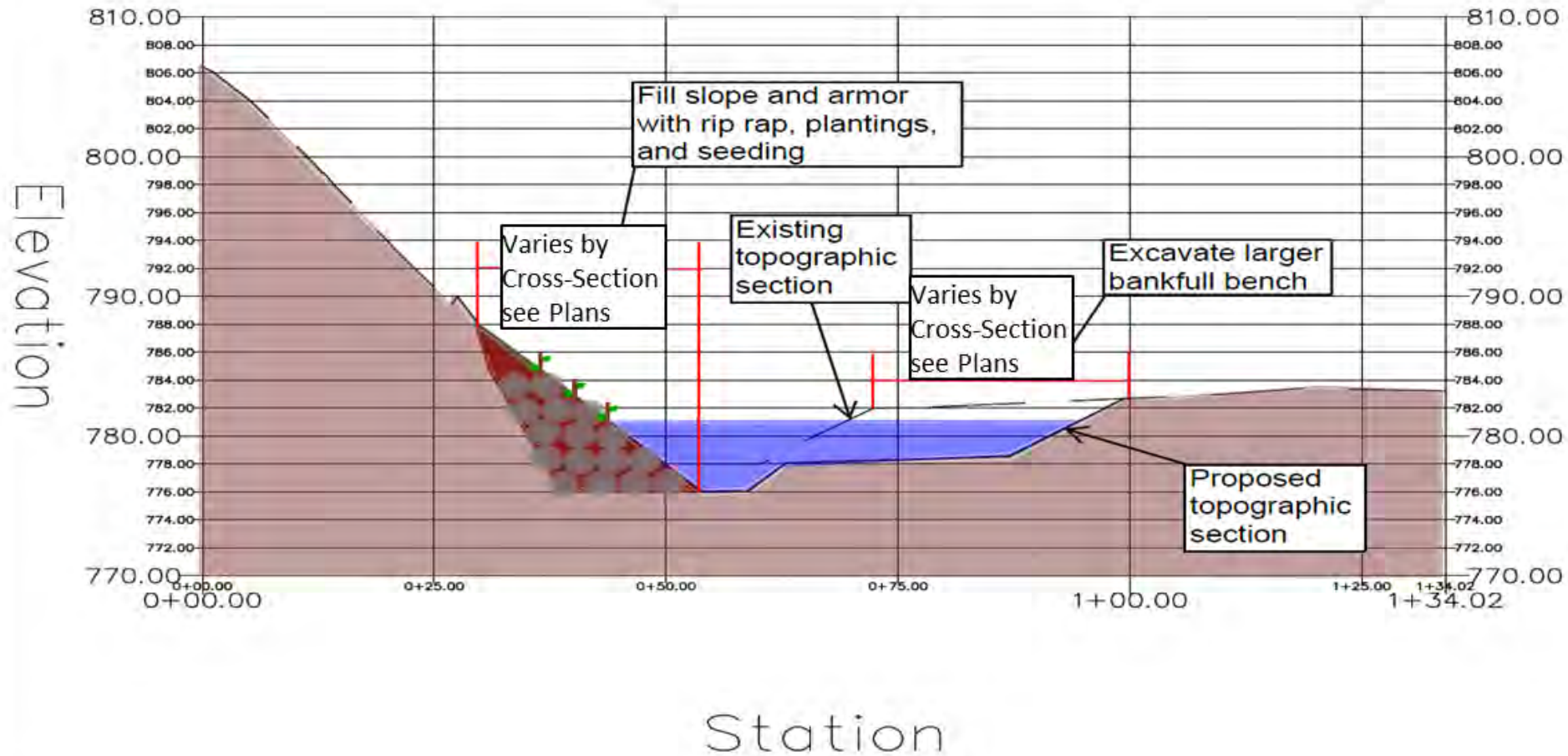
Conclusion:

- The project site is narrower than upstream & downstream reaches
- The inside bend is expanding



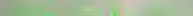










	Pool			Riffle/Run		
	Bankfull Depth (ft)	Cross Sectional Flow Area (ft ²)	Bankfull Top Width (ft)	Bankfull Depth (ft)	Cross Sectional Flow Area (ft ²)	Bankfull Top Width (ft)
Reference Reach A	5.66	164.17	49.30	3.68	161.12	64.61
Reference Reach B	4.3	150.48	54.15	3.27	144.65	64.41
Project Site	4.54	138.64	46.36	--	--	--

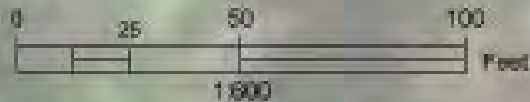
Cross-section of the site

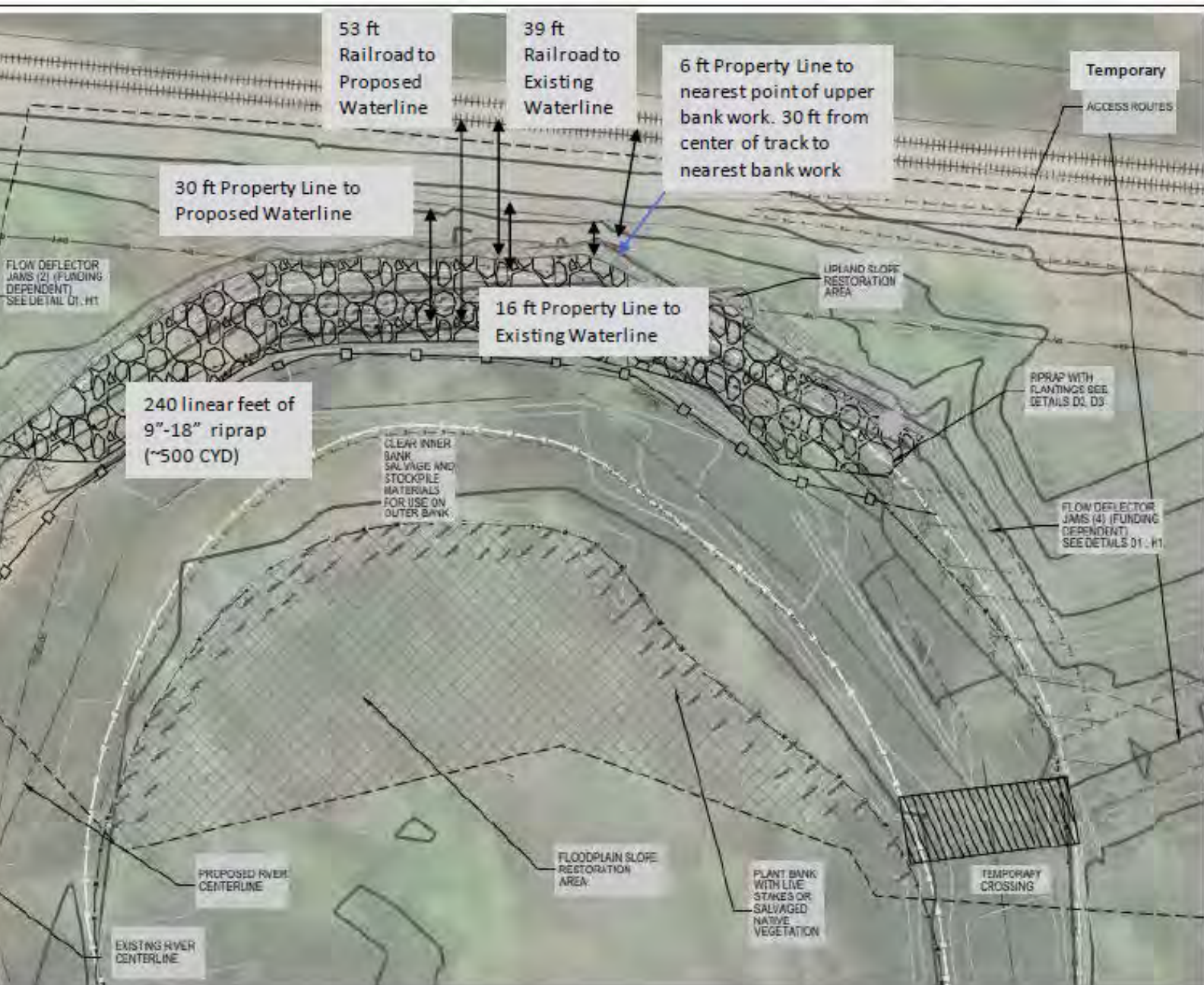




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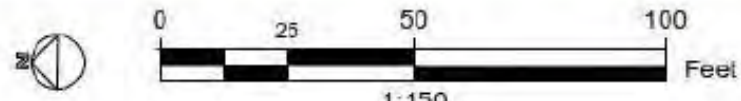
- FENCE LINE 
- OVERHEAD POWER LINES 
- RAILROAD TRACKS 
- PROJECT LIMITS 
- ACCESS ROUTE 
- EXISTING WATER LINE 
- PROPOSED WATER LINE 
- RAILROAD GRAVEL 
- TREE 
- PROPOSED RIP RAP WITH PLANTINGS 
- SLOPE RESTORATION AREA 

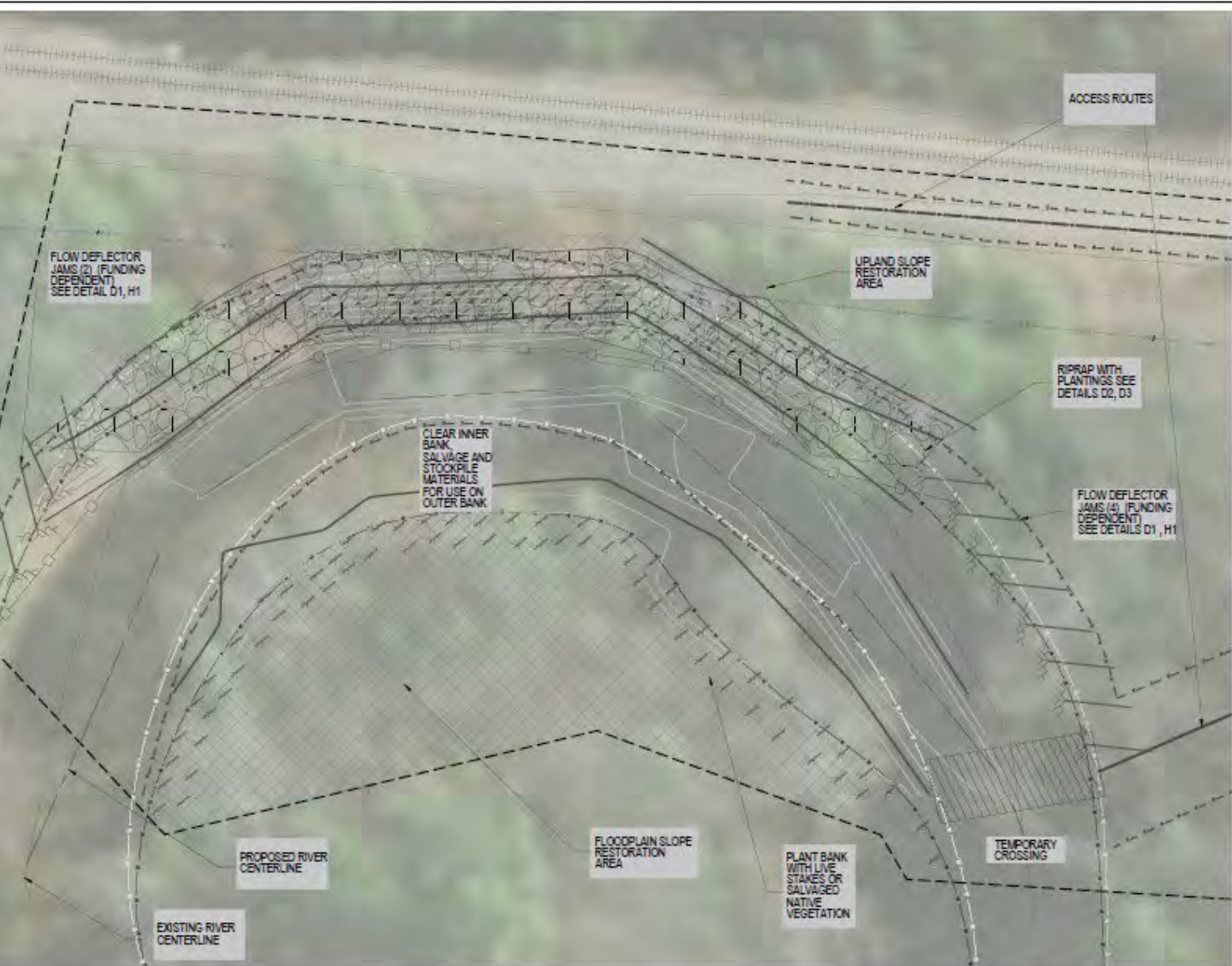




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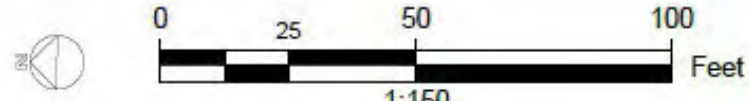
FENCE LINE	---
OVERHEAD POWER LINES	—+—+—+—+—
RAILROAD TRACKS	=====
PROJECT LIMITS	-----
ACCESS ROUTE	---
EXISTING EDGE OF WATER	—+—+—+—+—
PROPOSED EDGE OF WATER	—+—+—+—+—
TREE	●
PROPOSED RIRAP WITH PLANTINGS	⊗
SLOPE RESTORATION AREA	⊗
LARGE WOODROOTWADS	⊗

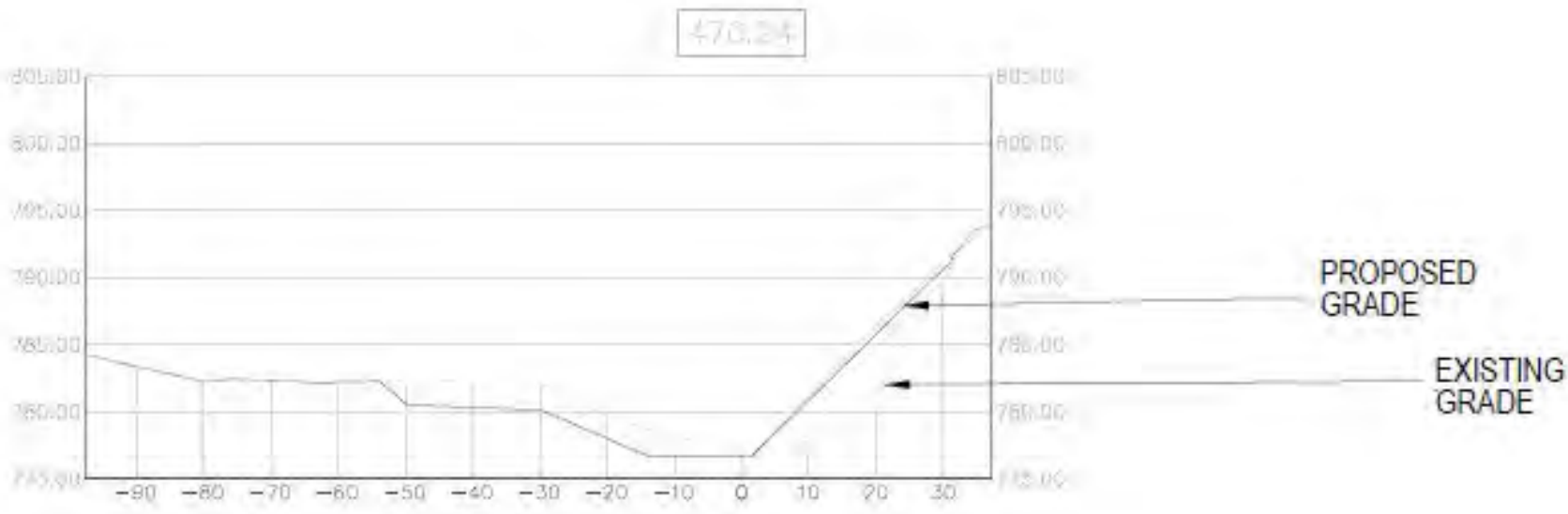
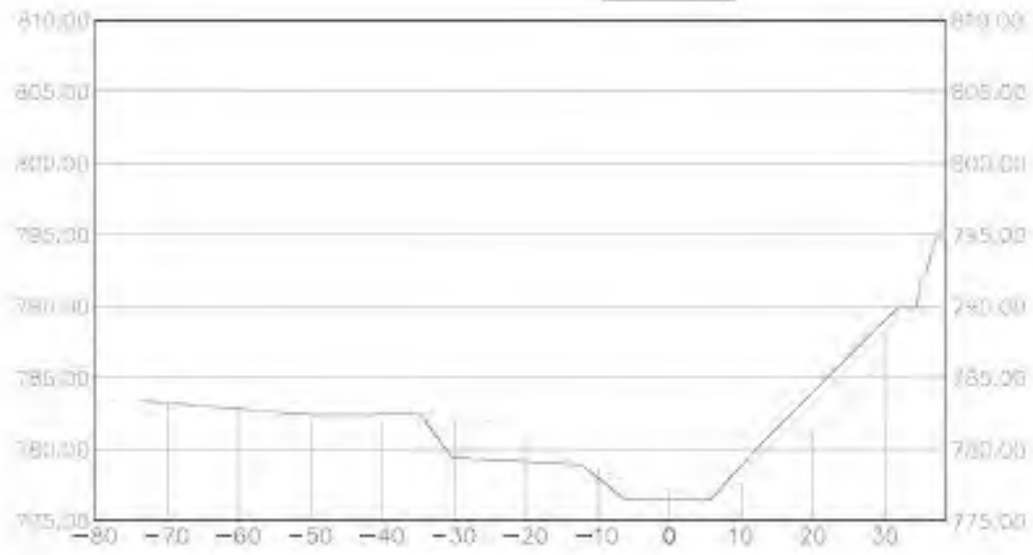




LEGEND

FENCE LINE	---
OVERHEAD POWER LINES	----
RAILROAD TRACKS	#####
PROJECT LIMITS	----
ACCESS ROUTE	----
EXISTING EDGE OF WATER	—
PROPOSED EDGE OF WATER	- - -
TREE	○
PROPOSED RIP RAP WITH PLANTINGS	▨
SLOPE RESTORATION AREA	▩
LARGE WOODROOTWADS	⌵





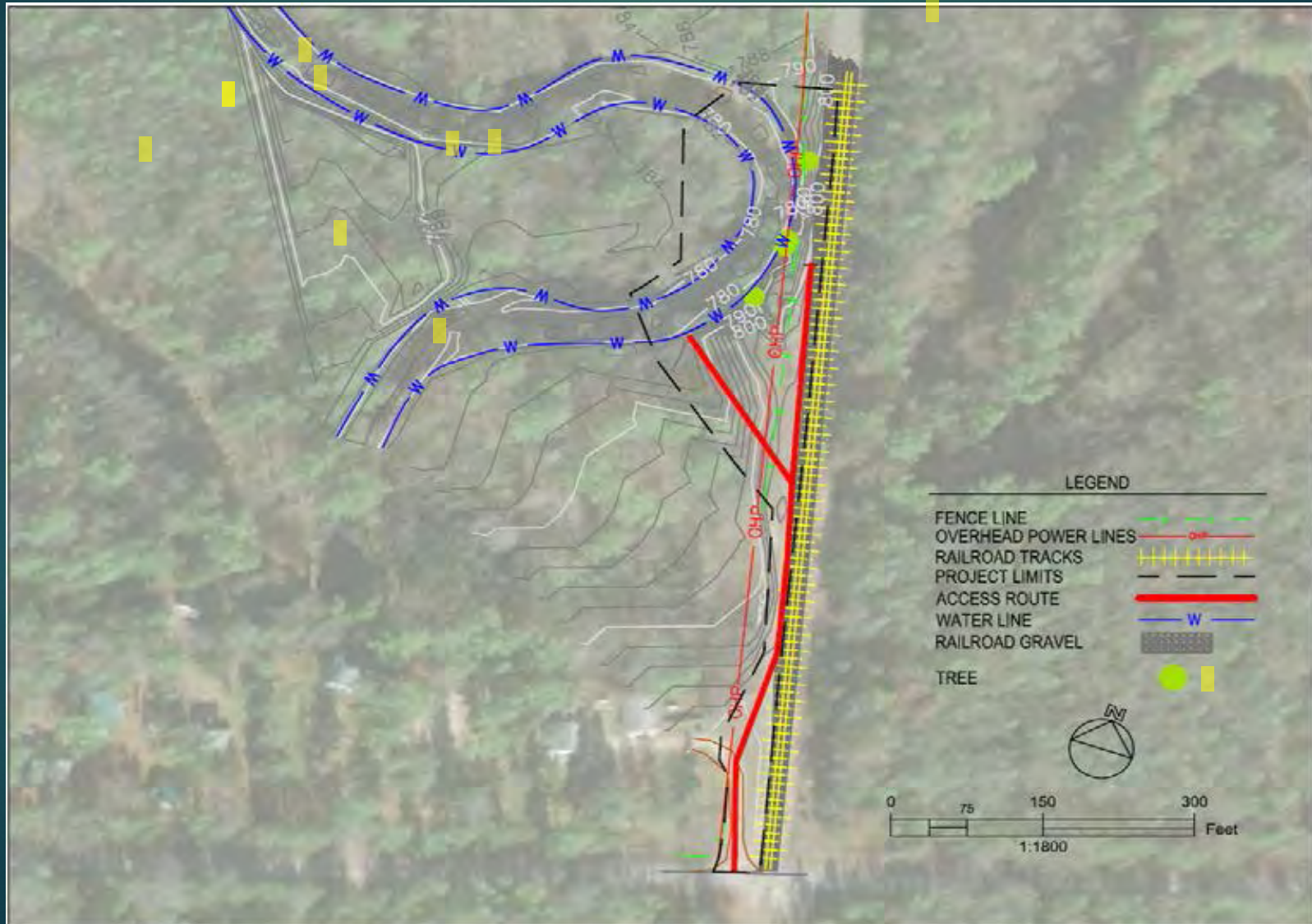
Site Prescription:

- 500 cubic yards fieldstone 9"-18" dia. placed 18" thick along 240 linear feet of streambank, 6' high from the stream bottom
- Streambank graded to a 1.5:1 slope & use soil from inside bend
- 30' wide floodplain bench on inside bend
- Large wood installation
- Plantings, seed, topsoil

Description	UNIT	AMOUNT
Excavation (common/wet)	CY	1500
Fill	CY	1000
Rock Riprap (9"-18")	CY	500
Erosion Control Blanket	SY	2500
Seed Upland	AC	0.05
Seed Floodplain	AC	0.45
Boulders	EA	15
Live Pole Plantings	SY	400
Slash	CY	35
Large Wood Installations	Each	5
Topsoil	CY	250
Site Clearing	AC	0.5
Flow Management	LS	1
Temporary River Crossing	LS	1
Signage	LS	1
as-built topo/survey	EA	1
Turbidity Curtain w/ Anchor	100' x 5'	1
Construction Entrance	EA	1
Access Road	LF	600
Mobilization	LS	1
Restoration	LS	1
Contingency	15%	

Construction Access

- 1 trail on FRC property, crosses river
 - 1 trail on RR right-of-way



Recreational use management during instream work:

- signage at nearby access sites
- tape/rope with sign across river US
- mark location for portage across peninsula
- outreach via social media, partners, local outlets

Instream construction work starts November 1.



Permits

Secured:

- MEGLE USACE Joint Permit
- MDNR Natural Rivers Permit
- USFWS NEPA
- Little River Band of Ottawa Indians/Bureau of Indian Affairs NEPA
- USFS Wild & Scenic Section 7 Analysis

In Process:

- RR Right of Entry Permit (Knoop Excavating is applicant)
- Lake County Soil Erosion Permit (Knoop Excavating is responsible contractor on application)

Timeline

- October 16-31, mobilize & construction access
- November 1, instream work can begin
- November – December, fieldstone placement & other construction activities
- January, demobilize equipment
- March – May 2024, spring planting & follow up
- 2024 – 2025, site visits & monitoring by CRA, additional planting in spring & fall seasons with available funding

Please note weather will be a factor & so allow for resulting adjustments to target timeline.

Project Partners

- Little River Band of Ottawa Indians
- Bureau of Indian Affairs
- Great Lakes Fishery Trust
- MDNR
- MEGLE
- Genesee & Wyoming
- Marquette Rail LLC
- USFWS
- US Forest Service
- AECOM
- Knoop Excavating Services
- Conservation Resource Alliance
- Flint Rainbow Club
- Pere Marquette Watershed Council
- Pere Marquette Trout Unlimited
- FlyFishers International
- Lake County Community Foundation

Project Construction Costs:

Pere Marquette River Railroad Embankment, Streambank & Floodplain Restoration Project Construction Phase

Tasks	Cost
Project management, contract administration, mileage, outreach, meeting facilitation, partner communications, legal review, fund development, grant management & reporting over 4 years	\$125,000
Construction bid & EGLE permit fee	\$298,280
Contingency	\$40,000
RR ROE Permit fee & 3 weeks flagging (estimated)	\$18,500
Construction Engineering	\$33,800
Monitoring 2 years	\$12,481
Total:	\$528,061

Construction Funding Support :

Pere Marquette Railroad Site

Construction Phase - Fund Status, September 2023

Cash

In-Kind

Little River Band of Ottawa Indians - BIA	\$200,000	
Great Lakes Fishery Trust	\$100,000	
MDNR Fisheries Habitat Program	\$100,000	
Genesee & Wyoming Inc.	\$82,500	\$18,500
US Fish & Wildlife Service Fish Habitat Program	\$14,561	
Lake County Community Foundation	\$5,000	
FlyFishers International	\$3,000	
Individual Donors	\$4,500	
Total:	\$509,561	\$18,500
Grand Total:	\$528,061	

Overall Funding Support

Options Analysis & Design \$81,070:

- Pere Marquette Watershed Council \$49,570
- Pere Marquette Trout Unlimited \$20,000
 - FlyFishers International \$4,000
- Lake County Community Foundation \$5,000
 - Individual Donors \$2,500

Implementation, Project Management, Monitoring \$528,061:

- Little River Band of Ottawa Indians BIA \$200,000
 - Great Lakes Fishery Trust \$100,000
 - MDNR Fisheries Habitat Program \$100,000
- Marquette Rail LLC \$100,000 including in-kind match
 - USFWS Great Lakes Basin Fish Habitat \$14,561
 - Lake County Community Foundation \$5,000
 - FlyFishers International \$3,000
 - Individual Donors \$4,500
- Foundations (Walters Family, Brookby, DTE, Andrew R. and Janet F. Miller, The George Fund)

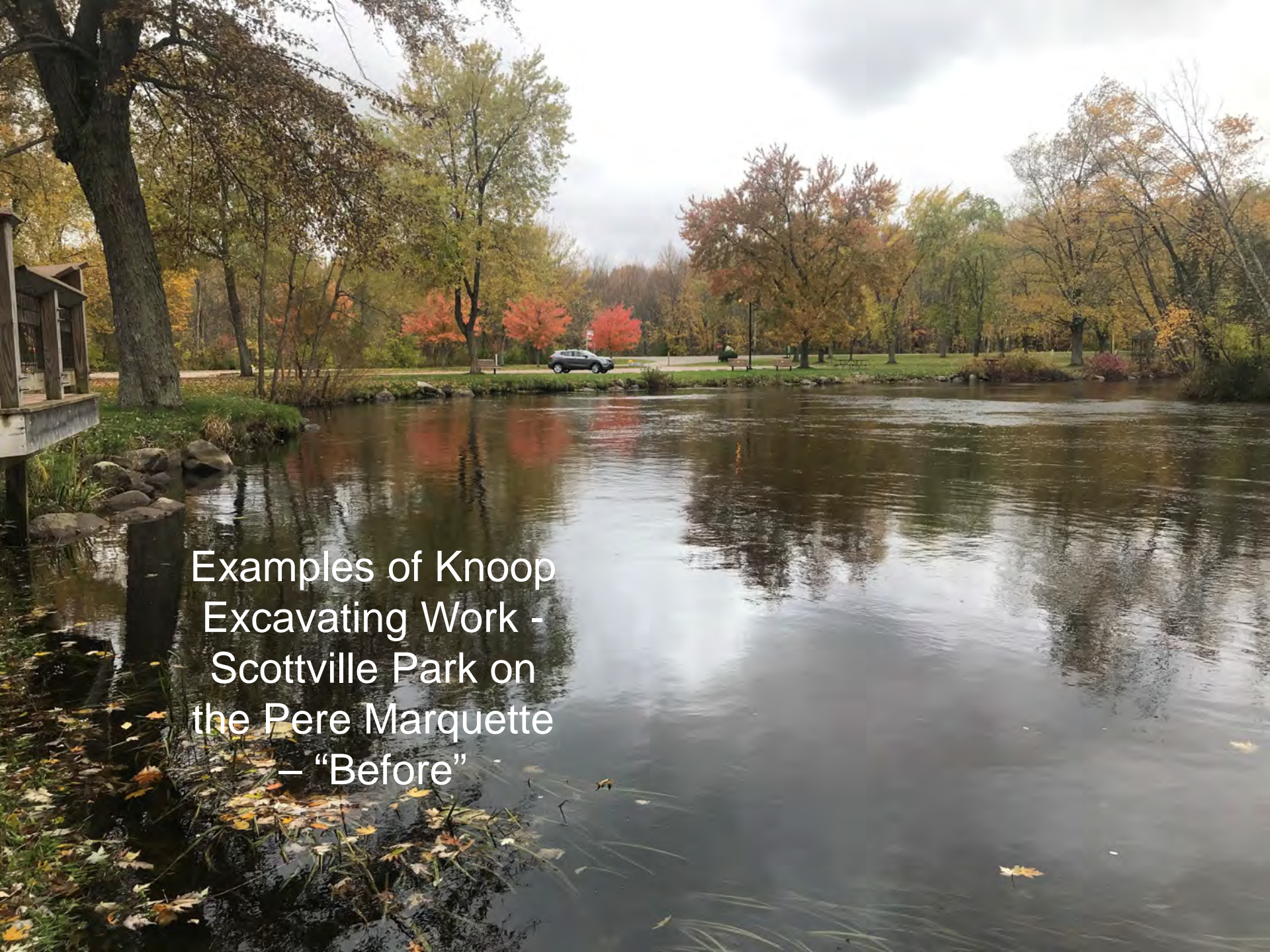
Contract Flow

- 3-party construction contract between CRA, FRC & Knoop Excavating Services
- Construction engineering contract between FRC & AECOM
- Landowner agreement between FRC & CRA (payment of invoices)
- CRA holds contracts/agreements for the grants with funders



Contractor Insurance Requirements

- Commercial General Liability 2MM/4MM
- Auto Insurance 1MM
- Workers Compensation 1MM
- Umbrella Liability 5MM
- RR Protective Liability purchased through RR
- Contractor's Pollution Liability 1MM
- Performance Bond at Contract Amount



Examples of Knoop
Excavating Work -
Scottville Park on
the Pere Marquette
– “Before”

Scottville Park on
the Pere Marquette
– “After”



“After” – 265 linear feet of restoration incl. 38 logs/rootwads







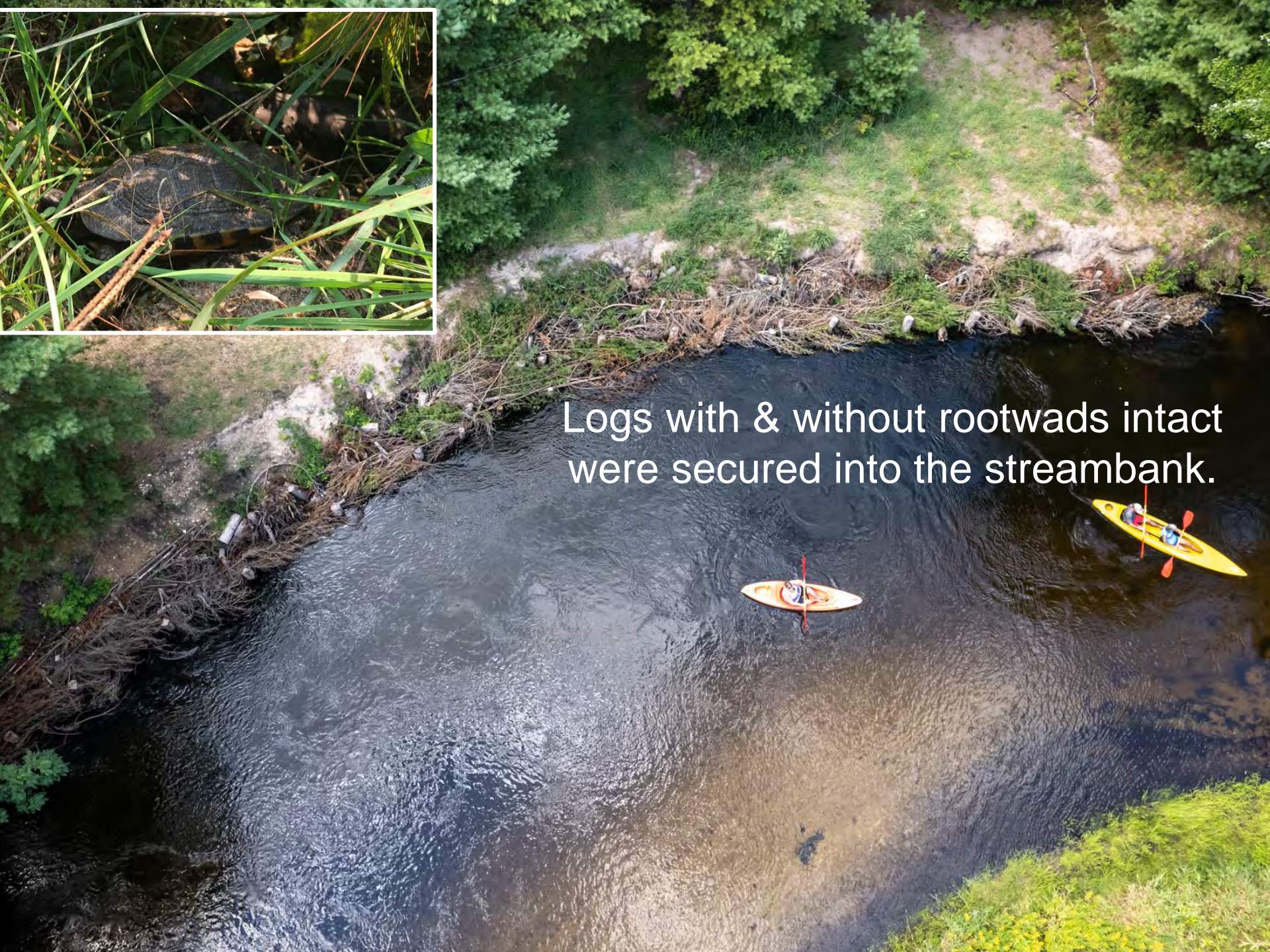
“During” – FES lifts

Pere Marquette River
Large Woody Debris (LWD)
Project





Logs with & without rootwads intact
were secured into the streambank.





Chinnery Streambank on the Pere Marquette River
– historical log rollaway site, 425' long, 80' high

- Mason-Lake Conservation District managed this major streambank project on the mainstem of the lower PM.
- AECOM was the design firm
- Knoop Excavating was the construction contractor
- The Conrad Family was the landowner





In 2019, 400 cubic yards of 8"-12" fieldstone placed along the base of the bank, the upper bank was regraded from 1:1 to 1.75:1, the entire bank was seeded & blanketed.

Funders included the National Fish & Wildlife Foundation Sustain Our Great Lakes Program (MLCD) & Great Lakes Fishery Trust (CRA).



The original Baldwin Dam on the Baldwin River supported a grist and sawmill in 1879.

PLANING MILL AT BALDWIN!

I have added to My GRIST MILL a FIRST-CLASS PLANER & MATCHER, and am Now prepared to PLANE LUMBER make FLOORING, CEILING, CALIFORNIA or BLOCK SIDING, MOULDINGS for building purposes; WINDOW FRAMES and will soon have a Saw ready to RESAW SIDING. When you want a Board planed or a bag of grain ground, or both, hitch up and come to Mill. No trouble to Start up. Water Power.

FEED, CORN and BUCKWHEAT for Sale. Come on!
Come all! And be Happy.

W. H. DELAMATER.

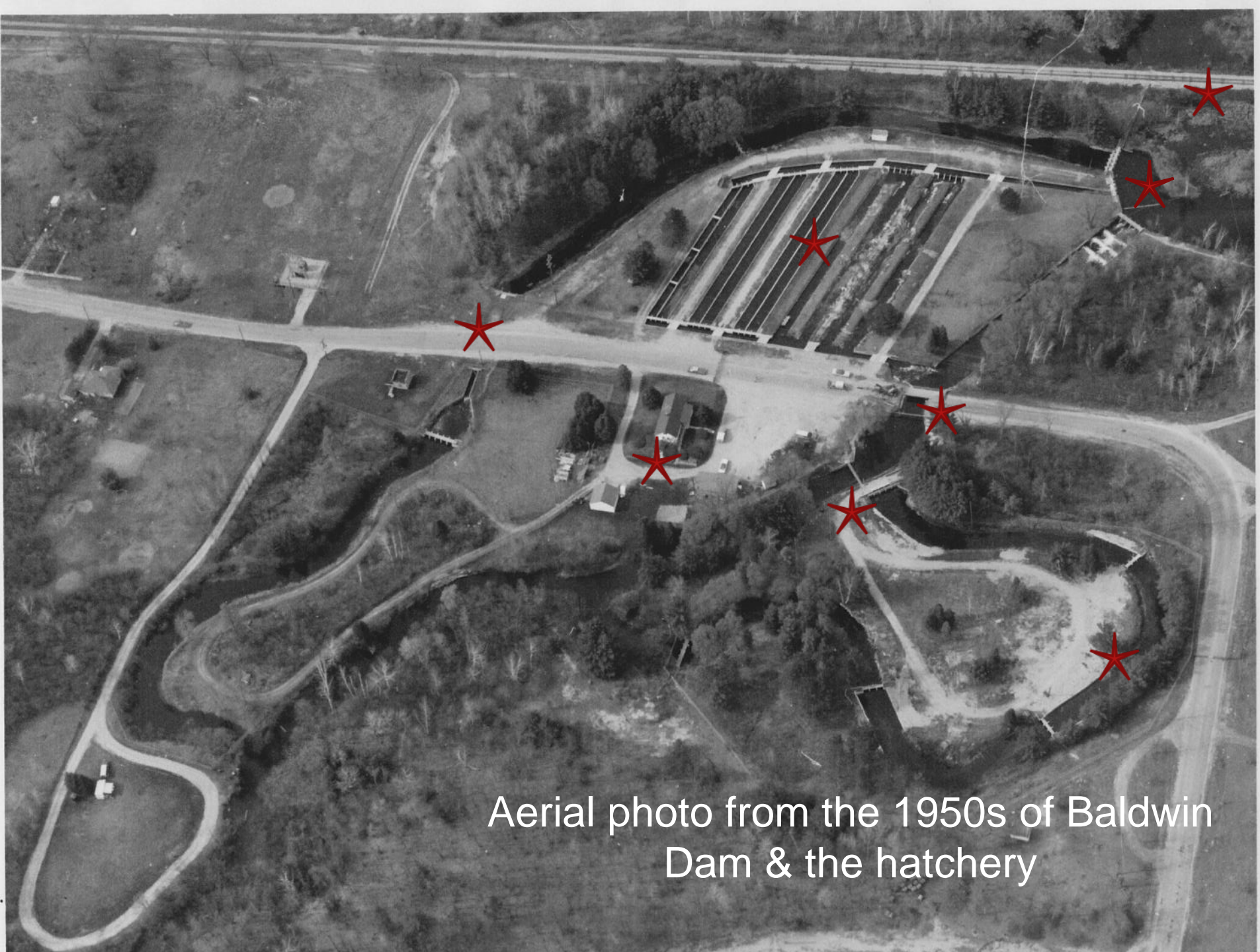
Baldwin Dam on the Baldwin River in the 1920s,
source of water for nearby RR.



"The Dam" ~ ~ ~ Baldwin Mich.

Trout Nursery, Baldwin Creek, Baldwin, Mich.





Aerial photo from the 1950s of Baldwin Dam & the hatchery

Bird's eye view today... 3 water control structures



Bird's eye view looking downstream...



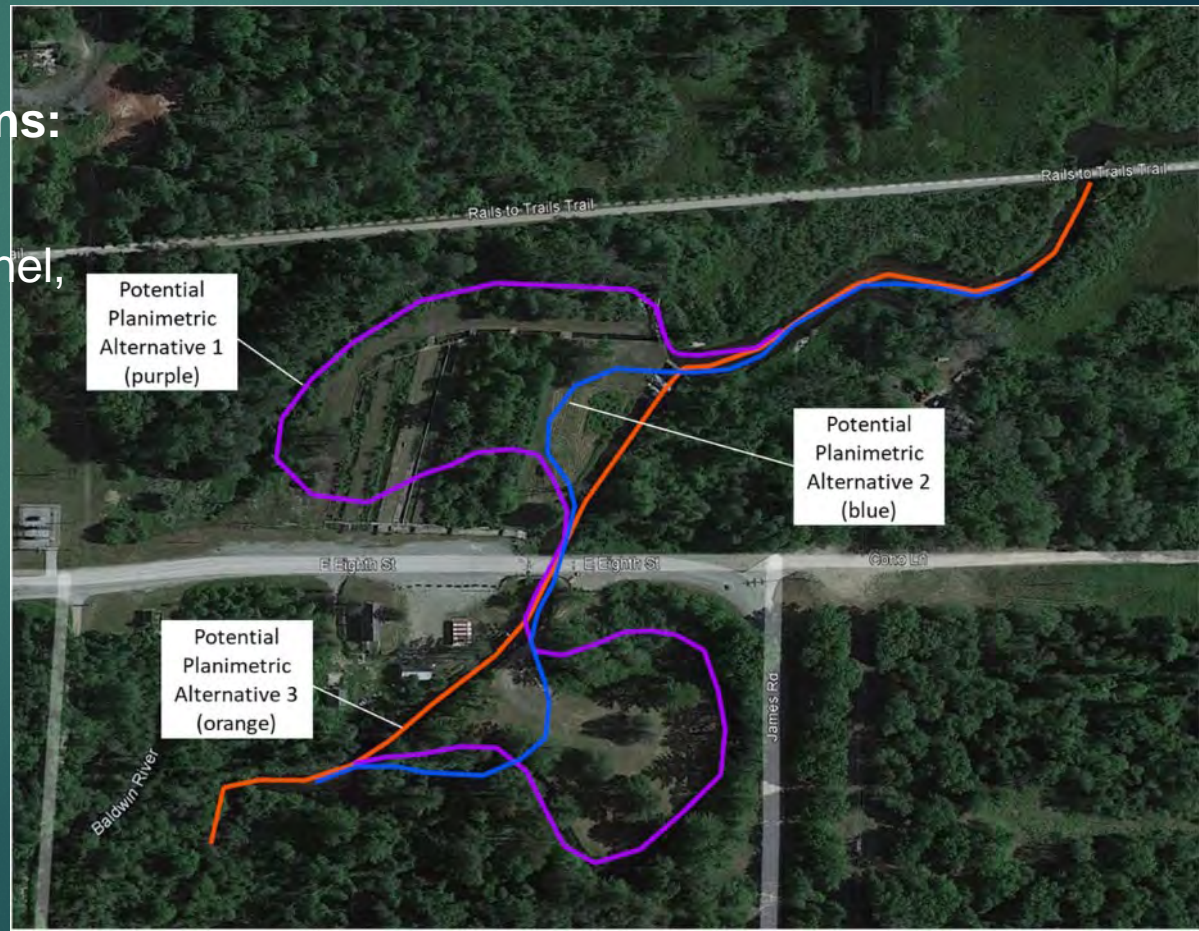
River Alignment Alternatives

Objectives:

- Remove impediments to fish passage and river processes (sediment transport).
- Protect upstream areas from sea lamprey.

Constraints and Considerations:

- Sediment management
- Slope, channel stability, channel, floodplain dimensions
- Grade control (riffles)
- Existing raceways
- 8th Street bridge
- Future recreation
- Wetland impacts



Sea lamprey barrier alternatives

- 4 initial barrier location alternatives
- Evaluate based on
 - Blockage efficacy
 - Flood Impact
 - Sedimentation
 - Fish bypass
 - Operations and Maintenance
 - Initial Capital Cost
 - Ease of Trapping Facility Incorporation



	Blockage Efficacy ¹	Flood Impacts	Sedimentation ²	Fish Bypass	Operations and Maintenance	Initial Capital Cost	Trapping Facilities
Alternative 1	5.0	low	95	medium	medium	high	medium
Alternative 2	92.4	low	90 ³	high	medium	medium	high
Alternative 3	33.4	low	90	medium	medium	high	medium
Alternative 4	100.0	low	0	low	medium	low	medium

1 - Percent of time barrier is 1.5-ft effective during operational season

2- Percent reduction from existing condition while operational

3- Sediment already captured under existing conditions, reduction quantity in tons/day is negligible



Other happenings in the PM Watershed

Google Earth

N Branch Cole Creek & 24th Street



Thank you!



Conservation
Resource Alliance



PERE MARQUETTE RIVER 1973-2022 FISHERIES SURVEYS
Jimmy's (mouth of the Baldwin River) Index Station
Mark A. Tonello

Introduction:

The Pere Marquette River is a 755 square mile watershed (Anonymous 1999) primarily located in Lake and Mason Counties in the northwestern lower peninsula of Michigan. Its headwaters (the Baldwin, Middle Branch, and Little South Branch) originate from glacial moraines located in eastern Lake and northeastern Newaygo Counties. The three branches join near the village of Baldwin to form the mainstem of the Pere Marquette River. From there, it flows generally west until it empties into Pere Marquette Lake near Ludington, Michigan. Pere Marquette Lake is a drowned river mouth that allows unrestricted access to Great Lakes migratory fish including Pacific salmon and steelhead. The only fish stocked in the mainstem of the Pere Marquette River are approximately 25,000 brown trout stocked annually by MDNR between Bowman's Bridge and Barothy Lodge. The Pere Marquette River is one of the longest undammed rivers in Michigan. From the headwaters of the Middle Branch River to Pere Marquette Lake is approximately 96 miles (Anonymous 1999).

The Jimmy's index station is located about 1.5 miles west of M-37, off 72nd Street. The station is named after Jimmy Nolph, a renowned Pere Marquette River fishing guide that lived on the river within the station. The station begins at the mouth of the Baldwin River and proceeds upstream for 1,047 feet. On August 21, 2020, the station averaged 56.5 feet in width and 1.7 feet in depth, and discharge was measured at 151.4 cubic feet per second.

In the section of river that includes the Jimmy's station, the Pere Marquette River is regulated as a Gear Restricted stream. The reach of the Pere Marquette River from M-37 to Gleason's Landing (which includes the Jimmy's station) has been designated as flies-only since 1970, and since 2000 has had a no-kill designation.

Methods and Materials:

Beginning in 2002, the station was adopted as a Fixed Site in the Status and Trends Program. Per the protocol of the program (Wills et al. 2011), the station will be sampled for three consecutive years, and then not sampled for three consecutive years. In one of the three sampled years, habitat data will also be collected. Temperature data will also be recorded during each of the sampled years with the use of a continuous recording thermometer. This station was previously sampled by electrofishing in 1973, 1982-1984, 1988-2001, 2002-2004, and 2008-2010, 2014-2016, and 2020-2022 (Table 1). Habitat evaluation data was collected in 2002, 2009, 2014, and 2020 (Table 2). Extensive temperature data for the station has also been recorded (Table 3).

Also, four more temperature monitors were deployed into the Pere Marquette River during the summer of 2022. They were placed at Gleason's Landing, Bowman's Bridge, Rainbow Rapids, and Landon Road.

Results:

See Tables 1-7.

Discussion:

The 2020-2022 data from the Jimmy's index station shows that the Pere Marquette River continues to support a robust population of brown trout, in addition to consistently producing large year classes of steelhead and moderate year classes of coho salmon. This is due to the combination of excellent spawning



substrates and suitable water temperatures found in this reach of the Pere Marquette River. Therefore, the Pere Marquette River remains as one of the most productive wild salmonid streams in Michigan.

The consistently robust adult brown trout population in this reach is somewhat unique in that surveys have continued to show relatively low numbers of age-0 brown trout present. Therefore, it is likely that the robust adult brown trout population found in this reach is supported by immigration from other areas in the watershed, including the Baldwin River, Middle Branch and Little South Branch of the Pere Marquette River.

The temperature data collected in 2022 showed that the Pere Marquette River continues to provide temperatures that are conducive to the year-round survival of salmonids. Of the five sites sampled, the Jimmy's station provided the coldest temperatures. The warmest temperatures were found at the Bowman Bridge station.

Recommendations:

1. The Pere Marquette River significantly supports natural reproduction of trout, salmon, and steelhead. Due to these contributions, it should be diligently protected from unwise human development and land-use practices by working with EGLE Water Resources Division and the MDNR Natural Rivers program to evaluate permit applications.
2. MDNR should continue to work with the Pere Marquette River Restoration Committee (PMRRC), which includes such non-profit groups as the Pere Marquette Watershed Council, Conservation Resource Alliance, West Michigan Land Conservancy, and Trout Unlimited; and includes such agencies as MDEQ, USFS, USFWS, Mason-Lake Conservation District, county road commissions, etc. The PMRRC has completed many projects in the watershed, including dam removals, stabilizing eroding streambanks, repairing compromised road/stream crossings, installing instream fish cover, and improving angler access to the river. The PMRRC meets regularly to identify, plan, and prioritize projects for the watershed.

References:

Anonymous. 1999. Pere Marquette River Watershed Assessment. Northern Ecological Services, Reed City, Michigan.

Wills, T. C., T. G. Zorn, A. J. Nuhfer, and D. M. Infante. 2011. Stream Status and Trends Program sampling protocols. Chapter 26 in J.C. Schneider, editor. Manual of fisheries survey methods II: with periodic updates. Michigan Department of Natural Resources, Fisheries Special Report 25, Ann Arbor.



Table 1. MDNR population estimates for the Pere Marquette River at the Zimmy's (mouth of the Baldwin River) index station, (1973-2022).

Year	BNT		RBT		COS		CHS	
	#/acre	lbs/acre	#/acre	lbs/acre	#/acre	lbs/acre	#/acre	lbs/acre
1973*	430	110.31	760	10.41	**	**	**	**
1982	235	112.86	370	23.06	**	**	**	**
1983	137	79.05	578	7.65	**	**	**	**
1984	87	64.75	246	14.31	**	**	**	**
1988	70	52.89	1,891	102.49	**	**	**	**
1989	105	53.35	1,549	63.51	**	**	**	**
1991	152	49.78	585	18.82	**	**	**	**
1992	202	68.79	1,879	32.70	**	**	**	**
1994	146	55.85	1,115	17.43	**	**	**	**
1995	129	54.87	2,076	30.00	**	**	**	**
1996	124	69.69	1,046	29.33	**	**	**	**
1997	123	70.27	1,400	38.18	28	0.65	44	0.97
1998	161	49.65	2,448	48.56	43	1.08	25	0.66
1999*	190	94.78	4,550	116.13	**	**	**	**
2000	155	65.69	1,837	53.39	35	1.07	83	2.56
2001	178	82.05	1,827	51.95	14	0.40	132	3.42
2002	143	67.81	2,210	48.39	70	0.90	8	0.19
2003*	233	103.18	2,551	43.10	167	1.69	177	3.37
2004	180	83.96	922	29.90	44	0.73	18	0.46
2008	259	112.17	1,373	37.31	170	1.81	33	0.65
2009	293	122.27	910	27.37	412	4.00	30	0.56
2010	318	106.77	1,112	35.17	96	1.13	43	0.85
2014	261	156.74	1,422	30.85	224	1.6	238	3.01
2015	232	106.19	1,404	26.63	718	5.66	137	2.24
2016	256	87.9	1,831	44.29	370	7.82	7	0.13
2020	254	143.32	654	26.47	394	3.02	403	6.3
2021	266	126.53	899	19.89	262	2.29	75	1.03
2022	313	156.48	2,164	24.94	477	3.39	214	2.98
Average	201.2	89.6	1486.0	37.6	220.3	2.3	104.2	1.8

*1" rainbows not included in the estimates.
 **juvenile salmon observed but not counted
 Station length = 1047 feet
 Station average width = 56.5 feet
 Station area in 2014-2016 = 1.36 ac
 Station area in 2020-2022 = 1.3 ac



Table 2. Habitat evaluation from the Pere Marquette River at the Zimmy's Index Station, 2002, 2009, 2014, and 2020.

	2002	2009	2014	2020
% Riffle	38.5	15.4	38.5	30.8
% Run	61.5	84.6	61.5	69.2
Average width (ft)	54.3	58.0	59.3	56.5
Average depth (ft)	1.4	1.7	1.6	1.7
Max depth (ft)	5.0	3.9	4.2	4.7
Discharge (cfs)	105.2	126.4	166.7	151.4
Woody cover (sq ft)	4,823	2,829	1,437	3,129
Linear wood (ft)	252	618	234	408
<u>Substrate</u>				
clay	0.0%	0.8%	0.0%	2.5%
detritus/silt	3.9%	13.7%	4.4%	2.9%
sand	18.8%	4.6%	9.6%	10.5%
gravel	58.5%	60.0%	61.9%	71.0%
small cobble	17.0%	18.8%	15.3%	8.0%
large cobble	1.3%	1.3%	4.0%	3.8%
boulder	0.0%	0.8%	3.6%	0.8%
wood	0.5%	0.0%	1.2%	0.4%
island	0.0%	0.0%	0.0%	0.0%



Table 3. Temperature data recorded by MDNR from the Pere Marquette River at the Zimmy's (Mouth of the Baldwin River) Index Station, 2002-2022.

	2002	2006	2007	2008	2009	2010	2011	2014	2015	2016	2020	2021	2022
January Min.			31.8		33.5	32.7	32.2		33.2	32.2		32.9	35.9
January Ave.			37.0		35.5	36.9	34.6		35.8	36.4		37.2	37.8
January Max.			44.3		37.7	41.4	42.7		40.0	41.4		41.0	41.1
February Min.			31.8		33.3	33.2	32.1		33.1	32.1		32.0	35.8
February Ave.			34.5		36.7	37.5	35.3		34.4	37.0		35.0	38.5
February Max.			40.7		42.1	41.5	41.7		38.7	42.8		41.8	40.9
June Min.	49.1	53.4		54.3	52.2	54.6		52.2	54.0	52.0		53.1	53.2
June Ave.	57.4	59.8		60.6	58.8	61.5		59.0	60.4	60.5		61.4	61.2
June Max.	65.8	67.0		66.5	68.1	67.8		64.4	65.9	66.4		68.3	69.9
July Min.	48.9	56.9		55.5	53.6	57.1		54.3	54.1	56.8	59.3	58.2	58.0
July Ave.	61.9	63.1		61.9	59.0	64.5		59.0	61.7	63.2	64.1	63.2	63.5
July Max.	66.9	69.8		66.6	64.5	68.8		64.2	66.1	67.6	68.8	69.3	69.3
August Min.	41.3	56.3		55.4	52.3	55.9		53.5	54.3	58.6	55.9	56.7	55.3
August Ave.	54.8	61.2		60.5	59.6	63.2		58.5	60.4	62.7	61.3	63.7	61.8
August Max.	65.8	71.4		65.8	64.3	68.6		61.5	66.6	67.9	65.1	69.9	68.1
December Min.		34.0		32.9	32.6	32.7		34.0	32.8		33.3	34.8	
December Ave.		38.9		37.4	37.5	36.8		38.8	41.3		38.3	39.6	
December Max.		44.2		41.6	42.8	42.7		43.6	49.0		42.3	45.6	



Table 4. Temperature data recorded by MDNR from the Pere Marquette River at the Gleason's Landing PAS, 2010-2022.

	2010	2022
June Min.	55.5	54.2
June Ave.	62.5	62.4
June Max.	69.8	71.0
July Min.	57.9	59.8
July Ave.	66.0	64.9
July Max.	71.3	71.2
August Min.	56.9	56.2
August Ave.	64.5	62.8
August Max.	70.1	69.7

Table 5. Temperature data recorded by MDNR from the Pere Marquette River at Bowman's Bridge, 2010-2022.

	2010	2016	2022
June Min.	55.8	53.3	54.6
June Ave.	62.9	62.1	63.0
June Max.	70.7	70.0	72.3
July Min.	57.7	58.3	60.2
July Ave.	66.5	65.1	65.6
July Max.	72.1	71.4	72.6
August Min.	56.7	59.5	56.6
August Ave.	64.9	64.5	63.5
August Max.	71.0	71.5	71.1

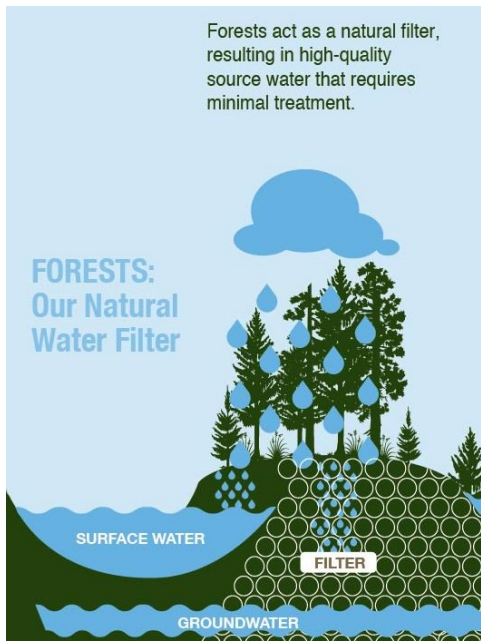


Table 6. Temperature data recorded by MDNR from the Pere Marquette River at the Rainbow Rapids PAS, 2010-2022.

	2010	2016	2022
June Min.	55.9	53.6	54.6
June Ave.	62.7	61.8	62.7
June Max.	69.3	68.6	70.9
July Min.	57.7	57.9	60.0
July Ave.	66.2	64.7	65.2
July Max.	70.6	69.7	70.9
August Min.	57.2	59.0	57.2
August Ave.	64.5	64.0	63.1
August Max.	69.6	69.3	69.6

Table 7. Temperature data recorded by MDNR from the Pere Marquette River at Landon Rd., 2010-2022.

	2010	2016	2022
June Min.	57.1	54.6	55.3
June Ave.	63.2	62.2	62.9
June Max.	68.7	68.0	69.9
July Min.	59.8	59.6	60.9
July Ave.	66.8	65.3	65.5
July Max.	69.9	69.0	70.0
August Min.	59.0	60.9	57.8
August Ave.	65.1	64.5	63.4
August Max.	69.0	69.6	68.7



Forest to Mi Faucet

Forests cover 56% of Michigan’s land so more than half our water flows through 20 million acres of forest on its way to rivers, lakes and the Great Lakes. Better than any other land use, forests provide clean water and protect the sources of our drinking water. If the drinking water in your tap comes from a well, river or Great Lake, a forest helped keep it clean before it was treated and delivered to your home.

The Great Lakes contain 20% of Earth’s available fresh water so how Michigan takes good, or bad, care of its land and water impacts the entire planet. More than 28 million people in Canada and the United States get their drinking water from the Great Lakes, including many of Michigan’s largest cities. Managing forests well, protecting important forests and planting trees in riparian zones can lower treatment costs for municipal water utilities and protect family wells in rural areas too.

City	Municipal Water Source	Forest Cover in Watershed	Quality of Great Lake
Marquette	Lake Superior	91%	Good
Detroit	Lake Huron	67%	Good
Grand Rapids	Lake Michigan	49%	Fair
Monroe	Lake Erie	19%	Poor

The Forest Stewardship Program at the Michigan Department of Natural Resources is leading a team of twenty conservation partners on a new project called “Forest to Mi Faucet” to educate woodland owners and the public about the connections between forests and drinking water. The project is funded by USDA Forest Service and builds on its [Forests to Faucets 2.0](#) analysis of priority watersheds for protecting drinking water.

Forest to Mi Faucet has six components:

1. Help municipal water utilities implement their source water protection plans.
2. Protect forests in important watersheds through conservation easements, nature preserves, etc.
3. Manage forests better with forest certification and Master Loggers using best management practices.
4. Expand forests by planting trees in strategic urban and rural riparian zones to reduce pollution runoff.
5. Ecological restoration of forests for water quality with prescribed fire and reducing invasive species.
6. Educate landowners and the public about connections between forests and their drinking water.

Forest to Mi Faucet hopes to build the foundation for a future “payment for ecosystem services” program where private forest owners are compensated for providing clean water by managing their forests well and protecting sources of drinking water. Other states (AZ, GA, ME, NM, NY) and countries are already doing this.

Questions? Meagan Hoffman, HoffmanM6@Michigan.gov or Mike Smalligan, SmalliganM@Michigan.gov, 517-449-5666.

More information at Michigan.gov/ForestToMiFaucet.



Forest to Mi Faucet Team

Watershed Councils

- Lower Grand River Organization of Watersheds; Robert Cloy, Robert.Cloy@gvmc.org
- Kalamazoo River Watershed Council; Doug McLaughlin, krwc@KalamazooRiver.org
- Flint River Watershed Coalition; Jennifer Raymond, director@FlintRiver.org
- Huron River Watershed Council; Kris Olsson, KOlsson@HRWC.org
- River Raisin Watershed Council; Benny Woith, RiverRaisinCoordinator@gmail.com

Land Conservancies

- Legacy Land Conservancy; Clint McGill, cmcgill@LegacyLandConservancy.org
- Southeast Michigan Land Conservancy; Jill Lewis, JLewis@smlcland.org
- MidMichigan Land Conservancy; Jared Harmon, ExecutiveDirectorMMLC@gmail.com
- Land Conservancy of West Michigan; Justin Heslinga, justin@NatureNearby.org
- Southwest Michigan Land Conservancy; Mitch Lettow, lettow@swmlc.org

Conservation Districts

- Kent Conservation District; Jessie Schulte, Jessie.Schulte@macd.org
- Genesee Conservation District; John Cohoon, John.Cohoon@macd.org
- Washtenaw County Conservation District; Summer Roberts, Summer@WashtenawCD.org

Regional Organizations

- Superior Watershed Partnership; Kathleen Henry, Kathleen@SuperiorWatersheds.org
- Conservation Resource Alliance; DJ Shook, DJ@RiverCare.org
- Huron Pines; Samantha Nellis, Samantha@HuronPines.org

Statewide Organizations

- Michigan Master Loggers; Kari Divine, Kari@SustainableInc.org
- Michigan Forest Association; Amanda Curton, CurtonAm@MSU.edu
- Michigan Prescribed Fire Council; Stephanie Diep, SDiep@NatureCenter.org
- Huron Pines AmeriCorps; Meagan Hoffman, HoffmanM6@Michigan.gov
- Department of Natural Resources; Mike Smalligan, SmalliganM@Michigan.gov

National Organizations

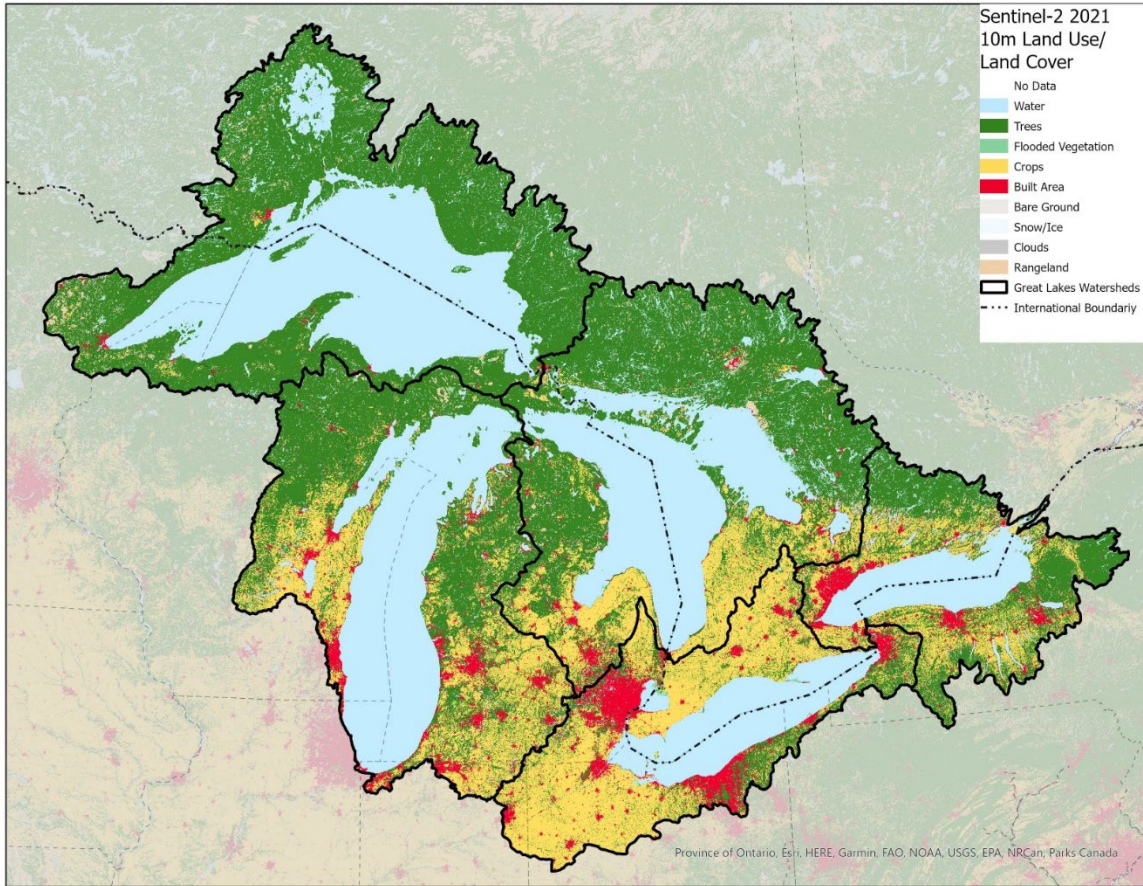
- Old Growth Forest Network; Nick Sanchez, Nick@OldGrowthForest.net
- USDA Forest Service – State, Private and Tribal Forests; Ryan Toot, Ryan.Toot@usda.gov

Forest to Mi Faucet is funded by USDA Forest Service - State, Private and Tribal Forests through the National Fish and Wildlife Foundation. All partners are equal opportunity providers and employers. September 2023.

Does your drinking water come from a well, river or lake? Find out at MiDrinkingWater.org

- Urban surface water – 5.7 million people (Detroit, Grand Rapids, Flint, Ann Arbor)
- Rural ground water – 2.5 million people with 1.25 million wells (Mcgi.state.mi.us/WaterWellViewer)
- Urban ground water – 1.8 million people (Lansing, Kalamazoo, Jackson, Cadillac)

Land use impacts our water quality in the Great Lakes State.



Great Lake	Forest	Agriculture	Urban	Drinking Water	Status
Superior	91%	1%	2%	Marquette	Good
Huron	67%	22%	6%	Detroit	Good
Michigan	49%	32%	10%	Grand Rapids	Fair
Ontario	49%	34%	12%	Toronto	Fair
Erie	19%	61%	18%	Monroe	Poor

Forests are the best land use to provide clean drinking water.

- Permanent vegetation slows water velocity from the sky and along ground
- Undisturbed soils and leaf layer reduce runoff and erosion
- Forests regulate timing and magnitude of stream flow
- Minimal infrastructure and impermeable surfaces
- Infrequent and small chemical spills
- Soil and vegetation filter pollutants
- Michigan.gov/ForestToMiFaucet





PROTECT forests to keep our drinking water clean.

Michigan has 20 million acres of forest with 38% in public ownership. Only 6% of Michigan’s forests restrict timber harvesting to enhance other ecological goals (UN Convention on Biological Diversity suggests protecting 30%). Very little of the 12 million acres of private forests are in conservation easements, nature preserves or protected watersheds.

Conservation partners with Forest to Mi Faucet will help municipal water utilities implement their Source Water Protection plans.

MANAGE forests well to keep our drinking water clean.

Forest certification promotes excellent management on 6 million acres of private and public forests (Sustainable Forestry Initiative, Forest Stewardship Council, American Tree Farm System).

Michigan Master Loggers use forestry best management practices to protect soil and water quality in the woods.

Family forest landowners are successful in their woods with help from foresters, peer networks, assistance programs, management plans and other resources.



EXPAND forests in strategic places to keep our drinking water clean.

Plant trees near streets, buildings and parking lots, install rain gardens and use green infrastructure in our cities.

Riparian forest buffers and agroforestry practices keep soil, nutrients and manure on farms, not in our drinking water.

Plant trees in rural areas after timber harvests, on degraded land, abandoned farmland and near rivers and lakes.

Forest To Mi Faucet is a team effort. Join us!

Information about the project and our many partners is at Michigan.gov/ForestToMiFaucet.

Mike Smalligan, DNR Forest Stewardship Program, SmalliganM@Michigan.gov or 517-449-5666
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