

SOUTHEASTERN WISCONSIN REGIONAL PLANNING COMMISSION

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January 27, 2025

Mr. Tim Asplund
Natural Resources Program Manager
Wisconsin Department of Natural Resources
P.O. Box 7921
Madison, WI 53707-7921

Dear Mr. Asplund:

Pursuant to the provisions of the cooperative agreement signed July 30, 2024, between the Southeastern Wisconsin Regional Planning Commission and the Wisconsin Department of Natural Resources governing the conduct of continuing areawide water quality management planning in southeastern Wisconsin during 2024, we are providing to you this report of work completed under that agreement for the period from January 1, 2024, through December 31, 2024. The work completed is summarized in the two attached tables.

Table 1 indicates the work products specified to be provided under each work element of the cooperative agreement, as well as a summary listing of the work products completed during the year. Table 2 provides additional detail as to the specific work products completed and indicates the status of the delivery of those work products to you. The tabular data are also being submitted electronically to the Department SWIMS database, as is the agreed-upon procedure.

Should you have any questions concerning this matter, please do not hesitate to contact me directly at (262) 953-3224, or lherrick@sewrpc.org.

Sincerely,

A handwritten signature in cursive script that reads "Laura K. Herrick".

Laura K. Herrick, PE, CFM
Chief Environmental Engineer

LKH/mid
WDNR 2024 2ND HALF WQ PLAN STATUS REPORT (00275745).DOCX

Enclosures

cc: Ms. Ruth Person, Natural Resources Program Specialist, WDNR-Madison
Ms. Helena Tiedmann, Water Quality Planning Specialist, WDNR-Madison

Table 1
2024 Continuing Water Quality Planning Program Project Output Summary:
January 1, 2024 Through December 31, 2024

Work Project and Project Output Anticipated from January 1, Through December 31, 2024, per 2024 Agreement	Project Outputs Completed during January 1 Through December 31, 2024 (see Table 2 for details)
Project 300-1000: Water Quality Management Plan Coordination and Extension of Implementation Activities	
1. Two letter reports or memoranda	1. Seven Reports completed: Lower Nemahbin, Big Cedar Lake, Little Cedar Lake, the Town of Ottawa (Hunters, Pretty, and School Section Lakes), Twin Lakes, Walworth County (Honey and Ivanhoe Lakes), and North Lake (Waukesha County) and seven staff memos for waterbodies inventoried for Ozaukee County Planning and Parks.
2. Assistance and Data Provision to WDNR, County Land and Water Conservation Committees, and Other Designated Management Agencies for Watershed and other Water Quality-Related WDNR Advisory Committees, Including Statewide Activities	2. • Attendance and material review for three meetings of MMSD Technical Advisory Team (TAT) • Continue to serve on the following MMSD project committees: ◦ Milwaukee River rehabilitation project associated with Estabrook Park falls and Kletzsch Park dam fish passage, along with channel improvements in the general reach ◦ Reforestation & Wetland Restoration Program and Green Seams Program coordination meetings • Continued to participate in the Mukwonago River Initiative • Commission staff continued to assist the WDNR State Wildlife Grant to implement a Comprehensive Watershed Approach to Identify Distribution and Status of Mussel Species of Greatest Conservation Need and Conservation Opportunities for Declining Mussel Populations in the Fox (Illinois) River Watershed of Illinois and Wisconsin. • Continued to assist UW-Extension and WDNR in the WI Lakes and Rivers Convention planning and moderating sessions at the event. • Commission staff serves on the Board as a non-voting advisor, Secretary, and project coordinator for their Mitigation Plan update for the Southeastern Wisconsin Fox River Commission. • Participated in the Southeastern Wisconsin Watersheds Trust, Inc. Commission staff serves on the Board of Directors as a non-voting advisor. • Provided letters of support to Milwaukee Metropolitan Sewerage District, Ozaukee County Planning and Parks (multiple), City of West Allis, and Root Pike WIN for various grant initiatives. • Serving on the University of Wisconsin-Milwaukee School Freshwater Sciences Academic Programs Advisory Board. • Commission staff continues to serve as a non-voting member of the Southeastern Wisconsin Fox River Commission. As part of this role the Commission staff organized and led the 12th Annual Fox River Summit held in Burlington Wisconsin. • Helped host southern Wisconsin aquatic plant identification workshop with WDNR and UW-Extension. • Served on Advisory Committee for Waukesha County AIS Strategic Plan.

Table 1 (Continued)

Work Project and Project Output Anticipated from January 1, Through December 31, 2024, per 2024 Agreement	Project Outputs Completed during January 1 Through December 31, 2024 (see Table 2 for details)
3. Assistance to 35 Established Waterbody Organizations and Participation with WDNR and Others in Statewide Lake Planning	3. - Assisted 21 waterbody-related and conservation themed non-governmental organizations (including land trusts, water-body associations, conservancies, homeowner associations, universities, and conservation themed groups). - Assisted 33 local units of government (e.g., municipalities, counties, and Lake Districts) - Developed or in the process of developing technical scopes of work, budgets, and schedules addressing multiple topics for 9 different lake entities. - Awarded and continued work on 4 WDNR Educational grant applications to fund public outreach efforts of high-quality water lakes in Walworth and Waukesha Counties. - Assisted the Southeast Fox River Partnership in participating in the Fabulous Fox! Water Trail Core Development Team to improve access sites and stewardship.
4. 30 Public Informational Reports or Presentations	4. 25 presentations on water quality issues and/or environmental issues.
5. WDNR-SEWRPC Program Coordination	5. Coordination with WDNR, including contract and work program development, meetings, and submittal of work products. Assisted lake and stream groups to better understand funding opportunities.
6. Attendance at 150 Meetings Related to Water Quality	6. Attended 256 meetings related to water quality planning
7. Special subwatershed or County Land and Water Management Plan assistance	7. Many of the activities listed elsewhere in this summary report also relate to land and water resource management in the counties of the Region. See specifically 300-1000, Items 2, 3, and 8 and 300-4000, Item 2
8. Miscellaneous Plan Implementation Activities	8. Maintain permit and data files; provision of information on a walk-in or telephone basis (736 meetings/phone calls/e-mails) (see Project 300-2000, Item 3)
Project 300-2000: Sanitary Sewer Extension Reviews and Assistance	
1. 150 Public and Private Sewer Extension Reviews	1. 133 public and private sewer extension reviews and letter reports
2. 10-20 Letter Reports Documenting In-Field Delineations of Environmentally Sensitive Lands	2. 16 letter reports
3. 250 Meetings/Phone Calls/E-mails to Review Environmentally Sensitive Areas and Related Matters Concerning Sewer Extensions and Sewer Service Areas	3. About 736 meetings/phone calls/e-mails with landowners, developers, and local officials
Project 300-3000: Sewer Service Area Plan Refinements	
1. Two Sewer Service Area Plan	1. No sewer service area plan updates were completed – 2 continue (Germantown, Menomonee Falls)
2. Revisions to Twelve Previous Sewer Service Area Plans	2. Six amendments to a previous sewer service area plan were completed – 4 continue (Sussex-Lisbon, Salem Lakes, Bloomfield/Pell Lake, Waterford-Rochester) and 4 were initiated (Burlington (2), Port Washington, Yorkville)
3. 25 Special Letter Reports on Environmentally Sensitive Areas	3. 43 letter reports
4. Provision of Data for WDNR Environmental Assessments	4. Provision of data for environmental assessments is now routinely provided
5. Meetings and Miscellaneous Activities	5. As needed
6. Development of Procedures for Environmentally Sensitive Lands Recommendations	6. Continued refinement of procedures and provision of additional mapping within each sewer service area

Table 1 (Continued)

Work Project and Project Output Anticipated from January 1, Through December 31, 2024, per 2024 Agreement	Project Outputs Completed during January 1 Through December 31, 2024 (see Table 2 for details)
Project 300-4000: Regional Water Quality Management Plan Update	
1. Continue to Support Subregional Plan Amendment Activities	1. Provided review letters for two facility plans (Lake Pewaukee Sanitary District, Village of Slinger) and technical support for four in progress (Fox River Commission (Brookfield), City of Racine, Village of Germantown, Waterford Sanitary District)
Project 300-5000: Regional Water Quality Management Plan Update—Groundwater Management Studies	
1. Miscellaneous activities	None

Table 2
Summary of 2024 Work Program Project Outputs and Status of Documentation:
January 1, 2024 Through December 31, 2024

Work Products	Status of Documentation ^a
Project 300-1000: Water Quality Management Plan Coordination and Extension and Implementation Activities	
1. Fourteen Letter Reports or Memoranda	
Seven memoranda include the Lower Nemahbin, Big Cedar Lake, Little Cedar Lake, Town of Ottawa (Hunters, Pretty, and School Section Lakes), Twin Lakes, Walworth County (Honey and Ivanhoe Lakes), and North Lake reports	1
Staff memos for 7 waterbodies inventoried for Ozaukee County Planning and Parks	1
2. Assistance and Data Provision for WDNR and Major Water Quality Management Plan Designated Management Agency Programs	
Participation as member of MMSD TAT, Including meetings and material reviews. During the reporting period, attended three meetings	2
Served on two MMSD project committees related to stream rehabilitation, fish passage, reforestation and wetland restoration	2
Participated in Mukwonago River Initiative	2
Support the Comprehensive Mussel study for the Fox River	2
Continue to assist UW-Extension and WDNR in the WI Lakes and Rivers Convention planning	2
Participation as a technical advisor to the Southeastern Wisconsin Fox River Commission (SEWFRC)	2
Participation as a nonvoting Director and technical advisor to the Southeastern Wisconsin Watersheds Trust, Inc.	2
Provided 7 letters of support for grant initiatives	2
Serve on the UWM School of Freshwater Sciences Advisory Board	2
As part of role with SEWFRC, led the Fox River Summit	2
Hosted aquatic plant identification workshop with WDNR and UW-Extension	2
Served on the advisory committee for the Waukesha County AIS Strategic Plan	2
3. Assistance to Lake and River Organizations	
Provision of Assistance to a Total of 21 Lake or River Organizations See Item 3, 300-1000 table (attached)	3
4. Public Information—Education Reports or Presentations	
25 presentations on Water Quality Topics	3 (one example provided)
5. WDNR Project Coordination and Work Program Development	
General Coordination with WDNR	2
Preparation of Annual Work Plans	2
Submittal of Work Products	2
6. Attendance at 256 Meetings Related to Water Quality Planning	2
7. County Land and Water Resource Management Plan Assistance	2
8. Miscellaneous Plan Activities	
Maintenance and Review of Water Quality Related File Data, Including WPDES Permits for Public Sewage Treatment Plants	2
Project 300-2000: Sanitary Sewer Extension Reviews	
1. 74 Public and 59 Private Sewer Extension Reviews (see listings)	3
2. 16 Letter Reports on Field Delineation of Environmentally Sensitive Lands for Sewer Extension Projects	3 (one example provided)
3. About 736 Meetings/Phone Calls/E-mails Related to Environmentally Sensitive Lands Data and Related Matters Concerning Sewer Extensions, Service Areas, and Other Development or Preservation Projects (also relates to Projects 300-1000 and 300-3000)	2
Project 300-3000: Sewer Service Area Plan Refinements	
1. No Sewer Service Area Plans were completed	4
Continued to work on sanitary sewer service area plan updates for Menomonee Falls and Germantown.	
2. Six Amendment Documents for a Previous Sewer Service Area Plan were completed - previous efforts can be found at www.sewrpc.org/SEWRPC/LandUse/SanitarySewerandWaterSupplySer.htm	4
Continued or began SSSA amendments for Lisbon-Sussex, Salem Lakes, Bloomfield/Pell Lake, Waterford-Rochester, Burlington (2), Port Washington, Yorkville.	

Table 2 (Continued)

Work Products	Status of Documentation^a
3. 43 Special Letter Reports	3 (one example provided)
4. Provision of Data for Environmental Assessments is Routinely Provided as Part of Submittal to WDNR	2
5. Meetings and Other Miscellaneous Activities	2
6. Procedures for Adding Detail to Sewer Service Area Plans Regarding Environmentally Sensitive Lands Changes Are Incorporated into New Reports and Routine Submittal of Supplementary Data with Report Submittal. Will Continue to Refine Procedure	2
Project 300-4000: Regional Water Quality Management Plan Updating and Extension	
1. Continue to Support Subregional Plan Amendment Activities • Provided review letters for two facility plans (Lake Pewaukee Sanitary District, Village of Slinger) and technical support for four facility plans in progress (Fox River Commission (Brookfield), City of Racine, Village of Germantown, and Waterford Sanitary District)	2
Project 300-5000: Regional Water Quality Management Plan Update—Groundwater Management Studies	
1. Miscellaneous Activities Related to Water Conservation and the Regional Water Supply Plan – none	2

^a Status of documentation Categories:

1—Previously provided to Wisconsin Department of Natural Resources.

2—No specific documentation required.

3—Provided to Wisconsin Department of Natural Resources with this report.

4—See SEWRPC website.

**2024 Lake and River Water Quality Management Activities (300-1000–ITEM 3):
January 1, 2024 Through December 31, 2024**

Lake or River	Activity
Ashippun Lake	Assisted the Ashippun Lake Management District in wake boat related issues and wave monitoring project.
Booth Lake	Preliminary discussion of potential projects
Eagle Spring Lake	Preliminary discussion of potential projects
Keesus Lake	Preliminary discussion of potential projects
Pewaukee Lake	Assisted Lake Pewaukee Sanitary District with enhanced wake boating issues
North Lake (Waukesha County)	Published Staff Memorandum report <i>Wave Propagation and Water Quality Study of North Lake, Waukesha County, Wisconsin, 2024-12</i> .
Fox (Illinois) River	Commission staff continued to work on the report detailing streambank erosion assessment and nonpoint source pollutant loading prioritization in the Fox River watershed for the SEWFRC. This work is based on field inspection of the lower 26 miles (from state line to the Waterford Impoundment). In addition to this data, the report includes factors influencing pollutant load and delivery to the river (e.g., watershed size and characteristics). Also working on mussel survey and hazard mitigation plan.
Southeastern Wisconsin Lakes and Rivers	Presented preliminary findings and significance of chloride study at two regional events: Annual Fox River Summit, Healthy Lakes Conference, and two public informational meetings regarding the draft Regional Natural Areas Plan update.
Twin Lakes (Lake Mary and Elizabeth Lakes)	Published Community Assistance Planning Report No. 302 (2nd Edition), <i>A Lake Management Plan for Mary and Elizabeth Lakes, Kenosha County, Wisconsin, 2024-12</i> .
Turtle Creek/Lake Comus	Completed draft of the Turtle Creek Watershed 9-Key Element plan – currently in review by WDNR (Andrew Craig).
Walworth County Lakes	Surveyed Honey and Ivanhoe Lakes as part of Lake Monitoring and Protection Network activities. Published Staff Memorandum report, <i>Point-Intercept Survey for Honey Lake and Aquatic Invasive Species Meander Survey of Ivanhoe Lake, Walworth County, Wisconsin, 2024-10</i> .
Ozaukee County Lakes and Milwaukee River Millponds	Surveyed five lakes and two millponds of the Milwaukee River for aquatic invasive species, native aquatic plants, and water quality with County. Prepared draft reports on each lake/millpond – currently in review by County staff.
Milwaukee Estuary Area of Concern	Commission staff continued to serve on the Milwaukee Estuary Area of Concern (AOC) Fish and Wildlife Technical Advisory Committee.
Delavan Lake and Jackson, Swan, and Browns Channel Creeks	Continued to work on the draft comprehensive lake management plan.
Geneva Lake	Hosted two stakeholder group meetings. Conducted water quality and pollutant source evaluation on Big Foot Creek. Continued to work on plan.
Big Cedar Lake	Published Memorandum Report No. 269, <i>Aquatic Plant Management Plan for Big Cedar Lake, Washington County, Wisconsin, 2024-06</i> Completed phase one of updated comprehensive plan and presented preliminary findings to District in November 2024. Work included water quality testing, recreational use monitoring and lake capacity analysis, and shoreline survey. Helped District apply for Surface Water grant funding for phase two of comprehensive plan update.
Little Cedar Lake	Published Memorandum Report No. 146, <i>An Aquatic Plant Management Plan for Little Cedar Lake, Washington County, Wisconsin (2nd Edition), 2024-05</i> Surveyed aquatic plant community of Little Cedar lake in 2024 as part of ongoing starry stonewort monitoring and management. Provided survey results to District and WDNR. Helped District prepare and administer a survey of District residents regarding lake management and recreational use. Will prepare report of findings in early 2025.
Friess and Little Friess Lakes	Established new project-Friess and Little Friess Lakes Aquatic Plant Management Plan updates. Surveyed lakes' aquatic plant communities in June 2024 and provided results to Friess Lake Advancement Association and WDNR.
Nagawicka Lake	Established new project-Nagawicka Lake Aquatic Plant Management Plan update. Surveyed lake aquatic plant community in July 2024 and provided results to City of Delafield and WDNR.

**2024 Lake and River Water Quality Management Activities (300-1000–ITEM 3):
January 1, 2024 Through December 31, 2024 (Continued)**

Lake or River	Activity
Lorraine Lake	Established new project-Lake Lorraine Aquatic Plant Management Plan update. Surveyed lake aquatic plant community in July 2024 and provided results to Lake Lorraine Protection and Restoration Association and WDNR.
Cravath and Trippe Lakes	Established new project-Trippe and Cravath Lakes Aquatic Plant Management Plan. Surveyed lakes' aquatic plant communities and shorelines in July and August 2024. Provided survey results to City of Whitewater and WDNR and presented findings at City meetings.
Lac La Belle	Established new project-Lac La Belle Hydrologic Study
Lauderdale Lakes	Discussed aquatic plant management plan approaches and enhanced wake boat issues. Helped District apply for Surface Water grant funding to update aquatic plant management plan.
Little Muskego Lake	Helped District apply for Surface Water grant funding to update aquatic plant management plan.
Lower Nemahbin Lake	Published Staff Memorandum <i>Aquatic Plant Management Plan For Lower Nemahbin Lake, Waukesha County, Wisconsin</i> , February 29, 2024
Hunters, Pretty, and School Section Lakes	Published Staff Memorandum, <i>Considerations Regarding The Use Of Enhanced Wakes On Hunters, Pretty, And School Section Lakes Within The Town Of Ottawa, Waukesha County, Wisconsin</i> , June 7, 2024
Turtle Lake	Working with Turtle Lake Improvement Association to update aquatic plant management plan. Published plan anticipated in early-mid 2025.

300-1000
ITEM 4

Southeastern Wisconsin Regional Planning Commission



Regional Natural Areas Update

Virtual Public Meeting
December 19, 2024

1

Funding

➤ Funded in part by the Wisconsin Coastal Management Program and National Oceanic and Atmospheric Administration, Office for Coastal Management under the Coastal Zone Management Act, Grant #s

- NA18NOS4190091
- NA20NOS4190092
- NA22NOS4190085






2

Agenda

- Welcome and Introduction
- Summary of the Preliminary Draft Amendment
- Introduction to the Webtools
- Discussion and Public Comment
- Adjournment




3

History

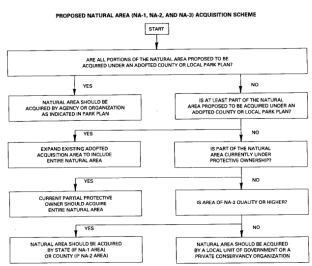
- Planning effort initiated in 1987
 - Requested by Milwaukee County Parks
- In 1989, remaining counties joined the request
- Intensive inventory work followed
- PR 42 adopted in 1997
- Minor amendment adopted in 1998
- Amendment adopted in 2010
- Update initiated in 2019, with target publication date in 2025




4

Plan Recommendations

- Natural Areas Plan
 - Identify the remaining
 - Natural Areas
 - Critical Species Habitat Sites
 - Aquatic Areas
 - Geological Sites
 - Archaeological Sites
 - Rank Natural Areas
 - Provide prioritized recommendations for acquisition and management




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2024 Amendment- Key elements to improve the plan and its ease of use:

- Provide more up-to-date information (i.e., new sites, lost sites, designation changes, and boundary changes) for inclusion in appropriate local and county planning reports and studies and stewardship efforts
- Need to change current hard copy map and table format to a more formal, centralized digital (i.e., boundary shapefiles with detailed attributes or mapping applications) inventory of our natural areas and their attributes to maximize use for and visibility by desired users (public and private)
- Need to update the original aquatic resource assessment schemes for lake and stream classification
- Need to better address common threats and management needs of different natural area types



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2024 Amendment-Objectives

- Identify NA & CSH site changes, which have occurred since the preparation of the original 1997 plan and the 2010 Amendment
- Development of a digital geodatabase of natural areas and critical species habitat sites and their attributes to serve as a central repository for site information
- Development of new site profile summaries and maps for each natural area
- Revised and updated aquatic resource assessment schemes for lake and stream classification
- Development of an interactive webtool hosted on the Commission's website to locate natural areas and critical species habitat sites, aquatic resource locations and classification rankings, and to learn more about how to protect and manage these critical resources and download information about each of them.



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2024 Amendment-Format

- Chapter 1-Introduction
- Chapter 2-Background
- Chapter 3-Status of Implementation
- Chapter 4-New Sites
- Chapter 5-Changes in Listed Species
- Chapter 6-Changes to Site Boundaries and Ranks
- Chapter 7-Recommended Changes to the Plan
- Chapter 8-Preliminary Recommendations
- Chapter 9-Final Recommendations (**to be completed**)
- Appendix A-Site Profiles (posted on Commission's Website and Webtool)



8

Natural Areas 2024

- 478 Natural Areas
 - 42 NA-1
 - 107 NA-2
 - 329 NA-3
- 412 CSH Sites
- 87 Geological Sites
- 15 Archeological Sites
- 11 Grassland and forest interior re-establishment sites



9

NA Summary by County

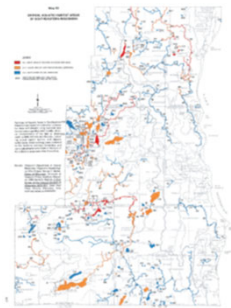
	PR 42	2010 A	2024	Change
Kenosha	38	41	26	-15
Milwaukee	43	55	53	-2
Ozaukee	48	50	53	+3
Racine	53	55	46	-9
Walworth	74	82	81	-1
Washington	90	93	94	+1
Waukesha	101	118	125	+7
	447	494	478	-16



10

Aquatic Natural Areas: 1997

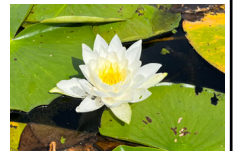
- Stream ranking elements
 - Water quality, morphology, connectivity, fisheries, critical species, riparian buffer
- Lake ranking elements
 - Trophic state, surface area, connectivity, fisheries, critical species, riparian buffer
- 118 Critical Stream Reaches
 - Bark, Fox, Milwaukee, Mukwonago, and Oconomowoc
- 148 Critical Lakes
 - Beulah, Big Cedar, Nagawicka, and Phantom lakes



11

Updating the Aquatic Natural Areas

- 2010 amendment did not include update to aquatic Natural Areas
- Since 1997 publication, several surveys, models, and metrics more widely used:
 - WDNR lake and stream natural community model
 - Floristic quality assessment, Nichols 1999
 - Aquatic plant point-intercept protocol, Hauxwell et al. 2010
 - Aquatic plant bioassessment, Mikulyuk et al. 2017
 - Biotic index for macroinvertebrates, Hilsenhoff et al. 1987
 - Macroinvertebrate index of biotic integrity, Weigel et al. 2003
 - Fisheries indices of biotic integrity, Lyons et al. 1992 – 2012
 - Fishery classification of Wisconsin lakes, Rypel et al. 2019



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●●●● Aquatic Natural Areas: Lake Assessment Schemes

- Updated assessment scheme with elements not included in the 1997 plan
 - Biotic elements have larger impact for assessment
- Lake score (≤ 100) =
 - Morphology (≤ 7) + Water Quality (≤ 7) + Aquatic Plants (≤ 20) + Fisheries (≤ 25) + Riparian Buffer (≤ 6) + Habitat Connectivity (≤ 15) + Rare Species (≤ 20)




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●●●● Aquatic Natural Areas: Stream Assessment Schemes

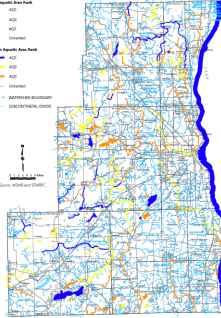
- Stream score (≤ 100) =
 - Morphology (≤ 7) + Water Quality (≤ 7) + Macroinvertebrates (≤ 20) + Fisheries (≤ 25) + Riparian Buffer (≤ 6) + Habitat Connectivity (≤ 15) + Rare Species (≤ 20)




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●●●● Aquatic Natural Areas

- Only highest scoring waterbodies designated as Aquatic Areas
- 54 lakes in Region identified as Aquatic Areas
 - 12 lakes as AQ-1 (including Lake Michigan)
 - 21 lakes as AQ-2
 - 21 lakes as AQ-3
- 91 stream reaches identified as Aquatic Areas
 - 17 reaches as AQ-1
 - 31 reaches as AQ-2
 - 43 reaches as AQ-3
- Aquatic Areas located in every County of the Region




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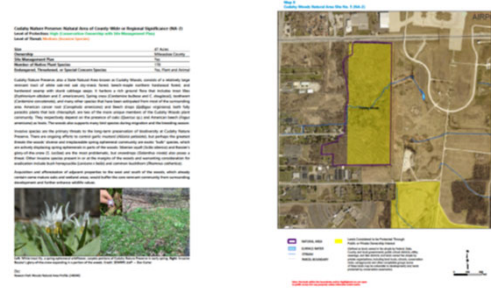
●●●● Aquatic Natural Areas: Comparisons

- Aquatic Area rankings are comparable with other studies of high-quality areas
- Most ranking lakes and streams were designated as Aquatic Areas in 1997 plan
 - Includes two lakes not ranked in original plan: North Lake (Walworth) and Pretty Lake (Waukesha)
- Lake Michigan and several ranking lakes and rivers identified as Conservation Opportunity Areas in the 2015 Wisconsin Wildlife Action Plan
- Many ranking lakes and streams identified as "high-quality waters" by WDNR in 2022
 - Used some similar criteria as updated Aquatic Area assessment schemes



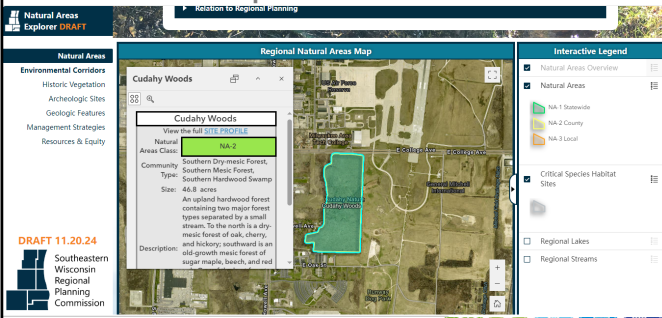
16

●●●● Natural Area Site Profiles




17

●●●● Natural Areas Explorer Webtool




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Timeline for Completion

- Dec 19, 2024--Public Meeting (virtual) to present & obtain comments draft PR-42 2nd Amendment Plan and Webtool
- Dec 12- Jan 10, public comment period open
- Jan 20-24, final TAC (approve final draft PR-42 2nd Amendment Plan and Webtool)
- Feb 2025--Commission's Planning and Research Committee--approve PR-42 2nd Amendment Plan draft and webtool
- March 2025--Commissioner's Quarterly Meeting--approve PR-42 2nd Amendment Plan draft and webtool
- April-May 2025 Publish final plan on Commission's website




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Thank You

Tom Slawski Chief Biologist tslawski@sewrpc.org 262.953.3208	Justin Poinatte Principal Specialist- Biologist jpoinatte@sewrpc.org 262.953.3230	Zachary Kron Senior Specialist- Biologist zkron@sewrpc.org 262.953.3208
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<https://www.sewrpc.org/Regional-Planning/Natural-Areas>

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20

Draft Updated Lake Ranking Scheme

Score (≤100) = Morphology (≤7) + Water Quality (≤7) + Aquatic Plants (≤20) + Fisheries (≤25) + Riparian Buffer (≤6) + Habitat Connectivity (≤15) + Rare Species (≤20)

Scheme Elements	Data or Indices	Associated Data Sources
Morphology and Classification	Size Maximum Depth Lake Classification ^a	Wisconsin Department of Natural Resource (WDNR) Register of Waterbodies (ROW); WDNR Surface Water Data Viewer (SWDV) ^b
Water Quality	303(d) Impairment Listing Outstanding and Exceptional Resource Waters	SWDV
Fish	Lake fishery classification Species richness Presence of common carp	Data from Ryppel et al., 2019 ^c WDNR Fisheries Database
Aquatic Plants	Mean Coefficient of Conservatism ^d Species richness Percent invaded Macrophyte bioassessment ^e	WDNR Aquatic Plant Point-Intercept Database
Shoreline Buffer Connectivity	Percent of shoreline buffered Number of connected natural areas Acreage of connected natural areas	SEWRPC Land Use Geodatabase Self-referential
Natural Heritage Inventory (NHI) Listings	Observations of Special Concern (SC), Threatened (THR), or Endangered (END) species	NHI Database ^f



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Draft Updated Lake Ranking Scheme

- Applied ranking scheme to entire lakes
 - Lakes, millponds, reservoirs over 10 acres with a WBIC
- Ranking comprised of major elements (e.g., aquatic plants)
 - Major elements comprised of sub-elements (e.g., mean fish species richness)
- Guidance on ranking scheme point allocation:
 - 1997 Regional Natural Areas plan
 - Did not assign points to sub-elements without data
 - Calculated metrics of how rare a community was within the Region and/or the state
 - Calculated summary statistics (e.g., mean, median, quartile) to use as breakpoints



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Draft Updated Stream Ranking Scheme

Score (≤100) = Morphology (≤7) + Water Quality (≤7) + Macroinvertebrates (≤20) + Fisheries (≤25) + Riparian Buffer (≤6) + Habitat Connectivity (≤15) + Rare Species (≤20)

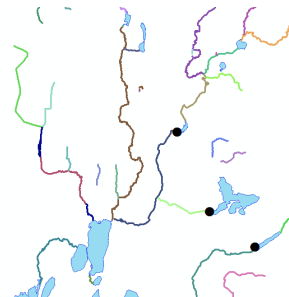
Scheme Elements	Data or Indices	Associated Data Sources
Morphology, Modification, and Classification	Passage barriers (dams, culverts, roads) Stream Natural Community Model ^h	SEWRPC Land Use; SEWRPC Hydrology Geodatabase; SWDV
Water Quality	303(d) Impairment Listing Outstanding and Exceptional Resource Waters	SWDV
Macroinvertebrates	Hilsenhoff's Biotic Index ^a Species richness	SWDV; WDNR Surface Water Integrated Monitoring System (SWIMS)
Riparian Buffers	Percent of reach buffered	SEWRPC Land Use Geodatabase
Connectivity	Number of connected natural areas Acreage of connected natural areas	Self-referential
Fish	Fish Indices of Biotic Integrity ⁱ Species richness Trout streams	SWDV; WDNR Fisheries Database
Natural Heritage Inventory (NHI) Listings	Observations of Special Concern (SC), Threatened (THR), or Endangered (END) species	NHI Database



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Stream Reach Delineation

- Applied ranking scheme to stream reaches instead of entire streams
- Looked for existing stream reach delineations but didn't find suitable match
- Reach delineation process:
 - Used WDNR streamlines for WBIC system
 - Removed any streamlines passing through lakes larger than 10 acres
 - Split streamlines into reaches
 - Upstream and downstream of lakes, dams, and confluences where stream order changed
 - Each reach assigned unique ID




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Draft Updated Stream Rankings

- Applied ranking scheme to each reach of 2,246 streams in Region
 - 74% of streams are only one reach long
 - Rivers with dams, lakes, and stream order changes broken into multiple reaches
 - Oconomowoc, Bark, and Scuppernong have most reaches (14 to 18)
- Ranking scheme elements and point allocation guidance similar to lakes
- Used weighted means for elements where data presented as a line feature
 - Sinuosity, stream natural communities, OERW, impairments, and trout class
 - Calculated percent of each reach and then applied ranking scheme based on percentage



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Aquatic Natural Areas: Element Scores

Lake Name	WBIC	County	Morphology Score	Water Quality Score	Aquatic Plant Score	Fisheries Score	Riparian Buffer Score	Habitat Connectivity Score	Rare Species Score	Total Score	Aquatic Area Rank
Lower Phantom Lake	765800	Waukesha	2	5	8	22	0	15	14	66	AQ1
Nagawicka Lake	828000	Waukesha	7	5	16	18	0	14	6	66	AQ1
Lulu Lake	765800	Walworth	3	7	16	13	4	9	12	64	AQ1
Lake Beulah	766600	Walworth	7	5	12	21	0	7	8	60	AQ1
Mud Lake	22100	Ozaukee	3	5	17	3	6	13	10	57	AQ1
Eagle Spring Lake	768600	Waukesha/Walworth	2	5	9	13	2	14	12	57	AQ1
Waubesa Lake	760900	Racine	5	5	17	21	0	3	4	55	AQ1
Oconomowoc Lake	849600	Waukesha	7	5	17	22	0	0	4	55	AQ1
Geneva Lake	758300	Walworth	7	5	10	22	0	8	2	54	AQ1
Cedar Lake	25300	Washington	7	5	14	17	0	6	5	54	AQ1
Big Muskego Lake	762400	Waukesha	5	5	8	17	2	10	6	53	AQ1

- Each lake and stream reach received score for each element and total score
 - Enable comparison between waterbodies as well as recognition of strengths/weaknesses
- Highest ranking waterbodies scored well in nearly every category
 - Riparian Buffer element had lowest scores for ranking and non-ranking waterbodies



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WDNR Healthy Watersheds, High-Quality Waters

- WDNR effort identifies high-quality waters (lakes and entire rivers) in the state

- High-quality waters meet 2 of the following 3 criteria:

- Criteria Area 1: Unique and Rare Natural Communities
 - State Natural Areas (waters within and adjacent)
 - Trout Streams and/or springs
 - Outstanding and Exceptional Resource Waters
 - Wild Rice Waters (GLFWC/WDNR 2019 List)
 - Waters in ecologically significant coastal wetlands along Lakes Michigan and Superior as identified in the Coastal Wetlands of Wisconsin
 - Federal or state waters designated as wild or scenic rivers
 - 2-Story fishery lakes with at least one non-stocked native coldwater species
- Criteria Area 2: Water Quality Standards
 - Attaining uses and currently described as "healthy" (Category 2a and 2b Waters)
- Criteria Area 3: Biotic Integrity
 - Good and/or Excellent macroinvertebrate IBI or fish IBI scores if a stream or river
 - A rank of "attaining" or "Good" using the Macrophyte Assessment of Condition for Lakes (Mikulyuk et al. 2017)

Report: https://dnr.wisconsin.gov/sites/default/files/2016/01/SurfaceWater/HWHQW_TechReport_NoEGAD.pdf



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Aquatic Natural Areas: Comparisons

- 43% of ranking lakes and 38% of ranking streams are also HQW
 - Lakes (HQW and AQ-1)
 - Big Cedar, Beulah, Eagle Spring, Geneva, Nagawicka, Lulu, Mud (Ozaukee), Oconomowoc
 - Rivers/Streams (HQW and AQ-1)
 - Bluff, Genesee, Jericho, North Branch Cedar, and Whitewater Creeks
 - East Branch Milwaukee, Milwaukee, Mukwonago, Oconomowoc, South Branch Genesee Rivers
- Exceptions
 - Big Muskego and Lower Phantom are AQ-1, but not ranked as HQW
 - Pebble Brook and middle Fox River are top ten stream Natural Areas, but not ranked as HQW



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Questions on Aquatic Areas?



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300-2000
ITEM 1

SSE NO.	WORLDOX NO.	CIVIL DIVISION	COUNTY	PROJECT DESCRIPTION	LETTER ANSWERED
002-24	271314	C/Elkhorn	Walworth	NE Water Treatment Plant Sewer	1/5/2024
003-24	271378	V/Shorewood	Milwaukee	SE Area Combined Sewer Improvements Phase 2	1/8/2024
004-24	271574	C/Milwaukee	Milwaukee	NS12 Collector System Improvements	2/15/2024
005-24	271384	C/Oconomowoc	Waukesha	Oconomowoc Parkway Sewer Relay	1/9/2024
006-24	271381	V/Dousman	Waukesha	Talbot's Woods (SF,MF,Commercial)	1/31/2024
008-24	273207	V/Grafton	Ozaukee	Green Bay Road (12) Residential Buildings	5/28/2024
009-24	272533	V/Kewaskum	Washington	Blue Door Industrial Park	4/23/2024
010-24	271886	V/Dousman	Waukesha	Three Pillars	2/12/2024
011-24	271839	C/Delafield	Waukesha	Divine Redeemer Early Childhood Dev. Center	2/7/2024
012-24	271810	C/Franklin	Milwaukee	Carma Laboratories (1) Building	2/6/2024
013-24	271880	C/Elkhorn	Walworth	Creekside Community MF/Senior Living	2/14/2024
015-24	272023	C/Franklin	Milwaukee	Lake Grove/(38) Townhomes	3/12/2024
016-24	272052	T/Norway	Racine	Sandy Point Drive	4/10/2024
017-24	272307	V/Pleasant Prairie	Kenosha	LogistiCenter at Pleasant Prairie (4) Future Bldgs	3/25/2024
019-24	272137	V/East Troy	Walworth	Coffee Shop and (3) Future Outlots	3/1/2024
020-24	272287	V/Caledonia	Racine	South Hills Commerce Ctr (10) Ind Bldgs	5/21/2024
021-24	272549	V/Sussex	Waukesha	Vista Run Phase3/4/5 (67) SF Lots (1) Clubhouse	3/28/2024
022-24	272647	V/Pleasant Prairie	Kenosha	Cooper Road Sanitary Sewer Relay	4/4/2024
023-24	272673	C/Glendale	Milwaukee	PPII Program Lateral Rehab	4/9/2024
024-24	272744	C/Oconomowoc	Waukesha	Pabst 59 (4)Tech/(5)MF/(6)Retail Bldgs	4/15/2024
025-24	272706	V/Kewaskum	Washington	TID 4 Utility Extension	4/23/2024
026-24	272751	C/Greenfield	Waukesha	Layton Preserve (1) Apt/(1)Townhome	4/15/2024
027-24	272838	V/Dousman	Waukesha	Public FM/LS for Talbot's Woods	6/3/2024
028-24	273192	V/Caledonia	Racine	TID4 Phase 4 Sanitary Sewer	5/23/2024
029-24	272993	C/West Bend	Washington	Sand Drive Expansion	5/2/2024
030-24	273046	V/Menomonee Falls	Waukehsa	Quietwood Cranes Crossing North	5/7/2024
031-24	273059	V/Fredonia	Ozaukee	Buisness Park Expansion	5/16/2024
032-24	273317	C/New Berlin	Waukesha	Theofila Estates (14) SF Lot Subd	6/4/2024
033-24	273126	T/Oconomowoc	Waukesha	Low Pressure Sewer Expansion (Jaekles Blvd)	5/23/2024
034-24	273307	C/Franklin	Milwaukee	Poth's Mixed Use Development	6/3/2024
035-24	273240	C/Pewaukee	Waukesha	Blue Mound Road Sanitary Sewer	5/21/2024
036-24	273266	C/Franklin	Milwaukee	DPW Campus Utilites - Phase 1	6/3/2024
037-24	273397	C/Greenfield	Milwaukee	Spring Mall Redevelopment (MF)	6/7/2024
038-24	273413	V/Dousman	Waukesha	Settlement at Utica Lake - Addition 2 (11) SF Lots	6/12/2024
039-24	273454	C/Kenosha	Kenosha	7th Ave _56th-55th St Sewer Relay for Residential	6/19/2024
040-24	273470	C/Milwaukee	Milwaukee	Mt. Vernon Ave/Force Main Extension	6/19/2024
041-24	273428	C/Pewaukee	Waukesha	Balmer Park Public Sewer Ext/Lindsay Rd WM	6/12/2024

SSE NO.	WORLDOX NO.	CIVIL DIVISION	COUNTY	PROJECT DESCRIPTION	LETTER ANSWERED
013-24R	274835	C/Elkhorn	Walworth	Creekside Community MF/Senior Living	10/15/2024
042-24	273585	C/Oconomowoc	Waukesha	Prairie Creek Ridge Expansion (97) SF Lots	7/2/2024
043-24	274360	V/Mukwonago-V/Vernon	Waukesha	Cardinal Ridge (94) SF Lots	9/6/2024
044-24	274184	V/Fontana-On-Geneva Lake	Walworth	Clear Sky Lodge Public Sewer Relocation/Lateral	8/19/2024
045-24 (redone as PSC-24-045)	273980	C/Mequon	Ozaukee	Newcastle Place Assisted Living	7/31/2024
046-24	273638	C/Franklin	Milwaukee	Ridgewood Reserve (9) lots	7/2/2024
047-24	273697	V/Bristol	Kenosha	Leo Living Public Gravity Sewer/FM Phase 1	10/22/2024
048-24	273852	V/Bristol	Kenosha	Leo Living Lift Station	8/16/2024
049-24	273379	C/Lake Geneva T/Linn	Walworth	Big Foot Force Main Replacement	7/18/2024
050-24	273888	V/Mt. Pleasant	Racine	TID 7 Water Main/Sanitary Sewer Extension	8/1/2024
051-24	273892	C/Kenosha	Kenosha	Schuetz Container-sewer serves only unknown site to N	8/1/2024
052-24	274153	V/Mt. Pleasant	Racine	Wisconn Valley Way (Potential Microsoft)	9/17/2024
053-24	274257	T/Delafield	Waukesha	Welshire Farm	8/20/2024
055-24	274219	C/Waukesha	Waukesha	Olde Farm (17) SF Lots	8/29/2024
056-24	274247	C/Oak Creek	Milwaukee	6th Street Sanitary Sewer Abandonment	8/29/2024
057-24	274292	C/Oak Creek	Milwaukee	Sanitary (public) Force Main Extension (SF Lot)	8/23/2024
058-24	274297	V/Mt. Pleasant	Racine	Springs at Mt. Pleasant (1) Clubhouse (14) MF	9/3/2024
059-24	274330	C/Whitewater	Jefferson	Park Crest Subd-Phase 4 (Redone from SSE 037-18	9/9/2024
060-24	274463	C/Hartford	Washington	Harvest Creek Subdivision (16) duplexes/15 SF lots	9/5/2024
061-24	274515	V/Grafton	Ozaukee	Hawks Ridge Subdivision - PHASES 1-3 (53) SF lots	11/5/2024
062-24	274497	C/Wauwatosa	Milwaukee	Discovery Parkway (7) acres future commercial	9/16/2024
063-24	274686	V/Jackson	Washington	Oaks of Jackson Addition #1	9/20/2024
064-24	274683	C/Mequon	Ozaukee	ICAP Mequon Improvements (2) Lots	9/20/2024
065-24	274811	C/Burlington	Racine	River Glen (32 SF Lots)	10/8/2024
066-24	274757	V/Germantown	Washington	Green Bay Packaging (1) bldg	10/4/2024
067-24	274800	V/Somers	Kenosha	Golden Oil - Somers Gateway Center (PHASE 1)	11/6/2024
068-24	274814	C/Milwaukee	Milwaukee	Cruise Dock LS FM	10/16/2024
069-24	274903	C/Cedarburg	Ozaukee	Cedarway Development (2) Condo Bldgs	10/28/2024
070-24	275067	V/Mt. Pleasant	Racine	Braun Rd Public Sewer Ext	11/8/2024
071-24	275179	C/Kenosha-T/Paris	Kenosha	38th Street Public Sewer Ext	11/15/2024
072-24	275020	V/Jackson	Washington	Cedar Creek Townhomes (5) MF Bldgs	11/26/2024
073-24	275103	C/Franklin	Milwaukee	DPW Campus Utilites	11/8/2024
074-24	275176	C/Hartford	Washington	Copper Trails (112 SF Lots)	11/15/2024
075-24	275208	C_Oak Creek	Milwaukee	Lucy Meadows Subdivision (10 Lot SF Lots)	11/15/2024
076-24	275329	C/Kenosha	Kenosha	Gracewood Estates (18) SF Lots	12/13/2024
077-24	275436	V/Waterford	Racine	6th Street Trail View Townhomes (5) Bldgs	12/16/2024
078-24	275506	V/Pleasant Prairie	Kenosha	Cedar Ridge (78) SF Lots	12/16/2024

PSC NO.	WORLDOX NO.	CIVIL DIVISION	COUNTY	PROJECT NAME	LETTER ANSWERED
24-001	271377	C/Racine	Racine	Woodman's Food Market & Gas Station	1/5/2024
24-002	271383	C/Brookfield	Waukesha	Guhring B1 Facility	1/10/2024
24-003	271854	V/Mt. Pleasant	Racine	Microsoft Data Center	2/9/2024
24-005	271569	V/Hartland	Waukesha	Hartland Apts (11) Apt Bldgs/(1) Club House-Pool	2/20/2024
24-006	272198	V/Menomonee Falls	Waukesha	Menomonee Falls Ford (Gordie Boucher Ford)	3/12/2024
24-007	273133	C/Waukesha	Waukesha	MetalTek (1) Building	5/16/2024
24-008	271755	C/Franklin	Milwaukee	Carma Laboratories (1) Building	2/6/2024
24-009	271783	V/Kewaskum	Washington	Blue Door District (1) Building	4/23/2024
24-010	271803	V/Dousman	Waukesha	Three Pillars	2/12/2024
24-011	271840	C/Delafield	Waukesha	Divine Redeemer Early Childhood Dev. Center	2/7/2024
24-012	271884	C/Elkhorn	Walworth	Creekside Community MF/Senior Living	2/14/2024
24-013	272056	T/Norway	Racine	Sandy Point Drive	4/10/2024
24-015	272029	C/Franklin	Milwaukee	Lake Grove/(38) Townhomes	3/12/2024
24-016	272404	V/Pleasant Prairie	Kenosha	LogistiCenter at Pleasant Prairie (4) Future Bldgs	3/25/2024
24-018	272162	V/East Troy	Walworth	Coffee Shop and (3) Future Outlots	3/1/2024
24-019	272182	V/Germantown	Washington	Crew Carwash	3/1/2024
24-020	272293	V/Caledonia	Racine	South Hills Commerce Ctr (10) Ind Bldgs	5/21/2024
24-021	272357	V/Caledonia	Racine	Central Storage & Warehouse Expansion Phase 3.5	5/21/2024
24-022	272504	V/Pleasant Prairie	Kenosha	Westrock (1) Building (part of LogistiCenter)	3/25/2024
24-023	272653	C/Waukesha	Waukesha	Delafield Street Multi-family (2) Bldgs	4/9/2024
24-024	272766	C/Oconomowoc	Waukesha	Pabst 59 (4)Tech/(5)MF/(6)Retail Bldgs	4/15/2024
24-025	272756	C/Greenfield	Waukesha	Layton Preserve (1) Apt/(1)Townhome	4/15/2024
24-027	273140	V/Pleasant Prairie	Kenosha	ULINE H4 HQ - Prairie Highlands	5/16/2024
24-028	273167	C/Milwaukee	Milwaukee	R + L Carriers expasnsion	5/16/2024
24-029	273337	C/Oconomowoc-V/Lac La Belle	Waukesha/Jefferson	OSRUI Camp	6/17/2024
24-030	273310	C/Franklin	Milwaukee	Poths Mixed Use Development	6/3/2024
24-031	273379	V_Pleasant Prairie	Kenosha	RUST-OLEUM (1) Building	6/7/2024
24-032	273401	C/Greenfield	Milwaukee	Spring Mall Redevelopment (MF)	6/7/2024
24-033	273465	C/Kenosha	Kenosha	7th Ave_56th-55th St 24" Sanitary sewer Relay	6/19/2024
24-035	273446	V/Menomonee Falls	Waukesha	Menomonee Falls Industrial (1) Bldg	6/19/2024
24-036	273483	V/Jackson	Washington	Glacier Hills Credit Union	6/19/2024
24-039	273551	C/Brookfield	Waukesha	18550 Bluemound LLC/Chapter Aesthetic	6/24/2024
23-037	269341	V/Sussex	Waukesha	Mr. D's Car Wash	5/16/2024
23-046	270297	V/East Troy	Walworth	Overlook Ridge (2) Multi-family Bldgs	2/27/2024

PSC NO.	WORLDOX NO.	CIVIL DIVISION	COUNTY	PROJECT NAME	LETTER ANSWERED
24-012R	274836	C/Elkhorn	Walworth	Creekside Community MF/Senior Living	10/15/2024
24-034	273606	C/Pewaukee	Waukesha	Quattro Development (1) bldg	7/2/2024
24-037	273845	V/Bristol	Kenosha	Leo Living Phase 1	10/22/2024
24-038	273642	V/Mukwonago	Waukesha	Grey Fox Trail (1) 3-Unit/(2) 12-Unit	7/2/2024
24-040	274193	V/Fontana-On-Geneva Lake	Walworth	Clear Sky Lodge Public Sewer Relocation/Lateral	8/19/2024
24-041	273806	V/Caledonia	Racine	Cold Storage at Caldonia Corporate Park	7/11/2024
24-042	273792	C/Franklin	Milwaukee	Rawson Business Park (4) bldgs	7/11/2024
24-043	273957	C/Kenosha	Kenosha	Schuetz Container (1) Bldg	8/1/2024
24-044	273916	C/Glendale	Milwaukee	Glendale - Dunkin	7/31/2024
24-045 (voided SSE 045-24)	273980	C/Mequon	Ozaukee	Newcastle Place Assisted Living	7/31/2024
24-046	273996	V/Kewaskum	Washington	Village of Kewaskum Village Hall & PD	8/1/2024
24-047	273999	C/West Allis	Milwaukee	Land By Label (2) MF Apt Bldgs	8/1/2024
24-048	274324	V/Mt. Pleasant	Racine	Springs at Mt. Pleasant (1) Clubhouse (14) MF	9/3/2024
24-049	274398	C/Kenosha	Kenosha	Iron Mountain Refrigeration	9/5/2024
24-050	274545	V/Hartland	Waukesha	Hartland Senior Living	9/17/2024
24-051	274683	C/Mequon	Ozaukee	ICAP Mequon Improvements (2) Lots	9/20/2024
24-052	274697	V/Germantown	Washington	Green Bay Packaging (1) bldg	10/4/2024
24-053	274825	C/Burlington	Racine	River Glen (32 SF Lots)	10/8/2024
24-054	274779	V/Saukville	Ozaukee	Anita's Garden (1) 62-Unit CBRF	10/3/2024
24-055	274799	V/Somers	Kenosha	Golden Oil - Somers Gateway Center (PHASE 1)	11/6/2024
24-056	275177	C/Kenosha-T/Paris	Kenosha	38th Street Public Sewer Ext	11/15/2024
24-057	275024	V/Jackson	Washington	Cedar Creek Townhomes (5) MF Bldgs	11/26/2024
24-058	275343	V/Waterford	Racine	6th Street Trail View Townhomes (5) Bldgs	12/16/2024
24-059	275338	C/New Berlin	Waukesha	Moorland Road - New Berlin (1) Bldg	12/13/2024
23-045	270581	V/Grafton	Ozaukee	Luther Group Grafton	9/18/2024

300-2000
ITEM 2

COPY

SOUTHEASTERN WISCONSIN REGIONAL PLANNING COMMISSION

W239 N1812 ROCKWOOD DRIVE • PO BOX 1607 • WAUKESHA, WI 53187-1607 • TELEPHONE (262) 547-6721

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September 5, 2024

Ms. Emily Rowntree, PE
Project Manager
Strand Associates, Inc.
emily.rowntree@strand.com

Re: SEWRPC No. CA-408-76

Dear Ms. Rowntree:

This will respond to your email message of February 13, 2024, requesting that the Commission staff conduct a field inspection of the proposed sanitary sewer relocation within the Cold Spring Road right-of-way in the vicinity of the Root River bridge crossing. The project area is located in parts of the Northwest and Southwest one-quarters of U.S. Public Land Survey Section 20, Township 6 North, Range 21 East, City of Greenfield, Milwaukee County, Wisconsin. The purpose of the field inspection was to identify and stake the boundaries of any wetlands within the project area.

Pursuant to your request, Commission staff identified and staked the wetland boundaries contained within the project area on May 22, 2024. A copy of the wetland delineation report is attached for your reference. Should you have any questions regarding this information, please do not hesitate to contact Mr. Christopher J. Jors, Principal Specialist-Biologist (cjors@sewrpc.org or 262-953-3246).

Sincerely,

Thomas Slawski, PhD
Chief Biologist

TMS/CJJ/nkk
#274311 – CA408-76 Sanitary Sewer Relocation at Cold Spring Rd Bridge Over Root River Letter

Enclosure (#274480)

cc: Mr. Randy Esch, City of Greenfield (w/enclosure by email)
Mr. Jeffrey Katz, City of Greenfield (w/enclosure by email)
Ms. Michelle Soderling, Wisconsin Department of Natural Resources (w/enclosure by email)
Ms. Kara Brooks, Wisconsin Department of Natural Resources (w/enclosure by email)
Mr. Anthony Kitchen, U.S. Army Corps of Engineers (w/enclosure by email)

WETLAND DELINEATION REPORT

SANITARY SEWER RELOCATION AT COLD SPRING ROAD BRIDGE OVER THE ROOT RIVER

**NW and SW Quarters, Section 20, T6N, R21E
CITY OF GREENFIELD
MILWAUKEE COUNTY,
WISCONSIN**

**Lead Investigator:
Christopher J. Jors
Wisconsin Professionally Assured Wetland Delineator
Principal Specialist-Biologist
Southeastern Wisconsin Regional Planning Commission
W239 N1812 Rockwood Drive
P.O. Box 1607
Waukesha, WI 53187-1607
(262)953-3246
cjors@sewrpc.org**

Report Completion: August 22, 2024

WETLAND DELINEATION REPORT OVERVIEW

(Based upon WDNR WETLAND Delineation Confirmation Request Check List)

INTRODUCTION

- Who requested the delineation – **Emily Rowntree, P.E., Strand Associates, Inc. (on behalf of the City of Greenfield)**
- Why the delineation was undertaken – **Proposed Sanitary Sewer Relocation**
- Date the field work was completed – **May 22, 2024**
- Who conducted field work – **Christopher Jors, Shane Heyel, Zachary Kron, and Morgan Goff**
- Statement of Qualifications
- GIS Support – **Bradley Subotnik**

METHODS

- Description of Methods
- Sources Reviewed
 - Milwaukee County Topographic Mapping – **Exhibit 1A**
 - Wisconsin Department of Natural Resources (WDNR) LiDAR Imagery – **Exhibit 1B**
 - WDNR Surface Water Data Viewer – Wisconsin Wetland Inventory (WWI) Mapping – **Exhibit 2**
 - Natural Resources Conservation Service (NRCS) Soil Survey and Federal Emergency Management Agency (FEMA) Floodplain Mapping – **Exhibit 3**
 - SEWRPC Historical Aerial Photographs – **Exhibit 4** (2022, 2020, 2015, 2013, 2010, 2007, 2000, 1995, 1990, 1985, 1980, 1975, 1970, and 1963)
 - SEWRPC Sanitary Sewer Service Area Mapping – **Not Available - Part of Unrefined Sanitary Sewer Service Area**
 - Advance Identification (ADID) Wetland Mapping – **Exhibit 5**
 - NRCS Draft Wetland Inventory Map – **Exhibit 6**
 - National Agriculture Imagery Program (NAIP) & Farm Service Agency (FSA) Images – **Not Applicable**
- Description of any site-specific agency guidance (site meetings, etc.) – **None**

RESULTS AND DISCUSSION

- Antecedent hydrologic condition analysis – **Wetter than normal (APT=18)**
- Previous wetland delineation mapping – **None**
- Existing environmental mapping (WWI mapping, Soil survey, etc.)
- Amount and types of wetlands in the project area
- Wetland/upland boundary explanation
- Disturbed and problematic areas encountered
- Other Considerations

LITERATURE CITED

Wetland Delineation Map – **Exhibit 7**

Wetland Type Map – **Exhibit 7A**

Vegetation Survey, Wetland Delineation Data Forms, and Site Photos

- Preliminary Vegetation Survey – **Exhibit 8**
- Wetland Determination Data Forms – Midwest Region – **Exhibit 9**
- Site Photos – **Exhibit 10**

2024 Assured Wetland Delineator Confirmation Letter

INTRODUCTION

This wetland delineation report responds to a February 13, 2024, email request from Emily Rowntree, P.E., Strand Associates, Inc. (on behalf of the City of Greenfield), to identify and stake the boundaries of any wetlands within a project area incorporating the planned relocation of a segment of the 30-inch sanitary sewer at the Cold Spring Road Bridge over the Root River. The project area is centered on the bridge crossing with dimensions including 530 linear feet of the roadway and a width of 120 feet that includes approximately 40 feet of right-of-way on either side of the road. The project area is in portions of the Northwest and Southwest one-quarters of U.S. Public Land Survey Section 20, Township 6 North, Range 21 East, City of Greenfield, Milwaukee County, Wisconsin.

Statement of Qualifications

Lead Investigator: Christopher Jors, Commission Principal Specialist-Biologist and Wisconsin Professionally Assured Wetland Delineator, has worked at the Commission since 1993, and has been part of the wetland delineation team since 1994. He received a Bachelor's degree in Biological Aspects of Conservation from the University of Wisconsin – Milwaukee in 1992. Prior to working at the Commission, Chris worked at the UWM Field Station at the Cedarburg Bog in Saukville, WI, where he learned methods of sampling wetland plant communities. Chris has attended various wetland training workshops including the annual UW-La Crosse Critical Methods in Wetland Delineation Workshop, most recently attended on March 6, 2024; the UW-Stevens Point/WDNR Aquatic Plant Identification Workshop at Lapham Peak on June 11-12, 2024; the UW-La Crosse Basic and Advanced Wetland Delineation Workshops on August 10-15, 2015; a WDNR Wetland Delineation & Wetland Rapid Assessment Methodology Workshop on April 23, 2014; and a U.S. Army Corps of Engineers Workshop on the Midwest Supplement to the 1987 Wetland Delineation Manual on February 3, 2009.

Shane Heyel, Senior Specialist-Biologist, joined the wetland delineation team at the Commission in June 2016. He holds a Bachelor's degree in Land Use Planning from the University of Wisconsin-Stevens Point and a Master's degree in Hydrology & Water Quality from Lancaster University (United Kingdom). Shane worked for the Wisconsin Department of Natural Resources for seven years, including four years regulating waterways and wetlands. With Atkins Limited, U.K. from 2005-2009, he delivered pollution and flood risk assessments to the English Highways Agency and modeled sewer networks to report flood alleviation options for major British water companies. As an independent consultant in Wisconsin, Shane helped develop a site restoration plan for a proposed wetland mitigation bank. He has attended UW-La Crosse Workshops in Basic Wetland Delineation (August 2015), Advanced Wetland Delineation (August 2016), Basic Plant ID (July 2017), Hydric Soils (July 2018), and annual Critical Methods Workshops (most recently, March 2024).

Zachary Kron, Senior Specialist-Biologist, joined the Commission in 2020. Zach earned a Bachelor's degree in Natural Resource and Environmental Sciences from the University of Illinois Urbana-Champaign in 2008. In 2011, he received a Master's degree in Plant Biology from the University of Illinois Urbana – Champaign. Zach worked for the Illinois Natural History Survey (INHS) as a botanist coauthoring plant ecology articles in peer-reviewed journals and completing vegetation surveys in wetland restorations and natural areas throughout the state. Following his work with the INHS, Zach worked as an ecologist and project manager for restoration contractors in Illinois, Wisconsin, and Ohio. Prior to joining the Commission, Zach served as a Restoration Ecologist / Project Manager for The Nature Conservancy and then with the Wisconsin Department of Natural Resources In-Lieu Fee Wetland Mitigation Program. He has completed the Basic and Advanced Wetland Delineation training, Wisconsin Natural Heritage Inventory training, the Hydric Soils Workshop, and two Critical Methods Workshops.

Morgan Goff, Biology/Natural Resources Intern, is working toward a Bachelor's degree in Conservation and Community Planning with minors in Geographic Information Systems (GIS) and Business Administration from the University of Wisconsin-Stevens Point with an expected graduation date of May 2025. She has taken courses in plant identification, watershed inventory techniques, aquatic ecosystem evaluation, soil inventory methods, and GIS. She studied land use within conservation easements in Wisconsin as a researcher for the Center for Land Use Education at University of Wisconsin-Stevens Point utilizing her GIS skills. Her experience as the Land Protection Assistant for the North Central Conservancy Trust provided her with additional field experience. Morgan has worked on the Natural Areas team since May of 2024.

METHODS

Description of Methods

The wetland boundary determinations were based upon the criteria and methodologies set forth in the 1987 *Corps of Engineers Wetlands Delineation Manual*; the August, 2010, *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Midwest Region* (Version 2.0); the March 4, 2015, *Guidance for Submittal of Delineation Reports to the St. Paul District Army Corps of Engineers and the Wisconsin Department of Natural Resources*; and the 2022 National Wetland Plant List (NWPL) for the Midwest region.

Sources Reviewed

Prior to conducting the field inspection, Commission staff reviewed the following data sources that were available and applicable to the subject property:

- Milwaukee County's topographic mapping (Exhibit 1A)
- WDNR LiDAR Imagery (Exhibit 1B)
- WDNR Surface Water Data Viewer - WWI mapping (Exhibit 2)
- NRCS soil survey and FEMA floodplain mapping (Exhibit 3)
- SEWRPC Historical Aerial Photography (Exhibit 4)
- ADID wetland mapping (Exhibit 5)
- NRCS draft wetland inventory mapping (Exhibit 6)
- U.S. Army Corps of Engineers Antecedent Precipitation Tool (APT), Version 2.

RESULTS AND DISCUSSION

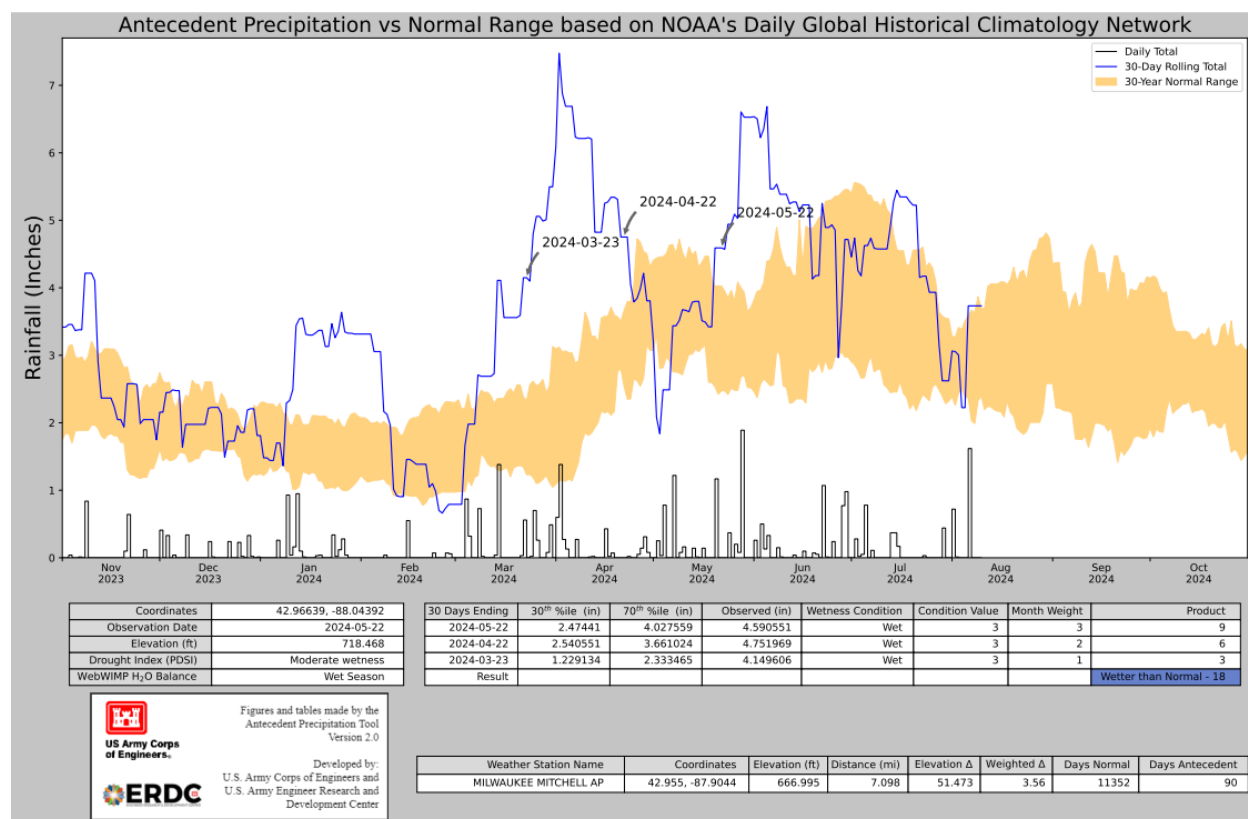
Christopher Jors, as lead field investigator and report author, supervised and approved all aspects of the wetland delineation in the field, data compilation and analysis, and preparation of this report. Wetland boundaries in the project area were marked with orange wire flags and ribbon on May 22, 2024. Commission staff used a sub-meter-accuracy global positioning system (GPS) device to record the locations of the wetland boundary markers and 4 representative sample sites that were utilized to inform the staked wetland boundaries.

The results of the wetland delineation field inspection for this property are shown on Exhibit 7, which includes the field-staked and GPS-located wetland boundaries and the GPS-located sample site locations. Exhibit 7A illustrates the types of wetlands identified in the project area as fresh (wet) meadow, shrub-carr (buckthorn thicket), and floodplain forest, each of which are associated with the Root River floodplain-wetland complex. A more detailed description of the wetland delineation process for the project area is provided later in the report under the heading "Wetland/Upland Boundary Explanation".

Antecedent Hydrologic Conditions

The 90-day antecedent precipitation condition is determined utilizing the current version of the Antecedent Precipitation Tool (APT) developed by the U.S. Army Corps of Engineers. The APT runs an algorithm that compares WETS station data for the 1991-2020 climate period with the available data covering the previous 90 days. The analysis is specific to a single geo-referenced point (latitude/longitude) within the project area

and draws from and prioritizes available data from WETS stations up to 30 miles away. The results in the following graph indicate 90-day antecedent precipitation at the high end of the “Wetter than Normal Conditions Range” for the May 30, 2023, field inspection.



Existing Environmental Mapping

The Milwaukee County topographic mapping (Exhibit 1A) depicts a project area located on low-lying riparian land that has been modified by the construction of West Cold Spring Road, the associated bridge over the Root River, and a paved path along the south side of the road. Steep slopes of 12 percent or greater appear in the project area mostly in conjunction with the bridge and nearby elevated riverbanks. The roadway is designed with very slight gradients falling toward the river, which flows southward through the project area. An unnamed tributary to the Root River emerges approximately 50 feet to the east and flows southwesterly, passing just outside the southeast corner of the project area, toward its confluence 200 feet south of the project area. Elevations in the project area range from a high of 726 feet above the National Geodetic Vertical Datum of 1929 (NGVD 29) on Cold Spring Road at the east end, to a low of approximately 718 feet along the edges of the river.

WDNR LiDAR imagery (Exhibit 1B) depicts the roadway as higher ground that falls gently toward the river with white/gray shades transitioning to shades of brown. This changes abruptly to very steep slopes at the bridge represented by narrow bands of dark red, orange, yellow, and finally shades of green along the Root River which is light blue. The LiDAR image also indicates small linear concave (drainageway) features that connect to the river. Examples of this appear as narrow bands of dark green that surround light green north of the roadway on the east side of the river in the project area and on the west side of the river north of the project area. The unnamed tributary appears in distinct light blue starting where it emerges from a culvert east of the project area. Steep banks along this waterway are reflected with narrow bands of color as described in the bridge area, above.

The WDNR Surface Water Data Viewer (WWI) Mapping (Exhibit 2) indicates broad-leaved deciduous lowland forest/emergent-wet meadow (T3/E2K) wetland across the entire length of the northern edge of the project area and in portions of the southern edge. Wetland indicators, shown as NRCS-mapped Drummer silt loam (Dt), Lawson silt loam (Lo), Matherton silt loam (MmA), and Sebewa silt loam (Sm) soils, appear across the northern edge and in the southeastern edge of the project area.

WDNR classifies the relevant reach of the Root River (Root River Canal to headwaters, miles 25.80 to 43.69) as a 3rd order river with a cool-warm mainstem/cool-warm headwater community in poor condition. As the project area is located near the downstream end of the nearly 18-mile reach, it is presumed the cool-warm mainstem community applies. The reach has been on the State's Section 303(d) list of "impaired waters" since 1998 due to elevated phosphorus and total suspended solids pollutants that cause low dissolved oxygen and degraded biology. High chloride levels which cause acute and/or chronic toxicity have also been documented since 2014. The WWI mapping does not identify the unnamed tributary that emerges from a culvert just east of the project area.

The NRCS Soil Survey map (Exhibit 3) shows the following soils in the project area:

Map Unit Name and Symbol	Slope (%)	Hydric Category	Hydric Percent of Map Unit	Hydric Minor Component, Percent, and Landform	Project Area (%)
Drummer silt loam (Dt), gravelly substratum	0-2	Hydric	100	Not Applicable (N/A)	29.6
Lawson silt loam (Lo)	0-2	Predominantly Non-hydric	10	Sawmill, 10%, depressions	38.1
Matherton silt loam (MmA)	1-3	Predominantly Non-hydric	7	Sebewa, 7%, depressions	5.6
Sebewa silt loam (Sm)	0-2	Predominantly Hydric	96	Adrian, 6%, lakebeds (relict)	26.7

Exhibit 3 also indicates approximately 80 percent of the project area is in the FEMA-mapped floodway and 1-percent-annual-probability (100-year recurrence interval) floodplain of the Root River.

Historical aerial photos were reviewed going back to 1963. Orthophotographs (2022, 2020, 2015, 2013, 2010, 2007, 2000, and 1995) and aerial photographs (1990, 1985, 1980, 1975, 1970, and 1963) were reviewed as summarized in the following table and are attached (Exhibit 4).

Year	Changes in Land Use Observed on Aerial Photography from 1963 to 2022
1963	Land use in the general area is largely agricultural. The project area consists of small portions of cropped fields and woodland (floodplain forest) along the Root River which covers most of the eastern half. West Cold Spring Road is present as a small two-lane road. A farmstead with a driveway through the southwestern part of the project area is apparent. A gravel access path also appears in the northwestern part of the project area and continues to the west.
1970	Agriculture has ceased in the project area and the farmstead to the southwest appears razed. The tributary to the Root River that now emerges from culvert about 50 feet east of the project area on the south side of Cold Spring Road has been dredged/daylighted from that point to where it joins the river 200 feet south of the project area. New driveways/access paths are also apparent to the east on both sides of Cold Spring Road.
1975	The project area is becoming more wooded, and several paths/recreational trails are present in and around the project area. An overhead utility line (poles are visible) has been installed through the northern portion of the project area.
1980	The gravel shoulders along Cold Spring Road have been refurbished.
1985	Access paths again appear in the western part of the project area on both sides of Cold Spring Road. Wetness signatures (tire ruts) are present with both.
1990	The paths east of the project area have been consolidated into a paved north-south oriented path that crosses Cold Spring Road approximately 100 feet to the east. All other paths, including in the project area, appear abandoned.
1995	Cold Spring Road is under construction and a new wider bridge has been installed in the center of the project area.
2000	The above road construction is completed and while it is larger it remains one lane in each direction but includes the present-day paved path through the southern portion of the project area. Land directly along the path is managed as lawn. Beyond the road shoulders, the remainder of the project area is wooded.
2007	No significant changes noted.

Year	Changes in Land Use Observed on Aerial Photography from 1963 to 2022
2010	The paved portion of the road has been widened, necessitating the addition of gravel to form the new side slopes along the roadway.
2013	No significant changes noted.
2015	Maintenance of the overhead utility right-of-way across the northern portion of the project area, including tree/shrub clearing and/or herbicide application, is apparent.
2020	No significant changes noted.
2022	The eastbound portion of Cold Spring Road east of the river is closed due to construction. The lawn area in between the road and paved path in this part of the project area is serving as a staging area.

The ADID wetland mapping (Exhibit 5) indicates the entire project area, including the WWI mapped T3/E2K wetlands, is part of the Root River PEC. Accordingly, these wetlands are classified as ADID wetlands. The U.S. Environmental Protection Agency deems ADID wetlands unsuitable for the discharge of dredged or fill materials under section 404 of the Clean Water Act. During the field inspection, Commission biologists delineated necessary changes to the WWI-mapped wetland boundaries. If the ADID wetland mapping is updated in the future, the changes shown on Exhibit 7 will be reflected.

The NRCS draft wetland inventory mapping (Exhibit 6) indicates most of the project area is wetland (W). An area of upland is shown in the northeastern part of the project area.

Amount and Types of Wetlands in the Project Area

One wetland plant community area (PCA) was identified and inventoried within the project area (See Exhibit 7). The types of wetlands that comprise the PCA and their distribution within the project area are illustrated separately (See Exhibit 7A). A list of vascular plant species observed during the field inspection was prepared for the plant community area as well as plant community type(s), dominant plant species, disturbances, and any critical plant and animal species (Exhibit 8). The table below summarizes characteristics of the PCA.

Acreage	PCA Type(s)	Dominant Species	Critical Species
0.32	Fresh (wet) meadow, shrub-carr (buckthorn thicket), and floodplain forest.	<i>Acer negundo</i> --Boxelder <i>Elodea canadensis</i> --Water-weed <i>Rhamnus cathartica</i> --Common buckthorn <i>Rudbeckia laciniata</i> --Green-headed coneflower <i>Vitis riparia</i> --Riverbank grape	Wax-leaf meadow rue (<i>Thalictrum revolutum</i>), a State-designated Special Concern species, was observed during the field inspection. In addition, the WDNR Natural Heritage Inventory (NHI) contains records for a Threatened plant species and Special Concern bee and snake species along the Root River.

Wetland/Upland Boundary Explanation

Four representative sample sites were identified within the project area. The Wetland Determination Data Forms describing the findings at each sample site are attached as Exhibit 9. The locations of the sample sites are shown on Exhibit 7. Generally, the wetland boundaries were determined using breaks in topography, changes in vegetation composition, visual identification of wetland hydrology, and presence of hydric soils.

In this instance, Commission staff began their inspection at the northwest end of the project area where a low-lying riparian area was observed outside the elevated road shoulder. Paired Sample sites 1 (Wetland) and 2 (Upland) were selected based upon a distinct difference in plant communities and geomorphic position between the lowland and the filled road shoulder (Exhibit 10, Photos 1 and 2). In addition to a hydrophytic plant community, Sample site 1 met several wetland hydrology indicators and had hydric soil. Conversely, and despite wetter than normal antecedent precipitation, Sample Site 2 failed to meet any of the wetland delineation parameters. The non-hydric soil included coarse (gravel) fill material throughout the profile. Moving eastward toward the Root River, the wetland boundary curved toward the bridge (Exhibit

10, Photo 3). Resuming the wetland boundary staking on the east side of the river, the line again curved away from road before turning eastward where a drainage swale was encountered containing wetland between the elevated road shoulder and a berm parallel to the north project area boundary. This drainage swale is particularly evident on LiDAR mapping (See Exhibit 1B).

Continuing to the south side of Cold Spring Road, the southeast corner of the project area was also observed as containing old fill material and supporting a non-hydrophytic plant community. Therefore, the WWI-mapped wetland at this location was determined to be just outside the project area. Moving west toward the Root River, the mapped wetland remained south of the project area until approximately 75 feet east of the river where a steep constructed embankment began to curve toward the bridge. Paired Sample Sites 3 (Upland) and 4 (Wetland) documented a contrast in landscapes whereby upland sample site 3 failed to meet any of the delineation parameters while wetland sample site 4 met all three parameters including exhibiting strongly hydrophytic floodplain forest plant community (Exhibit 10, Photos 4-7). While completing the wetland delineation west of the river, minor changes to the mapped wetland boundary were driven by observed transitions in plant communities and topographic breaks in the engineered roadside landscape (Exhibit 10, Photo 8).

Disturbed and Problematic Areas Encountered

Sample Sites 1, 2, and 3, were observed to have “significantly disturbed” vegetation due to ongoing maintenance in the road right-of-way including the recent clearing of woody vegetation under power lines (Sample Site 1) and ongoing mowing of the road shoulder (Sample Sites 2 and 3). Hydrophytic vegetation persisted at Sample Site 1 despite the clearing, and combined with hydric soils and wetland hydrology, Sample Site 1 was determined to be in wetland. Further, at upland Sample Sites 2 and 3, observed non-hydrophytic vegetation was consistent with non-hydric soils and a lack of wetland hydrology.

Other Considerations

For projects that will disturb one acre or more, the nonagricultural performance standards set forth in Section NR 151.125 of the *Wisconsin Statutes*, require establishment of a 75-foot impervious surface protective area to protect “highly susceptible” wetlands (fens, sedge meadows, ephemeral ponds, etc.). “Moderately susceptible” wetland types (USGS-mapped waterways and waterbodies, shrub-carr, forested wetlands with early successional species, shallow marsh, and fresh (wet) meadow) should have a 50-foot impervious surface protective area. Degraded portions of wetlands with 90 percent or greater cover by non-native species (Reed canary grass, Narrow-leaved cattail, etc.) are considered “less susceptible” requiring establishment of a 10- to 30- foot protective area depending on average width of the wetland. The designated protective area boundaries are measured horizontally from the delineated wetland boundary to the closest impervious surface. Stormwater management facilities which are designed, constructed, and maintained for conveyance or treatment purposes are not subject to protective area performance standards as indicated in the WDNR Guidance for the Establishment of Protective Areas for Wetlands in Runoff Management Rules, *Wisconsin Administrative Code* NR 151.

The wetlands delineated in the project area consisted of fresh (wet) meadow, shrub-carr (buckthorn thicket, and floodplain forest with early successional tree species. Each of the wetland types are considered moderately susceptible and are typically assigned a 50-foot-wide protective area.

NR 151 specifies placement of new impervious surfaces (structures, paved paths, etc.) shall avoid the specified protective area as the 1st option. Where this cannot be avoided, the code allows for designed best management practices (BMPs) such as filter strips, bioswales, rain gardens, etc. in and around the protective area to provide adequate water quality treatment prior to discharge to a wetland.

The designated protective area boundaries are measured horizontally from the delineated wetland boundary to the closest impervious surface. The protective area requirements should be taken into consideration for any planned improvements within the project area. It is recommended that the City or their representative contact WDNR regarding approaches to meet the requirements. Finally, please be advised that no Federal or State regulatory jurisdiction determinations relative to any wetland permits or certifications are made under this report.

LITERATURE CITED

Southeastern Wisconsin Regional Planning Commission website at [Info & Data \(sewrpc.org\)](http://sewrpc.org)

U.S. Army Corps of Engineers, 2023, 2022 National Wetland Plant List, version 3.6, U.S. Army Engineer Research and Development Center, Vicksburg, MS. <http://wetland-plant.usace.army.mil/>

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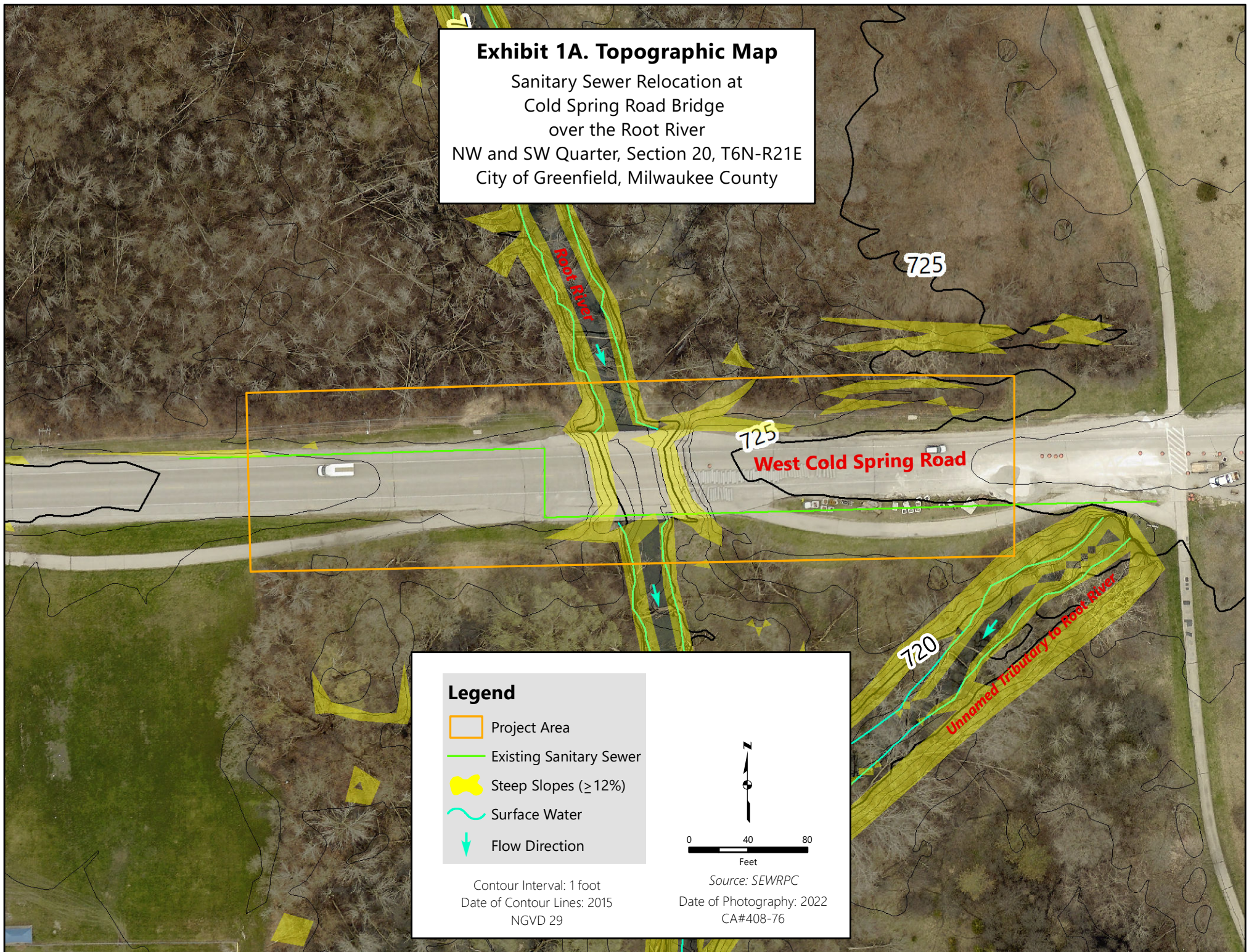
WDNR, Wisconsin Wetland Inventory LiDAR Viewer website at dnrmapping.wi.gov/H5/?Viewer=WWI

CJJ/STH/ZPK/JLD/TMS/nkk

CA408-76 Sanitary Sewer Relocation at Cold Spring Road Bridge-WD Report (00274240).DOCX
300-2000

Exhibit 1A. Topographic Map

Sanitary Sewer Relocation at
Cold Spring Road Bridge
over the Root River
NW and SW Quarter, Section 20, T6N-R21E
City of Greenfield, Milwaukee County



300-3000
ITEM 3

COPY

SOUTHEASTERN WISCONSIN REGIONAL PLANNING COMMISSION

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August 23, 2024

Mr. Jack Feiner
Public Works Manager
Village of Sturtevant
feinerj@sturtevant-wi.gov

Re: SEWRPC No. CA-314-28

Dear Mr. Feiner:

This will respond to your email message of February 16, 2024, requesting that the Commission staff conduct a field inspection of Outlot 1 within the Chicory Creek Subdivision where stormwater improvements are proposed. The project area is located in part of the Southeast one-quarter of U.S. Public Land Survey Section 28, Township 3 North, Range 22 East, Village of Sturtevant, Racine County, Wisconsin. The purpose of the field inspection was to identify and stake any wetland boundaries contained within the project area.

Pursuant to your request, Commission staff identified and staked the wetland boundaries contained within the project area on June 10, 2024. A copy of the wetland delineation report is attached for your reference.

Sincerely,

Thomas Slawski, PhD
Chief Biologist

TMS/CJJ/nkk
#274253 – CA314-28 Chicory Creek Subdivision Outlot 1 Stormwater Pond Dredging Letter

Enclosure (#274321)

cc: Mr. Jason Feucht, PE, raSmith (w/enclosure by email)
Ms. Michelle Soderling, Wisconsin Department of Natural Resources (w/enclosure by email)
Ms. Kara Brooks, Wisconsin Department of Natural Resources (w/enclosure by email)
Mr. Anthony Kitchen, U.S. Army Corps of Engineers (w/enclosure by email)

WETLAND DELINEATION REPORT

CHICORY CREEK SUBDIVISION OUTLOT 1 STORMWATER POND DREDGING PROJECT

**SE Quarter, Section 28, T3N, R22E
VILLAGE OF STURTEVANT
RACINE COUNTY,
WISCONSIN**

**Lead Investigator:
Jennifer L. Dietl
Wisconsin Professionally Assured Wetland Delineator
Principal Specialist-Biologist
Southeastern Wisconsin Regional Planning Commission
W239 N1812 Rockwood Drive
P.O. Box 1607
Waukesha, WI 53187-1607
(262)953-4291
jdietl@sewrpc.org**

Report Completion: August 19, 2024

WETLAND DELINEATION REPORT OVERVIEW

(Based upon WDNR WETLAND Delineation Confirmation Request Check List)

INTRODUCTION

- Who requested the delineation – **Jack Feiner, Public Works Manager, Village of Sturtevant**
- Date the field work was completed – **June 10, 2024**
- Who conducted field work – **Jennifer Dietl, Christopher Jors, and Shane Heyel**
- Statement of Qualifications
- GIS Support – **Bradley Subotnik**

METHODS

- Description of Methods
- Sources Reviewed
 - Racine County Topographic Mapping – **Exhibit 1A**
 - Wisconsin Department of Natural Resources (WDNR) LiDAR Imagery – **Exhibit 1B**
 - WDNR Surface Water Data Viewer – Wisconsin Wetland Inventory (WWI) Mapping – **Exhibit 2**
 - Natural Resources Conservation Service (NRCS) Soil Survey and Federal Emergency Management Agency (FEMA) Floodplain Mapping – **Exhibit 3**
 - SEWRPC Historical Aerial Photographs – **Exhibit 4** (2022, 2020, 2015, 2010, 2005, 2000, and 1995)
 - SEWRPC Sanitary Sewer Service Area Mapping – **Exhibit 5**
 - Advance Identification (ADID) Wetland Mapping – **Not Applicable (N/A)**
 - NRCS Draft Wetland Inventory Map – **Not Available**
 - National Agriculture Imagery Program (NAIP) & Farm Service Agency (FSA) Images – **N/A**
- Description of any site-specific agency guidance (site meetings, etc.) – **None**

RESULTS AND DISCUSSION

- Antecedent hydrologic condition analysis – **Normal (APT=13)**
- Previous wetland delineation mapping – **None**
- Existing environmental mapping (WWI mapping, Soil survey, etc.)
- Amount and types of wetlands in the project area
- Wetland/upland boundary explanation
- Disturbed and problematic areas encountered
- Other Considerations

LITERATURE CITED

Wetland Delineation Map – **Exhibit 6**

Wetland Types Map – **Exhibit 6A**

Vegetation Survey, Wetland Delineation Data Forms, and Site Photos

- Preliminary Vegetation Survey – **Exhibit 7**
- Wetland Determination Data Forms – Midwest Region – **Exhibit 8**
- Site Photos – **Exhibit 9**

2024 Assured Wetland Delineator Confirmation Letters

INTRODUCTION

This wetland delineation report responds to a February 16, 2024, email request from Jack Feiner, Public Works Manager, Village of Sturtevant, to identify the boundaries of any wetlands on Outlot 1 of the Chicory Creek Subdivision where maintenance dredging of three stormwater ponds is planned. Outlot 1 is vacant land surrounded by residences on three sides with Chicory Creek and an agricultural field abutting the southern boundary. The project area is in part of the Southeast one-quarter of U.S. Public Land Survey Section 28, Township 3 North, Range 22 East, Village of Sturtevant, Racine County, Wisconsin.

Statement of Qualifications

Lead Investigator: Jennifer Dietl, Principal Specialist-Biologist and Wisconsin Professionally Assured Wetland Delineator, earned Bachelor's degrees in Biology and Environmental Science from Carroll University in 1992. Jennifer has worked at the Commission from 1992 to 1997 and from 2006 to the present conducting wetland delineations, primary environmental corridor delineations, and vegetation surveys. In between years of service at the Commission, she worked for the Wisconsin Department of Transportation – Green Bay as an LTE Environmental Analysis and Review Specialist – and the Wisconsin Department of Natural Resources – Green Bay as an LTE Hydrologist. Jennifer has attended the annual UW-La Crosse Critical Methods Workshop, most recently on March 6, 2024; the UW-Stevens Point/WDNR Aquatic Plant Identification Workshop at Lapham Peak on June 11-12, 2024; the UW-La Crosse Hydric Soils Workshop on July 19-21, 2017; the UW-La Crosse Basic and Advanced Wetland Delineation Workshops on August 10-15, 2015; and a WDNR Wetland Delineation & Wetland Rapid Assessment Methodology Workshop on April 23, 2014.

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METHODS

Description of Methods

The wetland boundary determinations were based upon the criteria and methodologies set forth in the 1987 *Corps of Engineers Wetlands Delineation Manual*; the August 2010, *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Midwest Region* (Version 2.0); the March 4, 2015, *Guidance for Submittal of Delineation Reports to the St. Paul District Army Corps of Engineers and the Wisconsin Department of Natural Resources*; and the 2022 National Wetland Plant List (NWPL) for the Midwest region.

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- NRCS soil survey and FEMA floodplain mapping (Exhibit 3)
- SEWRPC Historical Aerial Photography (Exhibit 4)
- SEWRPC sanitary sewer service area mapping (Exhibit 5)
- U.S. Army Corps of Engineers Antecedent Precipitation Tool (APT), Version 2.

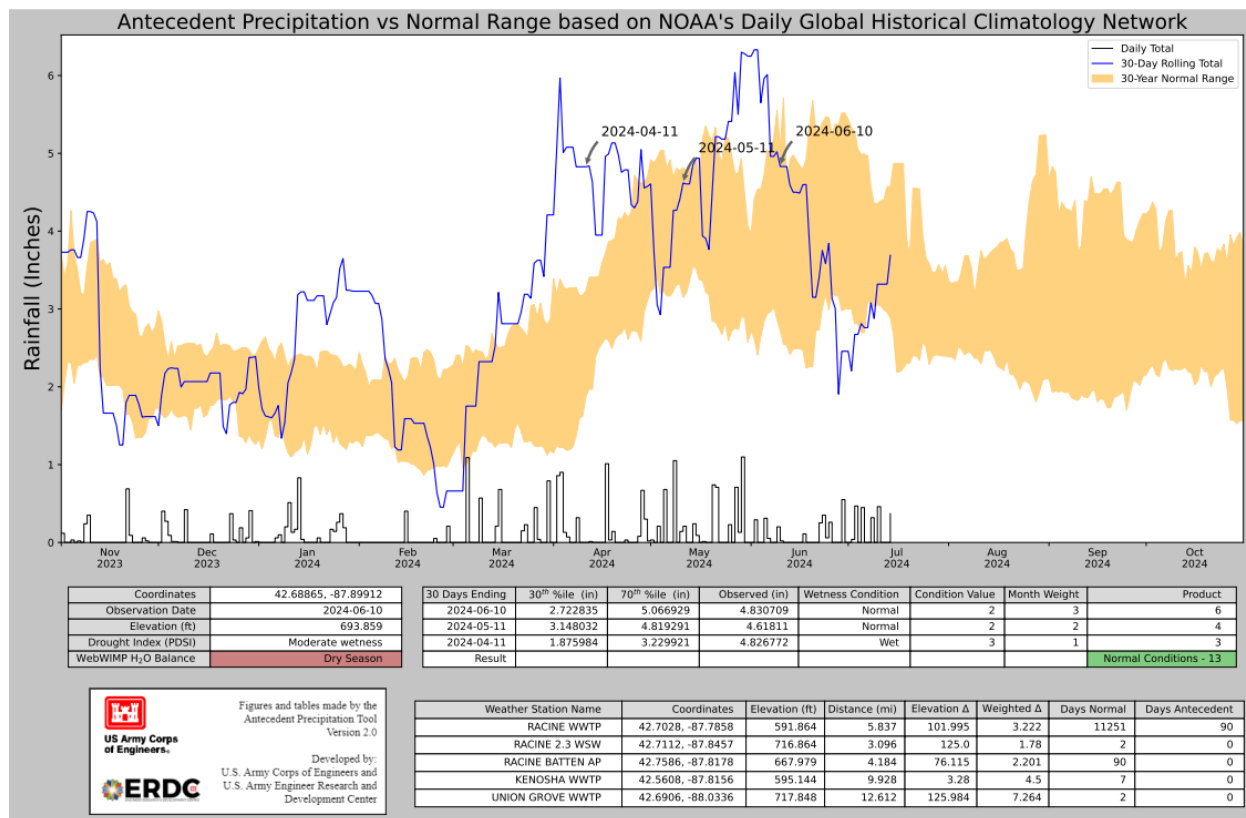
RESULTS AND DISCUSSION

Jennifer Dietl, as lead field investigator and report author, supervised and approved all aspects of the wetland delineation in the field, data compilation and analysis, and preparation of this report. During the June 10, 2024, field inspection, the boundaries of a large wetland associated with the Chicory Creek wetland complex and three constructed stormwater ponds were marked with orange wire flags and ribbon. Commission biologists used a sub-meter-accuracy global positioning system (GPS) device to record the location and wetland type at each wetland boundary marker, and the locations of 15 representative sample sites that were utilized to inform the staked wetland boundaries.

The results of the wetland delineation field inspection for this property are shown on Exhibit 6, which includes the field-staked and GPS-located wetland boundaries, the GPS-located sample site locations, and the numbered wetland plant community areas (PCAs). The approximate areal extents of wetland types within the project area are provided on Exhibit 6A.

Antecedent Hydrologic Conditions

The 90-day antecedent precipitation condition is determined utilizing the current version of the Antecedent Precipitation Tool (APT) developed by the U.S. Army Corps of Engineers. The APT runs an algorithm that compares WETS station data for the 1991-2020 climate period with the available data covering the previous 90 days. The analysis is specific to a single geo-referenced point (latitude/longitude) within the project area and draws from and prioritizes available data from WETS stations up to 30 miles away. The results in the following graph indicate 90-day antecedent precipitation in the "Normal Conditions" range for the June 10, 2024, field inspection.



Existing Environmental Mapping

The Racine County topographic mapping (Exhibit 1A) depicts the project area where the dominant feature is a large depression within a larger landscape of rolling glacial topography. Three constructed ponds are present and the berms surrounding them represent some of the higher ground in the project area. Higher ground is also present in the northern end near Angelica Drive and in the western portion east of Jasmine Court. Chicory Creek meanders eastward just south of the project area with a straightened section flowing parallel to and immediately outside the southern boundary. It is likely the creek once meandered through the lowlands in the southern part of the project area. Elevations in the project area range from a high of 703 feet above the National Geodetic Vertical Datum of 1929 (NGVD 29) in the northern end, to a low of 693 feet in the southeastern end.

The WDNR LiDAR image (Exhibit 1B) shows most of the project area is comprised of a depression (green and light green shading), with the surrounding higher ground in the residential subdivision, appearing as shades of brown, red, and yellow. Steeper, modified slopes within adjacent residential back yards appear as narrow bands of colors ranging from shades of red, orange, yellow and dark green. Similarly, narrow yellow-shaded 'rings' surround the constructed ponds. These rings represent the highest part of the berms that surround each pond, which are shown in Exhibit 9, Photos 1, 7, 12, 14, 15, and 17. The lowest portions of the project area are light green which is most prevalent in the southeastern portion. The light blue along Chicory downstream (southeast) of the project area indicates elevation continues to fall.

The WDNR Surface Water Data Viewer (WWI) Mapping (Exhibit 2) indicates scrub-shrub (S3Ka) and emergent-wet meadow (E2Ka) wetlands that were previously farmed in the northern and southern portions of the project area, respectively. Three excavated stormwater ponds (W0Hx) are also shown in the project area. Wetland indicators, shown as Ashkum silty clay loam (AtA) and Elliott silty clay loam (EtB) soils, cover a significant portion of the project area. The map also illustrates Chicory Creek with a realigned section flowing eastward just south of the project area.

The NRCS Soil Survey map (Exhibit 3) shows the following soils in the project area:

Map Unit Name and Symbol	Slope (%)	Hydric Category	Hydric Percent of Map Unit	Hydric Minor Component, Percent, and Landform	Project Area (%)
Ashkum silty clay loam (AtA)	0-2	Predominantly Hydric	97	Peotone-drained, 5%, depressions on ground moraines	73.2
Elliott silt loam (EtB)	2-6	Predominantly Non-hydric	5	Ashkum, 5%, depressions	15.5
Markham silt loam (MeB2)	2-6, eroded	Predominantly Non-hydric	10	Ashkum-drained, 6%, and Pewamo, 4%, both on ground and end moraines	3.7
Varna silt loam (VaB2)	2-6, eroded	Predominantly Non-hydric	4	Ashkum-drained, 4%, ground and end moraines	7.6

Exhibit 3 also indicates a narrow FEMA-mapped 1-percent-annual-probability (100-year recurrence interval) floodplain along Chicory Creek that is entirely outside the project area. However, topographic contour lines and spot elevations (Exhibit 1A) indicate a substantial portion of the project area may be prone to flooding.

Historical aerial photos were reviewed going back to 1995. Orthophotographs (2022, 2020, 2015, 2010, 2005, 2000, and 1995) were reviewed as summarized in the following table and are attached (Exhibit 4).

Year	Changes in Land Use Observed on Aerial Photography from 1995 to 2022
1995	Land use in the project area and most of the surrounding landscape is row-crop agriculture. However, dense single-family residential development is nearly completed along the north side of Broadway Drive (Village of Sturtevant), which is approximately 200 feet north of the project area. Idle, apparently wet portions of the cropped field within the project area effectively match the WWI-mapped S3Ka and E2Ka wetlands (Exhibit 2). Wetness signatures appear along the edges of and in between these features. Part of the field in between the project area and Broadway Drive is also idle. Chicory Creek appears faintly to the south in its present-day alignment.
2000	Home construction north of Broadway Drive is complete. The extent of active cropland matches the 1995 image closely.
2005	The northern tip of the idle vegetated wetland has been plowed on this image which displays strong wetness signatures in the plowed wet soils.
2010	Roads, sidewalks, and about half of the new homes within the Chicory Creek Subdivision have been built. The project area, Outlot 1, is idle and includes the three constructed stormwater ponds. Wetland vegetation has expanded its coverage into some of the previously cropped wetness signature areas.
2015	Additional homes have been built on adjacent lots within the subdivision.
2020	New homes have now been built on all lots directly adjacent to the project area, and on most lots in the entire subdivision.
2022	No significant changes noted.

SEWRPC's sanitary sewer service area mapping (Exhibit 5) indicates the project area is in the planned sanitary sewer service area for the City of Racine and Environs. In addition, the WWI-mapped wetlands (Exhibit 2) are each identified as "wetlands/surface water less than 5 acres in size" located outside environmental corridors and isolated natural resource areas.

Amount and Types of Wetlands in the Project Area

Two wetland plant community areas (PCAs) were identified and inventoried within the project area (Exhibit 6). A list of vascular plant species observed during the field inspection was prepared for each PCA as well as plant community type(s), dominant plant species, disturbances, and any critical plant and animal species (Exhibit 7). The following table summarizes characteristics of each PCA.

PCA Number	Acreage	PCA Type(s)	Dominant Species	Critical Species
1	5.9	Fresh (wet) meadow with small stands of shallow marsh, shrub-carr, and hardwood swamp associated with the Chicory Creek wetland complex.	<i>Juncus dudleyi</i> --Dudley's rush <i>Phalaris arundinacea</i> --Reed canary grass <i>Symphytotrichum lanceolatum</i> --Marsh aster	None
2	1.1	Open water within three constructed stormwater ponds.	<i>Ceratophyllum demersum</i> --Coontail <i>Chara contraria</i> --Common stonewort <i>Eleocharis palustris</i> --Common spike-rush <i>Potamogeton natans</i> --Common pondweed <i>Schoenoplectus tabernaemontani</i> --Soft-stemmed bulrush	None

Wetland/Upland Boundary Explanation

Fifteen representative sample sites were identified within the project area. The Wetland Determination Data Forms describing the findings at each sample site are attached as Exhibit 8. The locations of the sample sites are shown on Exhibit 7. Generally, the wetland boundaries were determined using breaks in topography, changes in vegetation composition, visual identification of wetland hydrology, and presence of hydric soils.

In this case, Commission Biologists entered the project area at the north end and walked around the largest stormwater pond toward the center of the site. By this point, the extent of wetland outside the constructed ponds appeared significantly greater than that reflected on the WWI mapping. Specifically, the central portion of the project area was low topographically and the strongly hydrophytic vegetation indicated the two mapped wetlands may in fact be one large wetland. From just south of the largest pond, Commission staff moved southwest toward a slightly elevated area, that later would include upland Sample Site 4. At this point, the decision was made to start the sampling/staking at the pond in the southwest corner of the project area.

Sample Sites 1 and 2 were utilized to inform the wetland boundary for the constructed pond. The steeply sloped, convex berm was dominated by non-hydrophytes except for a very narrow fringe along the edge of the pond (see Exhibit 9, Photo 1). The berm also fell sharply to the east of the pond leading to the selection of Sample Site 3 (see Photo 3) as part of a three-sample transect. Sample Site 3 included a small drainageway where tadpoles were observed. Fresh (wet) meadow vegetation was inventoried along its edges, while the wetland just south of the drainageway was characterized as hardwood swamp.

Moving to the ENE paired Sample Sites 4 (Upland) and 5 (Wetland) were taken (Photos 4-6). Sample site 4 confirmed what turned out to be the largest area of upland in the project area comprised of old field with scattered shrubs. Sample Site 5 was dominated by reed canary grass (*Phalaris arundinacea*) and met multiple hydric soil and wetland hydrology indicators, including high-water table (A2). This confirmed the previously unmapped central portion of the project area as wetland.

The boundary then wound toward the stormwater pond in the northwest part of the project area. As with the first three-sample transect, Sample Sites 6 (Wetland), 7 (Upland), and 8 (Wetland) were utilized to define the wetland boundaries of the constructed pond and nearby wetland to the east (Photos 7-9). In this case, the sampled wetland east of the pond was shrub-carr that met four wetland hydrology indicators and the thick dark surface (A12) hydric soil indicator.

The wetland boundary then continued generally just inside the northwestern project area boundary. As ox-eye daisy (*Leucanthemum vulgare*), a FACU species was observed as co-dominant, Sample Site 9 was taken to inform the continuation of the boundary (Photo 10). While ox-eye daisy was indeed a dominant species

in the area, three hydrophytes were also found to be dominant. In addition, the site met the saturation (A3) wetland hydrology indicator with a water table at 25 inches along with two hydric soil indicators.

Paired Sample Sites 10 (Upland) and 11 (Wetland) confirmed wetland in the northern end of the project area beyond the WWI mapping (Photo 11). While both sites had a hydric soil, Sample Site 10 was on a filled, old field area that lacked wetland hydrology. Conversely, Sample Site 11 was in a broad swale that met the saturation (A3) indicator and supported hardwood swamp vegetation.

Sample Sites 12 (Wetland), 13 (Upland), and 14 (Wetland) were very similar to the transect at sites 6-8 whereby they confirmed shrub-carr, old field, and open water/pond, respectively (Photos 12-15).

Finally, Sample Site 15 was utilized to confirm wetland southeast of the largest pond in an area that was not mapped wetland (Photos 16-17). In addition to observing monotypic dominance by invasive giant reed grass (*Phragmites australis* subsp. *australis*), the site met multiple hydric soil and wetland hydrology indicators including a water table at 5 inches. An inspection of the eastern edge of the project area indicated that the wetland extended at least as far as the project area boundary at the rear of residential lots on the west side of 92nd Place.

Disturbed and Problematic Areas Encountered

No “significantly disturbed” or “naturally problematic” wetland delineation parameters (vegetation, soils, and hydrology) were encountered at the sample sites within the project area. However, past disturbances have certainly affected these parameters, including agricultural activities (ditching/draining and plowing) and subdivision development (filling and grading activities and alterations to the natural drainage).

Other Considerations

For projects that will disturb one acre or more, the nonagricultural performance standards set forth in Section NR 151.125 of the *Wisconsin Statutes*, require establishment of a 75-foot impervious surface protective area to protect “highly susceptible” wetlands (fens, sedge meadows, ephemeral ponds, etc.). “Moderately susceptible” wetland types (USGS-mapped waterways and waterbodies, shrub-carr, forested wetlands with early successional species, shallow marsh, and fresh (wet) meadow) should have a 50-foot impervious surface protective area. Degraded portions of wetlands with 90 percent or greater cover by non-native species (Reed canary grass, Narrow-leaved cattail, etc.) are considered “less susceptible” requiring establishment of a 10- to 30- foot protective area depending on average width of the wetland. The designated protective area boundaries are measured horizontally from the delineated wetland boundary to the closest impervious surface.

Stormwater management facilities which are designed, constructed, and maintained for conveyance or treatment purposes are not subject to protective area performance standards as indicated in the WDNR Guidance for the Establishment of Protective Areas for Wetlands in Runoff Management Rules, *Wisconsin Administrative Code* NR 151. In this case, wetland PCA 2 consists of three stormwater ponds that were constructed and are maintained for stormwater management purposes. Accordingly, PCA 2 is exempt from these standards.

Wetland PCA 1 is comprised of fresh (wet) meadow with small stands of shrub-carr and hardwood swamp with early successional tree species. Each of these wetland types are considered moderately susceptible and are typically assigned a 50-foot protective area.

NR 151 specifies placement of new impervious surfaces (structures, paved paths, etc.) shall avoid the specified protective area as the 1st option. Where this cannot be avoided, the code allows for designed best

management practices (BMPs) such as filter strips, bioswales, rain gardens, etc. in and around the protective area to provide adequate water quality treatment prior to discharge to a wetland.

The designated protective area boundaries are measured horizontally from the delineated wetland boundary to the closest impervious surface. The protective area requirements should be taken into consideration for any planned improvements within the project area. It is recommended that the Village of Sturtevant or their representative contact WDNR regarding approaches to meet the requirements. Finally, please be advised that no Federal or State regulatory jurisdiction determinations relative to any wetland permits or certifications are made under this report.

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JLD/CJJ/STH/TMS/nkk
CA314-28 Chicory Creek Subdivision Outlot 1-WD Report (00274032).DOCX
300-3000

Exhibit 1A. Topographic Map

Chicory Creek Subdivision Outlot 1
Stormwater Pond Dredging Project
SE Quarter, Section 28, T3N-R22E
Village of Sturtevant, Racine County

