BROWN'S CREEK WATERSHED DISTRICT

455 HAYWARD AVE N
OAKDALE, MN
55128

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WWW.BCWD.ORG

REGULAR MEETING OF THE BOARD OF MANAGERS
Wednesday, December 11, 2024
Regular meeting at 6:30 PM

NOTE MEETING LOCATION
Regular Board Meeting will be held at
Family Means
1875 Northwestern Ave, Stillwater, MN 55082

1) Call Regular Meeting to order 6:30 PM

2) Approve Regular Meeting Agenda and Discussion Agenda **-Board Action**

3) Public Comments

4) Consent Agenda – **Board Action** (*all items listed under the consent agenda are considered to be routine by the Board of Managers and will be enacted by one motion. There will be no separate discussion on these items unless a Manager removes an item from the consent agenda for discussion or there is a request to remove the item from the consent agenda, in which event the board will consider whether to remove the item from the consent agenda and consider it separately*.)
   a) Approve Board Meeting Minutes of the November 13, 2024 Regular Meeting
   b) Accept Permit Fee Statement
   c) Approve Liability coverage waiver form to not waive monetary limits established by MN Statutes Section 466.04

5) Treasurer's Report
   a) Review Authorized Funds Spreadsheet
   b) Current Items Payable-**Board Action (Roll Call Vote)**

6) Budget
   a) Public Meeting regarding 2025 Budget and Levy
   b) Resolution 24-05 Final 2025 Budget and Levy– **Board Action (Roll Call Vote)**

7) Projects
   a) City of Stillwater Cost-Share Request - **Board Action**
   b) Applewood Hills Reuse Operations and Maintenance Plan scope – **Board Action**
   c) Brown's Creek Stream Restoration
      (1) ADA spur trail from Brown's Creek State Trail
      (2) ADA fishing access in coordination with MN DNR Fisheries – **Board Action**
      (3) Buckthorn Removal expansion in cooperation with City of Stillwater – **Board Action**

8) New Business
   a) Education - Artist proposal - **Board Action**

9) Management Plan Update (~45 minutes)
   a) Ecological Health
   b) Wetland Health – Jimmy Marty
   c) Pollutants of Emerging Concern – Anne Wilkinson present for questions

10) Discussion Agenda - No Action Required
   a) Updates
      (1) Administrator
         (a) MN Watershed conference
         (b) Diversion Drainage – beaver damming improving wet meadow habitat
         (c) CSAH 15 extension
         (d) Lakeview Hospital site
      (2) Legal
      (3) Engineer
         (a) Permit Inspections
      (4) Managers
   b) January 2025 Regular Meeting BCWD Board Agenda

11) Adjournment

APPLICANT/PERMIT NO.	PERMIT DATE	Status/Notes	RULES							TYPE				FEES OWED	
			2	3	4	5	6	7	Decomp action	GOV	SF RES	RES DEV	COM	EXEMPT	AMT DUE
Bergmann Development/Sanctuary Permit No. 05-12	10/14/2005		X	X	X			X				X			$ -
Stillwater Medical Center Parking Permit 13-26		need to verify infiltration with monitoring data	X	X				X					X		$3,039.10
Brown's Creek Cove Permit 15-07		received as-builts and not built as approved -needs correction	X	X	X			X				X			$8,238.52
Heifort Hills Permit 16-03		need as-builts	X	X	X	X		X				X			$1,327.34
Farms of Grant/White Oaks Savannah Permit 17-01			X	X	X			X				X			$19,272.64
The Lakes of Stillwater Permit 17-04	Extended to 12/31/2025	received as-builts and not built as approved -needs correction	X	X	X			X					X		$4,402.93
West Ridge Permit 17-17			X	X	X			X	X			X			$1,082.93
Heifort Hills Estates Permit 18-02			X	X	X			X	X			X			$41,206.46
Boutwell Farms Permit 18-04A			X	X	X			X	X			X			$785.69
Hazel Place/Hertiage Ridge Permit 18-05 (Was 17-09)		lots to go	X	X	X			X	X			X			($2,445.17)
Nottingham Village Permit 18-06		approved (overflow too	X	X	X			X				X			$1,328.90
Ridgecrest Permit 18-11		done - one raingardian follow up spring 2024	X	X				X	X				X		$730.34
St Croix Valley Recreation Center Expansion Permit 18-14		up 2021		X				X	X	X				$6,970.28	
Central Commons Permit 19-05	11/11/2025	Declaration still	X	X	X			X	X				X		($5,000.00)
Neal Ave Road Reconstruction Permit 20-05	6/1/2020	contact Reabar	X	X						X				$19,088.31	
CSAH 15-36 Interchange Permit 20-08	3/24/2021 3 year approval	waiting for as-builts		X			X	X		X				$19,716.35	
White Pine Ridge Permit 20-12	6/7/2021 surety redution request 1/12/23			X					X			X			($631.32)
Maryland Gateway Addition Permit 21-13	9/29/2021	four lots left to build	x	x				x				x			($776.26)
Schwartz Residence Permit 21-15	5/6/2021 erosion control only	amendment requested for 2.0	x	x							x				($319.38)
Millbrook Park- City of Stillwater Permit 21-21	8/25/2021	Retrofit complete/planting spring 2024	x	x	x					x				$6,970.18	
Fahey Permit 21-34	11/4/2021			x							x				($743.78)
Norell Ave N Improvements	*(Fall 2022 BMP still needs to be finalized fall 2023)*	waiting on maintnance agreement	x	x				x		x				$10,458.63	

APPLICANT/PERMIT NO.	PERMIT DATE	Status/Notes	RULES							TYPE				FEES OWED	
			2	3	4	5	6	7	Decomp action	GOV	SF RES	RES DEV	COM	EXEMPT	AMT DUE
Permit 21-45															
Gonyea (8 lots)- White Pine Ridge Permit 22-02				x								x			($150.60)
Wetridge (12 lots) - Sharkey/GreenHalo Permit 22-03 (Transferred 21-30 and 21-31)	3/25/2022			x								x			($442.71)
13290 Boutwell Road N - Sharkey/GreenHalo Permit 22-05	3/25/2022			x								x			($590.51)
7125 Lone Oak Trail (WOS L106)-weichman Permit 22-11	9/25/2022 need to amend declaration			x							x				$7,650.88
Stillwater Oaks Permit 22-18	conditional approval		x	x								x			$1,705.00
Popeyes OPH Permit 22-20	11/9/2022			x									x		($189.62)
Wash Co. CSAH 57 culverts Permit 22-31	2/2/2023			x						x				$0.00	
Cty Rd 61 Re-alignment Permit 23-01	4/12/2023 not yet closable		x	x						x				$8,147.40	
WOS L114 - Cates (7211 Lone Oak Trail Tweden) Permit 23-02	9/26/2023 submittal			x	x			x			x				$8,627.43
Boutwell Farm Lot 1 (2545 Boutwell Farm Rd) Permit 23-03	5/3/2023 NOPV Board Order Items			x							x				$3,569.86
Westridge B1L4 (986 Creekside) Permit 23-04	5/3/2023			x							x				($656.02)
Rocket Carwash Permit 23-05	conditional approval 4/12/2023		x	x									x		$4,824.00
7239 Lone Oak Trail (WOS L118) Permit 23-07	5/3/2023			x							x				$689.54
72nd St Road and Trail Improvements Permit 23-08	5/26/2023									x				$3,438.36	
7273 Lone Oak Trail- WOS Lot 122 - Freiroy Residence Permit 23-11	Conditions not met but started construction 7/27/2023	Need LOC-submitted but not acceptable		x							x				$1,058.25
The Lakes - Phase III/Sandhill Shores Permit 23-13	6/8/2023			x								x			$582.82
Wiskow Berm Permit 23-14	6/28/2023			x							x				($576.28)
7085 Lone Oak Trail- WOS L102- Mensah Res/Cates Permit 23-15	App recieved 7/10 John reviewing/conditions 7/27/2023			x							x				$1,305.23
Sundance Townhomes Permit 23-17	conditional approval		x	x	x			x					x		$7,019.50
7285 Lone Oak Trl- WOS L124 Permit 23-18	erosion control revisions needed			x							x				$283.00
Liberty Classical Academy Expansion Permit 23-19	Plans submitted 6-12-2024 Fee received 12-21-2023		x	x	x			x					x		$2,466.75
Take 5 Oil Change Permit 24-01	8/23/2024		x	x				x					x		($2,837.14)
Schuster Residence- 122nd St N Permit 24-02	3/12/2024			x							x				$818.95

APPLICANT/PERMIT NO.	PERMIT DATE	Status/Notes	RULES							TYPE				FEES OWED	
			2	3	4	5	6	7	Decomp action	GOV	SF RES	RES DEV	COM	EXEMPT	AMT DUE
WOS L120- 7255 Lone Oak- Hilgert Permit 24-03	3/18/2024			x							x				$2,006.30
Swager Residence Permit 24-05	3/7/2024			x							x				$ (645.40)
Rutherford Elementary Permit 24-06	8/29/2024		x	x				x		x				$ 8,379.06	
Elliot Crossing Permit 24-07	8/2/2024 submittal complete		x	x	x			x				x			$ 33,364.97
Altendorfer Residence - 13075 Lynch Rd Permit 24-08	5/8/2024			x							x				$ (853.75)
Washington County CSAH 5 - Trails and Bridge Permit 24-09	8/6/2024 submittal complete 60 day extension administrative		x	x			x	x		x					$ 19,628.25
Boutwell Farms lot 1 -Conlin - 2545 Boutwell Farm Rd Permit 24-10	application incomplete 8/29/2024			x							x				$ (866.91)
7300 Lone Oak Trail - WOS Lot 127 Karr Residence (Cates) Permit 24-11	8/29/2024			x							x				$ 527.18
7338 Lone Oak Trail- WOS Lot 130-Carlson Residence Permit 24-12	pre-application - lowest floor alteration request App recived 9/24/2024			x							x				$ (262.13)
8413 Marylane Permit 24-13	10/24/2024			x							x				$ (926.50)
Pratt Homes - 105th and Jamaca - Wick Residence Permit 24-14	application recieved 8/15 ready to issue			x							x				$ (805.70)
Lornston Permit 24-15	financial assurance recived 11/7/24			x	x						x				$ (1,096.75)
Goodsell Permit 24-16	App received 11/6/2024			x	x						x				$ 1,858.25
WOS Lot 129 - Weatherby Permit 24-17	incomplete 11/12/2024			x							x				$ 1,858.25
Washington County CSAH 15B/South Frontage Rd Permit 24-18	submittal 11/13/2024		x	x		x	x	x		x					$ (221.00)
TOTAL NON-EXEMPT DUE BCWD:			117	457	44	17	31	177	25	71	153	13	119		**$181,259.26**
Total due back to applicants if closed:															**($216,710.73)**

LIABILITY COVERAGE WAIVER FORM

Members who obtain liability coverage through the League of Minnesota Cities Insurance Trust (LMCIT) must complete and return this form to LMCIT before their effective date of coverage. Email completed form to your city's underwriter, to pstech@lmc.org, or fax to 651.281.1298.

Members who obtain liability coverage from LMCIT must decide whether to waive the statutory tort liability limits to the extent of the coverage purchased. *The decision to waive or not waive the statutory tort limits must be made annually by the member's governing body, in consultation with its attorney if necessary.* The decision has the following effects:

- *If the member does not waive the statutory tort limits*, an individual claimant could recover no more than $500,000 on any claim to which the statutory tort limits apply. The total all claimants could recover for a single occurrence to which the statutory tort limits apply would be limited to $1,500,000. These statutory tort limits would apply regardless of whether the member purchases the optional LMCIT excess liability coverage.

- *If the member waives the statutory tort limits and does not purchase excess liability coverage*, a single claimant could recover up to $2,000,000 for a single occurrence (under the waive option, the tort cap liability limits are only waived to the extent of the member's liability coverage limits, and the LMCIT per occurrence limit is $2,000,000). The total all claimants could recover for a single occurrence to which the statutory tort limits apply would also be limited to $2,000,000, regardless of the number of claimants.

- *If the member waives the statutory tort limits and purchases excess liability coverage*, a single claimant could potentially recover an amount up to the limit of the coverage purchased. The total all claimants could recover for a single occurrence to which the statutory tort limits apply would also be limited to the amount of coverage purchased, regardless of the number of claimants.

Claims to which the statutory municipal tort limits do not apply are not affected by this decision.

LMCIT Member Name: _____

_____

Check one:

☐ The member **DOES NOT WAIVE** the monetary limits on municipal tort liability established by Minn. Stat. § 466.04.

☐ The member **WAIVES** the monetary limits on municipal tort liability established by Minn. Stat. § 466.04, to the extent of the limits of the liability coverage obtained from LMCIT.

Date of member's governing body meeting:_____

Signature: _____

Position: _____

Brown's Creek Watershed District
2024 Approved Budget- Final Certified Levy
12-11-2024

		Revised 2023 Carry Forward for Approval	2024 Grants	2024 Levy	2024 Total Budget (For approval)	Allocated	Available
100-2910	Designated Funds - Management Plan Projects	*$ 992,580*			$ 992,580		$ 992,580
					$ -		$ -
Revenue					$ -		$ -
100-3700	Interest Income				$ -		$ -
100-3601	Metropolitan Council Outlet Monitoring Grant		$ 5,000		$ 5,000		$ 5,000
100-3630	Washington County Cost-share Applewood Reuse	*$ 66,800*			$ 66,800		$ 66,800
100-3631	MPCA Small Watershed Grant 2023-2026	*$ 320,706*			$ 320,706		$ 320,706
100-3100	Tax Levy			$ 1,180,803	$ 1,180,803		$ 1,180,803
TOTAL, ESTIMATED Sources of Funding		***$ 1,380,086***	***$ 5,000***	***$ 1,180,803***	**$ 2,565,889**		**$ 2,565,889**

ACCT. #	General Expenses	Revised 2023 Carry Forward for Approval	2024 Grants	2024 Levy	2024 Total Budget (For approval)	Allocated	Available
200-4000	Manager Per Diem and Expense			$ 10,000	$ 10,000	$ 10,000	$ -
200-4001	Manager Communications/Tablets	*$ 4,350*			$ 4,350	$ 4,350	$ -
200-4220	Secretarial Services	*$ 4,000*		$ (4,000)	$ -		$ -
200-4250	Dues & Subscriptions (MAWD 6500 and LMCIT 2500)			$ 9,000	$ 9,000	$ 9,000	$ -
200-4270	Bonding & Insurance			$ 6,000	$ 6,000	$ 6,000	$ -
200-4280	Postage & Delivery			$ 1,000	$ 1,000		$ 1,000
200-4290	Printing & Notices			$ 1,000	$ 1,000		$ 1,000
200-4330	Accounting			$ 4,560	$ 4,560	$ 4,560	$ -
200-4331	Audit			$ 10,300	$ 10,300	$ 10,300	$ -
200-4949	Misc., Other Expense			$ 2,000	$ 2,000	$ 1,000	$ 1,000
200-4320	Wash. Conservation District--Admin			$ 58,670	$ 58,670	$ 58,670	$ -
200-4265	Admin Conference Registrations			$ 2,000	$ 2,000		$ 2,000
200-4410	Legal Fees - General			$ 25,800	$ 25,800	$ 25,800	$ -
200-4500	Staff Engineer			$ 28,445	$ 28,445	$ 28,445	$ (1)
	Diversity, Equity and Inclusion Training			$ 5,000	$ 5,000		$ 5,000
	Contingency Reserve	*$ 30,824*		$ -	$ 30,824		$ 30,824
TOTAL GENERAL FUND EXPENSES:		***$ 39,174***	***$ -***	***$ 159,775***	***$ 198,948***	***$ 158,125***	**$ 40,823**

ACCT. #	MANAGEMENT PLAN EXPENSES	Revised 2023 Carry Forward for Approval	2024 Grants	2024 Levy	2024 Total Budget (For approval)	Allocated	Available
300-4320	Wash. Conservation District--Administrator	*$ 15,000*		$ 176,005	$ 191,005	$ 191,005	$ -
300-4410	Legal Fees - Mgmt Plan			$ 60,000	$ 60,000		$ 60,000
300-4501	Staff Engineer			$ 90,474	$ 90,474	$ 90,474	$ 0
300-4702	Permitting, Legal Review			$ 15,000	$ 15,000		$ 15,000
300-4703	Permitting, Engineering Review			$ 55,000	$ 55,000		$ 55,000
300-4704	Permitting, Inspection Database			$ 1,000	$ 1,000		$ 1,000
300-4710-1	Baseline Monitoring	*$ 518*	$ 5,000	$ 136,420	$ 141,938	$ 141,938	$ -
300-4640	Equip. Maint. and Upgrades	*$ 15,000*		$ 10,000	$ 25,000	$ 7,400	$ 17,600
300-4810	Shared Educator Position			$ 20,500	$ 20,500	$ 20,500	$ -
300-4950	Management Plan Implementation -future projects			$ -	$ -		$ -
903-0001	Trout Habitat Preservation Project: Monitoring,			$ 6,500	$ 6,500	$ 6,490	$ 10
909-0000	Rules Review/Evaluation	*$ 27,000*		$ 3,000	$ 30,000	$ 14,057	$ 15,943
909-0001	Groundwater Dep Nat Resource Inventory update	*$ 10,000*		$ (10,000)	$ -		$ -
909-0002	Permitting Program Internal Procedure updates	*$ 25,000*			$ 25,000		$ 25,000
910-0000	Education & Outreach			$ 15,000	$ 15,000	$ 14,948	$ 52
911-0000	Volunteer Stream Monitoring			$ 4,045	$ 4,045	$ 4,045	$ -
912-0000	Grant Preparation	*$ -*			$ -		$ -
914-0000	Homeowner BMP Program			$ 50,000	$ 50,000		$ 50,000
922-0000	Plan Reviews - LGU/LWMP				$ -		$ -
923-0000	H & H Model Maintenance	*$ 3,800*		$ 130,824	$ 134,624	$ 69,670	$ 64,954
923-0002	Flood Risk Assessment	*$ 89,316*		$ (63,360)	$ 25,956	$ 25,956	$ -
927-0000	Management Plan Update	*$ 127,000*		$ 90,000	$ 217,000	$ 219,823	$ (2,823)
929-0000	Long Lake Plan Implementation-shoreline management			$ -	$ -		$ -
929-0010	Long Lake -Implementation - regional treatment	*$ 75,000*		$ (75,000)	$ -		$ -
929-0011	Long Lake - 62nd Street Pond Retrofit Feasibility	*$ 15,000*			$ 15,000	$ 15,000	$ -
929-0012	Long Lake - Marketplace Reuse Feasibility	*$ 164,900*		$ 60,220	$ 225,120		$ 225,120
931-0001	Benz Lake Management Plan Implementation	*$ 15,500*		$ (15,500)	$ -		$ -
935-0000	Land Conservation Program	*$ 100,000*		$ 50,000	$ 150,000		$ 150,000
935-0002	110th Street Property Implementation	*$ 45,000*		$ 25,000	$ 70,000		$ 70,000
935-0003	Develop Land Conservation Priorities	*$ 20,000*			$ 20,000		$ 20,000
940-0000	BMP Program – LGU/Community Demonstration Projects	*$ 10,000*			$ 10,000	$ 10,000	$ -
942-0004	Measuring Trends in GW Elevations & Flow	*$ 3,960*			$ 3,960	$ 3,960	$ -
942-0007	Groundwater - Browns Creek piezometers	*$ 8,960*			$ 8,960		$ 8,960
942-0011	Groundwater - Coordination with users	*$ 40*		$ 24,000	$ 24,040	$ 24,036	$ 4
942-0012	Groundwater - Install Monitoring Wells	*$ 58,000*		$ (58,000)	$ -		$ -
942-0013	Groundwater - Pump Test	*$ 15,000*		$ (15,000)	$ -		$ -
947-0017	Brown's Creek Implementation - Ecoli site visits/cost-share	*$ 10,000*			$ 10,000		$ 10,000
947-0018	Brown's Creek - Biological Survey (Macroinvert & Fish)	*$ 4,000*			$ 4,000	$ 3,776	$ 224
947-0022	Brown's Creek - Buffer and Stream Restoration	*$ 330,000*		$ 133,000	$ 463,000	$ 364,244	$ 98,757
947-0023	Brown's Creek - Golf Course Reuse - Oak Glen				$ -		$ -
947-0026	Brown's Creek - Brown's Creek Cove Reach			$ 20,000	$ 20,000		$ 20,000
948-0000	CIP Maintenance	*$ 35,418*		$ 135,000	$ 170,418	$ 52,218	$ 118,199
950-0001	South School Curly Leaf Treatment	*$ 1,000*		$ (1,000)	$ -		$ -
951-0001	Woodpile Lake Management Plan Implementation	*$ 10,000*		$ (10,000)	$ -		$ -
953-0000	Fen Management Plan Implementation	*$ 4,000*			$ 4,000	$ 4,000	$ -
957-0000	Weather Station			$ 3,700	$ 3,700	$ 3,642	$ 58
959-0001	Resource Assessment - upstream 110th/Drone flight			$ 4,700	$ 4,700	$ 4,700	$ -
959-0002	Resource Assessment - Diversion Tribs - Head cut Repairs	*$ 60,000*		$ (60,000)	$ -		$ -
959-0003	Resource Assessment - Brown's Creek Gorge Bluff				$ -		$ -
960-0000	St Croix Phosphorus Reduction	*$ 10,000*			$ 10,000		$ 10,000
961-0000	Mendel Wetland Restoration Feasiblity	*$ 20,000*		$ 15,000	$ 35,000		$ 35,000
962-0000	District-Wide Pond Management Planning/Implementation			$ 4,500	$ 4,500	$ 4,500	$ -
963-0000	District-Wide Vegetation Surveys	*$ 10,000*		$ (10,000)	$ -		$ -
964-0000	District-Wide Chloride Source Assessment	*$ 2,500*			$ 2,500		$ 2,500
TOTAL MANAGEMENT PLAN PROJECT EXPENSES:		***$ 1,340,912***	***$ 5,000***	***$ 1,021,028***	***$ 2,366,940***		**$ 1,070,558**
TOTAL, OPERATING EXP. & MGMT. PLAN PROJECTS:		***$ 1,380,086***	***$ 5,000***	***$ 1,180,803***	***$ 2,565,888***		***$ 1,111,382***

BROWN'S CREEK WATERSHED DISTRICT
12/11/2024
CURRENT ITEMS PAYABLE-PAGE 1 of 2

	YES	NO	ABSTAIN	ABSENT
ECKLES	_____	_____	_____	_____
ODEBRECHT	_____	_____	_____	_____
LEROUX	_____	_____	_____	_____
WIRTH	_____	_____	_____	_____
SAHULKA	_____	_____	_____	_____

VENDOR		**ACCOUNT #**		ITEMS	TOTAL	**CK NO**
Emmons & Olivier Resources, Inc.	Invoices November 2024					
	Inv. 41-0000-228 Retainer	300-4500	$	7,078.50		
	Inv. 41-0000-228 Retainer	200-4500	$	2,359.50		
	Inv. 41-0001-231 General Permitting	300-4703	$	6,199.75		
	Inv. 41-0307-92 Permits 2017					
	Permitting #17-01 Grant Holdings Subd	300-4703	$	38.12		
	Permitting #17-04 Stillwater Senior Living	300-4703	$	54.87		
	Inv. 41-0330-75 Permits 2018					
	Permitting #18-06 Nottingham Village	300-4703	$	642.12		
	Permitting #18-11 Ridgecrest Oak Park Heights	300-4703	$	713.66		
	Inv. 41-0402-33 Permits 2022					
	Permitting #22-18 Stillwater Oaks	300-4703	$	1,211.75		
	Inv. 41-0420-23 Permits 2023					
	Permitting #23-02 WOS Lot 114	300-4703	$	54.87		
	Permitting #23-14 Wiskow Berm	300-4703	$	38.12		
	Permitting #23-15 WOS Lot 102	300-4703	$	38.12		
	Permitting #23-17 Sundance Stillwater	300-4703	$	36.75		
	Permitting #23-18 WOS Lot 124	300-4703	$	38.12		
	Inv. 41-0438-11 Permits 2024					
	Permitting #24-02 Schuster Residence	300-4703	$	38.12		
	Permitting #24-03 WOS Lot 120 Hilgert Residence	300-4703	$	38.12		
	Permitting #24-05 Swager Residence	300-4703	$	38.12		
	Permitting #24-07 Elliot Crossing	300-4703	$	2,932.73		
	Permitting #24-11 WOS Lot 127 Karr Residence	300-4703	$	54.87		
	Permitting #24-12 WOS Lot 130 Carlson	300-4703	$	54.87		
	Permitting #24-14 Wick Residence	300-4703	$	54.87		
	Permitting #24-16 Goodsell Residence	300-4703	$	4,998.75		
	Permitting #24-17 WOS Lot 129 Weatherby	300-4703	$	1,029.00		
	Permitting #24-18 CSAH 15 Frontage	300-4703	$	1,519.50		
	Inv. 41-0205-85 CIP Operation and Maintenance	948-4500	$	2,813.02		
	Inv. 41-0418-24 Brown's Ck Pk Restoration	947-0022	$	865.00		
	Inv. 41-0451-4 BCWD 2024 Bio Survey	947-0018	$	297.00		
	Inv. 41-0447-8 BCWD 2024 WMP Update	927-0000	$	6,540.51		
	Inv. 41-0433-10 2024 H&H Model Update	923-0000	$	8,017.50		
	Inv. 41-0437-9 2024 OGGC Reuse Maintenance and Monitoring	948-0000	$	1,166.27		
	Inv. 41-0450-6 Coordinating WQ Improvements with Member	962-0000	$	423.55		
	Inv. 41-0453-6 IESF OM 2024	948-4500	$	181.00		
	Inv. 41-0455-4 Wetland Inventory and Assessment Update	948-4500	$	1,984.50		
	Inv. 41-0458-2 Rule Revisions Facilitation	909-0000	$	4,557.80		

EOR Cont.	Inv. 41-0380-5 2023 Vegetation Management	948-0000	$ 15,835.70		
	Inv. 41-0446-6 Masterman Long Woodpile Lake Plans	962-0000	$ 2,890.00		
	Inv. 41-0442-6 BCWD 2024 Weather Station	957-4500	$ 420.79		
	Inv. 41-0456-1 Groundwater Dependent NRI Update	948-4500	$ 2,355.00	$	77,610.84
Xcel Energy	Inv. 903365995- Iron Enhanced Sand Filter pump operation	948-4500	$ 87.66	$	87.66
Washington Conservation District	Inv. 6766 October 2024- Water Monitoring				
	Baseline Water Monitoring- labor	300-4710	$ 10,441.25		
	Baseline Water Monitoring- equipment	300-4640	$ 574.83		
	Inv. 6772 October 2024- BMP Program	914-0000	$ 879.00		
	Inv. 6726 Administration Q3 2024				
	Administration (1/3)	200-4320	$ 24,556.25		
	Administration (2/3)	300-4320	$ 49,112.50		
	Miscellaneous Expesnses	200-4949	$ 1,270.01		
	Printing	200-4290	$ 50.00	$	86,883.84
Smith Partners	November 2024 Invoices				
	Inv. 45356 Retainer - Meetings, Preparation	200-4410	$ 2,187.93		
	Inv. 45357 General Legal Services	300-4410	$ 307.44		
	Inv. 45358 Planning	300-4410	$ 140.85		
	Inv. 45296 Contracts	300-4410	$ 1,227.78		
	Inv. 45360 Permits	300-4703	$ 4,195.27		
	Inv. 45361 Sureties	300-4410	$ 167.40		
	Inv. 45362 Lake McKusick Iron-Sand Infiltration	300-4410	$ 223.30		
	Inv. 45363 Oak Glen Golf Course Project	300-4410	$ 167.40	$	8,617.37
ECM Publishers Inc	Inv. 1025198 RFQ 2024	200-4290	$ 85.00	$	85.00
MN State Registrar	Inv. 834304 RFQ 2024	200-4290	$ 216.00	$	216.00
Dave McCord	Inv. 4434 October 2024 Accounting Services	200-4330	$ 380.00	$	380.00
Elizabeth Carreno	Regulatory Review	948-0000	$ 5,490.00	$	5,490.00
Shelly Ovre	Stewardship Grant Reimbursement 2024-06	914-0000	$ 500.00	$	500.00
Chuck Haik	Stewardship Grant Reimbursement 2024-15	914-0000	$ 500.00	$	500.00
Nicholas Cota	Stewardship Grant Reimbursement 2024-08	914-0000	$ 500.00	$	500.00
Val Rae Boe	Stewardship Grant Reimbursement 2024-03	914-0000	$ 500.00	$	500.00
MNL	Brown's Creek Stream Restoration Project Pay Request #5	947-0022	$ 6,285.75	$	6,285.75
Total Amount Disbursed				**$**	**187,656.46**

BROWN'S CREEK WATERSHED DISTRICT
12/11/2024
MONTHLY ITEMS DEPOSITED - Page 1 of 1

VENDOR	INVOICE/DESCRIPTION	ACCOUNT #	CK NO	DEPOSIT DATE		TOTAL
Redstone Builders, LLC	#23-17 Permit Deposit	300-4703	11641	11/20/2024	$	1,250.00
Fairway Estates of Grant, Ll	#22-18 Permit Fee	300-4703	43301	12/4/2024	$	12,293.00
Johnson Turner Legal	Streetcar Holdings LLC Deposition Reimbursement	300-4703	5124	11/21/2024	$	156.75
Washington County	Tax Settlement- 2nd Half 2024 Levy	100-3100	Direct Deposit	11/28/2024	$	545,667.40
4M Fund	Dividend	100-3700	Direct Deposit	11/30/2024	$	3,158.71
TOTAL AMOUNT DEPOSITED:					**$**	**562,525.86**

Brown's Creek Watershed District
2025 Budget
Approved 9-11-2024

		Estimated 2024 Carry Forward	2025 Grants	2025 Levy	2025 Total Budget
100-2910	Designated Funds - Management Plan Projects	*$ 841,580*			$ 841,580
					$ -
Revenue					$ -
100-3700	Interest Income				$ -
100-3601	Metropolitan Council Outlet Monitoring Grant		$ 5,000		$ 5,000
100-3630	Washington County Cost-share Applewood Reuse				$ -
100-3631	MPCA Small Watershed Grant 2023-2025				$ -
100-3632	MPCA Small Watershed Grant 2025-2029		$ 34,800		$ 34,800
100-3100	Tax Levy			$ 1,207,531	$ 1,207,531
TOTAL, ESTIMATED Sources of Funding		**$ 841,580**	**$ 39,800**	**$ 1,207,531**	**$ 2,088,911**

ACCT. #	General Expenses	Estimated 2024 Carry Forward	2025 Grants	2025 Levy	2025 Total Budget
200-4000	Manager Per Diem and Expense			$ 10,000	$ 10,000
200-4001	Manager Communications/Tablets				$ -
200-4220	Secretarial Services				$ -
200-4250	Dues & Subscriptions (MN Watersheds 7200 and LMCIT 2800)			$ 10,000	$ 10,000
200-4270	Bonding & Insurance			$ 6,500	$ 6,500
200-4280	Postage & Delivery			$ 1,000	$ 1,000
200-4290	Printing & Notices			$ 1,000	$ 1,000
200-4330	Accounting			$ 5,000	$ 5,000
200-4331	Audit			$ 12,000	$ 12,000
200-4949	Misc., Other Expense			$ 2,000	$ 2,000
200-4320	Wash. Conservation District--Admin			$ 65,000	$ 65,000
200-4265	Admin Conference Registrations			$ 3,000	$ 3,000
200-4410	Legal Fees - General			$ 27,100	$ 27,100
200-4500	Staff Engineer			$ 31,289	$ 31,289
	Diversity, Equity and Inclusion Training			$ 5,000	$ 5,000
	Contingency Reserve			$ 50,000	$ 50,000
TOTAL GENERAL FUND EXPENSES:		**$ -**	**$ -**	**$ 228,889**	**$ 228,889**

ACCT. #	MANAGEMENT PLAN EXPENSES	Estimated 2024 Carry Forward	2025 Grants	2025 Levy	2025 Total Budget
300-4320	Wash. Conservation District--Administrator			$ 250,000	$ 250,000
300-4410	Legal Fees - Mgmt Plan			$ 60,000	$ 60,000
300-4501	Staff Engineer			$ 99,522	$ 99,522
300-4702	Permitting, Legal Review			$ 15,750	$ 15,750
300-4703	Permitting, Engineering Review			$ 75,000	$ 75,000
300-4704	Permitting, Inspection Database			$ 10,500	$ 10,500
300-4710-1	Baseline Monitoring		$ 5,000	$ 145,000	$ 150,000
300-4640	Equip. Maint. and Upgrades	*$ 15,000*		$ 10,000	$ 25,000
300-4810	Shared Educator Position			$ 31,000	$ 31,000
300-4950	Management Plan Implementation -future projects				$ -
903-0001	Trout Habitat Preservation Project: Monitoring,	*$ 6,500*			$ 6,500
909-0000	Rules Review/Evaluation	*$ 20,000*		$ 10,000	$ 30,000
909-0001	Groundwater Dep Nat Resource Inventory update				$ -
909-0002	Permitting Program Internal Procedure updates	*$ 25,000*			$ 25,000
910-0000	Education & Outreach			$ 103,500	$ 103,500
911-0000	Volunteer Stream Monitoring			$ 4,500	$ 4,500
912-0000	Grant Preparation				$ -
914-0000	Homeowner BMP Program			$ 50,000	$ 50,000
922-0000	Plan Reviews - LGU/LWMP				$ -
923-0000	H & H Model Maintenance	*$ 42,500*			$ 42,500
923-0002	Flood Risk Assessment				$ -
923-0003	Long Lake - Flood Risk - Weir Modification Assessment			$ 30,000	$ 30,000
927-0000	Management Plan Update	*$ 10,000*		$ 15,000	$ 25,000
929-0000	Long Lake Plan Implementation			$ 103,700	$ 103,700
929-0010	Long Lake -Implementation - regional treatment				$ -
929-0011	Long Lake - 62nd Street Pond Retrofit Feasibility				$ -
929-0012	Long Lake - Marketplace Reuse Feasibility	*$ 225,120*		$ (225,120)	$ -
929-0013	Long Lake - Chloride Impairement Assessment			$ 15,000	$ 15,000
929-0014	Long Lake - Brewer's Pond BMP/LGU cost-share			$ 15,750	$ 15,750
931-0001	Benz Lake Management Plan Implementation				$ -
935-0000	Land Conservation Program	*$ 150,000*		$ 50,000	$ 200,000
935-0002	110th Street Property Implementation	*$ 50,000*			$ 50,000
935-0003	Develop Land Conservation Priorities	*$ 20,000*			$ 20,000
940-0000	BMP Program – LGU/Community Demonstration Projects				$ -
942-0004	Measuring Trends in GW Elevations & Flow			$ 4,700	$ 4,700
942-0007	Groundwater - Browns Creek piezometers	*$ 8,960*		$ (8,960)	$ -
942-0011	Groundwater - Coordination with users	*$ 8,500*			$ 8,500
942-0012	Groundwater - Install Monitoring Wells				$ -
942-0013	Groundwater - Pump Test				$ -
947-0017	Brown's Creek Implementation - Ecoli	*$ 10,000*		$ 5,800	$ 15,800
947-0018	Brown's Creek - Biological Survey (Macroinvert)			$ 4,100	$ 4,100
947-0022	Brown's Creek - Buffer and Stream Restoration	*$ 40,800*			$ 40,800
947-0023	Brown's Creek - Golf Course Reuse - Oak Glen				$ -
947-0026	Brown's Creek - Brown's Creek Cove Reach	*$ 23,200*	$ 34,800		$ 58,000
947-0027	Brown's Creek - McKusick Road rock crib feasibility	*$ 26,000*			$ 26,000
948-0000	CIP Maintenance	*$ 115,000*		$ 85,000	$ 200,000
950-0001	South School Curly Leaf Treatment				$ -
951-0001	Woodpile Lake Management Plan Implementation				$ -
953-0000	Fen Management Plan Implementation				$ -
957-0000	Weather Station			$ 3,900	$ 3,900
959-0001	Resource Assessment - upstream 110th/Drone flight				$ -
959-0002	Resource Assessment - Diversion Tribs - Head cut Repairs				$ -
959-0004	Resource Assessment - AIS			$ 15,000	$ 15,000
960-0000	St Croix Phosphorus Reduction	*$ 10,000*			$ 10,000
961-0000	Mendel Wetland Restoration Feasiblity	*$ 35,000*			$ 35,000
962-0000	District-Wide Pond Management Planning/Implementation				$ -
963-0000	District-Wide Vegetation Surveys				$ -
964-0000	District-Wide Chloride Source Assessment				$ -
TOTAL MANAGEMENT PLAN PROJECT EXPENSES:		**$ 841,580**	**$ 39,800**	**$ 978,642**	**$ 1,860,022**
TOTAL, OPERATING EXP. & MGMT. PLAN PROJECTS:		***$ 841,580***	***$ 39,800***	***$ 1,207,531***	***$ 2,088,911***

Resolution No. 24-05

BROWN'S CREEK WATERSHED DISTRICT BOARD OF MANAGERS
2025 FINAL BUDGET & CERTIFIED 2025 TAX LEVY RESOLUTION: ALL FUNDS

Manager _____ offered the following resolution and moved its adoption, seconded by Manager _____.

WHEREAS on September 11, 2024, pursuant to published notice and in conformance with Minnesota Statutes § 103D.911, the Brown's Creek Watershed District Board of Managers held a public hearing to receive comments on the District's 2025 budget and levies; and

WHEREAS no public testimony was received on the proposed budget and considered by the managers;

WHEREAS at its regular meeting of December 11, 2024, the Board of Managers provided an opportunity for public comment on the 2025 Operating and Capital Budget and levies in accordance Minnesota Statutes chapter 275 and [no] comments were received.

NOW, THEREFORE, BE IT RESOLVED that the Brown's Creek Watershed District Board of Managers adopts a 2025 Operating and Capital Budget totaling $2,088,911 as follows:

Management Plan Implementation	$ 1,860,022
Operations	$ 228,889

NOW, THEREFORE, BE IT FURTHER RESOLVED, the District's 2025 budget includes a 2024 carryover and certain non-levy revenues, together totaling $881,380, resulting in a levy of $1,207,531;

NOW, THEREFORE, BE IT FURTHER RESOLVED that a mill rate sufficient to produce the following sums, totaling $1,207,531, be levied upon all taxable property in Brown's Creek Watershed District, Washington County, State of Minnesota, for the year of 2025, and for the purposes noted below:

1. General Fund: $228,889 for the purpose of paying the administrative expenses of the District as provided by Minnesota Statute §103D.905, subdivision 3; and,

2. Management Planning Fund: $978,642 for the purpose of paying the cost of watershed management planning and implementation of specific projects according to the Watershed Management Plan, as provided by Minnesota Statutes 103B.241.

The question was on the adoption of the resolution and there were ___ yeas and ___ nays as follows:

	Yea	Nay	Absent
ECKLES	☐	☐	☐
LEROUX	☐	☐	☐
ODEBRECHT	☐	☐	☐
SAHULKA	☐	☐	☐
WIRTH	☐	☐	☐

Upon vote, the chair declared the resolution adopted.

* * * * * * * * * * *

I, Debra Sahulka, secretary of the Brown's Creek Watershed District, do hereby certify that I have compared the above resolution with the original thereof as the same appears of record and on file with the BCWD and find the same to be a true and correct transcript thereof.

IN TESTIMONY WHEREOF, I have hereunto set my hand this ____ day of _____, 2024.

_____
Debra Sahulka, Secretary

DATE: November 21, 2024

TO: BCWD board of directors

FROM: Reabar Abdullah, Assistant City Engineer

SUBJECT: Northland Ave. Storm Sewer Pipe Replacement

BACKGROUND

In March 2024, Brown's Creek Watershed District (BCWD) staff/consultant approached the City of Stillwater staff about erosion along the storm sewer pipe from Northland Ave. to Brewers Pond, which was causing washouts and sediments to reach Brewer Pond. City staff investigated the pipe and found several eroded spots at the bottom of the existing corrugated metal pipe, causing severe erosion on the sides of the pipe embankment and washouts to the pond.
City staff met with BCWD Staff and discussed replacing the pipe. BCWD staff requested investigating options for treating stormwater before it reached the Pond. Several options were presented and discussed during these meetings. One viable option was selected: introducing a storm sewer separator in the line to separate pollutants and sediments and remove them before reaching the pond.

THE PROJECT

City staff prepared plans and specifications for the project. The project will replace the existing corrugated 15" metal pipe with a 15" HDPE pipe, install a storm sewer separator in the city ROW, and install a 20-ft deep manhole to eliminate the steep slope of the existing pipe and reduce the speed and force of the water at the outlet.

DISCUSSION

City Staff requested quotes from five contractors to perform the work, and received two bids in time:

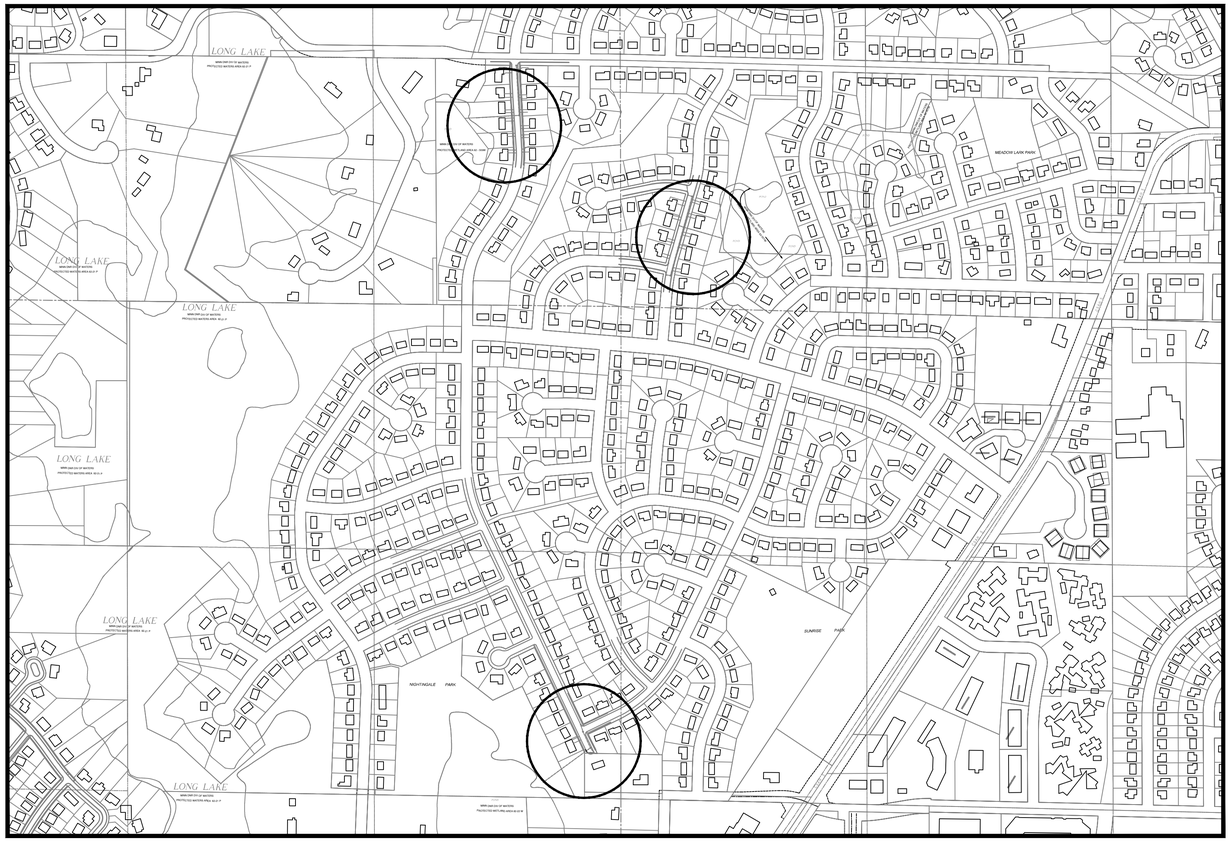
Midstate Excavating	$125, 974.00
Miller Excavating, Inc.	$170,441.23

The cost of the storm sewer separator alone is $23,000. The City is proposing to pay for the project, but is requesting a contribution from the BCWD in the amount of $25,000 on a cost-share agreement basis to implement the project. The line item for the separator is $23,000, and there are other indirect costs including contractor mobilization and staff time. The City project is not dependent on adding the stormwater separator however it is added for water quality benefits.

CITY OF STILLWATER, MINNESOTA

NORTHLAND AVE STORM SEWER PROJECT

PROJECT # 2024-MISC



SHEET # | INDEX DESCRIPTION

THIS PLAN SET CONTAINS 4 SHEETS

GENERAL NOTES:

1. THE SUBSURFACE UTILITY INFORMATION IN THIS PLAN IS UTILITY QUALITY LEVEL "D". THIS UTILITY QUALITY LEVEL WAS DETERMINED ACCORDING TO THE GUIDELINES OF CI/ASCE 38-02, ENTITLED "STANDARD GUIDELINES FOR THE COLLECTION AND DEPICTION OF EXISTING SUBSURFACE UTILITY DATA."
2. THE EXACT LOCATION OF UNDERGROUND GAS, TELEPHONE, FIBER OPTIC, ELECTRIC, CABLE TV AND PIPELINES ARE UNKNOWN. THE CONTRACTORS SHALL CONTACT GOPHER STATE ONE PRIOR TO COMMENCING EXCAVATION.
3. GOVERNING SPECIFICATIONS:
   THE 2020 EDITION OF THE MINNESOTA DEPARTMENT OF TRANSPORATION "STANDARD SPECIFICATIONS FOR CONSTRUCTION" AND THE 2020 EDITION OF THE "MATERIALS LAB SUPPLEMENTAL SPECIFICATIONS FOR CONSTRUCTION" SHALL GOVERN.
4. ALL TRAFFIC CONTROL DEVICES SHALL CONFORM TO THE MOST RECENT EDITION OF THE MINNESOTA MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, INCLUDING "FIELD MANUAL FOR TEMPORARY TRAFFIC CONTROL ZONE LAYOUTS"

STATEMENT OF ESTIMATED QUANTITIES

Item No.	Item	Unit	Estimated Quantity
1	Mobilization (5% max)	LS	1.00
2	Traffic Control	LS	1.00
3	CLEARING AND GRUBBING TREES (0"-6" DIAMETER)	SY	650.00
4	Remove Existing Curb and Gutter (Various Type)	LF	25.00
5	Sawing Concrete Pavement (Full Depth)	LF	5.00
6	Sawing Bituminous Pavement (Full Depth)	LF	80.00
7	Remove Bituminous Pavement	SY	75.00
8	Remove Concrete Pavement	SF	100.00
9	Remove Storm Sewer Pipe	LF	322.00
10	Common Excavation	CY	360.00
11	Select Granular Borrow (CV)	CY	60.00
12	Common Fill	CY	310.00
13	Bituminous Material for Tack Coat	GAL	4.00
14	Wear Course Mixture SPWEA330B (1.5-inch)	TN	7.00
15	Base Course Mixture SPNWEB330B (2.5-inch)	TN	11.00
16	15" RC Pipe Sewer Design 3006 Cl. III(All Depths)	LF	35.00
17	18" HDPE Sewer Pipe (All Depths)	LF	310.00
18	18" Concrete Flared End Section with Trash Guard	EA	1.00
19	21" Concrete Flared End Section with Trash Guard	EA	2.00
20	Construct Drainage Structure 48" Storm Manhole (0-8- depth)	EA	2.00
21	Construct Drainage Structure 48" Extra Depth	LF	12.00
22	Furnish Adapter Plate 3067-27	EA	1.00
23	Furnish Catch Basin Casting (Neenah R3067-L or Equal)	EA	1.00
24	Furnish Manhole Casting & Lid - Storm or Sanitary(Neenah R1733 or equal)	EA	1.00
25	Furnish Neenah R-3067-L Grate	EA	1.00
26	Install Catch Basin Casting (Neenah R3067-L or Equal)	EA	1.00
27	Install Adapter Plate 3067-27	EA	1.00
28	Install MH Casting (storm or sanitary)	EA	1.00
29	Adjust Catch Basin Casting	EA	1.00
30	Adjust MH Casting (storm or sanitary)	EA	1.00
31	Connect To Existing Drainage Structure	EA	1.00
32	5" Concrete Pavement Design 3A32	SY	10.00
33	Concrete Curb and Gutter (various types) Hand Install - Mix Design 3A32	LF	20.00
34	Curb Inlet Protection	EA	2.00
35	Erosion Control Bio-logs	LF	1360.00
36	RipRap Class III with fabric	CY	22.50
37	Select Topsoil Borrow screened (LV)	CY	55.00
38	Fertilizer, Type 3 (350#/Acre)	LB	25.00
39	Seeding (mix 270) and hydraulic soil stabilizer Type 5	SY	650.00
40	Hydro International First Defense or Downstream Defender	EA	1.00

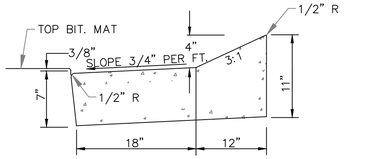
NO.	DRAWN	CHECKED	DATE	REVISIONS

Stillwater — THE BIRTHPLACE OF MINNESOTA

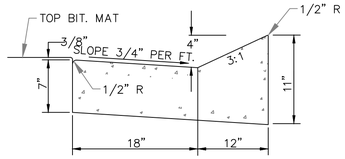
I hereby certify that this plan was prepared by me or under my direct supervision and that I am a duly Registered Professional Engineer under the laws of the state of Minnesota.

Date:_____ Reg. No_____

NORTHLAND AVE STORM SEWER		FILE NO. 2024-MISC	1/4
TITLESHEET	2024 MISC		

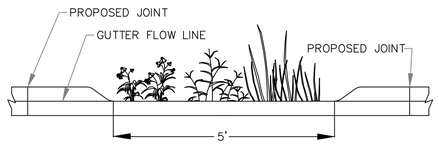


"D" TYPE OUTFALL



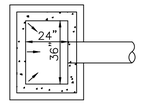
"D" TYPE 418

SURMOUNTABLE CONCRETE CURB & GUTTER DETAILS	DATE OF REVISION	STANDARD PLATE NO.
	FEBURARY 2023	1420

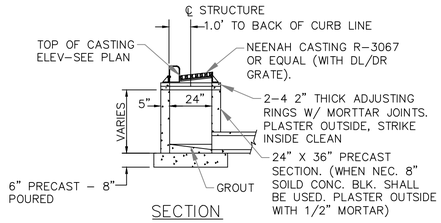


CONCRETE CURB CUT DETAIL	DATE OF REVISION	STANDARD PLATE NO.
	FEBURARY 2023	1440

INSTALL EXTERNAL SEALING SYSTEM MANUFACTURED BY INFI-SHIELD. DISTRIBUTED BY ESS BROS. & SONS INC. OR EQUAL

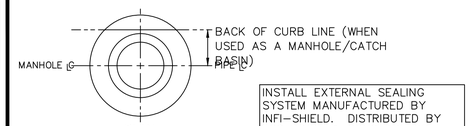


PLAN



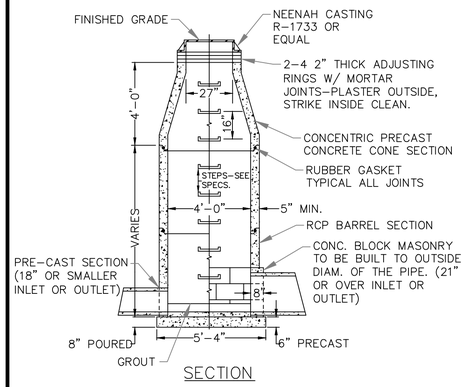
SECTION

TYPE "X" CATCH BASIN RECT. CASTING DETAIL	DATE OF REVISION	STANDARD PLATE NO.
	FEBURARY 2023	2220



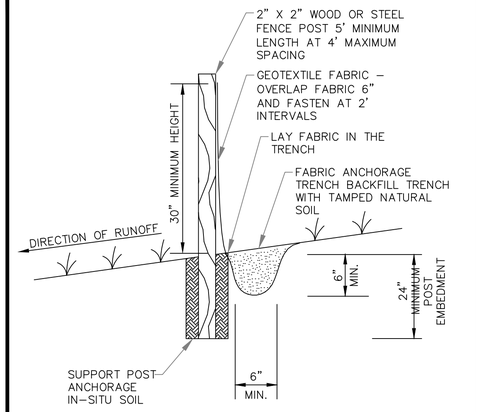
PLAN

INSTALL EXTERNAL SEALING SYSTEM MANUFACTURED BY INFI-SHIELD. DISTRIBUTED BY ESS BROS. & SONS INC. OR EQUAL



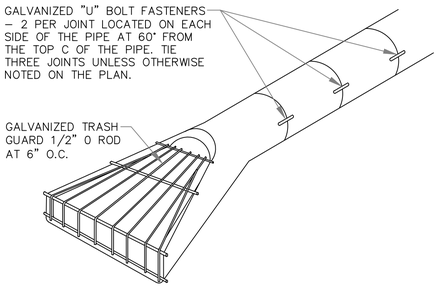
SECTION

TYPE "A" STORM SEWER MH DETAIL CONCENTRIC	DATE OF REVISION	STANDARD PLATE NO.
	FEBURARY 2023	2310



NOTE:
ATTACH FABRIC TO SUPPORT POSTS WITH LATH AND STAPLES

SILT FENCE DETAIL	DATE OF REVISION	STANDARD PLATE NO.
	FEBURARY 2023	4130

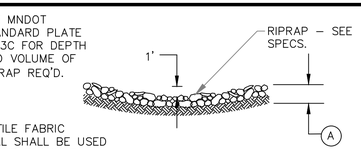


SEE DETAIL FOR RIPRAP AT R.C.P. APRONS.

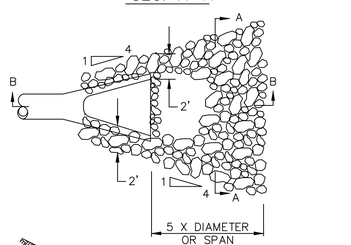
"U" BOLT REQUIREMENTS		
PIPE SIZE	BOLT DIA.	WIDTH
21" & LESS	1/2"	24"
24" TO 36"	5/8"	24"
42" TO 54"	3/4"	24"
60" & GREATER	1"	24"

CONCRETE FLARED END APRON

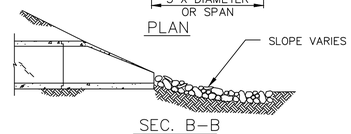
CONCRETE FLARED END APRON DETAIL	DATE OF REVISION	STANDARD PLATE NO.
	FEBURARY 2023	2440



SEC. A-A



PLAN

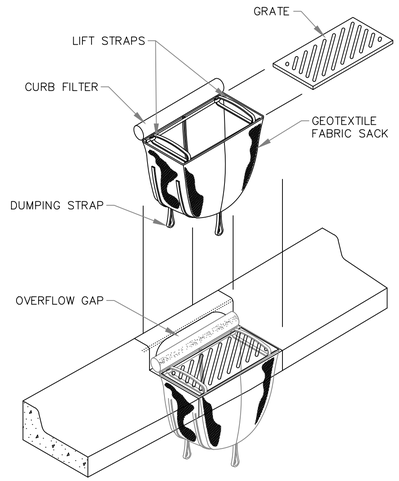


SEC. B-B

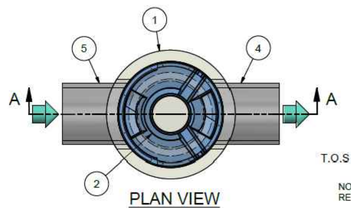
RIPRAP AT R.C.P. APRONS

RIPRAP AT R.C.P. APRON DETAIL	DATE OF REVISION	STANDARD PLATE NO.
	FEBURARY 2023	2450

INSTALL CATCH BASIN INLET PROTECTION DEVICE MANUFACTURED BY DANDY PRODUCTS OR APPROVED EQUAL.

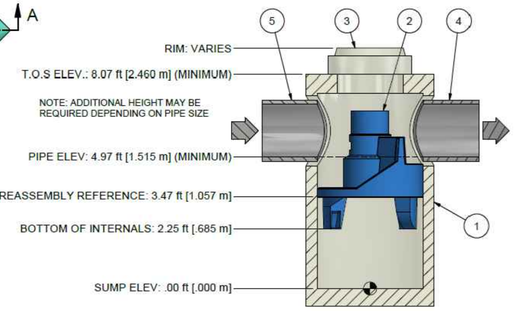


CATCH BASIN EROSION CONTROL DETAIL 1	DATE OF REVISION	STANDARD PLATE NO.
	FEBURARY 2023	4100



PLAN VIEW

HYDRO FRAME AND COVER (INCLUDED)
GRADE RINGS BY OTHERS AS REQUIRED



SECTION A-A

1. MANHOLE WALL AND SLAB THICKNESSES ARE NOT TO SCALE.

2. CONTACT HYDRO INTERNATIONAL FOR A BOTTOM OF STRUCTURE ELEVATION PRIOR TO SETTING FIRST DEFENSE MANHOLE.

3. CONTRACTOR TO CONFIRM RIM, PIPE INVERTS, PIPE DIA. AND PIPE ORIENTATION PRIOR TO RELEASE OF UNIT TO FABRICATION.

PRODUCT SPECIFICATION:

1. Peak Hydraulic Flow: 18.0 cfs (510 l/s)
2. Min Sediment Storage Capacity: 0.7 cu. yd. (0.5 cu. m.)
3. Maximum Inlet/Outlet Pipe Diameters: 24 in. (600 mm)
4. The Treatment System Shall Use An Induced Vortex To Separate Pollutants From Stormwater Runoff.
5. For More Product Information Including Regulatory Acceptances, Please Visit https://hydro-int.com/en/products/first-defense

GENERAL NOTES:
1. General Arrangement drawings only. Contact Hydro International for site specific drawings.
2. The diameter of the inlet and outlet pipes may be no more than 24".
3. Multiple inlet pipes possible (refer to project plan).
4. Inlet/outlet pipe angle can vary to align with drainage network (refer to project plans).
5. Peak flow rate and minimum height limited by available cover and pipe diameter.
6. Larger sediment storage capacity may be provided with a deeper sump depth.

PARTS LIST				
ITEM	QTY	SIZE (in)	SIZE (mm)	DESCRIPTION
1	1	48	1200	I.D. PRECAST MANHOLE
2	1			INTERNAL COMPONENTS (PRE-INSTALLED)
3	1	30	750	FRAME AND COVER (ROUND)
4	1	24 (MAX)	600 (MAX)	OUTLET PIPE (BY OTHERS)
5	1	24 (MAX)	600 (MAX)	INLET PIPE (BY OTHERS)

PROJECTION

IF IN DOUBT ASK

DATE: 11/2/2021 | SCALE: 1:30
DRAWN BY: ER | CHECKED BY: MRJ | APPROVED BY:
Title: 4-ft DIAMETER FIRST DEFENSE
GENERAL ARRANGEMENT

Hydro International
hydro-int.com
HYDRO INTERNATIONAL

WEIGHT: | MATERIAL:
STOCK NUMBER:
DRAWING NO.: FD GA-4
SHEET SIZE: B | SHEET: 1 OF 1 | Rev: -

NO.	DRAWN	CHECKED	DATE	REVISIONS

I hereby certify that this plan was prepared by me or under my direct supervision and that I am a duly Registered Professional Engineer under the laws of the state of Minnesota.

Date:_____ Reg. No._____

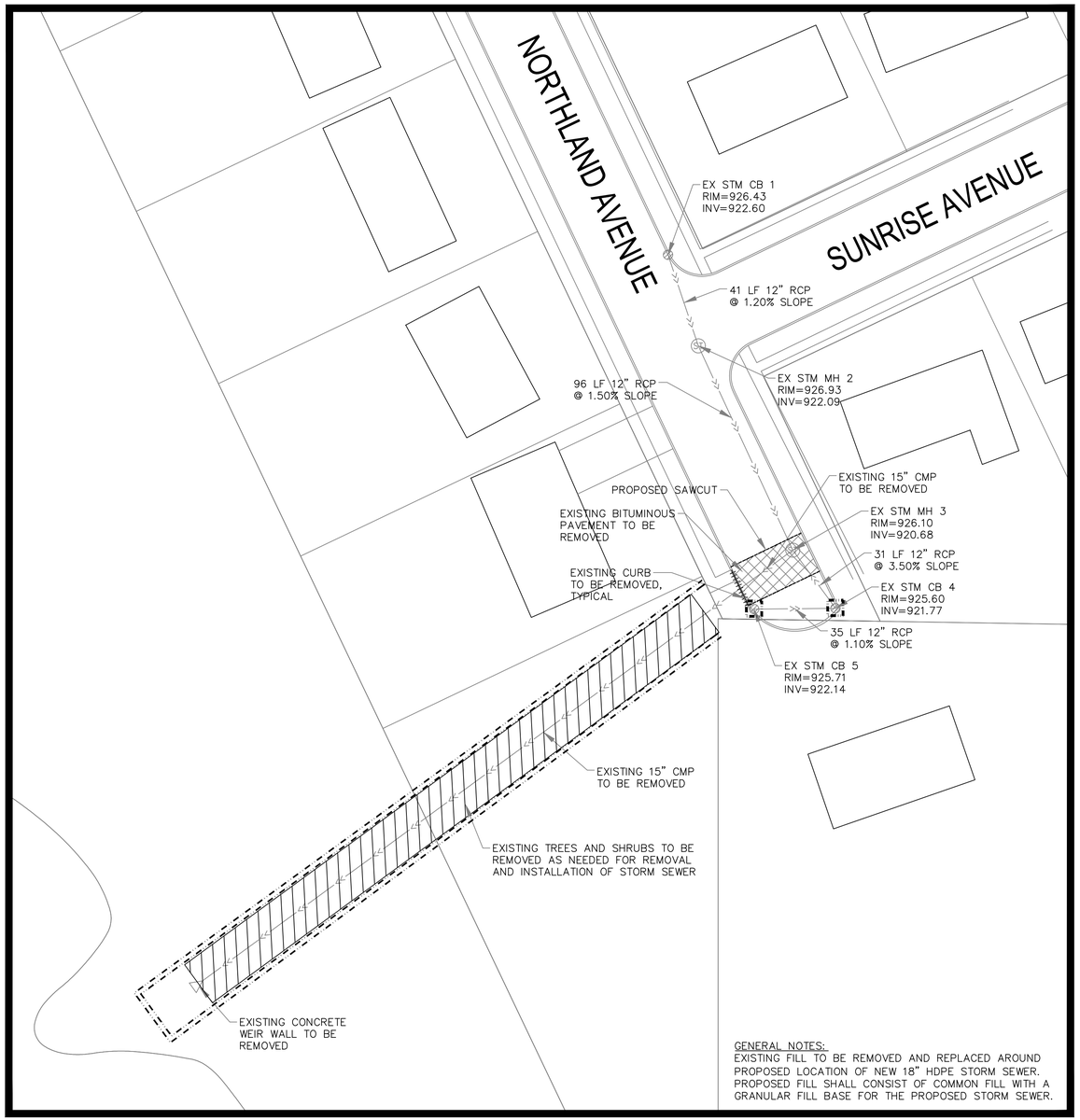
NORTHLAND AVE STORM SEWER

DETAILS

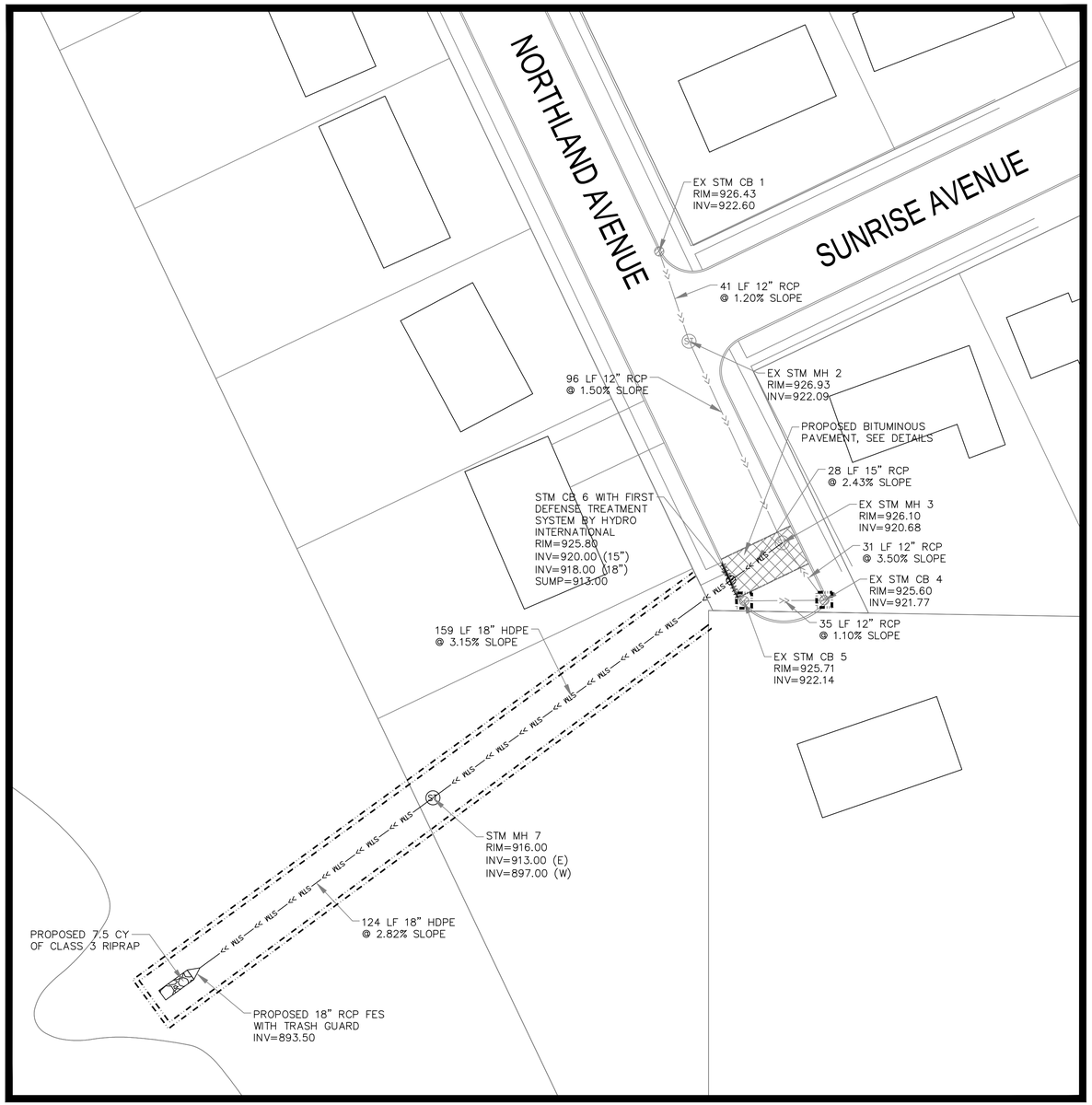
2024 MISC

FILE NO. 2024-MISC

2 / 4



GENERAL NOTES:
EXISTING FILL TO BE REMOVED AND REPLACED AROUND PROPOSED LOCATION OF NEW 18" HDPE STORM SEWER. PROPOSED FILL SHALL CONSIST OF COMMON FILL WITH A GRANULAR FILL BASE FOR THE PROPOSED STORM SEWER.



N

0 30 60 Feet

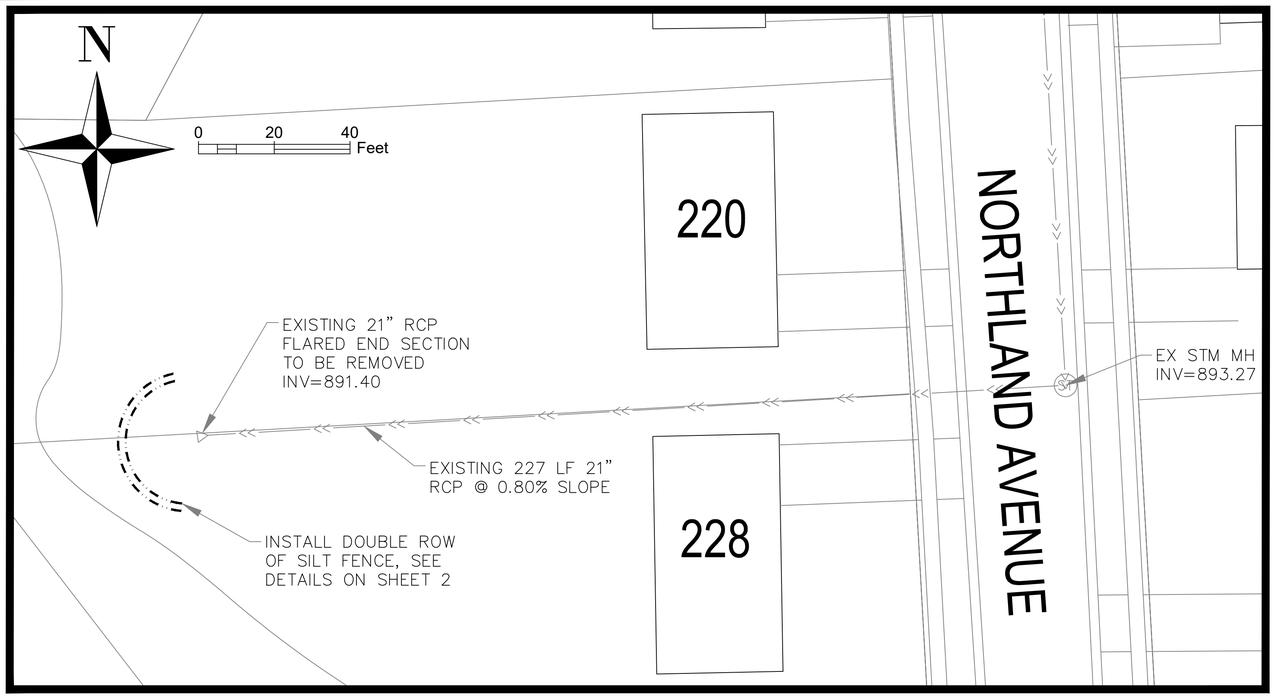
NO.	DRAWN	CHECKED	DATE	REVISIONS

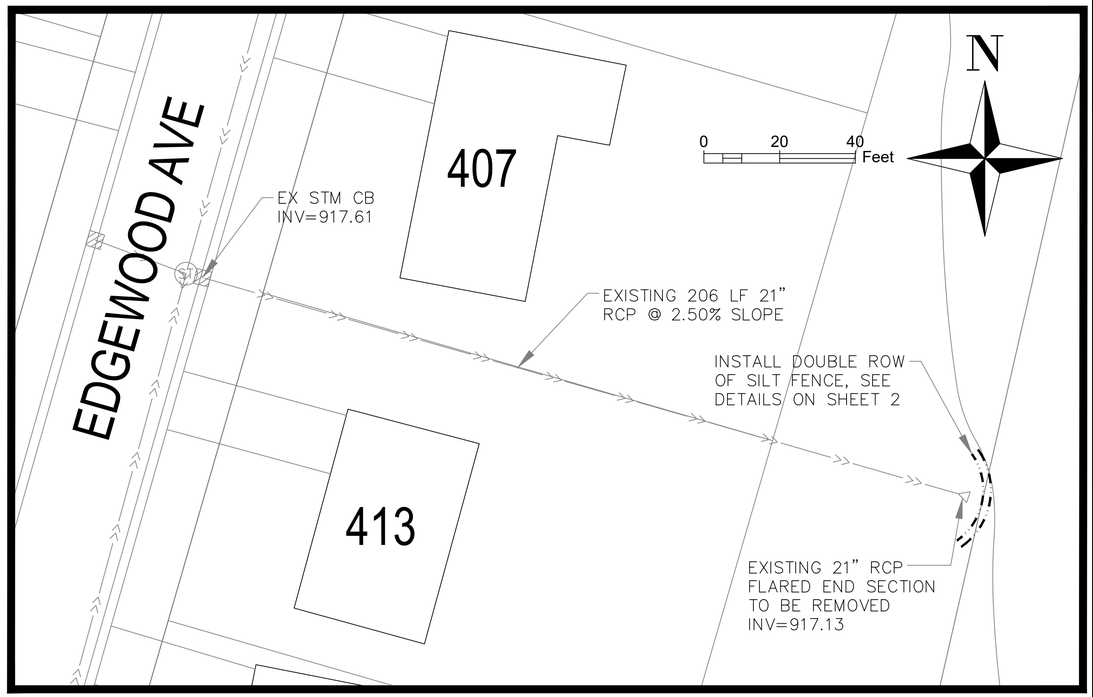
Stillwater
THE BIRTHPLACE OF MINNESOTA

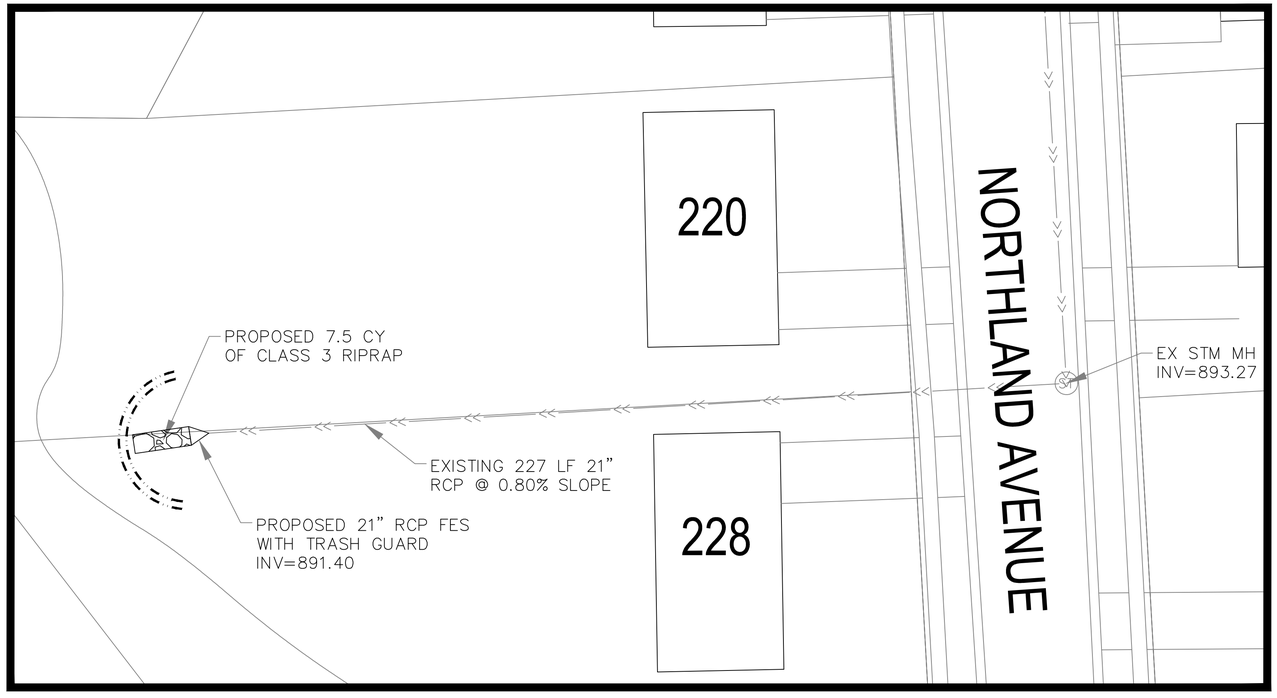
I hereby certify that this plan was prepared by me or under my direct supervision and that I am a duly Registered Professional Engineer under the laws of the state of Minnesota.

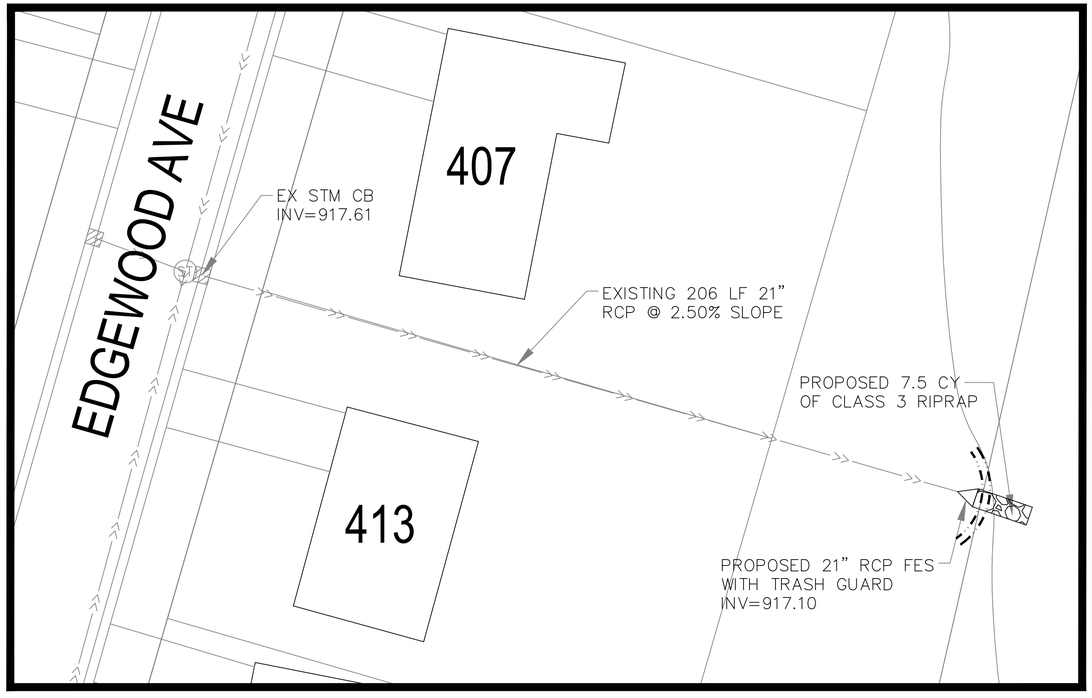
Date:_____ Reg. No._____

STORM SEWER REPAIRS	NORTHLAND AVE	FILE NO. 2024-MISC	3/4
DEMOLITION AND SITE LAYOUT PLAN	2024 MISC		









NO.	DRAWN	CHECKED	DATE	REVISIONS

Stillwater
THE BIRTHPLACE OF MINNESOTA

I hereby certify that this plan was prepared by me or under my direct supervision and that I am a duly Registered Professional Engineer under the laws of the state of Minnesota.

Date:_____ Reg. No._____

STORM SEWER REPAIRS	220 NORTHLAND 407 EDGEWOOD	FILE NO. 2024-MISC	4 / 4
DEMOLITION AND SITE LAYOUT PLAN	2024 MISC		

City of Stillwater
216 N. 4th Street
Stillwater, MN 55082
651-430-8830 Engineering Department
651-275-4112 Fax

Northland Ave. Storm Sewer Project

Item	Item	Unit	Estimated	Unit Price	Amount
1	Mobilization (5% max)	LS	1.00	5,000.00	5,000.00
2	Traffic Control	LS	1.00	1,500.00	1,500.00
3	CLEARING AND GRUBBING TREES (0"-6" DIAMETER)	SY	650.00	$ 10.00	6,500.00
4	Remove Existing Curb and Gutter (Various Type)	LF	25.00	14.00	350.00
5	Sawing Concrete Pavement (Full Depth)	LF	5.00	20.00	100.00
6	Sawing Bituminous Pavement (Full Depth)	LF	80.00	6.25	500.00
7	Remove Bituminous Pavement	SY	75.00	11.00	825.00
8	Remove Concrete Pavement	SF	100.00	10.00	1,000.00
9	Remove Storm Sewer Pipe	LF	322.00	10.00	3,220.00
10	Common Excavation	CY	360.00	18.00	6,480.00
11	Select Granular Borrow (CV)	CY	60.00	42.00	2,520.00
12	Common Fill	CY	310.00	23.00	7,130.00
13	Bituminous Material for Tack Coat	GAL	4.00	1.00	4.00
14	Wear Course Mixture SPWEA330B (1.5-inch)	TN	7.00	455.00	3,185.00
15	Base Course Mixture SPNWEB330B (2.5-inch)	TN	11.00	455.00	5,005.00
16	15" RC Pipe Sewer Design 3006 Cl. III(All Depths)	LF	35.00	105.00	3,675.00
17	18" HDPE Sewer Pipe (All Depths)	LF	310.00	45.00	13,950.00
18	18" Flared End Section with Trash Guard	EA	1.00	950.00	950.00
19	21" Concrete Flared End Section with Trash Guard	EA	2.00	2,750.00	$ 5,500.00
20	Construct Drainage Structure 48" Storm Manhole (0-8- depth)	EA	1.00	4,050.00	4,050.00
21	Construct Drainage Structure 48" Extra Depth	LF	12.00	475.00	5,700.00
22	Furnish Adapter Plate 3067-27	EA	1.00	850.00	850.00
23	Furnish Catch Basin Casting (Neenah R3067-L or Equal)	EA	1.00	1,050.00	1,050.00
24	Furnish Manhole Casting & Lid - Storm or Sanitary(Neenah	EA	1.00	720.00	720.00
25	Furnish Neenah R-3067-L Grate	EA	1.00	265.00	265.00
26	Install Catch Basin Casting (Neenah R3067-L or Equal)	EA	1.00	235.00	235.00
27	Install Adapter Plate 3067-27	EA	1.00	250.00	250.00
28	Install MH Casting (storm or sanitary)	EA	1.00	250.00	250.00
29	Adjust Catch Basin Casting	EA	1.00	475.00	475.00
30	Adjust MH Casting (storm or sanitary)	EA	1.00	375.00	375.00
31	Connect To Existing Drainage Structure	EA	1.00	1,975.00	1,975.00
32	5" Concrete Pavement Design 3A32	SY	10.00	200.00	2,000.00
33	Concrete Curb and Gutter (various types) Hand Install - Mix	LF	20.00	125.00	2,500.00
34	Curb Inlet Protection	EA	2.00	250.00	500.00
35	Erosion Control Bio-logs	LF	1360.00	3.50	4,760.00
36	RipRap Class III with fabric	CY	22.50	150.00	3,375.00
37	Select Topsoil Borrow screened (LV)	CY	55.00	50.00	2,750.00
38	Fertilizer, Type 3 (350#/Acre)	LB	25.00	10.00	250.00
39	Seeding (mix 270) and hydraulic soil stabilizer Type 5	SY	650.00	5.00	3,250.00
40	Hydro International First Defense or Downstream Defender	EA	1.00	23,000	23,000.00

GRAND TOTAL (BASIS OF AWARD) $125,974.00

Bids must be received at the City Hall no later than 2:00 pm on Thursday November 14, 2024
Bids may be submitted by mail, email, fax or in person to City Hall at above address, Attn: Reabar Abdullah
Responsible Contractor Verification and Certification must be submitted with the Bid
Bids should be labeled: **NorthInd Ave. Storm Sewer Project**
All bids must be submitted on the City's proposal form and be a complete proposal
Please provide any additional comments, modifications, or suggestions to the bid prior to bid due date.
Questions contact Reabar Abdullah at 651-430-8834 or rabdullah@stillwatermn.gov
or Dillion McClung at 651-430-8833 or dmcclung@stillwatermn.gov
The City reserves the right to add or subtract quantities
IC 134 must be submitted prior to final payment
The City anticipates the work be done on or before June 30, 2025

Date: 11-14-2024
Print Name: MICHAEL JOHNSON
Signature: Michael Johnson
Title: PROJECT MANAGER

Company Name: MIDSTATE LANDSCAPING + EXCAVATING, LLC
Address: 5750 MEMORIAL AVE N
OAK PARK HEIGHTS, MN 55082
Phone: 651-342-0142
Email Address: mikej@midstateexcavatingmn.com

Midstate Excavating

5750 Memorial Ave N
Oak Park Heights, MN 55082

Phone: (651) 342-0142

To:	City Of Stillwater	**Contact:**	Reabar Abdullah
Address:	216 N. 4th Street	**Phone:**	651-430-8830
	Stillwater, MN 55082	**Fax:**	
Project Name:	Stillwater - Northland Avenue Storm Sewer Project	**Bid Number:**	
Project Location:	Northland Avenue, Stillwater, MN	**Bid Date:**	11/14/2024

Item #	Item Description	Estimated Quantity	Unit	Unit Price	Total Price
1	Mobilization	1.00	LS	$5,000.00	$5,000.00
2	Traffic Control	1.00	LS	$1,500.00	$1,500.00
3	Clearing & Grubbing Trees (0"-6" Diameter)	650.00	SY	$10.00	$6,500.00
4	Remove Existing Curb And Gutter (Various Type)	25.00	LF	$14.00	$350.00
5	Sawing Concrete Pavement (Full Depth)	5.00	LF	$20.00	$100.00
6	Sawing Bituminous Pavement (Full Depth)	80.00	LF	$6.25	$500.00
7	Remove Bituminous Pavement	75.00	SY	$11.00	$825.00
8	Remove Concrete Pavement	100.00	SF	$10.00	$1,000.00
9	Remove Storm Sewer Pipe	322.00	LF	$10.00	$3,220.00
10	Common Excavation	360.00	CY	$18.00	$6,480.00
11	Select Granular Borrow (CV)	60.00	CY	$42.00	$2,520.00
12	Common Fill	310.00	CY	$23.00	$7,130.00
13	Bituminous Material For Tack Coat	4.00	GAL	$1.00	$4.00
14	Wear Course Mixture SPWEA330B (1.5 - Inch)	7.00	TON	$455.00	$3,185.00
15	Base Course Mixture SPWEB330B (2.5- Inch)	11.00	TON	$455.00	$5,005.00
16	15" RC Pipe Sewer Design 3006 Cl. III (All Depths)	35.00	LF	$105.00	$3,675.00
17	18" HDPE Sewer Pipe (All Depths)	310.00	LF	$45.00	$13,950.00
18	18" Flared End Section With Trash Guard	1.00	EACH	$950.00	$950.00
19	21" Concrete Flared End Section With Trash Guard	2.00	EACH	$2,750.00	$5,500.00
20	Construct Drainage Structure 48" Storm Manhole (0'-8' Depth)	1.00	EACH	$4,050.00	$4,050.00
21	Construct Drainage Structure 48" Extra Depth	12.00	LF	$475.00	$5,700.00
22	Furnish Adapter Plate 3067-27	1.00	EACH	$850.00	$850.00
23	Furnish Catch Basin Casting (Neenah R3067-L Or Equal)	1.00	EACH	$1,050.00	$1,050.00
24	Furnish Manhole Casting & Lid - Storm Or Sanitary (Neenah R1733 Or Equal)	1.00	EACH	$720.00	$720.00
25	Furnish Neenah R-3067-L Grate	1.00	EACH	$265.00	$265.00
26	Install Catch Basin Casting (Neenah R3067-L Or Equal)	1.00	EACH	$235.00	$235.00
27	Install Adapter Plate 3067-27	1.00	EACH	$250.00	$250.00
28	Install Manhole Casting (Storm Or Sanitary)	1.00	EACH	$250.00	$250.00
29	Adjust Catch Basin Casting	1.00	EACH	$475.00	$475.00
30	Adjust MH Casting (Storm Or Sanitary)	1.00	EACH	$375.00	$375.00
31	Connect To Existing Drainage Structure	1.00	EACH	$1,975.00	$1,975.00
32	5" Concrete Pavement Design 3A32	10.00	SY	$200.00	$2,000.00
33	Concrete Curb And Gutter (Various Types) Hand Install - Mix Design 3A32	20.00	LF	$125.00	$2,500.00
34	Curb Inlet Protection	2.00	EACH	$250.00	$500.00
35	Erosion Control Bio-Logs	1,360.00	LF	$3.50	$4,760.00
36	Rip Rap Class III With Fabric	22.50	CY	$150.00	$3,375.00
37	Select Topsoil Borrow Screened (LV)	55.00	CY	$50.00	$2,750.00
38	Fertilizer, Type 3 (350#/Acre)	25.00	LB	$10.00	$250.00
39	Seeding (Mix 270) And Hydraulic Soil Stabilizer Type 5	650.00	SY	$5.00	$3,250.00
40	Hydro International First Defense Or Downstream Defender	1.00	EACH	$23,000.00	$23,000.00

Total Bid Price: $125,974.00

ATTACHMENT A

RESPONSIBLE CONTRACTOR VERIFICATION AND CERTIFICATION OF COMPLIANCE

PROJECT TITLE: Northland Ave. Storm Sewer Project

Minn. Stat. § 16C.285, Subd. 7. **IMPLEMENTATION.** ... any prime contractor or subcontractor that does not meet the minimum criteria in subdivision 3 or fails to verify that it meets those criteria is not a responsible contractor and is not eligible to be awarded a construction contract for the project or to perform work on the project...	
Minn. Stat. § 16C.285, Subd. 3. **RESPONSIBLE CONTRACTOR, MINNIMUM CRITERIA**. "Responsible contractor" means a contractor that conforms to the responsibility requirements in the solicitation document for its portion of the work on the project and verifies that it meets the following minimum criteria:	
(1)	The Contractor: (i) is in compliance with workers' compensation and unemployment insurance requirements; (ii) is currently registered with the Department of Revenue and the Department of Employment and Economic Development if it has employees; (iii) has a valid federal tax identification number or a valid Social Security number if an individual; and (iv) has filed a certificate of authority to transact business in Minnesota with the Secretary of State if a foreign corporation or cooperative.
(2)	The contractor or related entity is in compliance with and, during the three-year period before submitting the verification, has not violated section 177.24, 177.25, 177.41 to 177.44, 181.13, 181.14, or 181.722, and has not violated United States Code, title 29, sections 201 to 219, or United States Code, title 40, sections 3141 to 3148. For purposes of this clause, a violation occurs when a contractor or related entity: (i) repeatedly fails to pay statutorily required wages or penalties on one or more separate projects for a total underpayment of $25,000 or more within the three-year period; (ii) has been issued an order to comply by the commissioner of Labor and Industry that has become final; (iii) has been issued at least two determination letters within the three-year period by the Department of Transportation finding an underpayment by the contractor or related entity to its own employees; (iv) has been found by the commissioner of Labor and Industry to have repeatedly or willfully violated any of the sections referenced in this clause pursuant to section 177.27; (v) has been issued a ruling or findings of underpayment by the administrator of the Wage and Hour Division of the United States Department of Labor that have become final or have been upheld by an administrative law judge or the Administrative Review Board; or (vi) has been found liable for underpayment of wages or penalties or misrepresenting a construction worker as an independent contractor in an action brought in a court having jurisdiction. Provided that, if the contractor or related entity contests a determination of underpayment by the Department of Transportation in a contested case proceeding, a violation does not occur until the contested case proceeding has concluded with a determination that the contractor or related entity underpaid wages or penalties;*

(3)	The contractor or related entity is in compliance with and, during the three-year period before submitting the verification, has not violated section 181.723 or chapter 326B. For purposes of this clause, a violation occurs when a contractor or related entity has been issued a final administrative or licensing order;*
(4)	The contractor or related entity has not, more than twice during the three-year period before submitting the verification, had a certificate of compliance under section 363A.36 revoked or suspended based on the provisions of section 363A.36, with the revocation or suspension becoming final because it was upheld by the Office of Administrative Hearings or was not appealed to the office;*
(5)	The contractor or related entity has not received a final determination assessing a monetary sanction from the Department of Administration or Transportation for failure to meet targeted group business, disadvantaged business enterprise, or veteran-owned business goals, due to a lack of good faith effort, more than once during the three-year period before submitting the verification;*
	* Any violations, suspensions, revocations, or sanctions, as defined in clauses (2) to (5), occurring prior to July 1, 2014, shall not be considered in determining whether a contractor or related entity meets the minimum criteria.
(6)	The contractor or related entity is not currently suspended or debarred by the federal government or the state of Minnesota or any of its departments, commissions, agencies, or political subdivisions; and
(7)	All subcontractors that the contractor intends to use to perform project work have verified to the contractor through a signed statement under oath by an owner or officer that they meet the minimum criteria listed in clauses (1) to (6).

Minn. Stat. § 16C.285, Subd. 5. **SUBCONTRACTOR VERIFICATION**.

A prime contractor or subcontractor shall include in its verification of compliance under subdivision 4 a list of all of its first-tier subcontractors that it intends to retain for work on the project.

If a prime contractor or any subcontractor retains additional subcontractors on the project after submitting its verification of compliance, the prime contractor or subcontractor shall obtain verifications of compliance from each additional subcontractor with which it has a direct contractual relationship and shall submit a supplemental verification confirming compliance with subdivision 3, clause (7), within 14 days of retaining the additional subcontractors.

A prime contractor shall submit to the contracting authority upon request copies of the signed verifications of compliance from all subcontractors of any tier pursuant to subdivision 3, clause (7). A prime contractor and subcontractors shall not be responsible for the false statements of any subcontractor with which they do not have a direct contractual relationship. A prime contractor and subcontractors shall be responsible for false statements by their first-tier subcontractors with which they have a direct contractual relationship only if they accept the verification of compliance with actual knowledge that it contains a false statement.

Minn. Stat. § 16C.285, Subd. 4. **VERIFICATION OF COMPLIANCE.**
A contractor responding to a solicitation document of a contracting authority shall submit to the contracting authority a signed statement under oath by an owner or officer verifying compliance with each of the minimum criteria in subdivision 3 at the time that it responds to the solicitation document. A contracting authority may accept a sworn statement as sufficient to demonstrate that a contractor is a responsible contractor and shall not be held liable for awarding a contract in reasonable reliance on that statement. Failure to verify compliance with any one of the minimum criteria or a false statement under oath in a verification of compliance shall render the prime contractor or subcontractor that makes the false statement ineligible to be awarded a construction contract on the project for which the verification was submitted. A false statement under oath verifying compliance with any of the minimum criteria may result in termination of a construction contract that has already been awarded to a prime contractor or subcontractor that submits a false statement. A contracting authority shall not be liable for declining to award a contract or terminating a contract based on a reasonable determination that the contractor failed to verify compliance with the minimum criteria or falsely stated that it meets the minimum criteria.

CERTIFICATION	
By signing this document I certify that I am an owner or officer of the company, and I swear under oath that: **1) My company meets each of the Minimum Criteria to be a responsible contractor as defined herein and is in compliance with Minn. Stat. § 16C.285,** **2) I have included Attachment A-1 with my company's solicitation response, and** **3) if my company is awarded a contract, I will also submit Attachment A-2 as required.**	
Authorized Signature of Owner or Officer: Michael Johnson	**Printed Name:** MICHAEL JOHNSON
Title: PROJECT MANAGER	**Date:** 11/14/2024
Company Name: MIDSTATE LANDSCAPING & EXCAVATING, LLC	

NOTE: Minn. Stat. § 16C.285, Subd. 2, (c) If only one prime contractor responds to a solicitation document, a contracting authority may award a construction contract to the responding prime contractor even if the minimum criteria in subdivision 3 are not met.

ATTACHMENT A-1

FIRST-TIER SUBCONTRACTORS LIST

SUBMIT WITH PRIME CONTRACTOR RESPONSE

PROJECT TITLE: Northland Ave Storm Sewer Project

Minn. Stat. § 16C.285, Subd. 5. A prime contractor or subcontractor shall include in its verification of compliance under subdivision 4 a list of all of its first-tier subcontractors that it intends to retain for work on the project. ...

FIRST TIER SUBCONTRACTOR NAMES (Legal name of company as registered with the Secretary of State)	**Name of city where company home office is located**

ATTACHMENT A-2

ADDITIONAL SUBCONTRACTORS LIST

PRIME CONTRACTOR TO SUBMIT AS SUBCONTRACTORS ARE ADDED TO THE PROJECT

PROJECT TITLE: Northland Ave Storm Sewer Project

This form must be submitted to the Project Manager or individual as identified in the solicitation document.

Minn. Stat. § 16C.285, Subd. 5. ... If a prime contractor or any subcontractor retains additional subcontractors on the project after submitting its verification of compliance, the prime contractor or subcontractor shall obtain verifications of compliance from each additional subcontractor with which it has a direct contractual relationship and shall submit a supplemental verification confirming compliance with subdivision 3, clause (7), within 14 days of retaining the additional subcontractors. ...

ADDITIONAL SUBCONTRACTOR NAMES (Legal name of company as registered with the Secretary of State)	**Name of city where company home office is located**

memo

Project Name |	Applewood Hills Golf Course Stormwater Reuse	**Date** |	12/6/2024
To / Contact info |	BCWD Board of Managers		
Cc / Contact info |	Karen Kill, BCWD Administrator		
Cc / Contact info |	Camilla Correll, BCWD Engineer		
From / Contact info |	Derek R. Lash, PE, CPESC		
Regarding |	Operations and Maintenance (O&M) Manual for Applewood Hills Golf Course Stormwater Reuse Project		

Background

The scope for preparing the O&M Manual for the Applewood Hills Golf Course (AHGC) Stormwater Reuse project was originally included on the consent agenda and approved at the May 2023 Board Meeting. However, the Manual was not started due to delays the Contractor experienced in completing the project.

In summary, the construction of the AHGC Stormwater Reuse project was started in late 2022, which primarily included the installation of the water main pipe that would serve as the link between the interchange ponds and the golf course. In 2023, the Contractor installed the stormwater reuse pump station but was delayed in connecting it to electricity due to delays Xcel Energy was experiencing themselves in securing a transformer. The connection was made in late summer 2023. In the fall of 2023, the Contractor worked with AHGC to connect the water main pipe to their irrigation system, however as AHGC was making improvements to their irrigation system the pump station could not be started until 2024.

It was the goal to start the pump station in 2024, but a lack of rainfall from 2022 to 2024 kept the interchange ponds from providing sufficient water. As the ponds have started to fill-up, it is highly anticipated the stormwater reuse pump station will come online in the Spring of 2025 and the O&M Manual can now be developed. Therefore, we are presenting an amended Scope of Services to reflect new hourly rates for work to be considered in 2025.

In addition to the original scope of work described below, we have included an optional task for completing summer site visits to ensure the pump station is performing as intended. This task is not mandatory but would provide a better understanding of the reuse system's performance during the first year of use.

The on-going operation and maintenance of the project will be completed by AHGC staff. However, for the first two years of operation EOR will coordinate with AHGC to operate and maintain the pump station.

Scope

The following table outlines the cost and hours anticipated for the 2025 season.

Task	Description	Hours	Cost
1. Prepare the Operations and Maintenance Manual	Collect and organize data from the engineer's plans and specifications, the contractor's material and manufacturer submittals, and the as-built record of the project. Prepare the Operations and Maintenance Manual for the Golf Course and Watershed District to	58	~~$9,385.00~~ $10,628.00

	operate and maintain the stormwater irrigation reuse system.		
2. Perform a Spring Startup and Observation	Coordinate with the Contractor and Golf Course to perform a system start-up. Document the process and include information in the O&M Manual.	19	~~$3,457.75~~ $3,729.00
3. Perform a Fall Shutdown	Coordinate with the Golf Course to shut the system down for the fall and winterize it. Document the process and include information in the O&M Manual.	19	~~$3,457.75~~ $3,729.00
	Amended Subtotal	**96**	**~~$16,300.50~~ $18,086.00**
Optional Service			
Task	**Description**	**Hours**	**Cost**
1. Perform Summer Site Visits	Visit the site to ensure the system is operating properly. This includes communication with the Golf Course and up to four (4) site visits.	22	$4,264.00
	Optional Subtotal	**22**	**$4,264.00**
	Total	**118**	**$22,350.00**

Requested Action

Consider approval of this amended scope of services that adds $1,785.50 to the original scope for Tasks 1-3 and not to exceed ~~$16,300.50~~ $18,086.00 **OR** approval of this amended scope of services that adds $6,049.50 when including the Optional Service Task 1 and not to exceed $22,350.00. This work would draw on funds from BCWD account 929-0010.

BROWN'S CREEK WATERSHED DISTRICT

455 HAYWARD AVE N
OAKDALE, MN
55128

651.330.8220

WWW.BCWD.ORG

MEMORANDUM

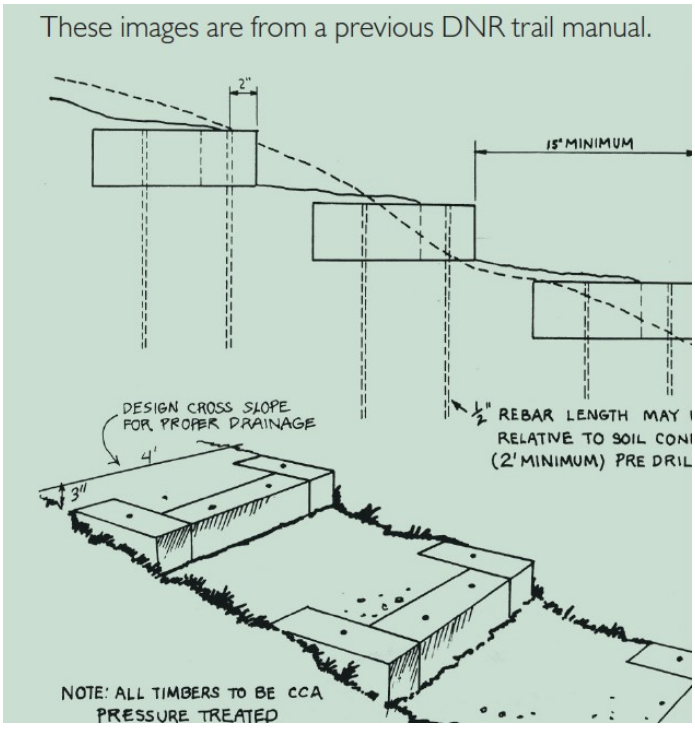
TO: Brown's Creek Watershed District Board
FROM: Karen Kill
RE: Brown's Creek Restoration – Spur Trail
DATE: December 10, 2024

Background

The original design included an ADA accessible spur trail from Brown's Creek State Trail near the Brown's Creek crossing where trail users have been causing erosion due to foot traffic. BCWD has entered into a cooperative agreement with MN DNR Trails (landowner) to construct and maintain an asphalt spur trail. This item is included in the contractor budget for approximately $7,000.

Issue

During final survey before construction, an error was discovered in the elevation data used in the design making the original design unable to be built to ADA specifications or without interference with the existing drainage swale while staying in the narrow corridor. The contractor was requested to stop work on the spur trail until a solution could be determined.



In coordination with the MN DNR Trails and Fisheries, several alternatives were considered including a boardwalk. This alternative was significantly more expensive and did not address the likelihood of foot traffic continuing the same erosion patterns. During these discussions, an alternative location for ADA access with better fishing opportunities was identified (see memo for scope to design) and may have state "Get Out More" funds available for construction. The MN DNR Trails was open to the idea of stabilizing the existing eroding location if an ADA access can be created in close proximity.

Staff engineers are looking into cost-effective options such as timber steps from the MN DNR Sustainable Trails Manual. Initial feasibility shows that these steps could be fit into the site without blocking the swale drainage. A cost estimate has not yet been created.

BROWN'S CREEK WATERSHED DISTRICT

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Recommendation
Direct staff to proceed with stabilizing steps, to coordinate with MN DNR Trails to determine if amendment of the cooperative agreement is necessary, and bring back final design and costs to the Board for approval.

Project Name |	Brown's Creek Park Restoration Project	**Date** |	12/02/2024
To / Contact info |	BCWD Board of Managers		
Cc / Contact info |	Karen Kill, District Administrator		
From / Contact info |	Mike Majeski, Dan Mossing, P.E.		
Regarding |	ADA Trail on DNR Aquatic Management Area Parcel		

Background

The original location of the ADA trail "spur" proposed off the Brown's Creek State Trail occurs along a steep embankment and is also adjacent to a drainage swale connected to Neal Avenue stormwater infrastructure. After further assessment of the site, it was determined the location will not accommodate an ADA compliant trail due to the constraints of the drainage swale and steep trail embankment. After discussing trail design modifications with DNR and BCWD staff, the DNR suggested relocating the ADA trail to the DNR Aquatic Management Area (AMA) parcel where the existing stream restoration construction access trail was located (Figure 1). This area has gentle slopes which would enable an ADA compliant trail to be installed.

Scoping and implementing this alternative trail is outside the scope of the Brown's Creek Restoration Project; therefore, the following scope of work outlines the tasks and costs to survey, design, and implement an alternative ADA trail that meets the goal of expanding recreational use and access to Brown's Creek and the restored riparian corridor.

Scope of Work

Trail Survey, Design, and Construction Management

Topographic survey data will be collected along the proposed ADA trail alignment to inform trail elevations, slopes, and the location of a landing pad for angler use. EOR will coordinate with DNR staff to refine trail requirements (e.g., surface materials, angler pad, railings) and complete a final design. Estimated quantities and an engineer's opinion of probable cost will be developed to advance bidding and construction implementation. Other construction management services will include contractor recommendation, construction oversight, final inspection, and preparation of pay applications.

Figure 1. Proposed location of ADA trail (yellow line) on the DNR AMA parcel located east of Neal Avenue and north of the Brown's Creek State Trail.

Cost Estimate

Table 1 summarizes the breakdown of tasks and estimated hours to complete site survey, design, and construction management for the ADA trail.

Table 1. Cost estimate for the Brown's Creek Restoration ADA Trail Design & Implementation.

TASK	HOURS	ESTIMATED COST
Topographic Survey & Field Meeting with DNR Staff	12	$1,951
Design, Engineer's Opinion of Probable Cost, SWPPP, Final Construction Plans & Specifications	40	$6,166
Permitting (WCA / Local Permits / WD Review)	5	$761
Construction Management (Bidding, Trail Staking, Construction Oversight, Project Closeout & Pay Applications)	44	$6,839
TOTAL	**101**	**$15,717**

Board Action

1. Approve this scope of services for $15,717 from account 947-0022 and begin coordination with the DNR to complete design and implementation of the ADA trail.

BROWN'S CREEK WATERSHED DISTRICT

455 HAYWARD AVE N
OAKDALE, MN
55128

651.330.8220
WWW.BCWD.ORG

MEMORANDUM

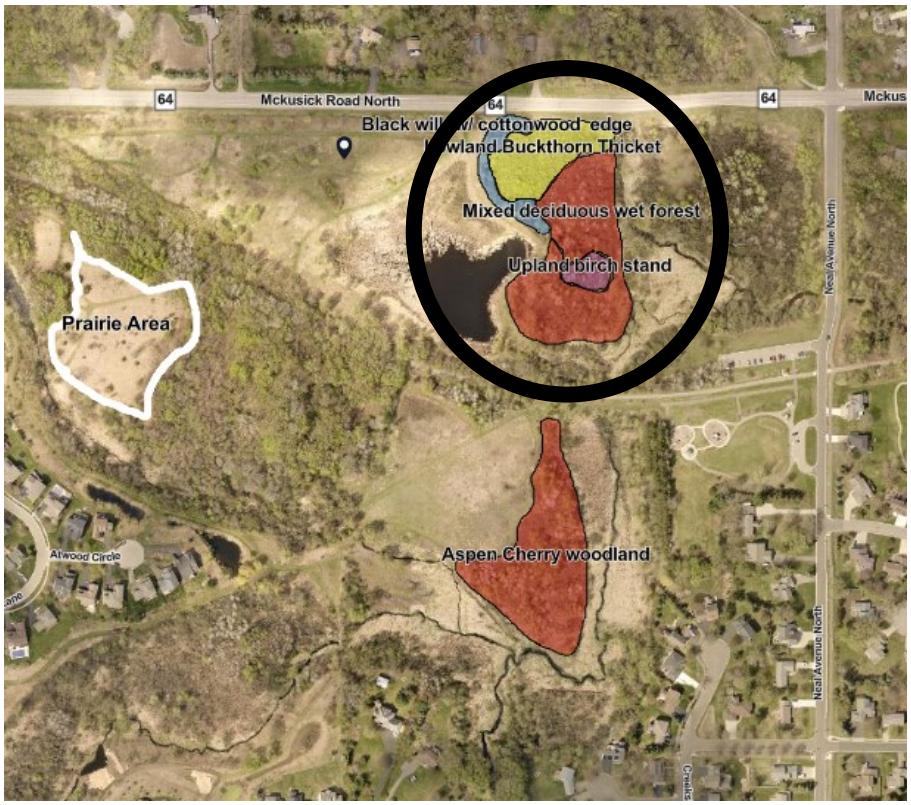
TO: Brown's Creek Watershed District Board
FROM: Karen Kill
RE: Brown's Creek Restoration Project
DATE: December 10, 2024

Background

BCWD received a federal 319 grant for $320K requiring a $214K non-federal match. Due to lower than expected construction costs, the BCWD is approximately $20,000 under budget for the matching grant fund.

Issue

The city of Stillwater is interested in expanding the invasive species removals further to the west, but still within our grant work plan project area. This additional 5 acres of woodland habitat improvement would fully leverage the grant funds for eligible buffer improvement activities. City staff have received quotes just under $20,000. The plan would include winter forestry mowing of the dense common and glossy buckthorn under frozen conditions, while saving quality trees including cottonwood, aspen, birch, alder, elm, walnut, silver maple, and boxelder. The proposal includes two years of follow-up maintenance.



Recommendation

Provide staff direction to work with the city of Stillwater and legal counsel to bring a cooperative agreement to the January 2025 board meeting to complete this work under the BCWD federal 319 grant.

The Water Where We Live

A Collaborative Project between A House Unbuilt and Brown's Creek Watershed District

A 2023 Supreme Court decision revoked the Clean Water Act's power to protect approximately two-thirds of the nation's wetlands and millions of miles of rain-fed streams. Many states don't have their own legal protections for these waters. In states with strong laws, polluting industries are taking action to weaken them.

Through the work of watershed districts, conservation management, citizen advocacy, and creativity we can raise awareness about the public's role in maintaining clean water and how we pursue that at higher levels of municipal and state government. To that end, *The Water Where We Live*—a collaboration between A House Unbuilt and Brown's Creek Watershed District—will amplify the hidden stories living in our watershed as well as the ways we can protect the water that flows there.

Opening January 24, 2025, A House Unbuilt's Art + Water + Ecology Space (AWE) in Downtown Stillwater will host a unique exhibition featuring area artists. A selection of 5-10 works on paper will be created in response to stories and descriptions of the unique organisms living in the watershed, accompanied by a "first person" narrative of the organisms' experiences moving through Brown's Creek. Artists will receive a $100 stipend for their participation, and each artwork will be made into a postcard for distribution by the artists and BCWD. Future collaborations between the Watershed District and the artists as well as additional exhibition opportunities will be sought in respect to the project.

The AWE Space is approximately 500 square feet with two blank walls for display space. The artists' responses will be featured on one wall, and on the opposite wall, A House Unbuilt will feature blown up versions of Washington County Conservation District's Water Pollution 101 info cards featuring the impacts of bacteria, phosphorus, nitrogen, chloride, mercury, and sediment on our waterways and watersheds. Additionally, in the open area of the AWE Space, Artistic Director Victoria Bradford Styrbicki and other volunteers will host a "water bar," featuring a tasting of regional drinking water sources, as an activity to spur awareness of our impacts on our waterways.

According to a March 2024 GALLUP poll, pollution of drinking water tops environmental worries in the US. The National Wildlife Federation suggests our best approach as advocates of waterways is to advance a message of clean drinking water, which will simultaneously amplify the other concerns that people are apparently less worried about, such as pollution of waterbodies, contamination of soil and water by toxic waste, climate change, air pollution, loss of rain forests, and extinction of plants and animals. Through this immersive installation and project collaboration, we can have an impact on clean water in our community, raising awareness and changing behavior.

The Opening Reception showcasing the artworks on January 24, 2025, 4-7pm will also feature Angie Hong as a guest speaker, highlighting her new book *Exploring the St. Croix River Valley: Adventures on and off the Water*. The exhibit will be on display for a 3-month period in the AWE Space: January 24 – April 18, 2025, Monday-Friday, 10am-3:30pm and by appointment. As mentioned before, together in partnership with BCWD leadership, we will seek out future exhibition opportunities for this project, solicit groups to tour the space, and explore other applications for these creative materials within the Watershed.

Attachments:
The Water Where We Live Budget.xlsx
WaterPollution101_Toolkit_impairments-20200203_RGBforPartners.pdf

Project Budget—The Water Where We Live

EXPENSES	Description	Budget	Actuals	Date
Opening reception	Refreshments (compostable cups, plates, napkins, light snakcs—linens/tables provided by venue)	$100.00		
Info card panels	Large format printing	$500.00		
Postcards	5,000 postcards, 10 designs featuring each artwork—each artist receives 300 postcards, BCWD receives 1,500 cards, AHU receives 500 cards	$600.00		
Installation supplies	Materials to hang artworks, posters	$150.00		
Artists fees	Fees for artists to create new works on paper in response to BCWD stories ($100 per participating artist)	$1,000.00		
Artistic Director Fee	$100/wk for 12 weeks of exhibition to manage space/tours/inquiries/visitors throughout project + $300 for creative time and labor to facilitate artists, design and fabricate exhibition)	$1,500.00		
TOTAL		**$3,850.00**		

Pollutants & Stressors

Impairments IMPACT our waters and our lives


Ecology


Recreation


Health


Economy

Impacts: Ecology, Human Health & Recreation

Bacteria

www.pca.state.mn.us/water/bacteria

Impacts: Ecology & Recreation

Phosphorus

www.pca.state.mn.us/water/phosphorus

Impacts: Ecology & Human Health

Nitrogen

www.pca.state.mn.us/water/nitrogen

Impacts: Ecology & Economy

Chloride (salts)

www.pca.state.mn.us/water/chloride-salts

Impacts: Ecology & Human Health

Mercury

www.pca.state.mn.us/water/mercury

Impacts: Ecology & Economy

Sediment

www.pca.state.mn.us/water/sediment

MINNESOTA POLLUTION CONTROL AGENCY

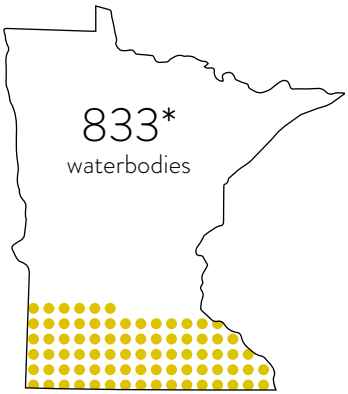
Bacteria

IMPACTS:
Ecology, Human Health & Recreation

WATER QUALITY STATS

833 water bodies in Minnesota are impaired by E. coli & fecal coliform. (MPCA 2020)

Bacteria make up 14% of all water quality impairments in Minnesota.



* 1 dot represents 10 waterbodies

BACTERIA are part of nature. They help dead plants and animals to decompose and are usually safe for people and animals. When we find E. coli & fecal coliform in our lakes and streams, however, it is a sign that feces and harmful diseases could be in the water. Common sources of fecal waste include failing septic systems, wastewater treatment plants, and manure from livestock. Urban stormwater also carries feces from dogs, geese and other animals.

Avoid swimming or playing in lakes and streams with bacteria impairments and stay out of the water in ANY lake, river or stream for 2 days after a heavy rain. Young children and the elderly are most at risk of getting sick and can experience diarrhea, nausea, jaundice, headaches, and fatigue.

COMMON SOURCES

SUMMARY

Finding E. coli & fecal coliform in lakes and streams indicates that fecal waste and harmful diseases could be in the water.

Children and adults who swim or play in contaminated water could get sick if they get water in their mouths. Symptoms may include: diarrhea, nausea, jaundice, headaches, and fatigue. Young children and the elderly are most at risk.

WHAT YOU CAN DO

1. **Inspect your septic system** at least once every three years, pump as needed, and replace when needed.
2. **Avoid swimming or playing in lakes and streams with bacteria impairments**, and stay out of the water in any lake, river or stream for 2 days after a heavy rain.
3. **Pick-up and throw dog poop in the trash**, and don't feed ducks or geese.
4. **Work with your soil and water conservation district** to manage manure if you have farm animals.

MINNESOTA POLLUTION CONTROL AGENCY

Impacts: Ecology, Human Health & Recreation

Bacteria

www.pca.state.mn.us/water/bacteria

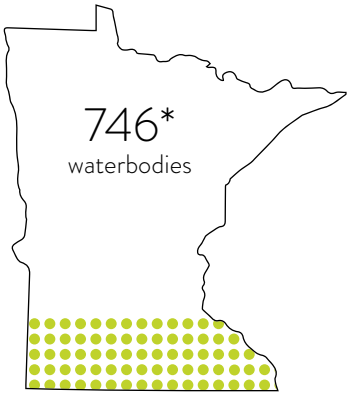
Phosphorus

IMPACTS:
Ecology & Recreation

WATER QUALITY STATS

746 water bodies in Minnesota impaired by nutrients. (MPCA 2020)

Phosphorous makes up 13% of all water quality impairments in Minnesota.

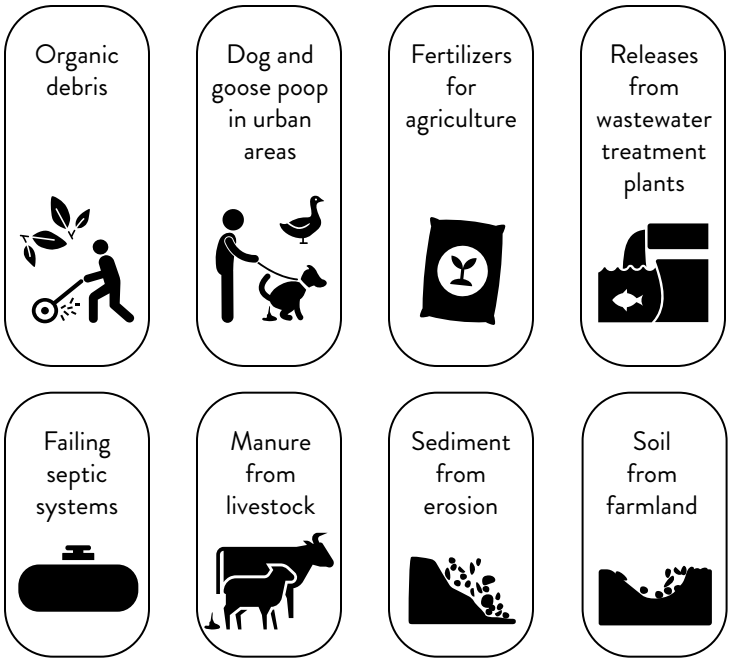


* 1 dot represents 10 waterbodies

PHOSPHORUS is a naturally occurring element found in leaves, grass clippings, soil and other organic matter. In the water, phosphorus feeds aquatic plants and algae. Too much algae makes the water green and smelly, keeps people from enjoying fishing, swimming, and boating. In some cases, algae can even create toxic conditions that are unsafe for children and pets.

Though aquatic plants need *some* phosphorus, stormwater pipes and ditches send much more than is needed into many of our waterways.

COMMON SOURCES



SUMMARY

Phosphorus is a naturally occurring element that feeds algae. Too much phosphorus can cause algae blooms that make the water green and smelly and can be harmful to people and animals.

WHAT YOU CAN DO

1. **Rake and sweep leaves, grass clippings and debris** off of the pavement and out of the street along your curb line.
2. Follow the law—**use zero-phosphorus fertilizer** on your lawn.
3. Plant a raingarden or convert some lawn to native plants. **Cover bare dirt and repair erosion.**
4. **Inspect your septic system** at least once every three years, pump as needed, and replace when failing.

MINNESOTA POLLUTION CONTROL AGENCY

Impacts: Ecology & Recreation

Phosphorus

www.pca.state.mn.us/water/phosphorus

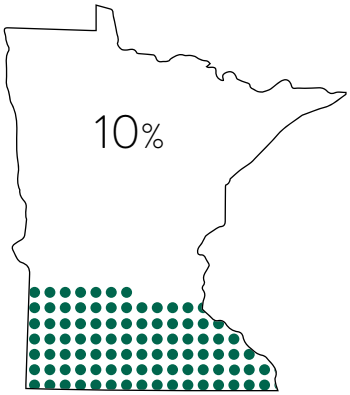
Nitrogen

IMPACTS:
Ecology & Human Health

WATER QUALITY STATS

5 rivers used for municipal drinking water supplies have too high of nitrates. (MPCA 2018)

In 113 townships, **10% or more of private wells** have too high of nitrates. (MDA 2018)



* In 113 townships, more than 10% of wells have too much nitrates

NITROGEN is a naturally occurring element found in soil, as well as manure, human sewage, and fertilizers. Nitrogen in the Mississippi River flows downstream to the Gulf of Mexico, causing a hypoxic "dead zone." It is harmful to fish and aquatic life in Minnesota lakes and streams, and can also make surface and groundwater unsafe to drink.

Studies show that nitrogen concentrations are increasing in both surface and groundwater in Minnesota. The majority – 72% - of this nitrogen comes from cropland. Smaller amounts come from wastewater treatment plants and septic systems. Urban stormwater is responsible for only 1% of all nitrate in Minnesota waters.

COMMON SOURCES

Failing septic systems

Releases from wastewater treatment plants

Manure from livestock

Fertilizers for agriculture

SUMMARY

Nitrogen is a naturally occurring element that feeds algae in saltwater systems. Nitrogen in the Mississippi River flows downstream to the Gulf of Mexico and feeds algae, causing a hypoxic "dead zone." Nitrogen also combines with oxygen to form nitrate, which can make water unsafe to drink. Many communities in southeastern, southwestern and central Minnesota have elevated nitrates in their groundwater.

WHAT YOU CAN DO

1. **Inspect your septic system** at least once every three years, pump as needed, and replace when failing.
2. **Use less nitrogen fertilizer**, especially in areas with sandy soils or karst geology.
3. Support programs that **encourage conservation farming.**
4. Work with your soil and water conservation district to **manage manure if you have farm animals.**

MINNESOTA POLLUTION CONTROL AGENCY

Impacts: Ecology & Human Health

Nitrogen

www.pca.state.mn.us/water/nitrogen

Chloride (salts)

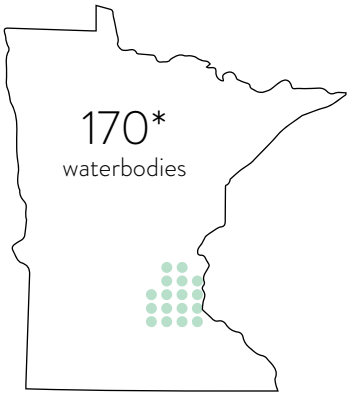
IMPACTS:
Ecology & Economy

WATER QUALITY STATS

50 lakes and streams in Minnesota are impaired by too much salt.

120 water bodies are threatened by salt.

30% of shallow groundwater wells in the Twin Cities metro area have elevated chlorides.



* 1 dot represents 10 waterbodies

SALTS are used to melt snow and ice during the winter, suppress dust on gravel roads, and soften water. But, salt has become a major source of water pollution in Minnesota – especially in the Twin Cities metro area.

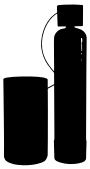
Salt kills fish and aquatic life, corrodes roads and bridges, and can even harm wildlife and our pets. We currently have no practical technology to remove salt from surface or groundwater once it is there. It takes only one teaspoon of salt to permanently pollute five gallons of freshwater.

COMMON SOURCES

Winter road & sidewalk salt and de-icers

Dust suppression for dirt and gravel roads

Water softeners



SUMMARY

Chloride (salt) is a major source of water pollution in Minnesota, especially in urban areas. Salt permanently pollutes surface water and groundwater and harms fish and wildlife.

WHAT YOU CAN DO

1. **Slow down.** Leave early, drive slower, and give plow trucks plenty of space to do their work.
2. **Be patient.** Just because you don't see salt on the road doesn't mean it hasn't been applied. Salt takes time to work.
3. **Shovel first.** Whether you use a shovel, snow blower, snow plow, or ice scraper, get out there as early as you can to shovel your driveway and sidewalk. The more you shovel, the less salt you'll need.
4. **Use salt wisely.** A 12 oz. mug of salt is enough for 10 sidewalk squares or a 20' driveway. Clean up leftover salt and sand to save and reuse. Salt does not melt ice when it is colder than 15° F. Wait until it warms up to avoid wasting money.

MINNESOTA POLLUTION CONTROL AGENCY

Impacts: Ecology & Economy

Chloride (salts)

www.pca.state.mn.us/water/chloride-salts

Mercury

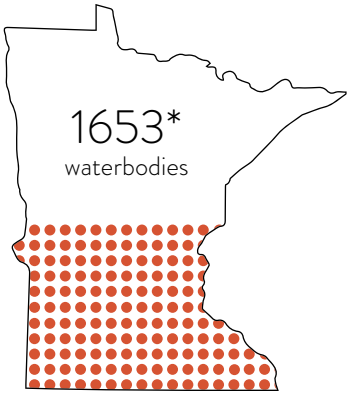
IMPACTS:
Ecology & Human Health

contact:
your city for mercury disposal information.

WATER QUALITY STATS

1653 lakes and rivers in Minnesota are impaired by too much mercury. (2020)

99% of the mercury in our lakes and rivers comes from the atmosphere.



* 1 dot represents 10 waterbodies

MERCURY is a naturally occurring element that is toxic to humans and animals. It affects human nervous systems, and is particularly harmful to young children and fetuses. Mercury is the most common pollutant in Minnesota's surface water.

Ninety-nine percent of the mercury in our lakes and rivers comes from atmospheric deposition. This happens when mercury is released into the atmosphere during industrial processes. The mercury eventually "falls out" of the air and onto the landscape. When it lands in lakes, the mercury ends up in the water and fish.

There are approximately 1653 water bodies in Minnesota with too much mercury (2020). As a result, the Minnesota Department of Health has issued fish consumption advisories for these lakes and rivers indicating that it may not be safe to eat fish from them more than one meal per week or once a month.

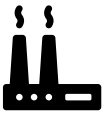
COMMON SOURCES

Atmospheric deposition from regional, national and global sources:

Iron-mining and production in Minnesota

Artisanal and small-scale gold mining

Coal-burning power plants



Industrial processes

Volcanoes

SUMMARY

Mercury is a naturally occurring element that is toxic to humans and animals. Mercury is the leading cause of surface water pollution in Minnesota. Nearly 100% of this mercury comes from atmospheric deposition.

WHAT YOU CAN DO

1. **Reduce electricity consumption.** Shut down your computer and monitor at night, switch to LED light bulbs, unplug idle electronics, and turn off the lights when you leave a room.

2. **Dispose of household hazardous waste properly.** The mercury in thermostats, thermometers, fluorescent lights, gauges, medical and scientific equipment, electrical devices, and household appliances must be removed for reuse or recycling before these products can safely be disposed of or scrapped.

MINNESOTA POLLUTION CONTROL AGENCY

Impacts: Ecology & Human Health

Mercury

www.pca.state.mn.us/water/mercury

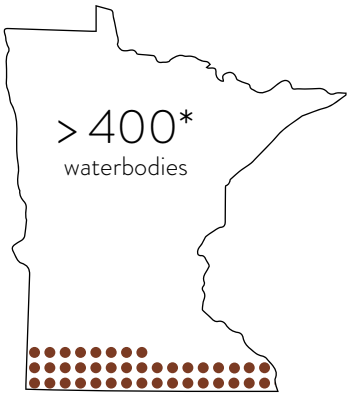
Sediment

IMPACTS:
Ecology & Economy

WATER QUALITY STATS

The Minnesota River needs a 90% reduction in sediment loading to meet water quality goals; the **South Metro Mississippi requires a 50% reduction.**

More than 400 water bodies are impaired by turbidity or total suspended solids (caused by sediment).



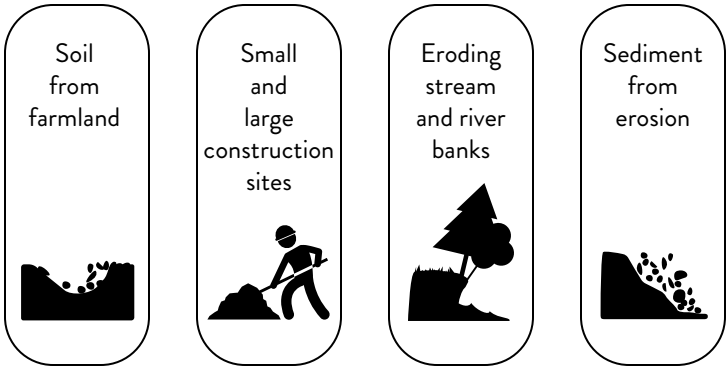
* 1 dot represents 10 waterbodies

SEDIMENT – soil, dirt, sand, and silt – is a normal part of nature. It becomes a problem for our lakes, rivers and streams when there is too much loose sediment in the water. Sediment can clog the gills of fish and aquatic animals, smother spawning sites, fill-in rivers and streams, and make the water cloudy and unsafe for swimming. In addition, sediment also carries phosphorus with it into our water.

One major source of sediment is erosion along stream and river banks, gullies, ravines, ditches, and river bottoms due to too much flowing water. The erosion is indirectly caused by storm sewer systems, ditches and drain tile, and other alterations that quickly carry rain and melting snow off the land and into our waterways.

Sediment is also washed off of construction sites, farm fields, and patches of bare soil.

COMMON SOURCES



SUMMARY

Sediment – soil, dirt, sand, and silt – washes into lakes, rivers, and streams as a result of erosion. It is a major cause of water pollution in the Minnesota and Mississippi Rivers.

WHAT YOU CAN DO

1. **Cover bare soil** on your property during landscaping and construction projects.
2. **Use erosion control fabric** to protect steep hills and shoreline areas while establishing new vegetation.
3. **Plant trees, shrubs, and deep-rooted native plants** along lakeshores and streambanks to prevent erosion.
4. **Plant a cover crop** after the corn and soybeans are harvested in the fall.

MINNESOTA POLLUTION CONTROL AGENCY

Impacts: Ecology & Economy

Sediment

www.pca.state.mn.us/water/sediment

Project Name |	Brown's Creek Watershed District Watershed Management Plan Update	**Date** |	12-06-2024
To / Contact info |	BCWD Board of Managers		
Cc / Contact info |	Karen Kill, BCWD Camilla Correll, EOR		
From / Contact info |	Alexander Furneaux, EOR		
Regarding |	Issue Update –Ecological Health, Wetland Management		

Background

To complete the Watershed Management Plan (WMP) Update, staff are reviewing Issues with watershed partners (Citizen Advisory Committee and Technical Advisory Committee), and reviewing plans and work completed over the past 10 years to identify updates to the Issues, Goals, and Implementation Actions that will guide the next 10 years of work. Since the last WMP Update to the Board in November 2024, the project team has advanced work in the following ways.

- Completion of the Wetland Inventory

Feedback received from the CAC and TAC on Ecological Health and Wetland Management issues were included in the November 2024 Board packet.

Submittal Materials / Instructions

As a reminder, we will be reviewing the following issue categories at the December Board meeting:

- Ecological Health
- Wetland Management

Attached to this memorandum, you will find the following materials which we are asking you to review in advance of next week's Board meeting:

1. **Ecological Health** (Track Changes version) – Review the *General Issue Statement, Relevance to the District, Sub-Issue Areas,* and *Policies and Goals*. *You may review the Implementation Items as well, however these will not be the focus of the conversation.*
2. **Wetland Management** (Track Changes version)– Same comments as above.
3. **Ecological Health** (Clean version)
4. **Wetland Management** (Clean version)

For next week's discussion, we are asking the Board if they are comfortable with the content developed to date. This content is still subject to change and may be modified based on what we learn over the coming months. We are looking for you to tell us if the changes made to the document are in line with what you think the BCWD should be doing for the next 10 years. With this in mind, please think about the following questions as you review each of these documents:

- **What do you like about this content?**
- **What concerns do you have with the content?**
- **What doesn't make sense? Where would you like more education on a topic or aspect of this issue?**

<u>Be prepared – We will ask you to answer these questions during our meeting.</u>

Areas of Board of Manager Decision

As stated above, the revised sections of the Plan are provided for initial review and reaction to understand whether new directions for these Issues align with the Board's comfort level. As the WMP Update progresses to review other Issues, interrelationships between Issues may result in changes to the Issues presented. The Board will have further opportunity to refine and sign-off on the characterization of these Issues.

We ask that the Board review the three Issue sections of Ecological Health and Wetland Management to provide input and direction on:

- General Issue Statement
- Relevance to the District
- Sub-Issue Areas
- Policies
- Goals

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3.5. Wetland Management

3.5.1. General Issue Statement

The District contains a diversity of wetland types of varied condition that perform essential functions and values. Although many wetlands are degraded, high-quality wetlands remain due to the many isolated basins and low-intensity development present in portions of the District. Several wetlands include unique plant communities to the metropolitan area located at the southern fringes of their known range (e.g. coniferous and open peatlands, soft water ponds). All of these wetlands are at risk of encroachment from various land uses to some degree. They are also at risk of degradation from land use practices that increase stormwater input and decrease groundwater contributions thereby decreasing wetland water quality, altering hydrologic patterns, and limiting wildlife habitat within and adjacent to wetlands.

3.5.2. Relevance to the District

The Brown's Creek watershed contains numerous wetlands that provide important functions such as filtering and treating runoff, storage and flood attenuation, groundwater recharge, thermoregulation, carbon sequestration, plant diversity, and wildlife, fisheries, and amphibian habitat. Many of the larger, open-water wetlands in the watershed have homes surrounding them and are valued as natural amenities similar to watershed lakes. Wetland quality is linked to the surrounding environment. Minimizinge the effect of land use changes (including changes in surficial and groundwater hydrology, topography, soils, and land cover) have the potential to maintain or improve the functions and values of a wetland.

To date, the BCWD has focused its management efforts on impacts related to land use changes in the watershed. Given the changes seen locally, nationally and world-wide, the BCWD is broadening its focus by considering impacts related to climate change (see Table X) and the benefits a healthy watershed provides to economic and social well-being (see Table X).

Table 2626. Related Climate Change Impacts

Impact	Description	Indicators
More Extreme Precipitation Events	Heavier precipitation during rainfall events	- Prolonged flooding can degrade wetlands by changing water chemistry, introducing pollutants, and causing vegetation die-offs. Wetland ecosystems are crucial for biodiversity, but too much water can turn them into lifeless zones, reducing their ability to support wildlife.
Drought	Extended period(s) of no or minimal precipitation impacting the supply of water	- Decreased water levels removes water from plant species accustomed to being fully or partially submerged resulting in plant die off - Plant die-off reduces habitat and ecosystem functions these plants provide for water filtration

Commented [AA64]: Indian Hills fen and Mendel Wetland - is there anything new we need to include to address these wetlands? Are there other resources we need to be more prescriptive about?

Commented [JM65R64]: I just discovered some high value wetlands during the ongoing wetland function and value assessment. Too early to prescribe anything specific but I wonder if we can reference outcomes of the function and value assessment in some way?

Commented [CC66]: Concern from Jay Riggs:
WCA has relaxed rules on banking location, no longer prioritization for local banks. Seeing wetlands being filled that are not being replaced locally. Right now people just build banks where ever cheapest. How can BCWD plan include policy/rules that incentive?

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Extreme Heat	Extreme heat increases evaporation rates, drying up water sources such as ponds, rivers, and wetlands.	- Decreased water levels removes water from plant species accustomed to being fully or partially submerged resulting in plant die off - Plant die-off reduces habitat and ecosystem functions these plants provide for water filtration
Warming winters and fewer days below freezing (32°F)	Higher evaporation Temperature regulation Oxygen levels Waterbody stratification	- Reduced oxygen measurements - Higher temperatures can drastically affect fish, amphibians, and invertebrates

Table 27. Wetland Management opportunities which intersect with DEI principles

Impact	Description of the Need	How Ecological Health can help
Health and Well-Being	Access to green spaces is associated with improved physical and mental health, yet disadvantaged communities often have less access to parks, forests, and natural spaces.	- Retrofitting spaces to include more greenspace that can contribute to indirect physical and mental health outcomes. - By restoring natural landscapes and promoting green infrastructure, the BCWD can improve the quality of air and water in surrounding areas and mitigate the Urban Heat Island effect, which directly impacts public health, particularly in communities that have been historically marginalized or overlooked.
Climate Resilience and Vulnerability	Climate change disproportionately affects marginalized communities, who are more vulnerable to extreme weather events, droughts, and flooding.	- Reducing communities' exposure to hazards such as flooding and pollution. - Carbon sequestration (i.e., by increasing tree canopy, native vegetation, etc.)

3.5.3. Sub-Issue Areas

Commented [AW67]: we are doing some coring to determine if there are any wetlands that act as sources of phosphorus as part of the diversion scope. Should that be a sub issue?

Wetland Functions and Values

The BCWD is committed to no net loss of wetland functions and values. The BCWD contains a variety of wetland systems that have the potential to be degraded by land ~~development~~ use activities~~y~~, agricultural practices, hobby farms, recreation, and the proliferation of Aquatic Invasive Species such as Common Reed (*Phragmites australis*), Purple Loosestrife (*Lythrum salicaria*), Reed Canary Grass (Phalaris arundinacea), and Hybrid Cattail (Typha x glauca-). For example, increased runoff may alter hydrology and water quality of a wetland with effects on capacity for water quality treatment and flood attenuation, as well as impact plant diversity/habitat quality by favoring invasive species. Altered hydrology can also affect functions such as thermoregulation and carbon sequestration. The BCWD needs to protect and enhance these resources' functions and values.

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Improving Understanding of Wetland Areas

Identification of wetland restoration, enhancement, and preservation opportunities require a more in-depth understanding of the specific functions and values these wetlands provide. Inventory work to-date provides an indication that the BCWD's wetlands possess unique plant communities and water chemistry that is unique to the metropolitan area. Further study would help benefit the BCWD's understanding of these resources and how best to prioritize future investments in restoration, enhancement and preservation projects.

3.5.4. Policies, Goals, and Implementation

The policies, goals, and implementation items related to these sub-issue areas are summarized in the following tables. The sub-issue area is identified in a heading, followed by a related policy. The goals addressing that policy are lettered and stated, followed by the implementation items for that goal. This format is intended to clearly display how each policy and goal will be addressed.

BCWD Wetland

Commented [AA68]: Jimmy - is restorable wetland area something we should be looking at? Would be a Board priority to go beyond ensuring no net loss, to incorporate a goal of restoring wetlands.

Commented [AA69R68]: Restoring wetland areas that will aid hydrology, carbon storage. Opportunities for biological restoration.

Commented [JM70R68]: threw some stuff at the wall here - not sure what board appetite is for some of these ideas nor if this is actually an issue statement. Would the issue statement be that the opportunities and goals of restoration/enhancement/protection are not well understood?

Commented [AA71R68]: Keeping Jimmy's previous text:

The BCWD should identify opportunities for wetland restoration, enhancement, and preservation that provide significant functional improvement or protection. Opportunities might include hydrologic restoration of drained agricultural wetlands, restoration of ditched wetlands (e.g. Mendel wetland restoration), or leveraging partnerships for protection/enhancement of high value plant communities such as identifying easement opportunities or cost-share programs for invasive species management.

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Table 282820. Wetland Management Policies, Goals, and Implementation Activities

SUB-ISSUE:	Wetland Functions and Values		
POLICY:	**The BCWD is committed to maintaining the functions and values of high quality wetlands and improving the functions and values of degraded and drained wetlands in the watershed.**		
GOALS		**IMPLEMENTATION ITEM**	
A	Ensure no net loss of wetland functions and values within BCWD.	**1**	Maintain the high-level functions and values of the District's fen through vegetation management to control the encroachment of invasive vegetation and through protection of the fen groundwater recharge area.
		2	Develop Pond Management Plans for the following large ponds within the District that have not previously been addressed: Pat Lake, Heifort Pond, Sinnits (Jackson WMA) Pond, Bass Lake West, Kismet Basin, July Avenue Pond, Brewers Pond. Plans would include strategies to reduce watershed nutrient loading and internal phosphorus loading. Maintain or improve water quality within the large, open-water wetlands within the watershed to reduce nuisance level algae blooms and preserve healthy aquatic plant communities.
		3	Monitor and mitigation potential source points of nutrient loading from aging septic system infrastructure on shoreline properties.
		4	Modify the Rules to require high replacement ratios for high quality wetlands within the district
		5	Update the District rules to replace Minnesota Routine Assessment Menthod (MnRAM) with the Wetland Assessment Tool (WAT) when finalized
		~~3~~ **6**	*Addressed through administration of the BCWD regulatory standards and criteria.*
B	Enhance the functions and values of the District's degraded wetlands	**1**	Restore wetland on Mendel Road tributary.
		2	Conduct restoration and enhancement of high priority wetlands
C	Continue to support the Wetland Conservation Act (WCA)	**1**	Continue to serve on the Technical Evaluation Panel for WCA.
D	~~Increase~~ Protect the quantity and quality of buffers around the wetlands in the District.	**1**	Develop GIS database of recorded buffers (through permitting program) and monitor extent and condition of buffers.
		2	Improve the quality of buffers identified as poor quality in the District's Wetland Inventory.
		3	*Addressed through administration of the BCWD regulatory standards and criteria.*
E	Contain and reduce the spread of Aquatic Invasive Species (AIS)	**1**	Collaborate with partners on AIS management
SUB-ISSUE:	**Improving Understanding of Wetland Areas**		
POLICY:	The BCWD is committed to furthering its understanding of its wetland resources utilizing the most current methodology for function and value assessment and current research		
GOALS		**IMPLEMENTATION ITEM**	
A	Improve the Districts understanding of its wetland resources	**1**	Conduct annual assessments of a subset of district wetlands to improve accuracy of the extrapolated wetland classification from the 2024 Function Value Inventory Reclassification
		2	Conduct further investigations on the soft water characteristics of the Districts wetland resources

Commented [CC72]: From LSCR1W1P:
1A. Protect high quality wetlands by maintaining wetland functions and values
1B. Protect wetlands from drainage
1C. Limit the spread of invasive phragmites (Common Reed)
2B. Increase wetland acreage in basin through creation and restoration

Commented [JM73R72]: There is lots of work going into Phragmites management by UMN. There is not much mapped in BCWD right now and what's near appears to have been treated by UMN. However there are lots of populations in southern Chisago Co and if we want to incorporate a goal related to this we could do so.

Commented [CC74]: Implementation:
Jay recommends "Find the closest available bank that drains to the same major basin (i.e. St Croix)"
-Creates incentive locally to create wetland banks-

Examples from Jay –
Ramsey Washington Metro WD - too strict, requires 50% replacement from bank within the watershed, but very few banks or banking opportunities within their urban setting. BWSR unsupportive of onsite wetland mitigation because often leads to poor quality, disconnected wetlands (I have heard BCWD President Klay Eckles express similar concerns in the past)
CMSCWD – might be good fit, recalls having some sequencing language regarding bank usage instructing

Commented [JM75R74]: Some othere examples: NMCWD has their own ratios for replacement wetlands that incentivize local credits. However, NMCWD is also the WCA LGU within their watershed and I'm not sure if that authority would be required for such a rule. But if CMSCWD can do it I think BCWD could too? Not sure if this would require some authorization from Jay/BWSR. It looks like CMSCWD is pretty restrictive and states it must be within the WD. I think Jay's suggestion of Lower St. Croix is pretty good, and you could keep a lower credit ratio for within BCWD that might incentivize bankers to develop close by.

Rice Creek Watershed has as a Comprehensive Wetland Protection and Management Plan (CWPMP). A CWPMP is a customized plan under WCA that meets state standards in the context of locally identified goals for banking - I'm not that familiar with it but I think it allows some more flexibility than would otherwise be provided under WCA. This could be an option, but I think is an instrument ...

Commented [MM76]: perhaps add an item to protect flow-through wetlands from channel incision and subsequent lowering of wetland hydrology (e.g., Long Lake trib headcut project- the wetland upstream is now degraded by channel incision just downstream of 80th St. Maybe not the best place for this but should be added somewhere.

Commented [CC77]: From LSCR1W1P: Identify wetland restoration opportunities and work with landowners (including institutions and public entities) to create or restore wetlands (including improvement of functions and values) and develop wetland banks.

Commented [JM78R77]: Some of my comments above apply. Does BCWD have scope to improve habitat/vegetation, or must there always be a WQ/flood component?

Commented [AA79]: TAC was interested in seeing BCWD assume some of the WCA responsibilities through permitting - incorporate here or in 3.10 Regulations?

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Wetland 'C' – Trout Habitat Protection Project

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Table 2923921. Projected Expenditures (in 1,000's) for Wetland Management Practices

Implementation Activities	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	10-Yr. Total
Maintain the high-level functions and values of the District's fen through vegetation management to control the encroachment of invasive vegetation on the wetland and through protection of the fen groundwater recharge area.	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	35
Develop Pond Management Plans for the following large ponds within the District that have not previously been addressed: Pat Lake, Heifort Pond, Sinnits (Jackson WMA) Pond, Bass Lake West, Kismet Basin, July Avenue Pond, Brewers Pond.	--	--	5	5	5	5	5	5	5	5	40
Conduct restoration and enhancement of high priority wetlands as identified in the Wetland Function and Value Assessment (2007).	--	--	--	--	50	--	--	--	--	--	50
Develop GIS database of recorded buffers (through permitting program) and monitor extent and condition of buffers.	--	--	3	--	0.5	--	0.5	--	0.5	--	4.5
Improve the quality of buffers in priority wetlands as identified in the District's Wetland Functions and Values Assessment.	--	--	10	--	--	10	--	--	10	--	30
Total for Wetland Management	**3.5**	**3.5**	**21.5**	**8.5**	**59**	**18.5**	**9**	**8.5**	**19**	**8.5**	**159.5**

Table 3039221. Wetland Management Implementation Activities from Table 20 addressed by Administrative and/or Project Development Program

Restore wetland on Mendel Road tributary.
Continue to serve on the Technical Evaluation Panel for WCA.

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3.8. Ecological Health

3.8.1. General Issue Statement

~~The ecological integrity of Brown's Creek and many watershed lakes, ponds and wetlands has degraded to a point where the resources are not providing their original level of function or value.~~ The restoration and protection of the District's surface water resources requires a healthy watershed where the natural cover supports hydrologic and geomorphic processes, habitat of sufficient size and quality to support native aquatic species and riparian species, and water quality that supports healthy biological communities. The BCWD shares discoveries of unique and sensitive plants and animals to increase awareness of the value of protecting healthy watersheds and improve understanding of management actions needed to avoid adverse impacts.

3.8.2. Relevance to the District

The BCWD is home to several unique ecosystems which provide habitat for rare and sensitive plant and animal communities. Given the rate at which land use changes have occurred in the eastern part of the Twin Cities Metropolitan Area, the watershed still has a number of high-quality resources which warrant protection.

To-date the BCWD has ~~-~~focused a significant amount of effort on the protection and restoration of Brown's Creek, a cold-water fishery located on the boundary of the Twin Cities Metropolitan Area. Given its designation as a cold-water fishery, Brown's Creek has been actively managed by the Minnesota DNR as a trout stream and a significant amount of attention has been given to the trout population of the creek. In addition to the trout, the Brown's Creek corridor supports a variety of unique and rare species such as Rainbow Darter (*Etheostoma caeruleum*), Blanding's Turtle (*Emydoidea blandingii*), and coldwater dependent macroinvertebrates~~is extremely unique: the creek is full of fish, frogs, turtles and macroinvertebrates.~~ ~~,~~ ~~and the~~The steep topography, geologic setting, and high quality vegetation of the Brown's Creek Gorge supports Walking Fern (*Asplenium rhizophyllum*), Butternut (*Juglans cinerea*), and foraging and nesting habitat for~~a variety of birds including rare species such as the~~ Louisiana Waterthrush (*Parkesia motacilla*).

More recently, the BCWD has been focusing on its lakes, ponds and wetlands. Lake management activities have resulted in the discovery of Snailseed Pondweed (*Potamogeton bicupulatus*), an endangered aquatic plant which indicates the need to better understand the water chemistry of these lakes and the management activities needed to sustain these sensitive species. Similarly, a wetland inventory conducted in 2024 resulted in the discovery of a Cranberry Bog (Northern Shrub Shore Fen) which is home to carnivorous round leaved sundew, bog cranberry, and a continuous carpet of sphagnum moss. The presence of these rare species is an indication of the watershed system's~~'s~~ health and ~~should be protected in the future. Environmental stressors such as invasive species and land use conversion threaten terrestrial and aquatic habitat resources.~~the need for protection by the BCWD as well as private landowners.

Commented [AA92]: Board to consider whether or not to change from "Ecological Health" to "Watershed Health"

Commented [AA93]: @Camilla Correll some minor adjustments to this portion, this was an area Karen was seeking general adjustments.

Commented [CC94R93]: @Alexander Furneaux I re-wrote this section. Please review and see if you think it reflects our conversation both with Jimmy and Karen.

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To date, the BCWD has focused its management efforts on impacts related to land use changes in the watershed. Given the changes seen locally, nationally and world-wide, the BCWD is broadening its focus by considering impacts related to climate change (see Table X) and the benefits a healthy watershed provides to economic and social well-being (see Table X).

Table 40. Impacts of climate change on Ecological Health

Impact	Description	Indicators
Extreme Heat	Extreme heat increases evaporation rates, drying up water sources such as ponds, rivers, and wetlands.	- Reduced reproductive success: Heat stress can lower reproductive success by reducing the fertility of animals or the survival rates of eggs and offspring. For example, heat waves can cause nest abandonment or reduce the hatching success of eggs in birds, reptiles, and amphibians. - Disruption of aquatic habitats: Reduced water levels in rivers, lakes, and streams can threaten fish and other aquatic organisms, as these species depend on specific water conditions for survival. Warmer water temperatures can also reduce dissolved oxygen levels, stressing or killing aquatic life. - Proliferation of invasive species: Some invasive species, including certain plants, insects, and animals, thrive in hotter conditions and may outcompete native species, altering ecosystems and threatening biodiversity. Invasive insects, such as bark beetles, have devastated forests weakened by heat stress.
Warming winters and fewer days below freezing (32°F)		- Increasing presence of species traditionally found further south while traditional northern species die out - Invasive Species Expansion: Fewer cold days can help invasive species, which are often better adapted to warmer conditions, survive and spread. This can have serious consequences for native wildlife by altering habitat structure and resource availability.~~Accelerated spread of invasive species~~ - Plants and insects that emerge earlier due to fewer cold days may not synchronize with the life cycles of their pollinators or herbivores. - Warmer winters with more frequent rain can cause increased soil erosion in upland areas,

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		leading to higher sediment loads in water bodies.
Extreme Precipitation	Washington County has and will continue to experience more wet conditions caused by increased precipitation. Precipitation increases are occurring in each season of the year, with the largest increases in spring and summer. Not only has precipitation increased, but the intensity and frequency of large events have also increased.	- Wetland areas or floodplains might become permanently submerged, reducing the amount of usable land for species like small mammals, ground-nesting birds, and reptiles. - Intense rainfall can cause soil erosion, particularly on slopes or deforested areas. Erosion leads to loss of plant cover, which is essential for shelter, food, and nesting for many animals. - Extreme rainfall can lead to streambank erosion, which destroys habitats for aquatic and semi-aquatic animals such as amphibians, fish, and birds. Fish spawning sites can be disrupted as sediment buries eggs or larvae. - Increased water flow in rivers and streams can wash away aquatic organisms, disrupt breeding areas, and destroy the structure of habitats. - Excessive sediment in water can cover the river or lakebed, smothering fish eggs, aquatic plants, and invertebrates that are crucial to the food chain. This degradation can reduce biodiversity and the health of aquatic ecosystems. - Extreme rainfall washes nutrients (like nitrogen and phosphorus from fertilizers) and pollutants (like pesticides, heavy metals, and waste) into water bodies. - Disturbed landscapes and flooded areas can become ideal for invasive species to spread, often outcompeting native plants. - Wildlife and plant species that require specific conditions (e.g., dry soil, stable habitats) may be outcompeted by more generalist species, leading to a decline in biodiversity.
Drought	Extended period(s) of no or minimal precipitation impacting the supply of water	- Habitat fragmentation: As animals move to find water, they may cross human-dominated landscapes, leading to more road crossings, vehicle collisions, and habitat fragmentation. - Aquatic ecosystems are especially vulnerable to drought. Reduced water levels and higher temperatures can drastically affect fish, amphibians, and invertebrates. - Drought weakens plant root systems, increasing soil erosion and leading to long-term vegetation loss. The loss of vegetation increases soil erosion, which can lead to the

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		degradation of habitats, particularly in areas prone to wind or water erosion. - Drought can lead to long-term shifts in species composition and biodiversity, favoring drought-tolerant species over more sensitive ones. - Soil degradation: Heat and drought can degrade soil health, leading to erosion, reduced fertility, and the loss of organisms that contribute to nutrient cycling. This can have long-term consequences for ecosystem productivity and resilience.

Table 41. Ecological Health opportunities which intersect with DEI principles

Impact	Description of the Need	How Ecological Health can help
Equitable access to clean water	A healthy watershed ensures that water is clean, reliable, and accessible to all communities, regardless of their socio-economic status, race, or geographic location.	- By maintaining clean lakes, ponds, wetlands, streams and groundwater the Brown's Creek watershed supports basic services that are critical to the well-being of all communities, particularly those that may not have the resources to combat pollution or environmental degradation.
Environmental Justice	Environmental justice seeks to address the unfair distribution of environmental benefits and burdens, particularly for communities that have been historically marginalized or overlooked.	- Healthy watershed management can prioritize including voices from marginalized communities, ensuring they have a say in decisions that affect their local environment. This leads to policies that reflect the needs of diverse communities and prevent further environmental inequities.
Inclusive Economic Benefits	Economic disparities are often tied to environmental degradation, with disadvantaged communities being most affected by poor watershed health. Inclusive watershed management can provide economic opportunities for all populations.	- Healthy watersheds contribute to healthier ecosystems that can support recreation, tourism, and other economic activities. - Ensuring that water quality improvement projects are implemented equitably and impacts to property values. - Investments in watershed restoration and maintenance can lead to the creation of sustainable jobs, from restoration work to green infrastructure development, benefiting local economies. These jobs should be accessible to underrepresented groups, creating pathways for economic inclusion.
Community Engagement and Empowerment	DEI in environmental planning requires inclusive processes where diverse communities have the opportunity to participate in the design and implementation of watershed management efforts.	- Healthy watershed initiatives can actively engage community members from diverse backgrounds in decision-making, planning, and restoration activities. This includes reaching out to underrepresented groups, hosting culturally relevant events, and providing education in

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		multiple languages to ensure that all voices are heard. - Communities that are engaged in watershed health are empowered to take ownership of their local environment. Supporting leadership opportunities within minority and underserved groups ensures that they are involved in the long-term sustainability of their water resources.
Climate Resilience and Vulnerability	Climate change disproportionately affects marginalized communities, who are more vulnerable to extreme weather events, droughts, and flooding—all of which are linked to watershed health.	- Healthy watersheds act as natural buffers against the impacts of climate change by regulating water flow, preventing flooding, and maintaining groundwater supplies. Ensuring that these benefits are distributed equitably can help vulnerable communities better withstand the impacts of climate change. - Watershed management plans can focus on areas where communities face the highest risk of climate impacts. By prioritizing these areas, managers can ensure that historically marginalized communities are not left more vulnerable to environmental disasters.
Cultural and Recreational Inclusion	Diverse cultural and recreational needs must be considered in the management of water resources, ensuring that all communities have access to natural spaces that support their well-being and traditions.	- Many Indigenous communities and other ethnic groups have deep cultural ties to water bodies and natural ecosystems. A healthy watershed protects these areas, preserving important cultural and spiritual sites. - Healthy watersheds support outdoor recreational activities such as fishing, swimming, and hiking, which should be accessible to all communities. Watershed management can ensure that parks, lakes, and rivers are open and safe for use by all demographic groups, promoting inclusivity in nature-based recreation.
Education and Outreach	Promoting awareness of water issues and stewardship opportunities must reach diverse audiences to build a more inclusive environmental movement.	- Watershed programs can include targeted education efforts that reach diverse communities, particularly those historically excluded from environmental education. Programs in schools, community centers, and local organizations can raise awareness about the importance of water conservation and offer opportunities for all groups to engage in watershed protection. - Ensuring that educational materials and outreach efforts are available in multiple languages and are culturally relevant is critical for engaging diverse communities in watershed health. This fosters a sense of

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		inclusivity and participation in water resource management.

3.8.3. Sub-Issue Areas

Degraded Fisheries

A healthy fish community is an indicator of resource health, and also an important component to maintaining a ~~high quality~~high-quality aquatic resource. Environmental stressors continue to threaten the integrity of the watershed's fish-supporting resources. These stressors can include metals, nutrients, sediment, temperature, and Aquatic Invasive Species (AIS).

~~Maintain Ecological Health~~ / Protect and Restore the Function ~~that~~of Upland Areas ~~Provide~~

The BCWD is home to several plant and animal species that are sensitive and valuable from an ecological standpoint. ~~which~~These plant and animal species are indicators of a healthy watershed which is a reflection of the land use in the rural portions of the watershed, resulting in more intact upland areas. The BCWD intends to protect and enhance these ~~waterbodies~~upland areas in order to maximize the ecosystem services (i.e., soil health improvements, filtration, groundwater recharge, wildlife habitat, rate control) provided by this part of the landscape.

Invasive Species

Invasive species continue to spread throughout the region. Some invasive species pose direct risks to water resources within lakes and wetlands, while others pose indirect impacts in upland areas where they impact land cover and soil health. For example, Common buckthorn (*Rhamunus cathartica*) ~~-~~negatively impacts the understory which results in soil erosion and ~~soils resulting in~~ increased nutrient and sediment ~~runoff~~loads to downstream resources. Managing species that negatively impact the water resources plays an important role in maintaining the ecological integrity of the watershed.

Commented [CC95]: @Alexander Furneaux I modified this section as well.

Commented [AA96]: @Camilla Correll moved away from the AIS and TIS distinction to just discuss invasive species in the context of whether they are found within the water resource or in the upland area.

Commented [CC97R96]: @Alexander Furneaux Looks great!

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3.8.4. Policies, Goals, and Implementation

The policies, goals, and implementation items related to these sub-issue areas are summarized in the following tables. The sub-issue area is identified in a heading, followed by a related policy. The goals addressing that policy are lettered and stated, followed by the implementation items for that goal. This format is intended to clearly display how each policy and goal will be addressed.

Table 424230. Ecological Health Policies, Goals, and Implementation Activities

SUB-ISSUE:	**Degraded fisheries**		
POLICY:	**BCWD aims to support a robust and healthy fishery as a vital component to ecological health.**		
GOALS		**IMPLEMENTATION ITEM**	
A	Promote healthy and diverse fish communities represented by species representative of the MNDNR lake or stream classifications	**1**	Conduct additional sampling on Brown's Creek to determine the population status and distribution of the Rainbow darter in the gorge.
		2	Conduct fish barrier assessment to determine potential for fish passage through 95 / 96 box culverts in 2016, then determine fish passage through remaining road crossings to Manning avenue if no barrier present in the gorge.
		3	Work with the DNR to develop a fish stocking plan
		4	Work with community groups (e.g. Stillwater High School and Trout Unlimited) to develop fish rearing plans
B	TSS loads within the contributing drainage area need to be reduced by 74% on average in order to meet these loading limits. (Brown's Creek TMDL Implementation Plan, EOR, 2012)	**1**	Annually analyze progress toward the TSS reduction goal based on evaluation of the collected monitoring data (conducted as part of the baseline monitoring program).
		2	**SEE IMPLEMENTATION ACTIVITIES IDENTIFIED UNDER BROWN'S CREEK MANAGEMENT PLAN (TABLE 61)**
C	Restore impaired lakes so that they meet state standards for total phosphorous, chlorophyll A concentration and Secchi depth.	**1**	**SEE IMPLEMENTATION ACTIVITIES IDENTIFIED UNDER LAKE MANAGEMENT PLAN (TABLE 62)**
D	Achieve the TP Load Reduction goal of 148 lbs. established at the Diversion Structure as identified in the McKusick Lake and Lily Lake Management Plans.	**1**	Re-assess water quality data collected in contributing drainage area to Diversion Structure to evaluate pollutant loading and identify sources.
E	Identify and preserve important aquatic wildlife habitat and fish spawning areas	**1**	Continue surveys for mussels in the lower gorge, particularly upstream of the 2015 unique Species Inventory survey area. Many riffles in the lower gorge have not been surveyed.
		2	Compile a herptile record database developed from available records and initiate citizen volunteer Amphibian and Reptile Survey.
			Removal of fish barriers?
			Creation of fish refugia?
SUB-ISSUE:	**Protect and Restore the Function of Upland Areas~~Maintain Ecological Health~~**		
POLICY:	**The BCWD is committed to maintaining the ecological integrity and connectivity of intact ecosystems.**		
GOALS		**IMPLEMENTATION ITEM**	

Commented [AA98]: Mike M - Have we resolved all of these/are any remaining that can feasibly be addressed?

Commented [CC99]: Washington County Natural Resource Systems Framework:
Preserve, conserve, and restore natural resources by implementing sustainable practices that promote biodiversity and healthy ecosystems.

Commented [CC100R99]: @Alexander Furneaux I move this goal to the table as an alternative (more appropriate) Goal for A.

Click here to enter text.

~~B~~ A	~~Achieve a healthy and diverse community of native plants and animals (City of Stillwater Lake Management Plans, Wenck Associates INC, 2007)~~ ~~OR~~ Preserve, conserve, and restore natural resources by implementing sustainable practices that promote biodiversity and healthy ecosystems (Washington County Natural Resource Systems Framework).	1	Implement native plant community preservation and restoration projects utilizing the District's land protection priorities.
		2	Enhance the management of the BCWD's ecosystem services by implementing pollinator conservation strategies (e.g. recognize and support exemplar projects which restore and enhance habitat for pollinator species, work with road authorities to control invasives and promote establishment of pollinator species, work with county and municipalities to develop mowing plan and schedule that is more conducive to stormwater management and pollinator species)
		3	Work with the City of Stillwater and area residents to conduct on-going monitoring of the oak forest found on the west side of Long Lake (identified as a Rare Feature) to evaluate its quality, and if any management activities are needed to ensure its sustainability.
		~~14~~	Improve ecosystem services by creating a program that focuses on restoring forests, wetlands, and grasslands to help reduce the impacts of climate change, such as flooding, heat islands, and soil erosion.
		5	Work with municipalities to establish tree preservation goals and requirements.
		6	Work with landowners to diversify their woodlands through forest management plans
B	Turf to native plant conversion goal. Enhancing ecosystem services of the landscape. Greater native/natural space vegetation requirement. More resilient landscape for wet/dry conditions.	1	Identify target area and criteria for priority habitat conversion areas.
		2	Consider rule change to allow credits for turf conversion
		3	Implement through the cost-share program
		4	EMWREP education and outreach
SUB-ISSUE:			
POLICY:	**The District takes an active role in preventing the spread of invasive species through education, partnerships, monitoring, and invasive species management projects.**		
GOALS		**IMPLEMENTATION ITEM**	
A	Initiate and support aquatic invasive species (AIS) management projects on private and public lands where connected to water quality management	1	Continue to monitor aquatic invasive species and implement controls when it's determined to be a water quality issue.
		2	Record the location of ~~terrestrial exotic and~~ invasive species and implement control measures if it's determined to have water quality impacts or threats to native plant communities.
		3	Address aquatic invasive species management by providing education and outreach to residents and individuals recreating in the watershed.
		4	Utilize the cost-share program to assist with invasive species management where there is a water quality benefit and/or co-benefit towards other beneficial goals.~~.~~
		5	Support initiatives by the County and other regional partners on AIS management.

Commented [AA101]: Mike - bullfrog sighting, people releasing their pets and then they thrive? How does that fit in?

Ask Board if they want it in there as a specific item.

Commented [MM102R101]: Education & Outreach, especially where sightings have occurred. Have something on their website too.

Click here to enter text.

		6	Education and outreach regarding bait disposal and pet release.
B	Initiate and support terrestrial invasive species management projects on private and public lands where connected to water quality management	1	Conduct on-going vegetation surveys (every five years) to evaluate community quality and invasive species to provide a more robust dataset that can be used to evaluate trends in plant community composition. A minimum of 5 wetland and 5 upland plots should be established for long-term monitoring.
		2	Provide public and private landowners with tools and resources needed to manage existing habitat, improve species diversity, and protect against invasive species, erosion, and overuse (LSCR1W1P).

[Turf to native plant conversion image]

Commented [CC103]: From LSCR1W1P:
2C. Provide public and private landowners with tools and resources needed to manage existing habitat, improve species diversity, and protect against invasive species, erosion, and overuse

Commented [AA104R103]: Could be an implementation activity?

Commented [CC105R103]: @Alexander Furneaux I moved this into the table as an implementation activity for the Board's consideration.

Click here to enter text.

Table 434331. Projected Expenditures (in 1,000's) for Ecological Health

Implementation Activities	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	10-Yr. Total
Conduct additional sampling on Brown's Creek to determine the population status and distribution of the Rainbow darter in the gorge.	2	--	--	--	2	--	--	--	2	--	6
Continue surveys for mussels in the lower gorge, particularly upstream of the 2015 unique Species Inventory survey area. Many riffles in the lower gorge have not been surveyed.	--	--	2.5	--	--	--	--	--	--	2.5	5
Compile a herptile record database developed from available records and initiate citizen volunteer Amphibian and Reptile Survey.	--	--	--	3.5	--	--	--	--	--	--	3.5
Implement native plant community preservation and restoration projects utilizing District's land protection priorities.	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	5
Enhance management of BCWD's ecosystem services by implementing pollinator conservation strategies.	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	5
Continue to monitor aquatic invasive species & implement controls when it's determined to be a water quality issue.	--	--	1	1	1	1	1	1	1	1	8
Record the location of terrestrial exotic and invasive species and implement control measures if it's determined to have water quality impacts.	--	--	1	1	1	1	1	1	1	1	8
Conduct on-going vegetation surveys (every five years) to evaluate community quality and invasive species to provide a more robust dataset that can be used to evaluate trends in plant community composition: min. of 5 wetland and 5 upland plots should be established for long-term monitoring.	--	--	10	--	--	--	--	5	--	--	15
Total for Ecological Health	**3**	**1**	**15.5**	**6.5**	**5**	**3**	**3**	**8**	**3**	**7.5**	**55.5**

Click here to enter text.

Table 444432. Ecological Health Implementation Activities from Table 30 addressed by East Metro Water Resource Education Program

Address AIS management by providing education and outreach to individuals recreating in the watershed.

Table 454533. Ecological Health Implementation Activities from Table 30 where implementation costs covered under another Issue Category

Implementation Activity	Issue Category where implementation cost is identified (Table #)
Utilize the District's cost-share program to assist in the implementation of Lake Management Plans through best management practice installation by citizens - Cost identified in Implementation Activity X under Stormwater Management.	Stormwater Management (Table 5)
Re-assess water quality data collected in contributing drainage area to Diversion Structure to evaluate pollutant loading and identify sources.	Stormwater Management (Table 5)
Promote stormwater reuse by working with local businesses, local units of government and Washington County to incorporate BMPs into new development or redevelopment projects.	Stormwater Management (Table 5)
Conduct fish barrier assessment to determine potential for fish passage through 95 / 96 box culverts in 2016, then determine fish passage through remaining road crossings to Manning avenue if no barrier present in the gorge.	Stream Management (Table 13)
Annually analyze progress toward the TSS reduction goal based on evaluation of the collected monitoring data (conducted as part of the baseline monitoring program).	Stream Management (Table 13)
Utilize the cost-share program to assist with invasive species management where there is a water quality benefit.	Stormwater Management (Table 5)

Commented [MM106]: 95/96 box culvert has now been determined to be a seasonal barrier for AOP but fish can move through during flooding events on the St. Croix. There is a potential natural bedrock barrier in the Gorge (velocity barrier?) that might prevent fish from migrating above the Gorge. The Neal Ave box culvert and McKusick culvert barriers were addressed as part of the Brown's Creek Restoration project in 2024). Fish barrier assessment still needed for a few areas within Oak Glen GC and Millbrook where a large beaver dam now exists.

Thermal Measuring of Brown's Creek

3.5. Wetland Management

3.5.1. General Issue Statement

The District contains a diversity of wetland types of varied condition that perform essential functions and values. Although many wetlands are degraded, high-quality wetlands remain due to the many isolated basins and low-intensity development present in portions of the District. Several wetlands include unique plant communities to the metropolitan area located at the southern fringes of their known range (e.g. coniferous and open peatlands, soft water ponds). All of these wetlands are at risk of encroachment from various land uses to some degree. They are also at risk of degradation from land use practices that increase stormwater input and decrease groundwater contributions thereby decreasing wetland water quality, altering hydrologic patterns, and limiting wildlife habitat within and adjacent to wetlands.

3.5.2. Relevance to the District

The Brown's Creek watershed contains numerous wetlands that provide important functions such as filtering and treating runoff, storage and flood attenuation, groundwater recharge, thermoregulation, carbon sequestration, plant diversity, and wildlife, fisheries, and amphibian habitat. Many of the larger, open-water wetlands in the watershed have homes surrounding them and are valued as natural amenities similar to watershed lakes. Wetland quality is linked to the surrounding environment. Minimizing the effect of land use changes (including changes in surficial and groundwater hydrology, topography, soils, and land cover) have the potential to maintain or improve the functions and values of a wetland.

To date, the BCWD has focused its management efforts on impacts related to land use changes in the watershed. Given the changes seen locally, nationally and world-wide, the BCWD is broadening its focus by considering impacts related to climate change (see Table X) and the benefits a healthy watershed provides to economic and social well-being (see Table X).

Table 26. Related Climate Change Impacts

Impact	Description	Indicators
More Extreme Precipitation Events	Heavier precipitation during rainfall events	- Prolonged flooding can degrade wetlands by changing water chemistry, introducing pollutants, and causing vegetation die-offs. Wetland ecosystems are crucial for biodiversity, but too much water can turn them into lifeless zones, reducing their ability to support wildlife.
Drought	Extended period(s) of no or minimal precipitation impacting the supply of water	- Decreased water levels removes water from plant species accustomed to being fully or partially submerged resulting in plant die off - Plant die-off reduces habitat and ecosystem functions these plants provide for water filtration

Extreme Heat	Extreme heat increases evaporation rates, drying up water sources such as ponds, rivers, and wetlands.	- Decreased water levels removes water from plant species accustomed to being fully or partially submerged resulting in plant die off - Plant die-off reduces habitat and ecosystem functions these plants provide for water filtration
Warming winters and fewer days below freezing (32°F)	Higher evaporation Temperature regulation Oxygen levels Waterbody stratification	- Reduced oxygen measurements - Higher temperatures can drastically affect fish, amphibians, and invertebrates

Table 27. Wetland Management opportunities which intersect with DEI principles

Impact	Description of the Need	How Ecological Health can help
Health and Well-Being	Access to green spaces is associated with improved physical and mental health, yet disadvantaged communities often have less access to parks, forests, and natural spaces.	- Retrofitting spaces to include more greenspace that can contribute to indirect physical and mental health outcomes. - By restoring natural landscapes and promoting green infrastructure, the BCWD can improve the quality of air and water in surrounding areas and mitigate the Urban Heat Island effect, which directly impacts public health, particularly in communities that have been historically marginalized or overlooked.
Climate Resilience and Vulnerability	Climate change disproportionately affects marginalized communities, who are more vulnerable to extreme weather events, droughts, and flooding.	- Reducing communities' exposure to hazards such as flooding and pollution. - Carbon sequestration (i.e., by increasing tree canopy, native vegetation, etc.)

3.5.3. Sub-Issue Areas

Wetland Functions and Values

The BCWD is committed to no net loss of wetland functions and values. The BCWD contains a variety of wetland systems that have the potential to be degraded by land use activities, agricultural practices, hobby farms, recreation, and the proliferation of Aquatic Invasive Species such as Common Reed (*Phragmites australis*), Purple Loosestrife (*Lythrum salicaria*), Reed Canary Grass (Phalaris arundinacea), and Hybrid Cattail (Typha x glauca). For example, increased runoff may alter hydrology and water quality of a wetland with effects on capacity for water quality treatment and flood attenuation, as well as impact plant diversity/habitat quality by favoring invasive species. Altered hydrology can also affect functions such as thermoregulation and carbon sequestration. The BCWD needs to protect and enhance these resources' functions and values.

Improving Understanding of Wetland Areas

Identification of wetland restoration, enhancement, and preservation opportunities require a more in-depth understanding of the specific functions and values these wetlands provide. Inventory work to-date provides an indication that the BCWD's wetlands possess unique plant communities and water chemistry that is unique to the metropolitan area. Further study would help benefit the BCWD's understanding of these resources and how best to prioritize future investments in restoration, enhancement and preservation projects.

3.5.4. Policies, Goals, and Implementation

The policies, goals, and implementation items related to these sub-issue areas are summarized in the following tables. The sub-issue area is identified in a heading, followed by a related policy. The goals addressing that policy are lettered and stated, followed by the implementation items for that goal. This format is intended to clearly display how each policy and goal will be addressed.

BCWD Wetland

Table 28. Wetland Management Policies, Goals, and Implementation Activities

SUB-ISSUE:	**Wetland Functions and Values**		
POLICY:	**The BCWD is committed to maintaining the functions and values of high quality wetlands and improving the functions and values of degraded and drained wetlands in the watershed.**		
GOALS		**IMPLEMENTATION ITEM**	
A	Ensure no net loss of wetland functions and values within BCWD.	**1**	Maintain the high-level functions and values of the District's fen through vegetation management to control the encroachment of invasive vegetation and through protection of the fen groundwater recharge area.
		2	Develop Pond Management Plans for the following large ponds within the District that have not previously been addressed: Pat Lake, Heifort Pond, Sinnits (Jackson WMA) Pond, Bass Lake West, Kismet Basin, July Avenue Pond, Brewers Pond. Plans would include strategies to reduce watershed nutrient loading and internal phosphorus loading. Maintain or improve water quality within the large, open-water wetlands within the watershed to reduce nuisance level algae blooms and preserve healthy aquatic plant communities.
		3	Monitor and mitigation potential source points of nutrient loading from aging septic system infrastructure on shoreline properties.
		4	Modify the Rules to require high replacement ratios for high quality wetlands within the district
		5	Update the District rules to replace Minnesota Routine Assessment Menthod (MnRAM) with the Wetland Assessment Tool (WAT) when finalized
		6	*Addressed through administration of the BCWD regulatory standards and criteria.*
B	Enhance the functions and values of the District's degraded wetlands	**1**	Restore wetland on Mendel Road tributary.
		2	Conduct restoration and enhancement of high priority wetlands
C	Continue to support the Wetland Conservation Act (WCA)	**1**	Continue to serve on the Technical Evaluation Panel for WCA.
D	Protect the quantity and quality of buffers around the wetlands in the District.	**1**	Develop GIS database of recorded buffers (through permitting program) and monitor extent and condition of buffers.
		2	Improve the quality of buffers identified as poor quality in the District's Wetland Inventory.
		3	*Addressed through administration of the BCWD regulatory standards and criteria.*
E	Contain and reduce the spread of Aquatic Invasive Species (AIS)	**1**	Collaborate with partners on AIS management
SUB-ISSUE:	**Improving Understanding of Wetland Areas**		
POLICY:	The BCWD is committed to furthering its understanding of its wetland resources utilizing the most current methodology for function and value assessment and current research		
GOALS		**IMPLEMENTATION ITEM**	
A	Improve the Districts understanding of its wetland resources	**1**	Conduct annual assessments of a subset of district wetlands to improve accuracy of the extrapolated wetland classification from the 2024 Function Value Inventory Reclassification
		2	Conduct further investigations on the soft water characteristics of the Districts wetland resources

Wetland 'C' – Trout Habitat Protection Project

Table 29. Projected Expenditures (in 1,000's) for Wetland Management Practices

Implementation Activities	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	10-Yr. Total
Maintain the high-level functions and values of the District's fen through vegetation management to control the encroachment of invasive vegetation on the wetland and through protection of the fen groundwater recharge area.	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	35
Develop Pond Management Plans for the following large ponds within the District that have not previously been addressed: Pat Lake, Heifort Pond, Sinnits (Jackson WMA) Pond, Bass Lake West, Kismet Basin, July Avenue Pond, Brewers Pond.	--	--	5	5	5	5	5	5	5	5	40
Conduct restoration and enhancement of high priority wetlands as identified in the Wetland Function and Value Assessment (2007).	--	--	--	--	50	--	--	--	--	--	50
Develop GIS database of recorded buffers (through permitting program) and monitor extent and condition of buffers.	--	--	3	--	0.5	--	0.5	--	0.5	--	4.5
Improve the quality of buffers in priority wetlands as identified in the District's Wetland Functions and Values Assessment.	--	--	10	--	--	10	--	--	10	--	30
Total for Wetland Management	**3.5**	**3.5**	**21.5**	**8.5**	**59**	**18.5**	**9**	**8.5**	**19**	**8.5**	**159.5**

Table 30. Wetland Management Implementation Activities from Table 20 addressed by Administrative and/or Project Development Program

Restore wetland on Mendel Road tributary.
Continue to serve on the Technical Evaluation Panel for WCA.

3.8. Ecological Health

3.8.1. General Issue Statement

The restoration and protection of the District's surface water resources requires a healthy watershed where the natural cover supports hydrologic and geomorphic processes, habitat of sufficient size and quality to support native aquatic species and riparian species, and water quality that supports healthy biological communities. The BCWD shares discoveries of unique and sensitive plants and animals to increase awareness of the value of protecting healthy watersheds and improve understanding of management actions needed to avoid adverse impacts.

3.8.2. Relevance to the District

The BCWD is home to several unique ecosystems which provide habitat for rare and sensitive plant and animal communities. Given the rate at which land use changes have occurred in the eastern part of the Twin Cities Metropolitan Area, the watershed still has a number of high-quality resources which warrant protection.

To-date the BCWD has focused a significant amount of effort on the protection and restoration of Brown's Creek, a cold-water fishery located on the boundary of the Twin Cities Metropolitan Area. Given its designation as a cold-water fishery, Brown's Creek has been actively managed by the Minnesota DNR as a trout stream and a significant amount of attention has been given to the trout population of the creek. In addition to the trout, the Brown's Creek corridor supports a variety of unique and rare species such as Rainbow Darter (*Etheostoma caeruleum*), Blanding's Turtle (*Emydoidea blandingii*), and coldwater dependent macroinvertebrates. The steep topography, geologic setting, and high quality vegetation of the Brown's Creek Gorge supports Walking Fern (*Asplenium rhizophyllum*), Butternut (*Juglans cinerea*), and foraging and nesting habitat for Louisiana Waterthrush (*Parkesia motacilla*).

More recently, the BCWD has been focusing on its lakes, ponds and wetlands. Lake management activities have resulted in the discovery of Snailseed Pondweed (*Potamogeton bicupulatus*), an endangered aquatic plant which indicates the need to better understand the water chemistry of these lakes and the management activities needed to sustain these sensitive species. Similarly, a wetland inventory conducted in 2024 resulted in the discovery of a Cranberry Bog (Northern Shrub Shore Fen) which is home to carnivorous round leaved sundew, bog cranberry, and a continuous carpet of sphagnum moss. The presence of these rare species is an indication of the watershed system's health and the need for protection by the BCWD as well as private landowners.

To date, the BCWD has focused its management efforts on impacts related to land use changes in the watershed. Given the changes seen locally, nationally and world-wide, the BCWD is broadening its focus by considering impacts related to climate change (see Table X) and the benefits a healthy watershed provides to economic and social well-being (see Table X).

Table 40. Impacts of climate change on Ecological Health

Impact	Description	Indicators
Extreme Heat	Extreme heat increases evaporation rates, drying up water sources such as ponds, rivers, and wetlands.	- Reduced reproductive success: Heat stress can lower reproductive success by reducing the fertility of animals or the survival rates of eggs and offspring. For example, heat waves can cause nest abandonment or reduce the hatching success of eggs in birds, reptiles, and amphibians. - Disruption of aquatic habitats: Reduced water levels in rivers, lakes, and streams can threaten fish and other aquatic organisms, as these species depend on specific water conditions for survival. Warmer water temperatures can also reduce dissolved oxygen levels, stressing or killing aquatic life. - Proliferation of invasive species: Some invasive species, including certain plants, insects, and animals, thrive in hotter conditions and may outcompete native species, altering ecosystems and threatening biodiversity. Invasive insects, such as bark beetles, have devastated forests weakened by heat stress.
Warming winters and fewer days below freezing (32°F)		- Increasing presence of species traditionally found further south while traditional northern species die out - Invasive Species Expansion: Fewer cold days can help invasive species, which are often better adapted to warmer conditions, survive and spread. This can have serious consequences for native wildlife by altering habitat structure and resource availability. - Plants and insects that emerge earlier due to fewer cold days may not synchronize with the life cycles of their pollinators or herbivores. - Warmer winters with more frequent rain can cause increased soil erosion in upland areas, leading to higher sediment loads in water bodies.
Extreme Precipitation	Washington County has and will continue to experience more wet conditions caused by increased precipitation. Precipitation increases are occurring in each season of the year, with the largest increases in spring and summer.	- Wetland areas or floodplains might become permanently submerged, reducing the amount of usable land for species like small mammals, ground-nesting birds, and reptiles. - Intense rainfall can cause soil erosion, particularly on slopes or deforested areas. Erosion leads to loss of plant cover, which is

	Not only has precipitation increased, but the intensity and frequency of large events have also increased.	essential for shelter, food, and nesting for many animals. - Extreme rainfall can lead to streambank erosion, which destroys habitats for aquatic and semi-aquatic animals such as amphibians, fish, and birds. Fish spawning sites can be disrupted as sediment buries eggs or larvae. - Increased water flow in rivers and streams can wash away aquatic organisms, disrupt breeding areas, and destroy the structure of habitats. - Excessive sediment in water can cover the river or lakebed, smothering fish eggs, aquatic plants, and invertebrates that are crucial to the food chain. This degradation can reduce biodiversity and the health of aquatic ecosystems. - Extreme rainfall washes nutrients (like nitrogen and phosphorus from fertilizers) and pollutants (like pesticides, heavy metals, and waste) into water bodies. - Disturbed landscapes and flooded areas can become ideal for invasive species to spread, often outcompeting native plants. - Wildlife and plant species that require specific conditions (e.g., dry soil, stable habitats) may be outcompeted by more generalist species, leading to a decline in biodiversity.
Drought	Extended period(s) of no or minimal precipitation impacting the supply of water	- Habitat fragmentation: As animals move to find water, they may cross human-dominated landscapes, leading to more road crossings, vehicle collisions, and habitat fragmentation. - Aquatic ecosystems are especially vulnerable to drought. Reduced water levels and higher temperatures can drastically affect fish, amphibians, and invertebrates. - Drought weakens plant root systems, increasing soil erosion and leading to long-term vegetation loss. The loss of vegetation increases soil erosion, which can lead to the degradation of habitats, particularly in areas prone to wind or water erosion. - Drought can lead to long-term shifts in species composition and biodiversity, favoring drought-tolerant species over more sensitive ones. - Soil degradation: Heat and drought can degrade soil health, leading to erosion, reduced fertility, and the loss of organisms

		that contribute to nutrient cycling. This can have long-term consequences for ecosystem productivity and resilience.

Table 41. Ecological Health opportunities which intersect with DEI principles

Impact	Description of the Need	How Ecological Health can help
Equitable access to clean water	A healthy watershed ensures that water is clean, reliable, and accessible to all communities, regardless of their socio-economic status, race, or geographic location.	- By maintaining clean lakes, ponds, wetlands, streams and groundwater the Brown's Creek watershed supports basic services that are critical to the well-being of all communities, particularly those that may not have the resources to combat pollution or environmental degradation.
Environmental Justice	Environmental justice seeks to address the unfair distribution of environmental benefits and burdens, particularly for communities that have been historically marginalized or overlooked.	- Healthy watershed management can prioritize including voices from marginalized communities, ensuring they have a say in decisions that affect their local environment. This leads to policies that reflect the needs of diverse communities and prevent further environmental inequities.
Inclusive Economic Benefits	Economic disparities are often tied to environmental degradation, with disadvantaged communities being most affected by poor watershed health. Inclusive watershed management can provide economic opportunities for all populations.	- Healthy watersheds contribute to healthier ecosystems that can support recreation, tourism, and other economic activities. - Ensuring that water quality improvement projects are implemented equitably and impacts to property values. - Investments in watershed restoration and maintenance can lead to the creation of sustainable jobs, from restoration work to green infrastructure development, benefiting local economies. These jobs should be accessible to underrepresented groups, creating pathways for economic inclusion.
Community Engagement and Empowerment	DEI in environmental planning requires inclusive processes where diverse communities have the opportunity to participate in the design and implementation of watershed management efforts.	- Healthy watershed initiatives can actively engage community members from diverse backgrounds in decision-making, planning, and restoration activities. This includes reaching out to underrepresented groups, hosting culturally relevant events, and providing education in multiple languages to ensure that all voices are heard. - Communities that are engaged in watershed health are empowered to take ownership of their local environment. Supporting leadership opportunities within minority and underserved groups ensures that they are involved in the long-term sustainability of their water resources.

Climate Resilience and Vulnerability	Climate change disproportionately affects marginalized communities, who are more vulnerable to extreme weather events, droughts, and flooding—all of which are linked to watershed health.	- Healthy watersheds act as natural buffers against the impacts of climate change by regulating water flow, preventing flooding, and maintaining groundwater supplies. Ensuring that these benefits are distributed equitably can help vulnerable communities better withstand the impacts of climate change. - Watershed management plans can focus on areas where communities face the highest risk of climate impacts. By prioritizing these areas, managers can ensure that historically marginalized communities are not left more vulnerable to environmental disasters.
Cultural and Recreational Inclusion	Diverse cultural and recreational needs must be considered in the management of water resources, ensuring that all communities have access to natural spaces that support their well-being and traditions.	- Many Indigenous communities and other ethnic groups have deep cultural ties to water bodies and natural ecosystems. A healthy watershed protects these areas, preserving important cultural and spiritual sites. - Healthy watersheds support outdoor recreational activities such as fishing, swimming, and hiking, which should be accessible to all communities. Watershed management can ensure that parks, lakes, and rivers are open and safe for use by all demographic groups, promoting inclusivity in nature-based recreation.
Education and Outreach	Promoting awareness of water issues and stewardship opportunities must reach diverse audiences to build a more inclusive environmental movement.	- Watershed programs can include targeted education efforts that reach diverse communities, particularly those historically excluded from environmental education. Programs in schools, community centers, and local organizations can raise awareness about the importance of water conservation and offer opportunities for all groups to engage in watershed protection. - Ensuring that educational materials and outreach efforts are available in multiple languages and are culturally relevant is critical for engaging diverse communities in watershed health. This fosters a sense of inclusivity and participation in water resource management.

3.8.3. Sub-Issue Areas

Degraded Fisheries

A healthy fish community is an indicator of resource health, and also an important component to maintaining a high-quality aquatic resource. Environmental stressors continue to threaten the integrity of the watershed's fish-supporting resources. These stressors can include metals, nutrients, sediment, temperature, and Aquatic Invasive Species (AIS).

Protect and Restore the Function of Upland Areas

The BCWD is home to several plant and animal species that are sensitive and valuable from an ecological standpoint. These plant and animal species are indicators of a healthy watershed which is a reflection of the land use in the rural portions of the watershed, resulting in more intact upland areas. The BCWD intends to protect and enhance these upland areas in order to maximize the ecosystem services (i.e., soil health improvements, filtration, groundwater recharge, wildlife habitat, rate control) provided by this part of the landscape.

Invasive Species

Invasive species continue to spread throughout the region. Some invasive species pose direct risks to water resources within lakes and wetlands, while others pose indirect impacts in upland areas where they impact land cover and soil health. For example, Common buckthorn (*Rhamunus cathartica*) negatively impacts the understory which results in soil erosion and increased nutrient and sediment loads to downstream resources. Managing species that negatively impact the water resources plays an important role in maintaining the ecological integrity of the watershed.

3.8.4. Policies, Goals, and Implementation

The policies, goals, and implementation items related to these sub-issue areas are summarized in the following tables. The sub-issue area is identified in a heading, followed by a related policy. The goals addressing that policy are lettered and stated, followed by the implementation items for that goal. This format is intended to clearly display how each policy and goal will be addressed.

Table 42. Ecological Health Policies, Goals, and Implementation Activities

SUB-ISSUE:	**Degraded fisheries**		
POLICY:	**BCWD aims to support a robust and healthy fishery as a vital component to ecological health.**		
GOALS		**IMPLEMENTATION ITEM**	
A	Promote healthy and diverse fish communities represented by species representative of the MNDNR lake or stream classifications	**1**	Conduct additional sampling on Brown's Creek to determine the population status and distribution of the Rainbow darter in the gorge.
		2	Conduct fish barrier assessment to determine potential for fish passage through 95 / 96 box culverts in 2016, then determine fish passage through remaining road crossings to Manning avenue if no barrier present in the gorge.
		3	Work with the DNR to develop a fish stocking plan
		4	Work with community groups (e.g. Stillwater High School and Trout Unlimited) to develop fish rearing plans
B	TSS loads within the contributing drainage area need to be reduced by 74% on average in order to meet these loading limits. (Brown's Creek TMDL Implementation Plan, EOR, 2012)	**1**	Annually analyze progress toward the TSS reduction goal based on evaluation of the collected monitoring data (conducted as part of the baseline monitoring program).
		2	**SEE IMPLEMENTATION ACTIVITIES IDENTIFIED UNDER BROWN'S CREEK MANAGEMENT PLAN (TABLE 61)**
C	Restore impaired lakes so that they meet state standards for total phosphorous, chlorophyll A concentration and Secchi depth.	**1**	**SEE IMPLEMENTATION ACTIVITIES IDENTIFIED UNDER LAKE MANAGEMENT PLAN (TABLE 62)**
D	Achieve the TP Load Reduction goal of 148 lbs. established at the Diversion Structure as identified in the McKusick Lake and Lily Lake Management Plans.	**1**	Re-assess water quality data collected in contributing drainage area to Diversion Structure to evaluate pollutant loading and identify sources.
E	Identify and preserve important aquatic wildlife habitat and fish spawning areas	**1**	Continue surveys for mussels in the lower gorge, particularly upstream of the 2015 unique Species Inventory survey area. Many riffles in the lower gorge have not been surveyed.
		2	Compile a herptile record database developed from available records and initiate citizen volunteer Amphibian and Reptile Survey.
			Removal of fish barriers?
			Creation of fish refugia?
SUB-ISSUE:	**Protect and Restore the Function of Upland Areas**		
POLICY:	**The BCWD is committed to maintaining the ecological integrity and connectivity of intact ecosystems.**		
GOALS		**IMPLEMENTATION ITEM**	

A	Preserve, conserve, and restore natural resources by implementing sustainable practices that promote biodiversity and healthy ecosystems (Washington County Natural Resource Systems Framework).	**1**	Implement native plant community preservation and restoration projects utilizing the District's land protection priorities.
		2	Enhance the management of the BCWD's ecosystem services by implementing pollinator conservation strategies (e.g. recognize and support exemplar projects which restore and enhance habitat for pollinator species, work with road authorities to control invasives and promote establishment of pollinator species, work with county and municipalities to develop mowing plan and schedule that is more conducive to stormwater management and pollinator species)
		3	Work with the City of Stillwater and area residents to conduct on-going monitoring of the oak forest found on the west side of Long Lake (identified as a Rare Feature) to evaluate its quality, and if any management activities are needed to ensure its sustainability.
		4	Improve ecosystem services by creating a program that focuses on restoring forests, wetlands, and grasslands to help reduce the impacts of climate change, such as flooding, heat islands, and soil erosion.
		5	Work with municipalities to establish tree preservation goals and requirements.
		6	Work with landowners to diversify their woodlands through forest management plans
B	Turf to native plant conversion goal. Enhancing ecosystem services of the landscape. Greater native/natural space vegetation requirement. More resilient landscape for wet/dry conditions.	**1**	Identify target area and criteria for priority habitat conversion areas.
		2	Consider rule change to allow credits for turf conversion
		3	Implement through the cost-share program
		4	EMWREP education and outreach
SUB-ISSUE:	**Invasive Species**		
POLICY:	**The District takes an active role in preventing the spread of invasive species through education, partnerships, monitoring, and invasive species management projects.**		
GOALS		**IMPLEMENTATION ITEM**	
A	Initiate and support aquatic invasive species (AIS) management projects on private and public lands where connected to water quality management	**1**	Continue to monitor aquatic invasive species and implement controls when it's determined to be a water quality issue.
		2	Record the location of invasive species and implement control measures if it's determined to have water quality impacts or threats to native plant communities.
		3	Address aquatic invasive species management by providing education and outreach to residents and individuals recreating in the watershed.
		4	Utilize the cost-share program to assist with invasive species management where there is a water quality benefit and/or co-benefit towards other beneficial goals.
		5	Support initiatives by the County and other regional partners on AIS management.

		6	Education and outreach regarding bait disposal and pet release.
B	Initiate and support terrestrial invasive species management projects on private and public lands where connected to water quality management	**1**	Conduct on-going vegetation surveys (every five years) to evaluate community quality and invasive species to provide a more robust dataset that can be used to evaluate trends in plant community composition. A minimum of 5 wetland and 5 upland plots should be established for long-term monitoring.
		2	Provide public and private landowners with tools and resources needed to manage existing habitat, improve species diversity, and protect against invasive species, erosion, and overuse (LSCR1W1P).

[Turf to native plant conversion image]

Table 43. Projected Expenditures (in 1,000's) for Ecological Health

Implementation Activities	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	10-Yr. Total
Conduct additional sampling on Brown's Creek to determine the population status and distribution of the Rainbow darter in the gorge.	2	--	--	--	2	--	--	--	2	--	6
Continue surveys for mussels in the lower gorge, particularly upstream of the 2015 unique Species Inventory survey area. Many riffles in the lower gorge have not been surveyed.	--	--	2.5	--	--	--	--	--	--	2.5	5
Compile a herptile record database developed from available records and initiate citizen volunteer Amphibian and Reptile Survey.	--	--	--	3.5	--	--	--	--	--	--	3.5
Implement native plant community preservation and restoration projects utilizing District's land protection priorities.	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	5
Enhance management of BCWD's ecosystem services by implementing pollinator conservation strategies.	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	5
Continue to monitor aquatic invasive species & implement controls when it's determined to be a water quality issue.	--	--	1	1	1	1	1	1	1	1	8
Record the location of terrestrial exotic and invasive species and implement control measures if it's determined to have water quality impacts.	--	--	1	1	1	1	1	1	1	1	8
Conduct on-going vegetation surveys (every five years) to evaluate community quality and invasive species to provide a more robust dataset that can be used to evaluate trends in plant community composition: min. of 5 wetland and 5 upland plots should be established for long-term monitoring.	--	--	10	--	--	--	--	5	--	--	15
Total for Ecological Health	**3**	**1**	**15.5**	**6.5**	**5**	**3**	**3**	**8**	**3**	**7.5**	**55.5**

Table 44. Ecological Health Implementation Activities from Table 30 addressed by East Metro Water Resource Education Program

Address AIS management by providing education and outreach to individuals recreating in the watershed.

Table 45. Ecological Health Implementation Activities from Table 30 where implementation costs covered under another Issue Category

Implementation Activity	Issue Category where implementation cost is identified (Table #)
Utilize the District's cost-share program to assist in the implementation of Lake Management Plans through best management practice installation by citizens - Cost identified in Implementation Activity X under Stormwater Management.	Stormwater Management (Table 5)
Re-assess water quality data collected in contributing drainage area to Diversion Structure to evaluate pollutant loading and identify sources.	Stormwater Management (Table 5)
Promote stormwater reuse by working with local businesses, local units of government and Washington County to incorporate BMPs into new development or redevelopment projects.	Stormwater Management (Table 5)
Conduct fish barrier assessment to determine potential for fish passage through 95 / 96 box culverts in 2016, then determine fish passage through remaining road crossings to Manning avenue if no barrier present in the gorge.	Stream Management (Table 13)
Annually analyze progress toward the TSS reduction goal based on evaluation of the collected monitoring data (conducted as part of the baseline monitoring program).	Stream Management (Table 13)
Utilize the cost-share program to assist with invasive species management where there is a water quality benefit.	Stormwater Management (Table 5)

WETLAND FUNCTION AND VALUE INVENTORY UPDATE AND GROUNDWATER DEPENDENT WETLAND RECLASSIFICATION

Date |	12/6/2024
To / Contact info |	BCWD Board of Managers
Cc / Contact info|	Karen Kill, District Manager
From / Contact info |	Jimmy Marty and Pat Conrad, EOR
Regarding |	Wetland Function and Value Inventory Update and Groundwater Dependent Wetland Reclassification

BACKGROUND

The District initiated two separate but complementary tasks in August 2024 focused on updating the existing wetland inventory and associated rules implementation. These tasks included 1) an updated wetland function and value assessment and 2) re-classification of groundwater dependent natural resources. This memo addresses each of these tasks in tandem.

Function and Value Update

The District completed its original wetland function and value assessment during the 2nd generation planning process in 2001. All wetlands in the District were inventoried and all wetlands greater than 2.5 acres had an assessment of their functions and values through a methodology based on the Minnesota Routine Assessment Method (MnRAM). In the 2005 District Rule Revision process the Board made the decision to extend its wetland rules to all wetlands greater than 1.0 acre. In order to appropriately apply the BCWD wetland rule, an update to the function and values assessment was conducted in 2007 on additional wetlands greater than an acre in size that had not previously been assessed.

An updated function and value inventory was completed in fall 2024 to ensure wetland classifications are accurate and align with current science and practice. The original inventory was based on National Wetland inventory (NWI) mapping, which has since been updated by the Department of Natural Resources (DNR) in 2013. Further, technical understanding and the assessment methods for wetland function and value have evolved substantially over the last decade. For example, the MnRAM was initially developed in the 1990s as an assessment tool to identify management classes of wetlands for use by local authorities to help establish wetland protection standards. MnRAM was widely used in the following decades to inventory and assign management classes. Over the last 10 years, technical support for MnRAM has been phased out by the Board of Soil and Water Resources (BWSR) as MnRAM often lacks the precision to make wetland permitting/impact decisions for specific wetlands.

On August 1, 2024 BWSR and Wisconsin DNR released a collaborative draft Wisconsin-Minnesota Wetland Assessment Tool (WAT) to provide a resource that can be used to assist in wetland regulatory implementation, conservation, and planning. The WAT tool includes site assessment protocols that better relate to functional capacity and values, and also provides assessment of additional functions and values not assessed by MnRAM. The WAT tool includes outputs for "functional capacity" and "opportunity value" of each function. Functional capacity is defined as the ability of a wetland to perform a specific function. Opportunity value is defined as the potential for a wetland to perform a specific function and its relative value to society. Table 1 provides a summary of functional groups and specific functions assessed by WAT and MnRAM equivalents.

The objectives of the 2024 update to the wetland function and value inventory were to 1) update the current wetland inventory using the 2013 NWI maps 2) use the draft functional assessment tool to re-assess function and value of a subset of District wetlands, and extrapolate results to assess District-wide status of wetland function and values and 3) provide recommendations for rule revisions based on inventory results and implementation of the draft WAT.

Table 1. WAT Functional Groups, Specific Functions, and Definitions and MnRAM equivalents. Categories assessed by MnRAM but not WAT include Characteristic Hydrology and In-Wetland Water Quality (both recognized by Ecological category of WAT).

Functional Group	Specific Function	Definition	MnRAM Equivalent
Hydrology	Surface Water Attenuation (SWA)	The ability of a wetland to store or delay surface water over a period of time to influence the magnitude, frequency, and/or duration of inundation further downstream or within a watershed	Flood Attenuation
	Surface Water Supply (SWS)	The ability of a wetland to supply water to downstream/downslope waters or within a watershed via surface water outflows, saturation overland flow, and/or groundwater discharge.	Not Assessed
	Groundwater Recharge (GR)	The ability of a wetland to recharge groundwater.	Not Assessed
Water Quality	Nitrate Removal (NR)	The ability of a wetland to remove nitrate.	Assesses generalized downstream water quality
	Phosphorus Retention (PR)	The ability of a wetland to serve as a phosphorus sink.	Assesses generalized downstream water quality
	Sediment and Pollutant Retention (SPR)	The ability of a wetland to serve as a sediment and pollutant sink.	Assesses generalized downstream water quality
	Shoreline Stabilization (SS)	The ability of a wetland to stabilize shorelines of adjacent larger water bodies.	Shoreline Protection
	Thermoregulation (TR)	The ability of a wetland to maintain or reduce water temperature.	Assesses generalized downstream water quality
Ecological	Native Plant Habitat (NP)	The ability of a wetland to support the life requirements of native plants and plant communities.	Vegetative Diversity/Integrity
	Wildlife Habitat (WH)	The ability of a wetland to support the life requirements of native wildlife.	Characteristic Wildlife Habitat Structure
	Fish Habitat (FH)	The ability of a wetland to support the life requirements of native fish.	Maintenance of Characteristic Fish Habitat
Climate	Carbon Sequestration (CS)	The ability of a wetland to sequester carbon.	Not Assessed
Anthropogenic	Historic or Cultural Uses (HCU)	The capacity for a wetland to serve as an archaeological, historical, or culturally significant resource.	Assesses generalized aesthetics/recreation/education /cultural
	Scientific or Educational Importance (SEI)	The capacity for a wetland to serve as scientific or educational resource.	Assesses generalized aesthetics/recreation/education /cultural
	Commercial Uses (CU)	The capacity of the wetland to serve as a commercial resource.	Assesses generalized aesthetics/recreation/education /cultural

Functional Group	Specific Function	Definition	MnRAM Equivalent
	Recreational Uses (RU)	The capacity of the wetland to serve as a recreational resource for the public.	Assesses generalized aesthetics/recreation/education /cultural
	Scenic Beauty (SB)	The capacity of the wetland to provide an aesthetic resource for the public.	Assesses generalized aesthetics/recreation/education /cultural

Groundwater Dependent Wetlands Update

Currently the District has two sources of information that it uses in determining groundwater dependency of its resources (groundwater dependent natural resources – GDNR).

The first comes from the District's Wetland Inventory and Functions & Values Evaluation that was performed in 2001 and updated in 2007. In this evaluation, wetlands were identified as having groundwater dependency in terms of providing hydrology for the wetland, i.e., was the source of water for the wetland coming from surface water runoff, groundwater, or a combination of the two.

The second source of information related to groundwater dependency was developed in support of the District's Rules and the Managers desire to provide greater protection to wetlands that were dependent upon groundwater. In this case, the dependency went beyond simply providing hydrology to the wetland. Wetlands were determined to be Groundwater Dependent (for purposes of the District Rule) if their plant community relied upon groundwater. For example, the Grant Fen is a groundwater dependent natural resource because there are high-quality indicator plant species within the Fen that are only seen in areas where groundwater is the predominant source of hydrology. The quantity and quality of the water supporting the fen hydrology support the Fen's plant community.

In terms of the Districts Rules, groundwater dependency is based on this second source of information (i.e. the wetland plant community). Plant communities consisting of plants that are dependent upon groundwater are defined as being groundwater dependent. For purposes of the Rule, a wetland that is fed by groundwater (i.e. its hydrology is provided by groundwater) is not automatically a groundwater dependent natural resource. The wetland must have a plant community that is an expression of the groundwater according to classifications based on the Minnesota Land Cover Classification System (MLCCS). However, this vegetation-based definition lacks clarity when stressors beyond hydrology degrade the plant community, such as invasive species, vegetation clearing (e.g. cultivation), or historical overgrazing. Plant communities may be dominated by plants (e.g. cattails) that do not necessarily indicate groundwater dependency, but conversely do not rule out the wetland's groundwater dependent hydrology. For example, based on existing MLCCS data, there would be only nine District wetlands qualifying as groundwater dependent under current rules.

Shortcomings of the existing approach include definitional confusion and outdated data sources, as the MLCCS is currently being updated. The objectives of the 2024 GDNR re-classification include 1) reclassification of GDNR within the District into a simplified layer and 2) redefining the definition of GDNR within District rules. This will provide clarity to the District's permitting process and serve as a better resource for project planning.

METHODS

Function and Value Update

The 2013 NWI mapping update was aggregated with the original function and value inventory. The resulting layer included the new NWI geometries and attributes while preserving data from the original function and value inventory. From this layer, 12 sites were selected for field assessment using the WAT. Selection criteria included existing

management classification, wetland size and location, public waters status, proximity to existing permits, and potential for future development. Selected wetlands are provided in Table 2 and mapped in Appendix A: Figure 2.

Table 2. Selected wetlands for field assessment.

Wetland ID	Public Water	Original Management Classification	Selection Criteria
3	N	Manage 1	Small Manage 1 wetland
233	N	Manage 1	Small Manage 1 wetland
459	Y	Manage 1	Manage 1 public water wetland proximal to permit
674	Y	Manage 1	Manage 1 public water wetland proximal to permit
949	Y	Manage 1	Manage 1 public water wetland proximal to permit
504	N	Manage 2	Manage 2 wetland proximal to permit
553	N	Manage 2	Small Manage 2 wetland with development potential
330	N	Manage 3	Manage 3 wetland with development potential
413	N	Manage 3	Manage 3 wetland. Highly studied wetland with restoration potential (Mendel Road wetland)
298	N	Preserve	Small Preserve wetland proximal to permit
939	Y	Preserve	Preserve public water wetland proximal to permit
1064	N	Preserve	Preserve wetland proximal to permit

Field assessments of wetlands primarily occurred from 9/30/24-10/7/2024. Wetland 413 was assessed on 10/23/24 to accommodate landowner schedule. The WAT field protocol included assessment of wetland hydrogeomorphology, rapid floristic quality assessment according to MPCA methods, and several other field observations related to hydrology, vegetation, wildlife habitat, and anthropogenic values.

The WAT protocol also includes a desktop component that incorporates multiple GIS analyses including catchment delineation, land cover analyses, relationships to mapped wildlife habitat core/connection areas, and soil profiles. Desktop analyses were initially completed prior to field work and refined based on field observations.

Data was input into the automated WAT data spreadsheet, which assigns function and value rankings for specific functions related to hydrology, water quality, ecological, climate, and anthropogenic functional groups (Table 1). Four rankings are possible for each specific function: Lower, Moderate, Higher, and Not Applicable. Summary rankings are also provided for each functional group. Manual analysis was occasionally necessary due to spreadsheet bugs in the draft formulas. An important difference from the MnRAM and the previous function and value inventory are the ranking tiers. MnRAM provided an "Exceptional" ranking beyond the "Higher" ranking, which the WAT does not include.

Results of the functional rankings were then translated to the existing wetland management classification system as outlined in District rules. As the relationship between WAT output and MnRAM output is not 1:1, EOR developed a crosswalk for the management classification translation (Table 3). Based on observed trends from the 12 field assessments, EOR extrapolated trends to District-wide wetlands using GIS according to the following criteria.

- Reduce to Manage 2 class:
    - Existing Manage 1 wetlands smaller than 2 acres and not overlapping mapped high quality MLCCS/NWI/NPC vegetation classes, previously scored moderate or below for vegetation quality, or not overlapping a mapped habitat core area.
- Increase to Preserve class:
    - Existing Manage 1 wetlands greater than 2 acres overlapping high quality MLCCS/NWI/NPC vegetation classes or previously scored high for vegetation or habitat diversity.
- Increase to Manage 2 class:
    - Existing Manage 3 wetlands within 250 feet of an arterial road and unobstructed.

The resulting classifications were appended to the aggregated NWI/original function and value inventory layer to create a single summary wetland inventory. Only wetlands greater than 1 acre were assigned classifications. Known and likely artificial ponds (e.g. stormwater ponds, golf course ponds, agricultural ponds) were assigned an "Excavated Ponds" classification. The Excavated Ponds layer was created by extracting ponds with NWI "excavated" modifiers located in areas with non-hydric soil. Existing BCWD stormwater pond data was also included in the Excavated Ponds layer.

Table 3. MnRAM/WAT ranking crosswalk as applicable to District rules.

MnRAM Function or Value	WAT Function or Value	MnRAM/WAT Crosswalk
Vegetative Diversity	Native Plant Habitat	MnRAM "Exceptional" OR "High" = WAT "Higher" MnRAM "Medium" = WAT "Moderate" MnRAM "Low" = WAT "Lower"
Wildlife Habitat	Wildlife Habitat	MnRAM "Exceptional" OR "High" = WAT "Higher" MnRAM "Medium" = WAT "Moderate" MnRAM "Low" = WAT "Lower"
Fish Habitat	Fish Habitat	MnRAM "Exceptional" OR "High" = WAT "Higher" MnRAM "Medium" = WAT "Moderate" MnRAM "Low" = WAT "Lower"
Aesthetics/Education/Recreation/Cultural	Anthropogenic Overall	MnRAM "Exceptional" OR "High" = WAT "Higher" MnRAM "Medium" = WAT "Moderate" MnRAM "Low" = WAT "Lower"
Maintenance of Hydrologic Regime	Hydrology Overall	MnRAM "Exceptional" OR "High" = WAT "Higher" MnRAM "Medium" = WAT "Moderate" MnRAM "Low" = WAT "Lower"
Stormwater Sensitivity	NA	Original stormwater sensitivity rating is independent of MnRAM and is still valid based on WAT plant community classifications

Groundwater Dependent Natural Resources Update

The aggregated summary layer from the 2024 function and value inventory was used as the base layer for the GDNR re-classification. This assessment focuses on wetland groundwater dependency; other sources should be used to assess lake and stream groundwater dependency. EOR used five (5) GIS data sources to assess wetland groundwater dependency. These indicator layers consisted of:

- Groundwater-dependency classifications from the original function and value assessment: The 2007 assessment included hydrology source for each wetland evaluated. Although wetland characteristics can change over time and basin-specific data may not be suitable for project-specific assessments, the existing Function and Value data is likely still relevant at a District-wide scale.
- NWI Hydrogeomorphic (HGM) Classification: The DNR updated NWI maps for the BCWD area in 2013. These new data were included in the aggregated summary layer for the 2024 function and value update. In addition to revised polygon boundaries, the 2013 NWI layer included HGM attribute data. The HGM classification system classifies wetlands based on their landscape position, source of water, and hydrodynamics (inflow, outflow, flowthrough, etc.). The HGM classifications within NWI data can be used to define hydrology source. In general, wetlands classified as "slope" wetlands are considered groundwater dependent.
- DNR Native Plant Communities (NPCs): The NPC system is the most widely used plant community classification system in Minnesota. This system groups wetland NPC classes into four categories of groundwater dependence. These categories encompass 1) wetlands dependent on sustained groundwater discharge, 2) wetlands dependent on groundwater associated with consistently high water tables, 3) wetlands dependent on groundwater associated with water tables that are high for some portion of the growing season, and 4) wetlands not highly dependent on groundwater. These data complement other GIS layers in classifying groundwater dependency, such as for HGM wetlands that are not classified as "slope" wetlands. A limiting factor of the DNR NPC layer is that it is constrained to the small geographic area where DNR has surveyed NPCs. To address this limitation, EOR used a 2024 DNR model that uses MLCCS and other data to model NPCs across all natural areas.
- Minnesota Land Cover Classification System (MLCCS): EOR also used the original MLCCS data to identify groundwater dependent natural resources, which generally aligns with existing District rules.
- 2003 North Washington Groundwater Study: The 2003 Groundwater Study identified areas of groundwater recharge and groundwater discharge within the District.

Each wetland polygon was assigned a score for groundwater dependency based on the source data on a scale of 0 to 1 (Table 4). The scores for each data source were added together to create a composite groundwater dependency score, with the highest possible score being 5 and the lowest possible score being 0. Composite scores equal to 1 or greater were considered groundwater dependent. A score of 1 or greater indicates that a wetland has at least one strong indicator of groundwater dependency or multiple soft indicators of groundwater dependency.

Table 4. Scoring system for groundwater dependency indicator layers.

Layer	Class	Score
Prior Function and Value Assessment	No	0
	Both	0.5
	Groundwater Dependent	1
2003 Mapped Groundwater Discharge Area	No	0
	Yes	1
NWI Slope Wetland	No	0
	Yes	1
MLCCS Groundwater Dependent Plant Community	No	0
	Yes	1
DNR NPC	No	0
	Partially	0.33
	Highly	0.67
	Fully	1

RESULTS AND DISCUSSION

Function and Value Update

Field Inventory

Individual narratives, summary function and value tables, and plant community maps are provided for each assessed wetland in Appendix B. The following describes notable field observations, function and value results, and management classifications of field-assessed wetlands.

Field Observations

Several exceptional observations were recorded during the field assessment for specific wetlands. Wetland 939 scored as a Good quality plant community with a Higher ecological function and value score. Additionally, during the field survey, several notable aquatic plants were collected and submitted to the DNR for identification confirmation. One is a state-listed special-concern plant and Washington County record typically found in northern Minnesota. Another, spiny coontail (*Ceratophyllum echinatum*), has not been recorded in Washington County since 1929. A third plant appeared to be a native milfoil (*Myriophyllum* sp.) that would also be a Washington County record but has yet to be confirmed by DNR botanists. Spiny coontail was also found in Wetland 553, along with a species of aquatic stonewort that would be a Washington County record. These assemblages of plants are rare in Washington County and more so in the metro area, and are also indicative of soft water chemistry that is suitable habitat for several other uncommon or rare aquatic plant species such as snailseed pondweed (*Potamogeton bicupulatus*). Snailseed pondweed is a state-endangered plant that has recently been found in two other District lakes with soft water characteristics. The presence of these soft water communities within the District is extremely unique. The observation of Wetlands 939 and 553 as additional water resources with these characteristics further suggests the small, relatively undeveloped, well-buffered open water communities of the District that are a valuable biodiversity resource worthy of conservation.

Wetland 949 is located near Wetland 939 and is another unique resource. The wetland consists of a floating mat and open water fringe. The fringes of the mat are dominated by invasive cattail, which encroaches toward the center. However, the interior is dominated by a carpet of Sphagnum moss and the shrub leatherleaf, with sedges and regionally uncommon plants such as small cranberry and the carnivorous round-leaved sundew. Spiny coontail was observed in the open water fringe. There is potential for rare species presence if surveyed earlier in the growing season. The plant community classifies as an open bog according to the WAT methods and classifies as a leatherleaf-sweet gale shore fen (OPn81b) according to the higher resolution DNR Native Plant Community Classification system. Although common in northern Minnesota, Wetland 939 would be the southernmost occurrence of OPn81b in the DNR's database, suggesting both local and statewide importance.

The lands surrounding and including Wetlands 939 and 949 are mapped as a Minnesota Biological Survey Site of Moderate Biodiversity Significance. EOR obtained survey records from the MBS assessment conducted in 1985. Wetlands 939 and 949 were not included in the original survey. The observations recorded during the field assessment may support a higher level of biodiversity significance for this locality.

Function and Value

Table 5 provides summaries of overall functional scores, functional capacity scores, and opportunity value scores for each wetland and functional group. Specific function scores for each wetland are provided in Appendix B. Overall, all of the assessed wetlands provided Higher function and value for at least one functional group, indicating wetlands in the District are important resources. Hydrology and water quality functional groups most consistently scored Higher, with ecological function rating as Higher for half of the assessed wetlands. Climate and Anthropogenic scores were Low to Moderate.

Hydrology: Eleven of the 12 wetlands scored Higher for overall hydrology, indicating that most of the assessed wetlands provide significant hydrologic benefit or restoration opportunity/societal value for the watershed. Nine of the 12 scored Higher for functional capacity and 10 of the 12 scored Higher for opportunity value. Depressional, unditched wetlands (e.g. 233) with temporary/seasonal water regimes tended to score Higher for surface water attenuation functional capacity, with ditched wetlands of similar characteristics providing Higher opportunity-value (e.g. 330). Wetlands with free-flowing outlets to downstream waters and open water (e.g. 298) and groundwater-discharge wetlands (e.g. 504) tended to score Higher for surface water supply functional capacity, while those with similar characteristics but restricted outlets (e.g. 1064) provided Higher opportunity value. Depressional wetlands with temporary/seasonal water regimes, permeable soils, and located high in the watershed tended to score Higher for groundwater recharge functional capacity (e.g. 3), with Higher opportunity value if located in a developed/agricultural area or area of notable groundwater use (e.g. 553).

Water Quality: Ten of the 12 wetlands scored Higher for overall water quality as well as functional capacity, indicating that most of the assessed wetlands provide significant water quality benefit for the watershed. Five of the 12 wetlands provide Higher opportunity-value, all of which have Higher functional capacity scores and suggesting these wetlands provide significant societal value but restoration opportunities may be somewhat limited. Isolated wetlands with saturated/semi-permanent water regimes and peaty/mucky substrates tended to score Higher for nitrate removal functional capacity. Isolated wetlands with seasonally saturated of permanently flooded regimes, loamy/clayey soils, and several vegetation characteristics tended to have Higher phosphorus retention functional capacity. Isolated wetlands with high stem density and overland flow across the soil surface tended to score Higher for sediment and general pollutant runoff functional capacity. Position in the watershed was also important for determining functional capacity for all water quality functions. Wetlands receiving direct runoff from developed/agricultural catchments provided Higher opportunity value for all these water quality functions.

Assessed wetlands were not associated with lakes or streams and did not receive shoreline stabilization functional scores. Only two wetlands (413 and 504) discharge to streams, and therefore received thermoregulation functional scores. Both of these wetlands scored Higher for thermoregulation functional capacity due to discharging to a low order stream, geomorphology, and groundwater discharge.

Ecological: Six of the 12 wetlands scored Higher for overall ecology, four of which scored Higher for both functional capacity and opportunity value. Wetland 413 scored Higher for functional capacity, but Moderate for opportunity value due to a lack of natural land cover in the immediate area. Wetland 1064 scored Higher for opportunity value, but Moderate for functional capacity due to fair vegetation and wildlife habitat quality. Ecological scores were primarily driven by plant diversity and structure characteristics and position within wildlife habitat core areas. No fisheries habitat scores were provided as wetlands were too shallow and/or isolated from perennial waterbodies.

Climate: No assessed wetlands scored Higher for Climate functional capacity. Eleven of the 12 wetlands scored Moderate and one scored Lower (3). The lack of Higher scores appears to be driven by a lack of forested wetlands and a lack of Sphagnum moss dominated wetlands. Forested wetlands are uncommon within the District and Sphagnum dominated wetlands are extremely rare (although 949 is an example), which likely suppresses the amount of Higher climate scores present in the District. A bug in the draft tool related to hydrology regime influence on methane limitation may also have suppressed Climate scores.

Anthropogenic: No assessed wetlands scored Higher for Anthropogenic opportunity value. Eight of the 12 wetlands scored Moderate and four scored Lower. The lack of Higher scores appears to be driven by a lack of public access, recreational/educational/scientific/commercial use, and lack of cultural/historical significance. Moderate ranks were driven by higher scores for scenic beauty due to unobstructed views from public roads.

Several caveats should be considered while interpreting scores. The first caveat is that the WAT tool is still in draft form. Several bugs were detected during implementation, most of which could be manually fixed. It is possible the final tool may include updates that alter functional scores.

Second, ecological scores are highly dependent on plant community quality, which is determined by the tool in the field using the MPCA's Rapid Floristic Quality Assessment (RFQA). The RFQA assigns quality rankings according to plant community type relative to statewide conditions (Poor, Fair, Good, or Exceptional). Plant communities are scored relative to the same community type and independent of other plant communities. For example, fresh meadows are a highly degraded plant community statewide, so a Good quality fresh meadow may still have some degree of invasive species dominance and low diversity relative to less degraded communities such as coniferous bogs or sedge mats that are often found in undeveloped areas of the state. Therefore, a Good quality fresh meadow may actually have lower raw floristic quality metrices than a Poor quality coniferous bog. This can be seen as a flaw in the WAT tool that overlooks the regional importance of plant communities located on the fringes of their range and/or where wetland loss/degradation is higher. The assessed wetlands within the District are an excellent example. Although invaded by cattail, wetland 949 would be the southern most example of an open shrub shore fen DNR Native Plant Community recorded in their database. It includes several uncommon species for Washington County. However, because it is partially invaded by cattail and RFQA compares quality to similar plant communities in the northern part of the state, wetland 949 scores as a Poor quality community. Similarly, wetland 413 includes tamarack-dominated coniferous bog that is being invaded by glossy buckthorn. This is a rare plant community in Washington County, but is ranked as Fair according to the RFQA. Wetlands 939 and 1064 also have similar plant community classification issues that impact overall ecological score. The simple presence and regional importance of plant communities should be accounted for while interpreting WAT ecological scores.

The final caveat is that climate scores are highly dependent on forested and Sphagnum moss wetlands, both of which are uncommon wetland plant communities in the District. Interpretation of climate functional capacity scores should consider the local importance of maintaining climate functions in the context of wetland characteristics of the District.

Management Classification

Table 6 presents management classification results for individual wetlands. Management classifications of field-assessed wetlands exhibited several trends. Observed trends were used to extrapolate watershed wide results as described in the Methods section.

All Preserve wetlands from the prior classification maintained Preserve classification following the WAT assessment, indicating resilience to change. Three Manage 1 wetlands (459, 674, and 949) increased from Manage 1 to Preserve classification. These are all relatively large wetlands with good buffers and likely have some resilience to degradation. Further, because the WAT tool only has three functional capacity ratings compared to the four ratings provided by MnRAM, "Higher" WAT scores were assumed to be equivalent to both "High" and "Exceptional" MnRAM scores. The lower resolution may have increased the overall Native Plant Habitat and Wildlife Habitat scores compared to the previous MnRAM based assessment, particularly for Wetlands 674 and 459 which may have not rated as "Execptional" for these functions based on MnRAM. Finally, the WAT assessment relied on more detailed field surveys then the previous assessment. Exceptional plant communities such as those present within Wetland 949 may have been missed during the prior assessment.

Two Manage 1 wetlands (3 and 233) from the prior assessment decreased to Manage 2 wetlands. Both of these wetlands are relatively small and near roads. These factors may make them less resilient to degradation, resulting in a decline in function over time.

One Manage 2 wetland increased to Preserve (504). Wetland 504 is a large, groundwater fed wetland that discharges into a stream eventually draining to Brown's Creek. The more specific function and value classes for hydrology may have contributed to a higher hydrology rating. Additionally, portions of the wetland are dominated by invasive species while others are relatively high quality plant communities. The coarse resolution of the prior assessment may have missed the high quality vegetation. Further, similar to Wetlands 674 and 459, the Native Plant Habitat score may not have scored as "Exceptional" under the prior MnRAM-based assessment, but is included in the top tier for this function by WAT.

One Manage 2 wetland increased to Manage 1 (553). Like with other wetlands demonstrating an increase in classification, it may be attributed to the coarse resolution of the prior survey and high WAT Native Plant Diversity score that may not have ranked "Exceptional" under the prior MnRAM based methods.

One Manage 3 wetland increased to Preserve (413). Wetland 413 is also known as the Mendel Road wetland and includes a large portion of tamarack-dominated coniferous bog. The coarse resolution of the prior assessment may have missed the unique and higher quality interior portions of the wetland, as from Manning Avenue the visible portion of the plant community appears degraded.

One Manage 3 wetland increased to Manage 2 (330). Wetland 330 is a ditched wetland located in a pasture visible from Manning Avenue. The sole reason Wetland 330 increased to a Manage 2 wetland is the WAT tool's criteria for scenic beauty and visibility from Manning Avenue.

Table 5. Summary of overall functional capacity (FC), opportunity value (OV), and overall combined ranking for each functional group. See Appendix A for specific function scores of each wetland. Note that the WAT does not provide OV rankings for Climate function or FC rankings for Anthropogenic function.

Wetland ID	3	233	298	330	413	459	504	553	674	939	949	1064
Hydrology FC	Higher	Higher	Higher	Higher	Moderate	Higher	Moderate	Higher	Higher	Moderate	Higher	Higher
Hydrology OV	Higher	Higher	Higher	Higher	Higher	Higher	Higher	Higher	Higher	Moderate	Moderate	Higher
Hydrology Overall	Higher	Higher	Higher	Higher	Higher	Higher	Higher	Higher	Higher	Moderate	Higher	Higher
Water Quality FC	Higher	Higher	Higher	Moderate	Higher	Higher	Higher	Higher	Moderate	Higher	Higher	Higher
Water Quality OV	Moderate	Moderate	Lower	Lower	Higher	Higher	Higher	Higher	Moderate	Moderate	Moderate	Higher
Water Quality Overall	Higher	Higher	Moderate	Lower	Higher	Higher	Higher	Higher	Moderate	Higher	Higher	Higher
Ecological FC	Moderate	Lower	Moderate	Lower	Higher	Higher	Higher	Moderate	Higher	Higher	Higher	Moderate
Ecological OV	Moderate	Lower	Moderate	Lower	Moderate	Higher	Moderate	Moderate	Higher	Higher	Higher	Higher
Ecological Overall	Moderate	Lower	Moderate	Lower	Higher	Higher	Higher	Moderate	Higher	Higher	Higher	Higher
Climate FC/Overall	Lower	Moderate	Moderate	Moderate	Moderate	Moderate	Moderate	Moderate	Moderate	Moderate	Moderate	Moderate
Anthropo-genic OV/Overall	Lower	Moderate	Lower	Moderate	Moderate	Moderate	Moderate	Moderate	Moderate	Lower	Moderate	Lower

Table 6. Summary of management classifications as applied per District rules and MnRAM crosswalk presented in Table 3

Wetland ID	Native Plant Habitat	Wildlife Habitat	Fish Habitat	Anthropogenic Overall	Hydrology Overall	Stormwater Sensitivity	WAT Management Class	Prior Management Class	Public Water	Hypothesis for change
3	Moderate	Lower	NA	Lower	Higher	B	Manage 2	Manage 1	N	Small, less resilient to degradation.
233	Lower	Lower	NA	Moderate	Higher	B	Manage 2	Manage 1	N	Small, less resilient to degradation.
298	Moderate	Lower	NA	Lower	Higher	Exceptional	Preserve	Preserve	N	No change
330	Lower	Lower	NA	Moderate	Higher	B	Manage 2	Manage 3	N	Higher anthropogenic value due to visibility from roadside
413	Moderate	Higher	NA	Moderate	Higher	Exceptional	Preserve	Manage 3	N	Coarse resolution of prior assessment may have missed bog.
459	Higher	Higher	NA	Moderate	Higher	Exceptional	Preserve	Manage 1	Y	Large and good buffers, more resilient to degradation; higher value in new tool on plant diversity
504	Moderate	Higher	NA	Moderate	Higher	A	Preserve	Manage 2	N	Additional hydrology functions in WAT; coarse resolution of prior assessment may have missed better vegetation areas; high value in new tool on plant diversity (especially fresh meadows that aren't dominated by invasives).
553	Moderate	Moderate	NA	Moderate	Higher	A	Manage 1	Manage 2	N	Better plant diversity than apparent, coarse resolution pf prior may have missed good shallow open water diversity
674	Higher	Higher	NA	Moderate	Higher	B	Preserve	Manage 1	Y	Large and good buffers, more resilient to degradation; higher value in new tool on plant diversity (especially fresh meadows that aren't dominated by invasives).
939	Higher	Higher	NA	Lower	Moderate	A	Preserve	Preserve	Y	No change
949	Moderate	Higher	NA	Moderate	Higher	Exceptional	Preserve	Manage 1	Y	Coarse resolution of prior assessment may have missed bog plant community.
1064	Moderate	Moderate	NA	Lower	Higher	Exceptional	Preserve	Preserve	N	No change

Watershed-Wide Inventory

The revised NWI layer included a total of 686 wetland polygons. A summary table of watershed-wide management classifications based on the extrapolation criteria from the field inventory is provided in Table 7. Maps of prior and revised classifications are provided in Figures 3-6.

The watershed-wide extrapolation resulted in both increases and decreases of specific management classifications. Preserve and Manage 2 wetlands both increased while Manage 1 and Manage 3 wetlands decreased. The decrease in Manage 1 wetlands was due to both increases to Preserve wetlands and Manage 2 wetlands. The decrease in Manage 3 wetlands was a result of an increase in Manage 2 wetlands due to visibility from arterial roads and highways.

The prior classification included seven lakes. The revised classification places all District ponds and lakes into a single classification of Lakes/Ponds, resulting an increase in this management class pulling from various other classes. There was also an increase in the Needs Assessment classification due to the new NWI increasing some wetland sizes beyond the 1-acre assessment threshold. The Excavated Ponds classification also increased due to broader analysis capturing existing ponds potentially located in uplands.

Changes in Management Classes appear reasonable based on field results. Previously, only 36 wetlands were classified as Preserve. The finer resolution of the WAT field surveys revealed many of the previously non-Preserve wetlands included areas of high or exceptional ecological value. Although there are many degraded wetlands within the District, the landscape/geologic setting and relatively undeveloped land with good buffers maintains numerous high quality wetlands.

Table 7. Summary of management class reclassification results and comparison to prior function and value assessment.

Classification	Number of Wetlands	Net Change (Reclassification-Old)
Preserve (Old)	36	+56
Preserve (Reclassification)	92	
Manage 1 (Old)	143	-100
Manage 1 (Reclassification)	43	
Manage 2 (Old)	73	+23
Manage 2 (Reclassification)	96	
Manage 3 (Old)	50	-13
Manage 3 (Reclassification)	37	
Needs Assessment (Old)	1	+24
Needs Assessment (Reclassification)	25	
Below Threshold (Old)	367	-41
Below Threshold (Reclassification)	326	
Lakes (Old)	7	+33
Lakes/Ponds (Reclassification)	40	

Classification	Number of Wetlands	Net Change (Reclassification-Old)
Stormwater Management Ponds (Old)	9	+18
Excavated Ponds (Reclassification)	27	

Groundwater Dependent Natural Resources Reclassification

Wetlands with revised management classes of "Lake/Pond" or "Excavated Pond" were not included in final quantities as methods are either not applicable (Lake/Ponds) or wetlands may be artificial (Excavated Ponds). Excluding these features, a total of 619 wetland polygons were assessed for groundwater dependency. A comparison of prior groundwater classification and the reclassification is provided in Table 8 and maps of the groundwater dependent reclassification are provided in Figure 7 and Figure 8.

Table 8. Comparison of prior groundwater dependent wetlands classification and 2024 reclassification.

	Prior Groundwater Dependency Classification	Reclassified Groundwater Dependency Classification (score of 1 or greater)
Groundwater Dependent Wetlands	179	235
Not Groundwater Dependent Wetlands	440	384

The number of groundwater dependent wetlands increased from 179 to 235 based on the prior classification. The groundwater-dependent score threshold of 1 or greater appears reasonable in the context of the groundwater summary score distribution (Figure 1). Most of the wetlands near the threshold score as groundwater dependent either due to NWI HGM slope classification or a combination of secondary characteristics (highly dependent NPC and both surface water and groundwater dependent based on prior classification).

It is important to consider groundwater-dependent wetland classification and potential rule revision recommendations in the context of current District rules. Current District rules are based on plant communities as defined by MLCCS classification. Using existing MLCCS data, only 9 wetlands within the District would meet this criteria. The MLCCS classifications are highly specific and representative of intact plant communities. Many groundwater dependent wetlands are no longer reflective of these communities, but still may provide functions of groundwater dependent wetlands such as inclusions or microhabitat for groundwater-dependent plants, surface water supply, and thermoregulation. These wetlands may also have capacity for restoration to plant communities more reflective of groundwater-dependency (e.g. seepage wetlands at Brown's Creek Park).

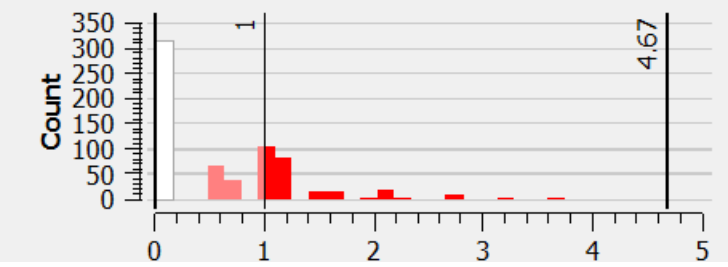

Figure 1. Distribution of groundwater-dependency scores for District wetlands on scale of 0-5 (x-axis).

RECOMMENDATIONS

Function and Value Inventory

1. The revised watershed-wide management classifications should be used as base layer for assessing wetland management classifications. The classifications can be applied under the current framework of the District rules to continue protection of high quality wetlands.
    a. Site-specific decisions related to permitting or potential projects should continue to require site-specific data to field-verify classifications and describe functions and values.
    b. MnRAM should continue to be used for management classification and functional assessments for application of District rules until WAT is finalized. At that time the District should consider rule revisions to implement WAT for site-specific management classifications. Coordinate with agencies at that time for specific guidance on regulatory implementation similar to MnRAM-based regulatory guidance released at onset of MnRAM.
    c. Unless the final WAT integrates revisions to plant community condition scoring, the District should consider an additional rule protecting regionally important plant communities that are currently not factored into WAT as Preserve wetlands (e.g. open bogs, coniferous bogs, sedge mats, calcareous fens).
2. Since WAT includes additional function and value categories, the District could consider rule revisions to protect locally important functions. For example, thermoregulation may be a locally important function for maintaining stream temperatures.
3. The District should consider assessment of a subset of wetlands on an annual basis. Additional assessment would improve accuracy of extrapolated classifications, provide ability to adjust extrapolation parameters, and offer opportunity to document exceptional wetland resources within the District as demonstrated by the identification of Wetlands 939 and 949 as particularly exceptional resources.

Groundwater Dependent Wetland Recommendations

1. Adopt the new classification layer as the base layer for assessing wetland groundwater dependency. Site-specific assessment should supplement GIS-based determinations for proposed projects.
2. Revise the District's rule language to define groundwater dependent wetlands as wetlands with groundwater dependent hydrology and/or a plant community that reflects groundwater hydrology.
3. Specify that field assessment criteria for determining groundwater dependency should include but not be limited to:
    a. Presence of groundwater dependent MLCCS plant communities as defined by current rules
    b. Presence of fully groundwater dependent DNR Native Plant Communities
    c. Presence of mapped springs or seeps
    d. Field identification of springs or seeps
    e. Geomorphic position along slope
    f. Secondary groundwater discharge field indicators
        i. Abnormally cold water (especially observed during hottest summer months)
        ii. Location within a mapped groundwater discharge area, near a groundwater divide, or headwater wetland
        iii. Iron and marl deposits in soils
        iv. Rainbow film on surface water that breaks apart (unlike an oily film)
    g. For open water wetlands where some indicators may not be evident, investigation of landscape position and underlying soils may be necessary.

Appendix A

Figures

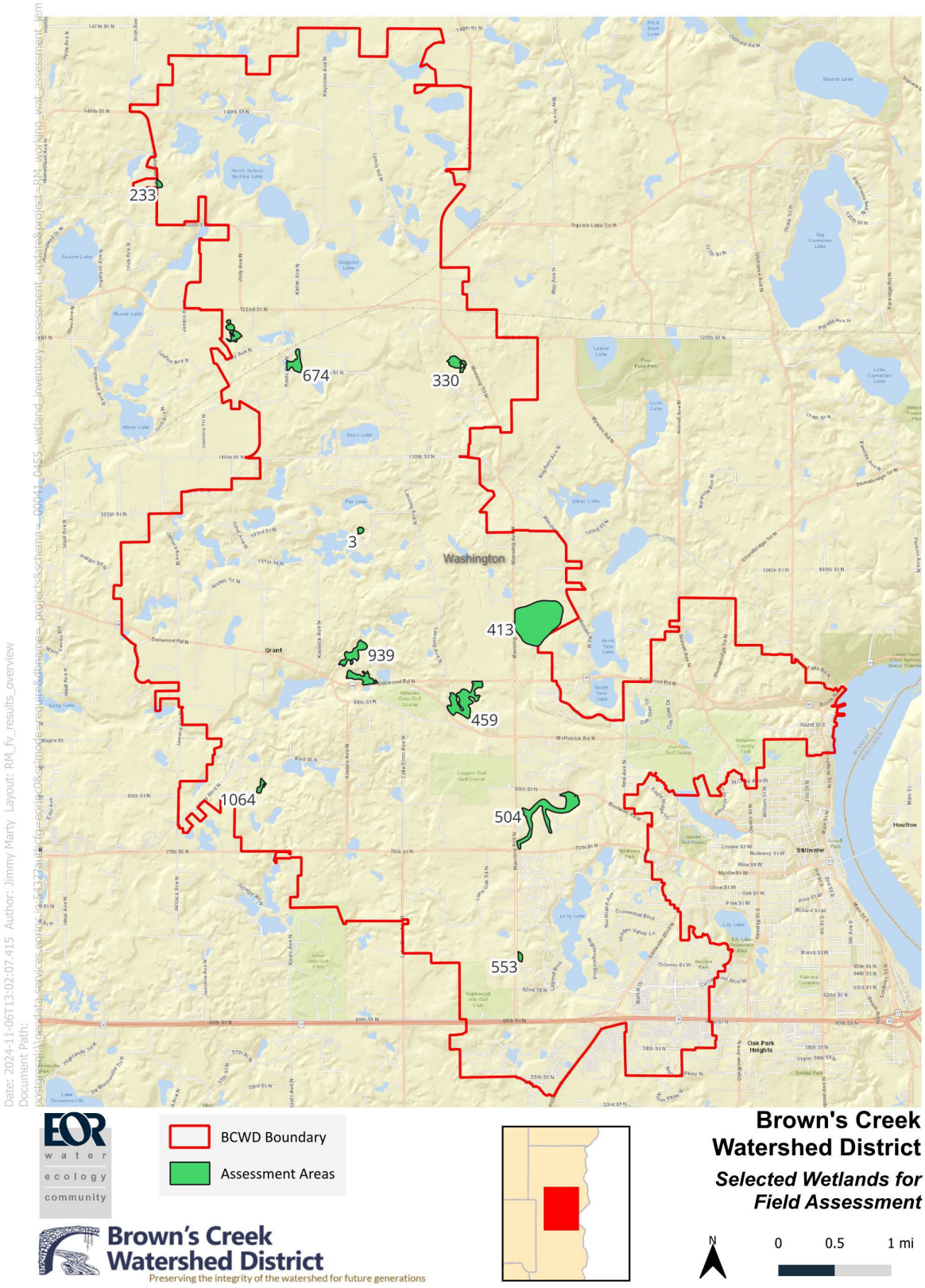

Figure 2. Selected wetlands for WAT field assessment.

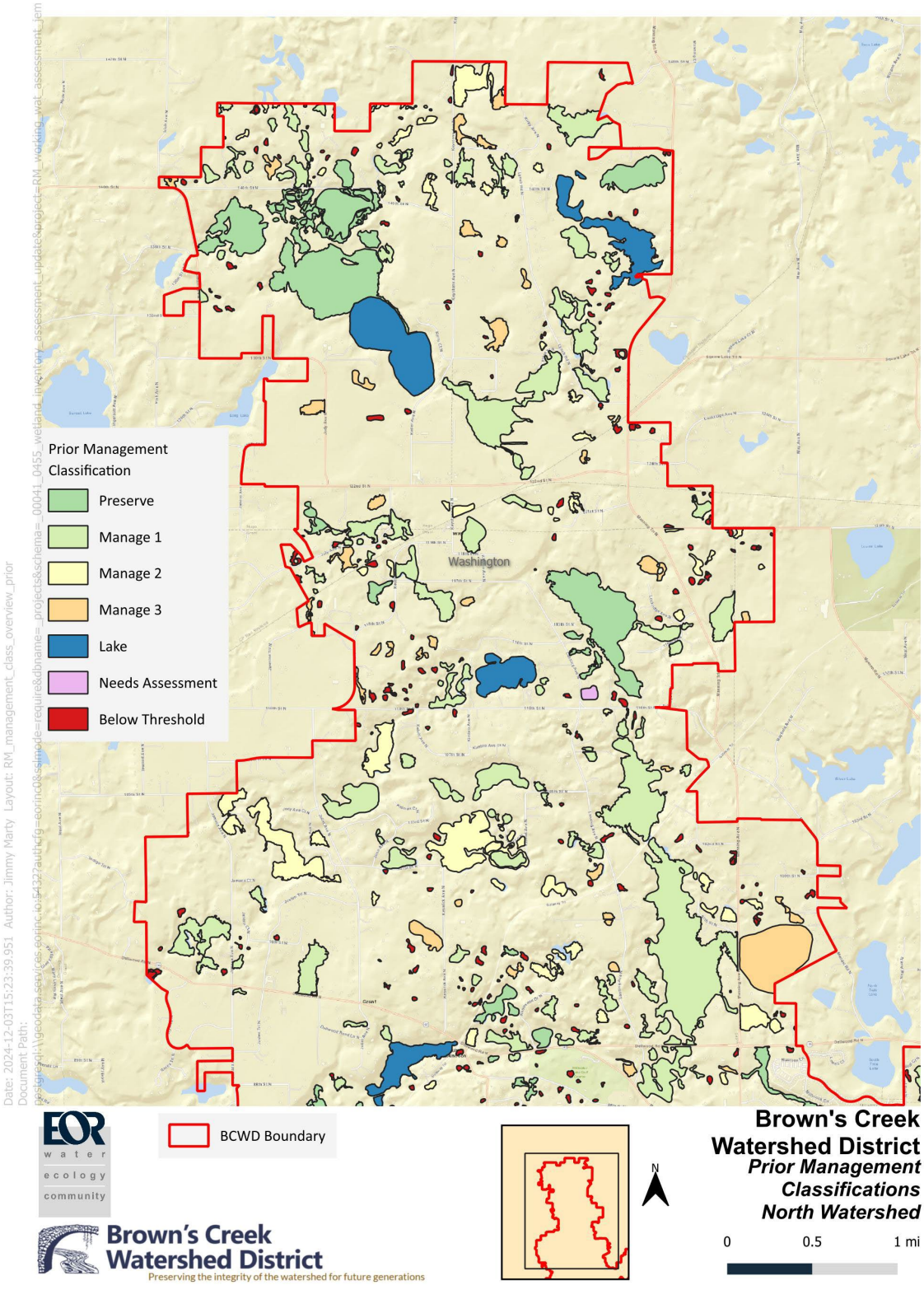

Figure 3. Prior management classifications from the 2001 and 2007 function and value inventory - north watershed.

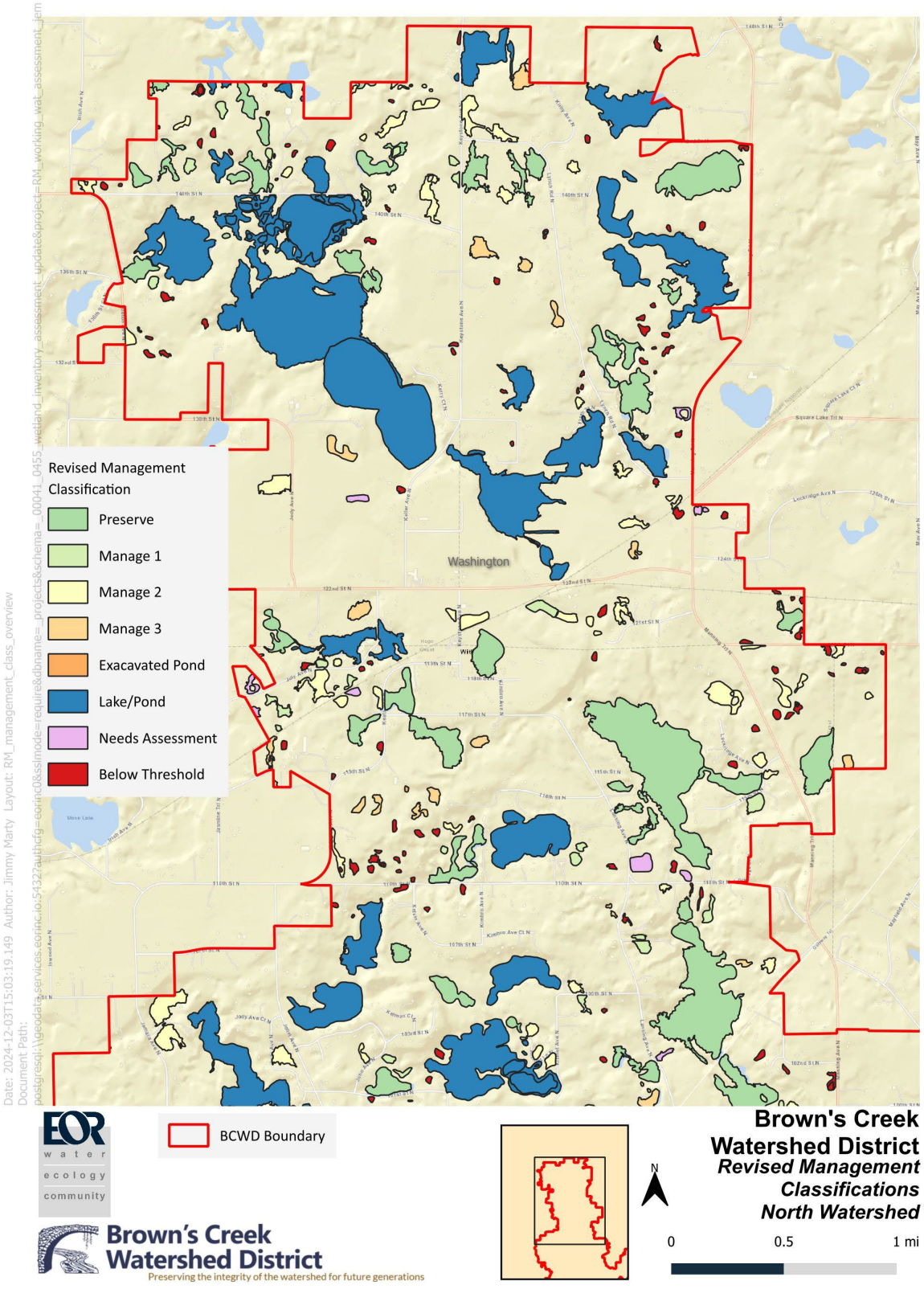

Figure 4. Updated management classifications from the 2024 function and value inventory - north watershed.

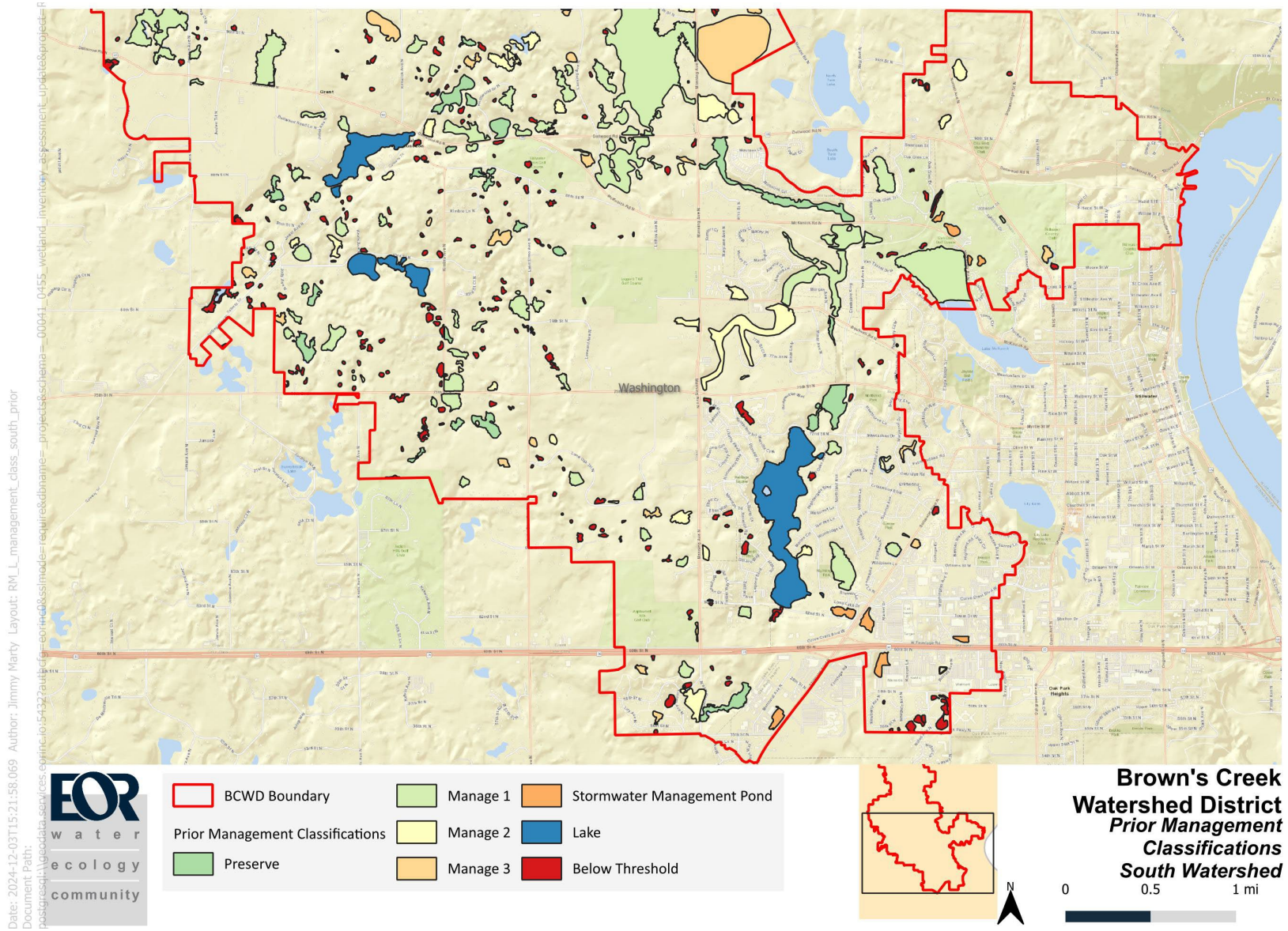

Figure 5. Prior management classifications from the 2001 and 2007 function and value inventory - south watershed.

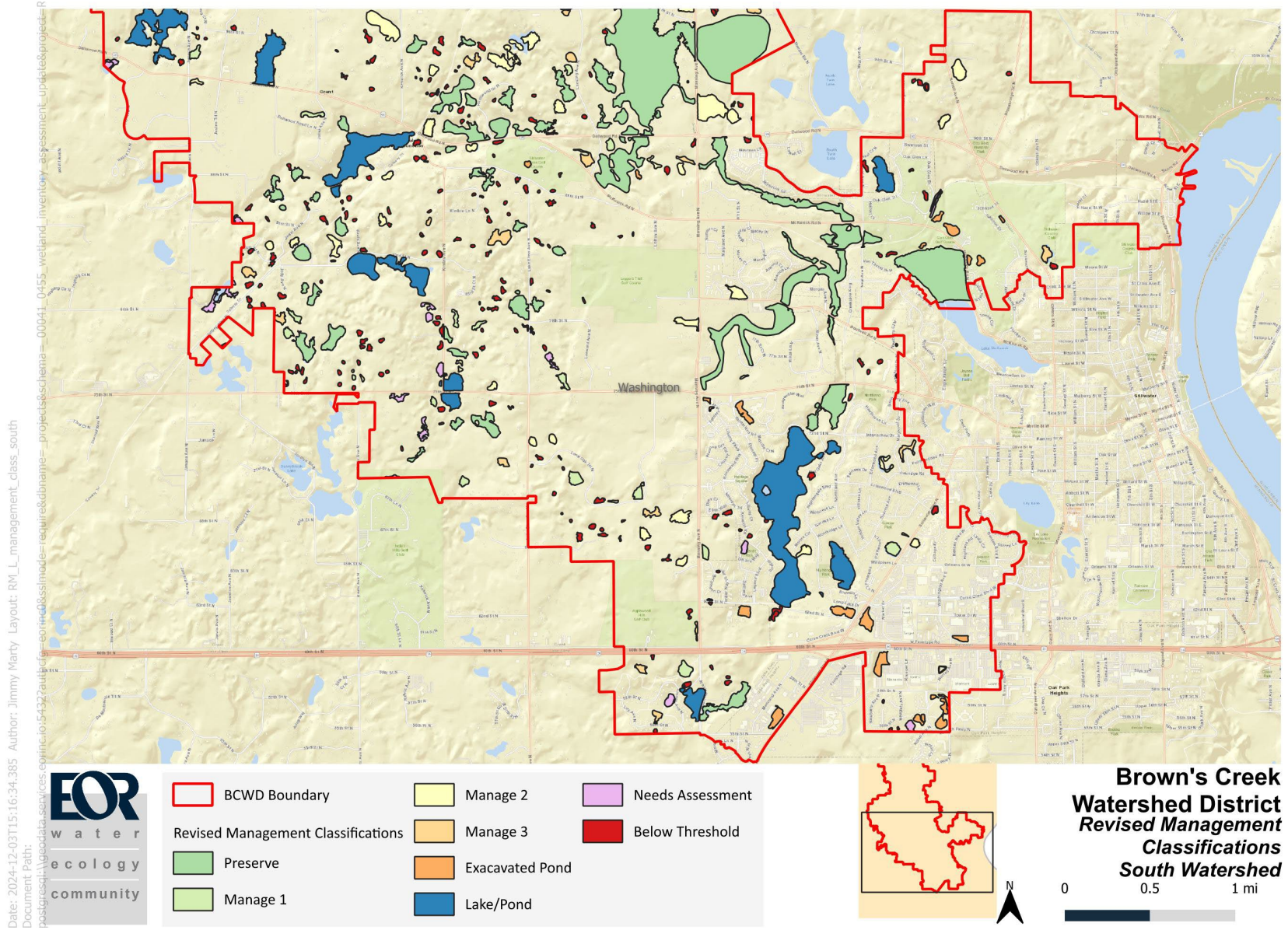

Figure 6. Updated management classifications from the 2024 function and value inventory - south watershed.

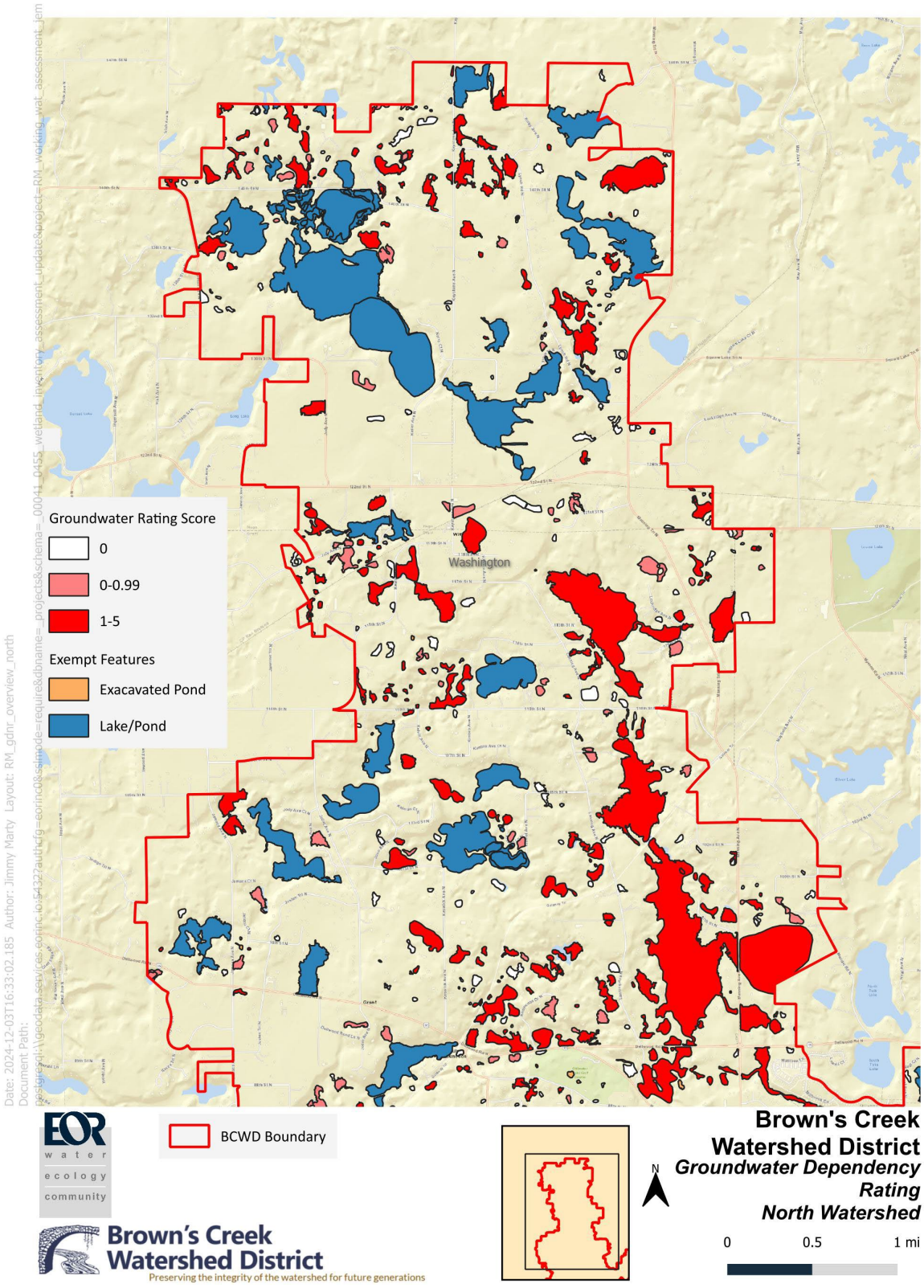

Figure 7. Groundwater dependency ratings for the north watershed.

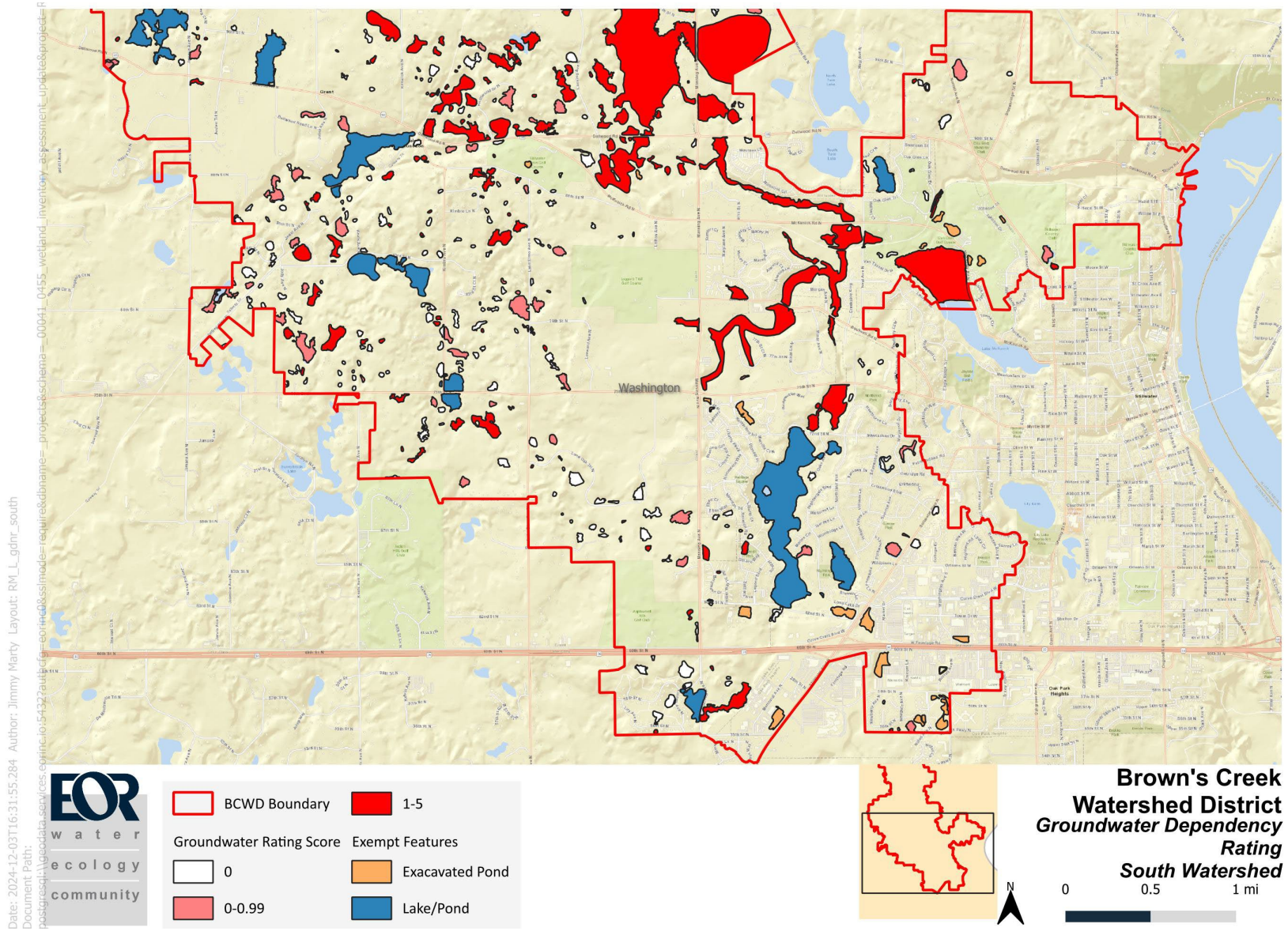

Figure 8. Groundwater dependency ratings for the south watershed.

Appendix B

Individual Wetland Narratives

Wetland ID: 3

Size: 1.51 acres

Catchment Area: 15.43 acres

Hydrogeomorphic Class: Depressional

Wetland 3 is located north of Kismet Lane and west of Kismet Avenue in the north-central portion of the watershed. The wetland is situated within an intermediate elevation of the watershed. Surrounding land cover consists predominantly of hay/pasture, mixed forest, and low intensity development. The wetland receives surface water runoff from surrounding uplands. There is no wetland outlet.

Plant communities within Wetland 3 consist of Fresh Meadow (Fair Quality) and Shallow Open Water (Fair Quality), with an overall floristic quality of Fair. The invasive plant reed canary grass is dominant within the Fresh Meadow.

Functional ranks for Wetland 3 are higher for hydrology and water quality. Its depressional geomorphology, small size to catchment ratio, and surrounding land cover provide higher surface water attenuation function. Along with these characteristics, its hydrologic regime and isolation provide higher groundwater recharge function. These characteristics also result in higher ranks for nitrate removal, phosphorus retention, and sediment and pollutant retention functions.

Based on translation to current District rules, Wetland 3 is classified as a Manage 2 wetland. This is based on its moderate vegetative diversity score. The Manage 2 classification is a decrease from its Manage 1 classification from the prior classification due to a lower functional rating for wildlife habitat, potentially due to increased invasive species cover.

Table 9. Wetland 3 functional group ranks.

Functional Group	Functional Capacity Rank	Opportunity-Value Rank	Overall Rank
Hydrology	Higher	Higher	Higher
Water Quality	Higher	Moderate	Higher
Ecological	Moderate	Moderate	Moderate
Climate	Lower	Not Applicable	Lower
Anthropogenic	Not Applicable	Lower	Lower

Table 10. Wetland 3 specific function ranks

Functional Group	Specific Function	Functional Capacity Rank	Opportunity-Value Rank	Overall Rank
Hydrology	Surface Water Attenuation (SWA)	Higher	Higher	Higher
	Surface Water Supply (SWS)	Moderate	Moderate	Moderate
	Groundwater Recharge (GR)	Higher	Moderate	Higher
Water Quality	Nitrate Removal (NR)	Higher	Moderate	Higher
	Phosphorus Retention (PR)	Higher	Moderate	Higher
	Sediment and Pollutant Retention (SPR)	Higher	Higher	Higher
	Shoreline Stabilization (SS)	Not Applicable	Not Applicable	Not Applicable
	Thermoregulation (TR)	Not Applicable	Not Applicable	Not Applicable
Ecological	Native Plant Habitat (NP)	Moderate	Moderate	Moderate
	Wildlife Habitat (WH)	Lower	Moderate	Lower
	Fish Habitat (FH)	Not Applicable	Not Applicable	Not Applicable
Climate	Carbon Sequestration (CS)	Lower	Not Applicable	Lower
Anthropogenic	Historic or Cultural Uses (HCU)	Not Applicable	Not Applicable	Not Applicable
	Scientific or Educational Importance (SEI)		Not Applicable	Not Applicable
	Commercial Uses (CU)		Lower	Lower
	Recreational Uses (RU)		Lower	Lower
	Scenic Beauty (SB)		Lower	Lower

Figure 9. Wetland 3 plant communities.

Wetland ID: 233

Size: 1.68 acres

Catchment Area: 21.87 acres

Hydrogeomorphic Class: Depressional

Wetland 233 is located north of 132nd Street and east of Jody Avenue in the northwestern portion of the watershed. The wetland is situated within a high elevation of the watershed. Surrounding land cover consists predominantly of cultivated crops, hay/pasture, forest, and low intensity development. There is no wetland outlet. The wetlands receives surface water from surrounding uplands, including a culvert directing flow from east of Jody Avenue to the wetland.

Plant communities within Wetland 233 consist of Fresh Meadow (Poor Quality) and Shallow Marsh (Poor Quality), with an overall floristic quality of Poor. The invasive plant reed canary grass is dominant within the Fresh Meadow and the invasive plant hybrid cattail is dominant within the Shallow Marsh.

Functional ranks for Wetland 233 are higher for hydrology and water quality. Its depressional geomorphology, small size to catchment ratio, and surrounding land cover provide higher surface water attenuation function. Along with these characteristics, its landform and isolation provide higher groundwater recharge function. These characteristics also result in higher ranks for nitrate removal, phosphorus retention, and sediment and pollutant retention functions.

Based on translation to current District rules, Wetland 233 is classified as a Manage 2 wetland. This is based on its moderate anthropogenic value due to visibility from Jody Avenue. The Manage 2 classification is a decrease from its Manage 1 classification from the prior classification, potentially due to increased invasive species cover.

Table 11. Wetland 233 functional group ranks.

Functional Group	Functional Capacity Rank	Opportunity-Value Rank	Overall Rank
Hydrology	Higher	Higher	Higher
Water Quality	Higher	Moderate	Higher
Ecological	Lower	Lower	Lower
Climate	Moderate	Not Applicable	Moderate
Anthropogenic	Not Applicable	Moderate	Moderate

Table 12. Wetland 233 specific function ranks.

Specific Function	Functional Capacity Rank	Opportunity-Value Rank	Overall Rank
Surface Water Attenuation (SWA)	Higher	Higher	Higher
Surface Water Supply (SWS)	Moderate	Moderate	Moderate
Groundwater Recharge (GR)	Higher	Moderate	Higher
Nitrate Removal (NR)	Higher	Higher	Higher
Phosphorus Retention (PR)	Higher	Moderate	Higher
Sediment and Pollutant Retention (SPR)	Higher	Moderate	Higher
Shoreline Stabilization (SS)	Not Applicable	Not Applicable	Not Applicable
Thermoregulation (TR)	Not Applicable	Not Applicable	Not Applicable
Native Plant Habitat (NP)	Lower	Lower	Lower
Wildlife Habitat (WH)	Lower	Lower	Lower
Fish Habitat (FH)	Not Applicable	Not Applicable	Not Applicable
Carbon Sequestration (CS)	Moderate	Not Applicable	Moderate
Historic or Cultural Uses (HCU)	Not Applicable	Not Applicable	Not Applicable
Scientific or Educational Importance (SEI)		Not Applicable	Not Applicable
Commercial Uses (CU)		Lower	Lower
Recreational Uses (RU)		Lower	Lower
Scenic Beauty (SB)		Moderate	Moderate

Figure 10. Wetland 233 plant communities.

Wetland ID: 298

Size: 6.79 acres

Catchment Area: 46.99 acres

Hydrogeomorphic Class: Depressional

Wetland 298 is located southwest of 122nd Street and July Avenue intersection in the northwestern portion of the watershed. The wetland is situated within a high elevation of the watershed and was identified as part of a landlocked basin in the 2006 landlocked basin study (basin ID UBC-1). Surrounding land cover consists predominantly of hay/pasture and open space/low intensity development. Wetland 298 receives surface water runoff from surrounding uplands. The wetland outlets to July Avenue Pond through a narrow wetland connection.

Plant communities within Wetland 298 consist of Fresh Meadow (Poor Quality), Shallow Marsh (Good Quality), Deep Marsh (Fair Quality), and Shallow Open Water (Fair Quality) with an overall floristic quality of Fair. The invasive plant reed canary grass is dominant within the Fresh Meadow and the invasive plant hybrid cattail is dominant within the Deep Marsh. The Shallow Marsh is mostly dominated by native sedges with occasional large patches of invasive cattail.

Functional ranks for Wetland 298 are higher for hydrology and water quality. Its depressional geomorphology, outlet characteristics, and surrounding land cover provide higher surface water attenuation function. Along with these characteristics, its landform, hydrology regime, and vegetation provide higher sediment and pollutant retention function.

Based on translation to current District rules, Wetland 298 is classified as a Preserve wetland consistent with its previous classification under the prior assessment. This is based on its moderate vegetative diversity score and exceptional stormwater sensitivity.

Table 13. Wetland 298 functional group ranks.

Functional Group	Functional Capacity Rank	Opportunity-Value Rank	Overall Rank
Hydrology	Higher	Higher	Higher
Water Quality	Higher	Lower	Moderate
Ecological	Moderate	Moderate	Moderate
Climate	Moderate	Not Applicable	Moderate
Anthropogenic	Not Applicable	Lower	Lower

Table 14. Wetland 298 specific function ranks.

Specific Function	Functional Capacity Rank	Opportunity-Value Rank	Overall Rank
Surface Water Attenuation (SWA)	Higher	Higher	Higher
Surface Water Supply (SWS)	Higher	Moderate	Higher
Groundwater Recharge (GR)	Moderate	Moderate	Moderate
Nitrate Removal (NR)	Moderate	Moderate*	Moderate*
Phosphorus Retention (PR)	Moderate	Lower	Moderate
Sediment and Pollutant Retention (SPR)	Higher	Lower	Moderate
Shoreline Stabilization (SS)	Not Applicable	Not Applicable	Not Applicable
Thermoregulation (TR)	Not Applicable	Not Applicable	Not Applicable
Native Plant Habitat (NP)	Moderate	Moderate	Moderate
Wildlife Habitat (WH)	Lower	Moderate	Lower
Fish Habitat (FH)	Not Applicable	Not Applicable	Not Applicable
Carbon Sequestration (CS)	Moderate*	Not Applicable	Moderate*
Historic or Cultural Uses (HCU)	Not Applicable	Not Applicable	Not Applicable
Scientific or Educational Importance (SEI)		Not Applicable	Not Applicable
Commercial Uses (CU)		Lower	Lower
Recreational Uses (RU)		Lower	Lower
Scenic Beauty (SB)		Lower	Lower

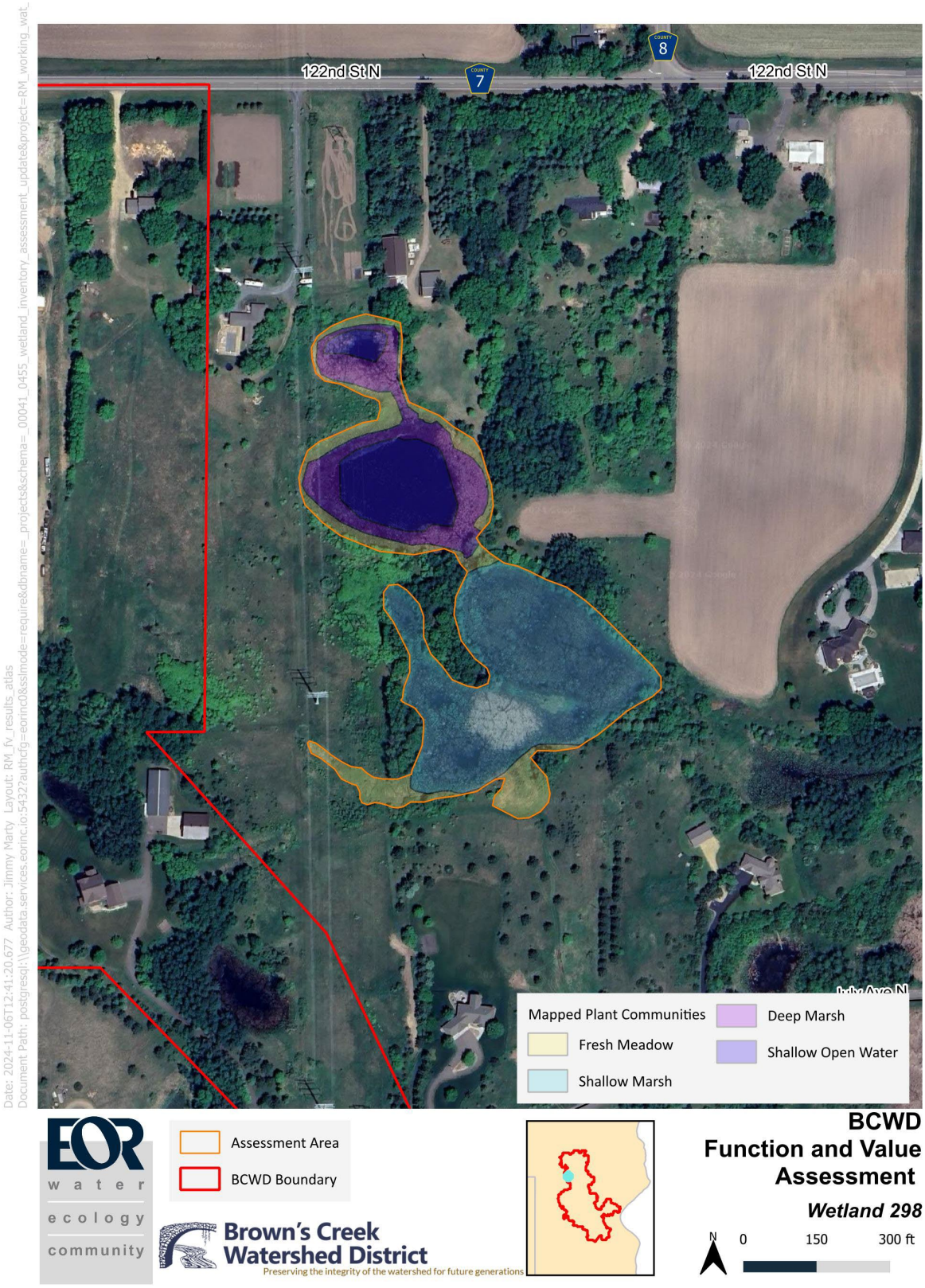

Figure 11. Wetland 298 plant communities.

Wetland ID: 330

Size: 7.62 acres

Catchment Area: 48.42 acres

Hydrogeomorphic Class: Depressional

Wetland 330 is located south of the Manning Trail and 120th Street intersection in the northeastern portion of the watershed. The wetland is situated within an intermediate elevation of the watershed. Surrounding land cover consists predominantly of hay/pasture, cultivated crops, and low intensity development. and open space/low intensity development. Wetland 330 receives surface water runoff from surrounding uplands, including via culvert beneath Manning Trail to the east. The wetland outlets to a ditch draining to the Brown's Creek Headwaters wetland.

Plant communities within Wetland 330 consist of Fresh Meadow (Poor Quality), Shallow Marsh (Poor Quality), Deep Marsh (Fair Quality), and Shallow Open Water (Fair Quality) with an overall floristic quality of Poor. The invasive plant reed canary grass is dominant within the Fresh Meadow and the invasive plant hybrid cattail is dominant within the Shallow and Deep Marsh.

Functional ranks for Wetland 330 are moderate or lower due to its ditched hydrology and poor ecological condition. The opportunity-value rank is higher for hydrology due to potential for higher functioning surface water attenuation and surface water supply.

Based on translation to current District rules, Wetland 330 is classified as a Manage 2 wetland. This is based on its moderate anthropogenic value rating due to visibility from Manning Trail. The Manage 2 classification is an increase from its Manage 3 classification from the prior classification, due to the WAT tool rating public visibility as a moderate anthropogenic value.

Table 15. Wetland 330 functional group ranks.

Functional Group	Functional Capacity Rank	Opportunity-Value Rank	Overall Rank
Hydrology	Moderate	Higher	Higher
Water Quality	Moderate	Lower	Lower
Ecological	Lower	Lower	Lower
Climate	Moderate	Not Applicable	Moderate
Anthropogenic	Not Applicable	Moderate	Moderate

Table 16. Wetland 330 specific function ranks.

Specific Function	Functional Capacity Rank	Opportunity-Value Rank	Overall Rank
Surface Water Attenuation (SWA)	Moderate*	Higher	Higher
Surface Water Supply (SWS)	Moderate	Higher	Higher
Groundwater Recharge (GR)	Moderate	Moderate	Moderate
Nitrate Removal (NR)	Moderate	Moderate	Moderate
Phosphorus Retention (PR)	Lower	Lower	Lower
Sediment and Pollutant Retention (SPR)	Lower	Lower	Lower
Shoreline Stabilization (SS)	Not Applicable	Not Applicable	Not Applicable
Thermoregulation (TR)	-	-	-
Native Plant Habitat (NP)	Lower	Lower	Lower
Wildlife Habitat (WH)	Lower	Lower	Lower
Fish Habitat (FH)	Not Applicable	Not Applicable	Not Applicable
Carbon Sequestration (CS)	Moderate	Not Applicable	Moderate
Historic or Cultural Uses (HCU)	Not Applicable	Not Applicable	Not Applicable
Scientific or Educational Importance (SEI)		Not Applicable	Not Applicable
Commercial Uses (CU)		Lower	Lower
Recreational Uses (RU)		Lower	Lower
Scenic Beauty (SB)		Moderate	Moderate

Figure 12. Wetland 330 plant communities.

Wetland ID: 413 (Mendel Road Wetland)

Size: 80.10 acres

Catchment Area: 325.50 acres

Hydrogeomorphic Class: Organic Soil Flat

Wetland 413 is located between Manning Trail and Mendel Road and north of Highway 96. intersection in the east-central portion of the watershed. The wetland is situated within a locally high elevation of the watershed. Surrounding land cover consists predominantly of hay/pasture, cultivated crops, forest, emergent wetlands, and open space/low intensity development. The wetland receives overland flow from surrounding uplands. The area is mapped as a groundwater discharge area, but no evidence of groundwater discharge was observed in the field. The wetland is transected by a ditch that outlets south toward Brown's Creek.

Plant communities within Wetland 413 consist of Coniferous Bog (Fair Quality), Fresh Meadow (Good Quality), Shallow Marsh (Fair Quality), Shrub-Carr (Poor Quality), and Shallow Open Water (Fair Quality) with an overall floristic quality of Fair. Although the Coniferous Bog community ranks as Fair Quality, this comparison is to overall statewide condition of Coniferous Bogs. Relative to other plant community types, Coniferous Bogs have high floristic quality. The Coniferous Bog of Wetland 413 is dominated by native species with some invasion by glossy buckthorn. Intact Coniferous Bogs are an uncommon plant community within the District and Wetland 413 is likely the largest Coniferous Bog present. The other plant communities within Wetland 413 are generally dominated by native species with exception of the Shrub-Carr. The Shrub-Carr is dominated by glossy buckthorn that threatens to further invade the Coniferous Bog.

Functional ranks for Wetland 413 are higher for water quality and ecological. Its geomorphology, discharge to a tributary of Brown's Creek, and likely groundwater inputs provide thermoregulation benefits. and surrounding land cover provide higher surface water attenuation function. The condition and characteristics of the plant communities and position within a wildlife habitat core area contribute to its higher ecological function.

Based on translation to current District rules, Wetland 413 is classified as a Preserve wetland. This based on its higher wildlife habitat function. The Preserve classification is an increase from its Manage 3 classification from the prior classification. The prior inventory may have weighted the poor-quality Shrub-Carr and not access the interior of the Coniferous Bog and higher quality areas of the wetland.

Table 17. Wetland 413 functional group ranks.

Functional Group	Functional Capacity Rank	Opportunity-Value Rank	Overall Rank
Hydrology	Moderate	Higher	Higher
Water Quality	Higher	Higher	Higher
Ecological	Higher	Moderate	Higher
Climate	Moderate	Not Applicable	Moderate
Anthropogenic	Not Applicable	Moderate	Moderate

Table 18. Wetland 413 specific function ranks.

Functional Group	Specific Function	Functional Capacity Rank	Opportunity-Value Rank	Overall Rank
Hydrology	Surface Water Attenuation (SWA)	Lower	Higher	Moderate
	Surface Water Supply (SWS)	Higher	Higher	Higher
	Groundwater Recharge (GR)	Moderate	Moderate	Moderate
Water Quality	Nitrate Removal (NR)	Moderate	Moderate	Moderate
	Phosphorus Retention (PR)	Moderate	Lower	Lower
	Sediment and Pollutant Retention (SPR)	Moderate	Lower	Lower
	Shoreline Stabilization (SS)	Not Applicable	Not Applicable	Not Applicable
	Thermoregulation (TR)	Higher	Higher	Higher
Ecological	Native Plant Habitat (NP)	Moderate	Moderate	Moderate
	Wildlife Habitat (WH)	Higher	Moderate	Higher
	Fish Habitat (FH)	Not Applicable	Not Applicable	Not Applicable
Climate	Carbon Sequestration (CS)	Moderate	Not Applicable	Moderate
Anthropogenic	Historic or Cultural Uses (HCU)	Not Applicable	Not Applicable	Not Applicable
	Scientific or Educational Importance (SEI)		Not Applicable	Not Applicable
	Commercial Uses (CU)		Lower	Lower
	Recreational Uses (RU)		Lower	Lower
	Scenic Beauty (SB)		Moderate	Moderate

Figure 13. Wetland 413 plant communities.

Wetland ID: 459

Size: 29.00 acres

Catchment Area: 427.05 acres

Hydrogeomorphic Class: Depressional

Wetland 459 is located south of Highway 96 and east of Lansing Avenue in the central portion of the watershed. The wetland is situated within a locally low elevation of the watershed. Surrounding land cover consists predominantly of forest, emergent wetlands, hay/pasture, and developed open space. The wetland receives overland flow from surrounding uplands, including a culvert along McKusick Trail and a culvert on the west edge of the wetland draining from Highway 96. The area is mapped as a groundwater discharge area, and numerous seepage channels and mineral film were observed within the wetland. The wetland outlets to the north via a culvert beneath Highway 96 to a large unnamed wetland associated with Brown's Creek and to the east toward Brown's Creek via a wetland/swale/ditch complex.

Plant communities within Wetland 459 consist of Shrub-Carr (Good Quality), Sedge Mat (Fair Quality) and Shallow Open Water (Fair Quality) with an overall floristic quality of Good. Although the Sedge Mat community ranks as Fair Quality, this comparison is to overall statewide condition of Sedge Mats. Relative to other plant community types, Sedge Mats have high floristic quality. The Sedge Mat of Wetland 459 is dominated by native species with low invasive species cover. Intact Sedge Mats are an uncommon plant community within the District and rank as exceptionally sensitive to stormwater.

Functional ranks for Wetland 459 are higher for hydrology, water quality and ecological functions and values. Its depressional geomorphology, moderate size to catchment ratio, and surrounding land cover provide higher surface water attenuation function. These characteristics also result in higher rank for nitrate removal. The condition of the plant communities and position within a wildlife habitat core area contribute to its higher ecological function.

Based on translation to current District rules, Wetland 459 is classified as a Preserve wetland. This is based on its higher native plant habitat and wildlife habitat function. The Preserve classification is an increase from its Manage 1 classification from the prior classification. The increase in classification is likely due to the WAT tool having fewer classification categories than the MNRAM methods (no Exceptional category) and EOR's translation methodology lumping the "Higher" WAT ranking into the "Exceptional" MNRAM ranking.

Table 19. Wetland 459 functional group ranks.

Functional Group	Functional Capacity Rank	Opportunity-Value Rank	Overall Rank
Hydrology	Higher	Higher	Higher
Water Quality	Higher	Higher	Higher
Ecological	Higher	Higher	Higher
Climate	Moderate	Not Applicable	Moderate
Anthropogenic	Not Applicable	Moderate	Moderate

Table 20. Wetland 459 specific function ranks.

Specific Function	Functional Capacity Rank	Opportunity-Value Rank	Overall Rank
Surface Water Attenuation (SWA)	Higher	Higher	Higher
Surface Water Supply (SWS)	Moderate	Lower	Lower
Groundwater Recharge (GR)	Moderate	Moderate	Moderate
Nitrate Removal (NR)	Higher	Higher	Higher
Phosphorus Retention (PR)	Moderate	Moderate	Moderate
Sediment and Pollutant Retention (SPR)	Moderate	Higher	Higher
Shoreline Stabilization (SS)	Not Applicable	Not Applicable	Not Applicable
Thermoregulation (TR)	Not Applicable	Not Applicable	Not Applicable
Native Plant Habitat (NP)	Higher	Higher	Higher
Wildlife Habitat (WH)	Higher	Higher	Higher
Fish Habitat (FH)	Not Applicable	Not Applicable	Not Applicable
Carbon Sequestration (CS)	Moderate	Not Applicable	Moderate
Historic or Cultural Uses (HCU)	Not Applicable	Not Applicable	Not Applicable
Scientific or Educational Importance (SEI)		Not Applicable	Not Applicable
Commercial Uses (CU)		Lower	Lower
Recreational Uses (RU)		Lower	Lower
Scenic Beauty (SB)		Moderate	Moderate

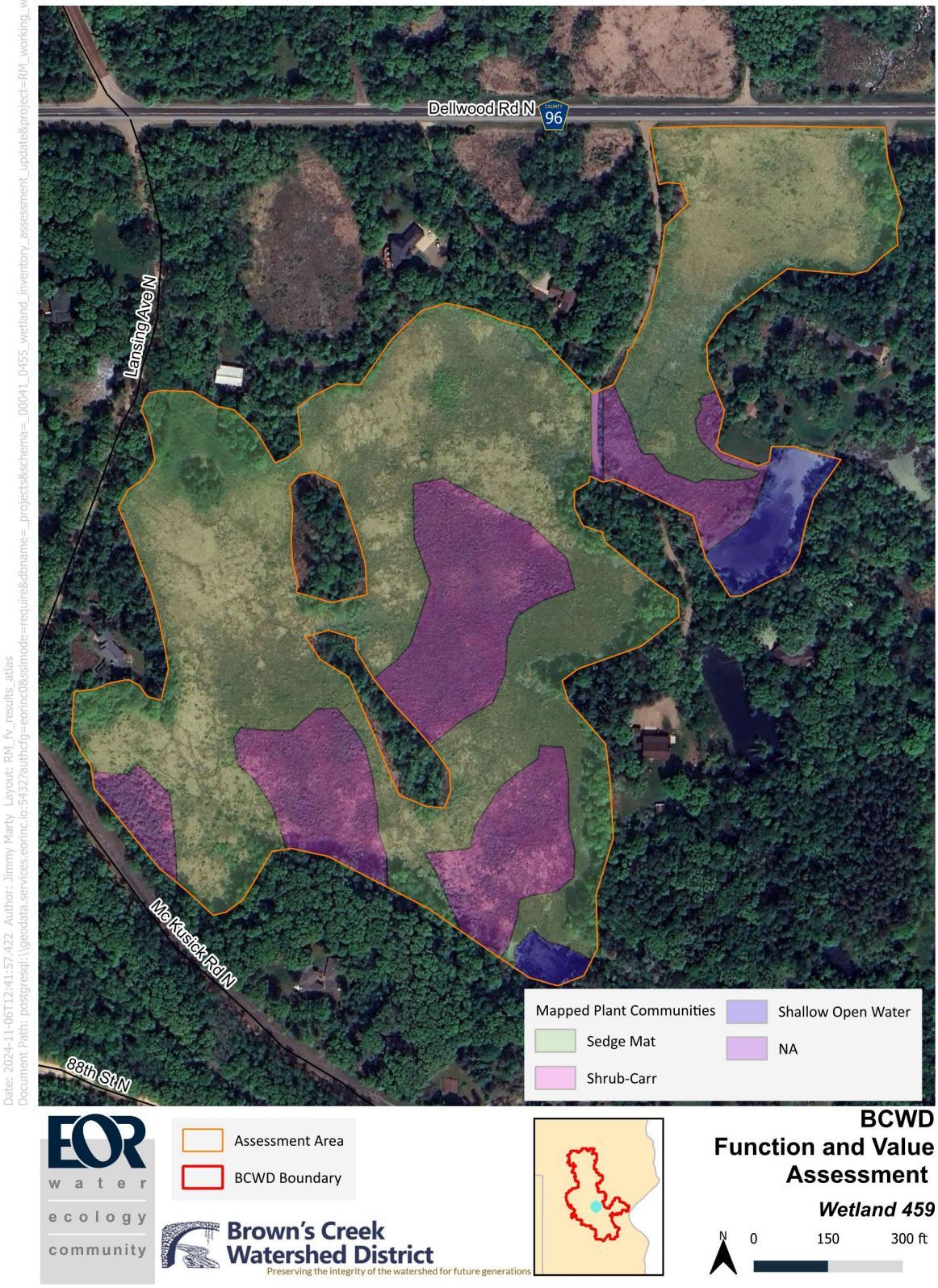

Figure 14. Wetland 459 plant communities.

Wetland ID: 504

Size: 34.82 acres

Catchment Area: 1123.71 acres

Hydrogeomorphic Class: Slope -Groundwater

Wetland 504 is located east of Manning Avenue between 80th Street and 75th Street. The wetland is situated within a locally low elevation of the watershed. Surrounding land cover consists predominantly of hay/pasture, developed open space, medium/low intensity development, and cultivated crops. The wetland receives overland flow from surrounding uplands, including culverts along 75th Street, 77th Street, and Manning Avenue. The area is mapped as a groundwater discharge area, and seepage flow was observed along with numerous seepage channels and mineral film. The wetland outlets to the north via a culvert beneath 80th Street.

Plant communities within Wetland 504 consist of Fresh Meadow (Fair Quality), Shallow Marsh (Poor Quality), Hardwood Swamp (Poor Quality), and Shallow Open Water (Fair Quality) with an overall floristic quality of Fair. Much of the Fresh Meadow is dominated by the invasive reed canary grass, with pockets dominated by native species. The Shallow Marsh is dominated by the invasive hybrid cattail, and the Hardwood Swamp dominated by the invasive common buckthorn.

Function and value ranks for Wetland 504 are higher for hydrology, water quality, and ecological functions and values. Its slope-groundwater geomorphology, outlet characteristics, and natural flow-through channels provide higher surface water supply function. These characteristics along with soils, vegetation, and discharge to a tributary of Bronw's Creek result in higher rank for nitrate removal and thermoregulation. The condition of the plant communities and position within a wildlife habitat core area contribute to its higher ecological function.

Based on translation to current District rules, Wetland 504 is classified as a Preserve wetland. This is based on its higher wildlife habitat function. The Preserve classification is an increase from its Manage 2 classification from the prior classification. The increase in classification is likely due to the WAT tool having fewer classification categories than the MNRAM methods (no Exceptional category) and EOR's translation methodology lumping the "Higher" WAT ranking into the "Exceptional" MNRAM ranking.

Table 21. Wetland 504 functional group ranks.

Functional Group	Functional Capacity Rank	Opportunity-Value Rank	Overall Rank
Hydrology	Moderate	Higher	Higher
Water Quality	Higher	Higher	Higher
Ecological	Higher	Moderate	Higher
Climate	Moderate	Not Applicable	Moderate
Anthropogenic	Not Applicable	Moderate	Moderate

Table 22. Wetland 504 specific function ranks.

Functional Group	Specific Function	Functional Capacity Rank	Opportunity-Value Rank	Overall Rank
Hydrology	Surface Water Attenuation (SWA)	Moderate	Higher	Higher
	Surface Water Supply (SWS)	Higher	Higher	Higher
	Groundwater Recharge (GR)	Moderate	Higher	Higher
Water Quality	Nitrate Removal (NR)	Higher	Higher	Higher
	Phosphorus Retention (PR)	Moderate	Moderate	Moderate
	Sediment and Pollutant Retention (SPR)	Moderate	Moderate	Moderate
	Shoreline Stabilization (SS)	Not Applicable	Not Applicable	Not Applicable
	Thermoregulation (TR)	Higher	Higher	Higher
Ecological	Native Plant Habitat (NP)	Moderate	Moderate	Moderate
	Wildlife Habitat (WH)	Higher	Lower	Higher
	Fish Habitat (FH)	Not Applicable	Not Applicable	Not Applicable
Climate	Carbon Sequestration (CS)	Moderate	Not Applicable	Moderate
Anthropogenic	Historic or Cultural Uses (HCU)	Not Applicable	Not Applicable	Not Applicable
	Scientific or Educational Importance (SEI)		Not Applicable	Not Applicable
	Commercial Uses (CU)		Lower	Lower
	Recreational Uses (RU)		Lower	Lower
	Scenic Beauty (SB)		Moderate	Moderate

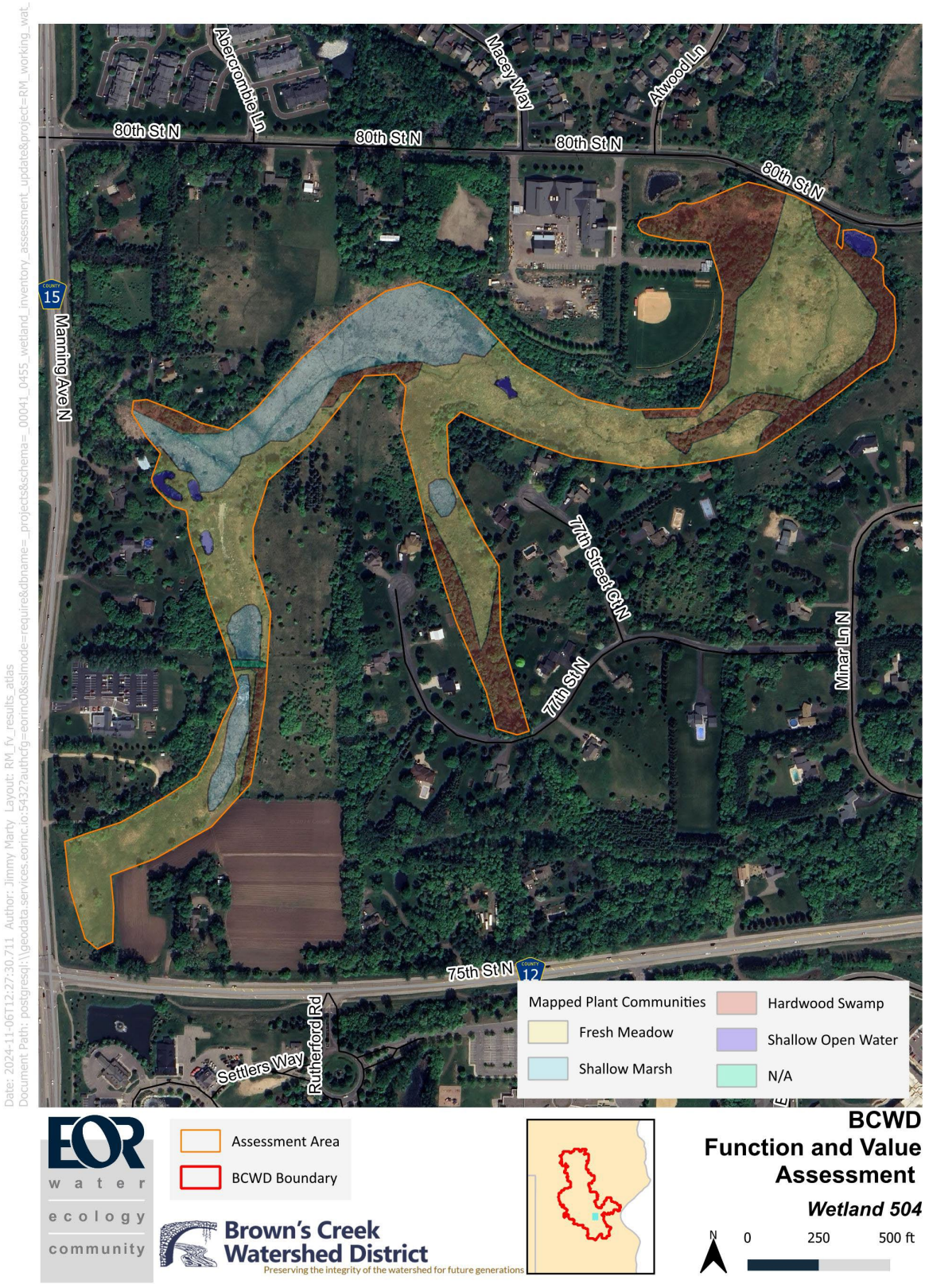

Figure 15. Wetland 504 plant communities.

Wetland ID: 553

Size: 1.64 acres

Catchment Area: 30.38 acres

Hydrogeomorphic Class: Depressional

Wetland 553 is located immediately east of Manning Avenue north of 62nd street in the southern portion of the watershed district. The wetland is situated within an intermediate elevation of the watershed. Surrounding land cover consists predominantly of hay/pasture, forest, and medium/low intensity development. The wetland receives overland flow from surrounding uplands, including a culvert beneath Manning Avenue. There is no wetland outlet.

Plant communities within Wetland 553 consist of Fresh Meadow (Poor Quality), Shallow Marsh (Fair Quality), and Shallow Open Water (Fair Quality) with an overall floristic quality of Fair. Much of the Fresh Meadow is dominated by the invasive reed canary grass, with pockets dominated by native species. The Shallow Marsh is generally dominated by native species, but includes substantial cover of reed canary grass. The Shallow Open Water is dominated by native species, and includes several uncommon or high quality native species that are not accounted for using the MPCA RFQA methods. These aquatic species include spiny coontail (*Ceratophyllum echinatum*), Braun's stonewort (*Chara braunii*), and a stonewort (*Nitella* sp.) that could not be identified to species but is very likely a new Washington County record. The unknown stonewort was submitted to the New York Botanical Garden for genetic analysis in November 2024.

Function and value ranks for Wetland 553 are higher for hydrology and water quality functions and value. Its depressional geomorphology, outlet characteristics, relatively small catchment : wetland ratio, and surrounding land cover provide higher surface water attenuation function and value. These characteristics along with its hydrologic regime, result in higher rank for nitrate removal, phosphorus retention, and sediment and general pollutant function.

Based on translation to current District rules, Wetland 553 is classified as a Manage 1 wetland. This is based on its moderate native plant habitat and higher hydrology function. The Manage 1 classification is an increase from its Manage 2 classification from the prior classification. The increase in classification is likely due to the Shallow Marsh and Shallow Open Water communities being higher quality than expected.

Table 23. Wetland 553 functional group ranks.

Functional Group	Functional Capacity Rank	Opportunity-Value Rank	Overall Rank
Hydrology	Higher	Higher	Higher
Water Quality	Higher	Higher	Higher
Ecological	Moderate	Moderate	Moderate
Climate	Moderate	Not Applicable	Moderate
Anthropogenic	Not Applicable	Moderate	Moderate

Table 24. Wetland 553 specific function ranks.

Specific Function	Functional Capacity Rank	Opportunity-Value Rank	Overall Rank
Surface Water Attenuation (SWA)	Higher	Higher	Higher
Surface Water Supply (SWS)	Moderate	Moderate	Moderate
Groundwater Recharge (GR)	Moderate	Higher	Higher
Nitrate Removal (NR)	Higher	Moderate	Higher
Phosphorus Retention (PR)	Higher	Moderate	Higher
Sediment and Pollutant Retention (SPR)	Higher	Higher	Higher
Shoreline Stabilization (SS)	Not Applicable	Not Applicable	Not Applicable
Thermoregulation (TR)	Not Applicable	Not Applicable	Not Applicable
Native Plant Habitat (NP)	Moderate	Moderate	Moderate
Wildlife Habitat (WH)	Moderate	Lower	Moderate
Fish Habitat (FH)	Not Applicable	Not Applicable	Not Applicable
Carbon Sequestration (CS)	Moderate	Not Applicable	Moderate
Historic or Cultural Uses (HCU)	Not Applicable	Not Applicable	Not Applicable
Scientific or Educational Importance (SEI)		Not Applicable	Not Applicable
Commercial Uses (CU)		Lower	Lower
Recreational Uses (RU)		Lower	Lower
Scenic Beauty (SB)		Moderate	Moderate

Figure 16. Wetland 553 plant communities.

Wetland ID: 674

Size: 8.77 acres

Catchment Area: 100.15 acres

Hydrogeomorphic Class: Depressional

Wetland 674 is located immediately northeast of Keats Avenue and 117th Street in the northern portion of the watershed district. The wetland is situated within a high elevation of the watershed and was identified as part of a landlocked basin in the 2006 landlocked basin study (basin ID UBC-2). Surrounding land cover consists predominantly of hay/pasture, forest, low intensity and open space development, emergent wetlands, and open water. The wetland receives overland flow from surrounding uplands, including a culvert beneath Keats Avenue to the west (there is no culvert from Keats Avenue to the north). An outlet discharging to an adjacent wetland is present at its southeast end under 117th Street but is situated high above the wetland so that the wetland is isolated under normal circumstances.

Plant communities within Wetland 674 consist of Shallow Marsh (Poor Quality) and Shallow Open Water (Good Quality) with an overall floristic quality of Good. Much of the Shallow Marsh is dominated by the invasive reed canary grass. The Shallow Open Water is sparsely vegetated but dominated by native species, with the most common species being the submerged aquatic macroalgae Braun's stonewort (*Chara braunii*).

Function and value ranks for Wetland 674 are higher for hydrology and ecological functions and value. Its depressional geomorphology, outlet characteristics, underlying soil texture, relatively small catchment : wetland ratio, and surrounding land cover provide higher surface water attenuation function and value. The good condition of the plant communities contribute to its higher ecological function.

Based on translation to current District rules, Wetland 674 is classified as a Preserve wetland. This is based on its higher native plant habitat and wildlife habitat function. The Preserve classification is an increase from its Manage 1 classification from the prior classification. The increase in classification is likely due to the WAT tool having fewer classification categories than the MNRAM methods (no Exceptional category) and EOR's translation methodology lumping the "Higher" WAT ranking into the "Exceptional" MNRAM ranking.

Table 25. Wetland 674 functional group ranks.

Functional Group	Functional Capacity Rank	Opportunity-Value Rank	Overall Rank
Hydrology	Higher	Higher	Higher
Water Quality	Moderate	Moderate	Moderate
Ecological	Higher	Higher	Higher
Climate	Moderate	Not Applicable	Moderate
Anthropogenic	Not Applicable	Moderate	Moderate

Table 26. Wetland 674 specific function ranks.

Specific Function	Functional Capacity Rank	Opportunity-Value Rank	Overall Rank
Surface Water Attenuation (SWA)	Higher	Higher	Higher
Surface Water Supply (SWS)	Moderate	Higher	Higher
Groundwater Recharge (GR)	Moderate	Moderate	Moderate
Nitrate Removal (NR)	Moderate	Higher	Moderate
Phosphorus Retention (PR)	Moderate	Moderate	Moderate
Sediment and Pollutant Retention (SPR)	Moderate	Moderate	Moderate
Shoreline Stabilization (SS)	Not Applicable	Not Applicable	Not Applicable
Thermoregulation (TR)	Not Applicable	Not Applicable	Not Applicable
Native Plant Habitat (NP)	Higher	Higher	Higher
Wildlife Habitat (WH)	Higher	Lower	Higher
Fish Habitat (FH)	Not Applicable	Not Applicable	Not Applicable
Carbon Sequestration (CS)	Moderate	Not Applicable	Moderate
Historic or Cultural Uses (HCU)	Not Applicable	Not Applicable	Not Applicable
Scientific or Educational Importance (SEI)		Not Applicable	Not Applicable
Commercial Uses (CU)		Lower	Lower
Recreational Uses (RU)		Lower	Lower
Scenic Beauty (SB)		Moderate	Moderate

Figure 17. Wetland 674 plant communities.

Wetland ID: 939

Size: 11.88 acres

Catchment Area: 80.55 acres

Hydrogeomorphic Class: Depressional

Wetland 939 is located immediately east of the Gateway Trail north of its intersection with Highway 96 in the central portion of the watershed district. The wetland is situated within an intermediate elevation of the watershed and was identified as part of a landlocked basin in the 2006 landlocked basin study (basin ID CBC-3). Surrounding land cover consists predominantly of forest, hay/pasture, woody and emergent wetlands, and developed open space. The wetland receives overland flow from surrounding uplands. No outlet was observed.

Plant communities within Wetland 939 consist of Fresh Meadow (Poor Quality), Deep Marsh (Good Quality), and Shallow Open Water (Good Quality) with an overall floristic quality of Good. Much of the Fresh Meadow is dominated by the invasive reed canary grass. The Deep Marsh is dominated by several high quality native emergent plants with low cover of invasive cattail. The Shallow Open Water is well vegetated and dominated by native species characteristic of soft-water lakes. Uncommon native plants, including one state-listed special concern species (*Najas gracillima*) were observed in the Shallow Open Water. Other unique species included abundant spiny coontail (*Ceratophyllum echinatum*), an unknown native milfoil that may be a Washington County record, and creeping bladderwort (*Utricularia gibba*). If visited earlier in the growing season, Wetland 939 has good potential for additional rare/uncommon species presence.

Function and value ranks for Wetland 939 are higher for water quality and ecological functions and value. Its isolated basin, permanently flooded water regime, and underlying soil texture result in higher rank for sediment and general pollutant function. The good condition of the plant communities contribute to its higher ecological function, and it is undoubtedly of exceptional value due to presence of rare and uncommon aquatic plant species.

Based on translation to current District rules, Wetland 939 is classified as a Preserve wetland consistent with its previous classification under the prior assessment. This is based on its higher native plant habitat and wildlife habitat function.

Table 27. Wetland 939 functional group ranks.

Functional Group	Functional Capacity Rank	Opportunity-Value Rank	Overall Rank
Hydrology	Moderate	Moderate	Moderate
Water Quality	Higher	Moderate	Higher
Ecological	Higher	Higher	Higher
Climate	Moderate	Not Applicable	Moderate
Anthropogenic	Not Applicable	Lower	Lower

Table 28. Wetland 939 specific function ranks.

Specific Function	Functional Capacity Rank	Opportunity-Value Rank	Overall Rank
Surface Water Attenuation (SWA)	Moderate	Moderate	Moderate
Surface Water Supply (SWS)	Moderate	Moderate	Moderate
Groundwater Recharge (GR)	Moderate	Moderate	Moderate
Nitrate Removal (NR)	Moderate	Moderate	Moderate
Phosphorus Retention (PR)	Higher	Lower	Moderate
Sediment and Pollutant Retention (SPR)	Higher	Moderate	Higher
Shoreline Stabilization (SS)	Not Applicable	Not Applicable	Not Applicable
Thermoregulation (TR)	Not Applicable	Not Applicable	Not Applicable
Native Plant Habitat (NP)	Higher	Higher	Higher
Wildlife Habitat (WH)	Higher	Higher	Higher
Fish Habitat (FH)	Not Applicable	Not Applicable	Not Applicable
Carbon Sequestration (CS)	Moderate	Not Applicable	Moderate
Historic or Cultural Uses (HCU)	Not Applicable	Not Applicable	Not Applicable
Scientific or Educational Importance (SEI)		Not Applicable	Not Applicable
Commercial Uses (CU)		Lower	Lower
Recreational Uses (RU)		Lower	Lower
Scenic Beauty (SB)		Lower	Lower

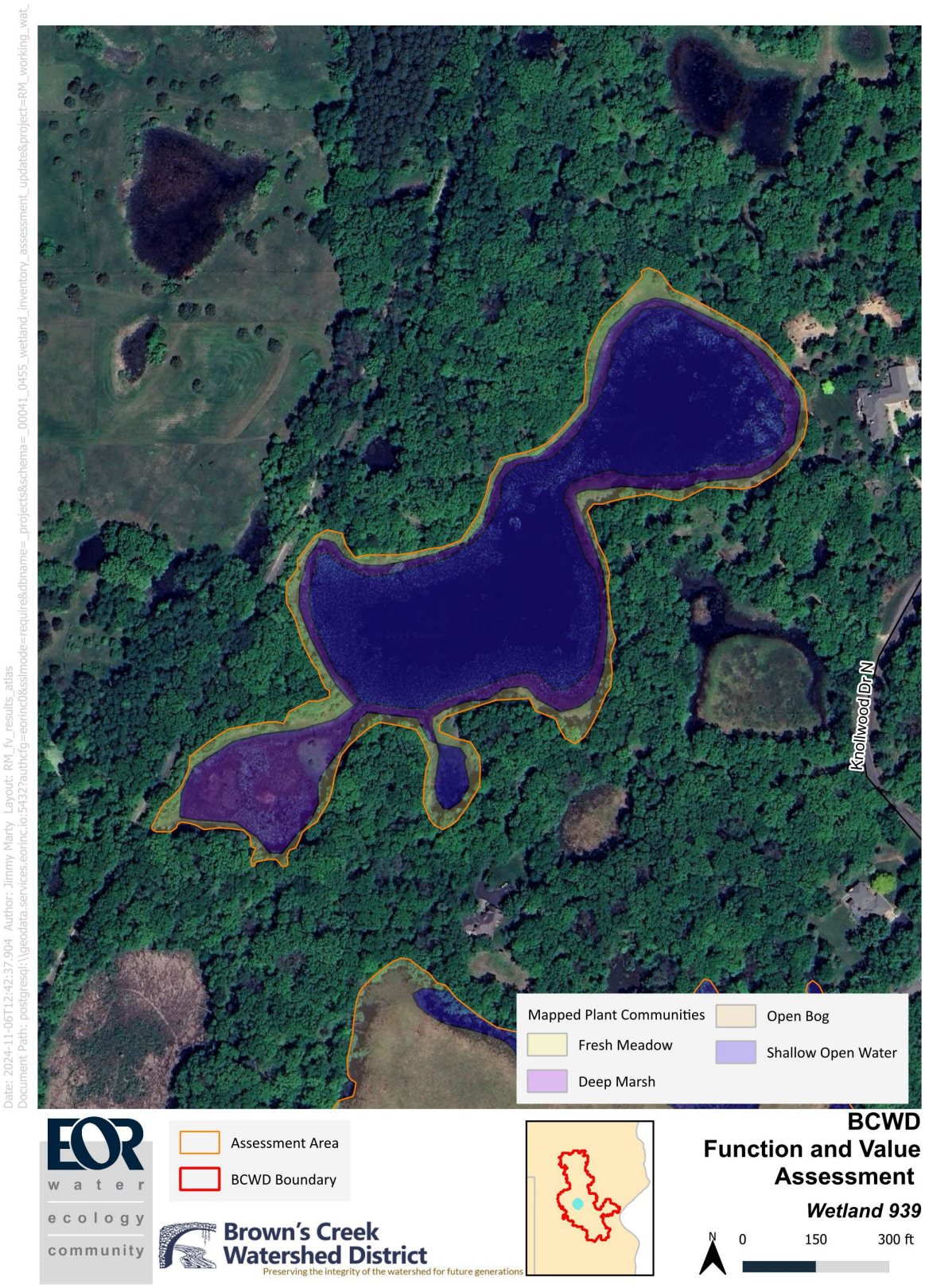

Figure 18. Wetland 939 plant communities.

Wetland ID: 949

Size: 9.67 acres

Catchment Area: 58.35 acres

Hydrogeomorphic Class: Depressional

Wetland 949 is located immediately north Highway 96 east of its intersection with Gateway Trail in the central portion of the watershed district. The wetland is situated within an intermediate elevation of the watershed. Surrounding land cover consists predominantly of forest, hay/pasture, woody and emergent wetlands, and developed open space. The wetland receives overland flow from surrounding uplands and no inlet was observed. No outlet was observed.

Plant communities within Wetland 949 consist of Open Bog (Poor Quality) and Shallow Open Water (Fair Quality) with an overall floristic quality of Fair. Although the Open Bog community ranks as Poor Quality, this comparison is to overall statewide condition of Open Bogs. Relative to other plant community types, Open Bogs have high floristic quality. The Open Bog of Wetland 949 is being invaded by cattail, but is also dominated by native species such as leatherleaf (*Chamaedaphne calyculata*) and northwest territory sedge (*Carex utriculata*). A near continuous mat of *Sphagnum* moss occupies the interior of the wetland and forms a floating mat. Unique species of high floristic quality include round-leaf sundew (*Drosera rotundifolia*) and small cranberry (*Vaccinium oxycoccos*). Based on the DNR's Native Plant Community Classification system, the plant community is likely a Leatherleaf – Sweet Gale Shore Fen (OPn81b), and would be the farthest south occurrence of this plant community in the state. The Open Bog component of Wetland 949 is an incredibly unique occurrence within the watershed district, and despite its Poor statewide rating should be considered an exceptional resource. Additionally, the Shallow Open Water component of Wetland 949 included spiny coontail (*Ceratophyllum echinatum*), an uncommon plant sensitive to poor water quality that is not include in the RFQA species list. The Shallow Open Water therefore also appears to be higher in quality than the RFQA would indicate. dominated by native species with low invasive species cover. If visited earlier in the growing season, Wetland 949 has good potential for rare/uncommon species presence.

Function and value ranks for Wetland 949 are higher for hydrology, water quality, and ecological functions and values. Its depressional geomorphology, isolation, moderate size to catchment ratio, and surrounding land cover provide higher surface water attenuation function and value. These characteristics and permanently saturated hydrology, soil textures, and vegetation also result in higher ranks for nitrate removal, phosphorus retention, and sediment and pollutant retention functions. The position of Wetland 949 within a wildlife habitat core area and surrounding land cover contribute to its higher ecological function, despite the WAT tool not taking into account the unique southern geographic location of the Open Bog community.

Based on translation to current District rules, Wetland 949 is classified as a Preserve wetland. This is based on its higher wildlife habitat function. The Preserve classification is an increase from its Manage 1 classification from the prior classification. The increase in classification is likely due to the WAT tool having fewer classification categories than the MNRAM methods (no Exceptional category) and EOR's translation methodology lumping the "Higher" WAT ranking into the "Exceptional" MNRAM ranking. Though not considered by WAT, the increase in classification is justified via the presence of unique Open Bog that was likely not identified during the prior assessment due to its location within the interior of the wetland past a dense fringe of invasive cattail.

Table 29. Wetland 949 functional group ranks.

Functional Group	Functional Capacity Rank	Opportunity-Value Rank	Overall Rank
Hydrology	Higher	Moderate	Higher
Water Quality	Higher	Moderate	Higher
Ecological	Moderate	Higher	Higher
Climate	Moderate	Not Applicable	Moderate
Anthropogenic	Not Applicable	Moderate	Moderate

Table 30. Wetland 949 specific function ranks.

Specific Function	Functional Capacity Rank	Opportunity-Value Rank	Overall Rank
Surface Water Attenuation (SWA)	Higher	Moderate	Higher
Surface Water Supply (SWS)	Lower	Moderate	Moderate
Groundwater Recharge (GR)	Moderate	Moderate	Higher
Nitrate Removal (NR)	Higher	Moderate*	Higher*
Phosphorus Retention (PR)	Higher	Lower	Moderate
Sediment and Pollutant Retention (SPR)	Higher	Moderate	Higher
Shoreline Stabilization (SS)	Not Applicable	Not Applicable	Not Applicable
Thermoregulation (TR)	Not Applicable	Not Applicable	Not Applicable
Native Plant Habitat (NP)	Moderate	Moderate	Moderate
Wildlife Habitat (WH)	Moderate	Higher	Higher
Fish Habitat (FH)	Not Applicable	Not Applicable	Not Applicable

Specific Function	Functional Capacity Rank	Opportunity-Value Rank	Overall Rank
Carbon Sequestration (CS)	Moderate*	Not Applicable	Moderate*
Historic or Cultural Uses (HCU)	Not Applicable	Not Applicable	Not Applicable
Scientific or Educational Importance (SEI)		Not Applicable	Not Applicable
Commercial Uses (CU)		Lower	Lower
Recreational Uses (RU)		Lower	Lower
Scenic Beauty (SB)		Moderate	Moderate

Figure 19. Wetland 949 plant communities.

Wetland ID: 1064

Size: 2.84 acres

Catchment Area: 77.47 acres

Hydrogeomorphic Class: Depressional

Wetland 1064 is located south of 83rd Street and east of Jeffery Avenue in the southwestern portion of the watershed. The wetland is situated within a high elevation of the watershed and was identified as part of a landlocked basin in the 2006 landlocked basin study (basin ID WLK-3). Surrounding land cover consists predominantly of forest, cultivated cropland, hay/pasture, and low intensity development. The wetlands receives surface water runoff from surrounding uplands. An outlet discharging to an adjacent wetland is present at its north end but is situated high above the wetland so that the wetland is isolated under normal circumstances.

Plant communities within Wetland 1064 consist of Sedge Mat (Fair Quality), Fresh Meadow (Poor Quality), and Shallow Open Water (Fair Quality), with an overall floristic quality of Fair. Although the Sedge Mat community ranks as Fair Quality, this comparison is to overall statewide condition of Sedge Mats. Relative to other plant community types, Sedge Mats have high floristic quality. The Sedge Mat of Wetland 1064 is dominated by native species with low invasive species cover. Intact Sedge Mats are an uncommon plant community within the District and rank as exceptionally sensitive to stormwater.

Functional ranks for Wetland 1064 are higher for hydrology, water quality, and ecological functions and values. Its depressional geomorphology, moderate size to catchment ratio, and surrounding land cover provide higher surface water attenuation function and value. Along with these characteristics, its high elevation in the watershed and relative isolation provide higher groundwater recharge function. These characteristics also result in higher ranks for nitrate removal and sediment and pollutant retention functions. The condition of the plant communities and position within a wildlife habitat core area contribute to its higher ecological function.

Based on translation to current District rules, Wetland 1064 is classified as a Preserve wetland consistent with its previous classification under the prior assessment. This is based on its moderate vegetative diversity score and exceptional stormwater sensitivity.

Table 31. Wetland 1064 functional group ranks.

Functional Group	Functional Capacity Rank	Opportunity-Value Rank	Overall Rank
Hydrology	Higher	Higher	Higher
Water Quality	Higher	Higher	Higher
Ecological	Moderate	Higher	Higher
Climate	Moderate	Not Applicable	Moderate
Anthropogenic	Not Applicable	Lower	Lower

Table 32. Wetland 1064 specific function ranks.

Specific Function	Functional Capacity Rank	Opportunity-Value Rank	Overall Rank
Surface Water Attenuation (SWA)	Higher	Higher	Higher
Surface Water Supply (SWS)	Moderate	Higher	Higher
Groundwater Recharge (GR)	Higher	Moderate	Higher
Nitrate Removal (NR)	Higher	Moderate	Higher
Phosphorus Retention (PR)	Moderate	Moderate	Moderate
Sediment and Pollutant Retention (SPR)	Higher	Higher	Higher
Shoreline Stabilization (SS)	Not Applicable	Not Applicable	Not Applicable
Thermoregulation (TR)	Not Applicable	Not Applicable	Not Applicable
Native Plant Habitat (NP)	Moderate	Moderate	Moderate
Wildlife Habitat (WH)	Moderate	Higher	Higher
Fish Habitat (FH)	Not Applicable	Not Applicable	Not Applicable
Carbon Sequestration (CS)	Moderate	Not Applicable	Moderate
Historic or Cultural Uses (HCU)	Not Applicable	Not Applicable	Not Applicable
Scientific or Educational Importance (SEI)		Not Applicable	Not Applicable
Commercial Uses (CU)		Lower	Lower
Recreational Uses (RU)		Lower	Lower
Scenic Beauty (SB)		Lower	Lower

Figure 20. Wetland 1064 plant communities.

Project Name |	Brown's Creek Tributaries Restoration Project	**Date** |	12/4/2024
To / Contact info |	BCWD Board of Managers		
Cc / Contact info |	Karen Kill, District Administrator		
From / Contact info |	Mike Majeski, Dan Mossing, P.E.		
Regarding |	Benefits of Recent Beaver Activity & Dams		

Background

Since the Tributaries Restoration Project was completed in 2021, the project has attracted several beavers to the project area, in part due to the increased water levels in the tributaries as a result of the rock riffles installed for the project. Beavers have been selectively building their dams on top of the rock riffles, likely due to the stability the rock riffles provide in the channel. There are also ample food sources adjacent to the tributaries including numerous aspen and willow trees that are favored by beavers. The beaver dams that have been documented over the last 3 years have not persisted for long periods of time, mostly due to human interference and breaches caused by flood events.

Beaver Activity in 2024

Several beaver dams were documented in 2024 including one located just upstream of the Diversion Structure, three smaller dams upstream of the wooden walk bridge north of the IESF filter (Figure 1), and a very large dam at the north end of the IESF pump pond (Figure 2).

Figure 1. One of three small beaver dams upstream of the wood walk bridge north of the IESF filter.

Figure 2. Large beaver dam at the north end of the IESF pump pond.

Discussion

The Tributaries Restoration Project was developed to address channel incision (downcutting of the stream bed), floodplain abandonment, and degraded native vegetation along the three tributaries upstream of the Diversion Structure. Two primary goals of the project included reconnecting the tributaries to their floodplains and restoring wetland hydrology to support wetland plant communities. These goals were largely achieved following installation of the rock riffles that prevented further channel incision and increased baseflow water elevations in the channel which restored hydrology of the adjacent wetlands. The addition of beaver activity in the project site has further benefited the resource by impounding water on the floodplains which intercept suspended sediment and absorb nutrients that would otherwise discharge to Lake McKusick. The beavers are also helping to restore the native sedge/ shrub community that existed here prior to development by foraging on pioneer and early successional trees such as aspen and boxelder that have invaded the wetlands following degradation of the riparian corridor (Figure 3). Due to the stacked benefits the beavers provide, it is recommended the beavers be left undisturbed to promote natural restoration of the riparian corridor. However, if the large beaver dam at the IESF pump pond continues to increase in elevation, a water level management system such as a "beaver pond leveler" (Figure 4) should be considered to allow the IESF facility to function as designed.

It should be noted that the existing beaver dams do not pose a long-term threat to fish passage since the dams tend to be transitory, and many native fish species can navigate over or through the dams during flood events.

Figure 3. Example of beaver foraging on aspen and other early successional trees along the tributary corridor.

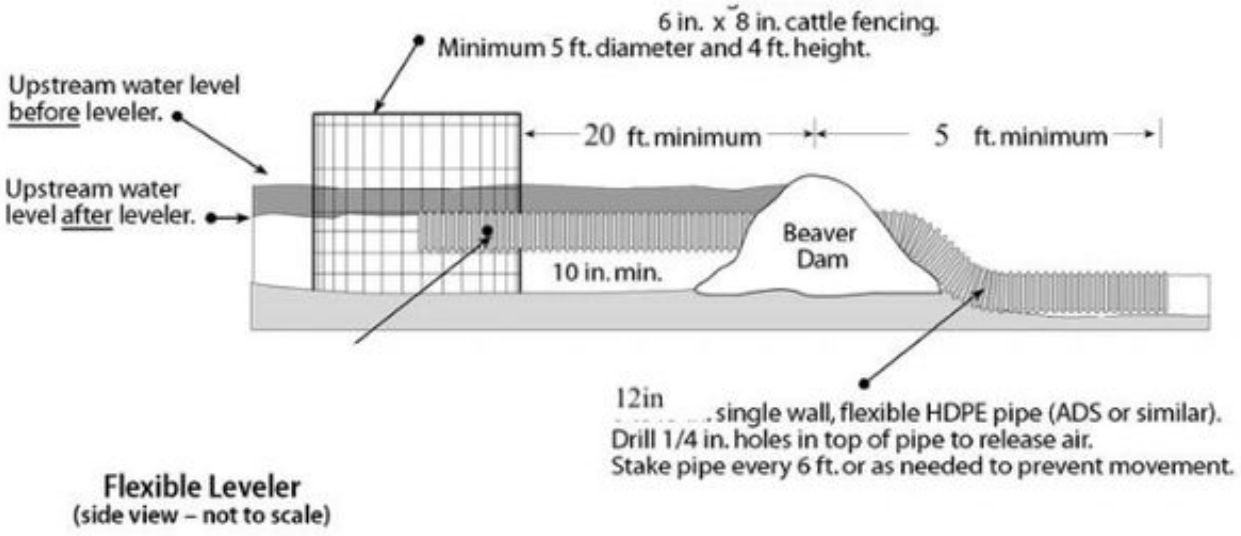

Figure 4. Example of a "beaver pond leveler" that could be installed to maintain the function of the IESF pump pond. Source: https://beaversnw.org/flooding-reduction

Recommendation

It is recommended the BCWD post this information on their website for public awareness and to connect with City of Stillwater staff and residents along the tributaries to discuss the watershed's desire to support beaver activity in this area and to preserve beaver dams when found.

Apply by December 31st

HOA STORMWATER LEADERS COURSE

PLANNING FOR LONG-TERM MANAGEMENT

Stormwater Management on HOA Properties

Effective and well-planned management of stormwater practices on HOA properties can **save money**, **reduce flood risk**, **improve aesthetics**, and **avoid unexpected costs** down the road. Stormwater management practices are often installed on HOA properties to both meet regulations and build more sustainable communities. After the HOA properties in a subdivision are sold, the ownership and responsibility for the management of stormwater practices transfers from the developer to the HOA. In most cases, HOA members typically do not possess the knowledge, experience, or resources to cost-effectively manage their stormwater obligations.

Neglected stormwater practices can not only lead to increased flood risk, algae blooms, eroding landscapes, and undesirable invasive weeds, but it can also increase the frequency of big-ticket maintenance costs like stormwater pond dredging. If your HOA fails to maintain these stormwater practices, some cities may perform the service and charge the HOA for it, which could cost more than maintaining it yourself.

Stormwater Maintenance Training

The East-Metro Water Resource Education Program as coordinated by the Washington Conservation District is offering a pilot training course in 2025 in partnership with the University of Minnesota Water Resources Center and Minnesota Sea Grant to provide HOA leaders with the knowledge, tools, and resources to cost-effectively plan for and manage the stormwater management practices on their HOA properties. The course aims to help HOAs reduce long-term maintenance costs, avoid complaints by members, lower flood risk, and improve the health of their natural and water resources.

2025 HOA Stormwater Leaders Course: *pilot training*

WHO SHOULD APPLY: The course will be offered to HOA members who 1) live in Washington County, 2) serve on their HOA board, 3) have property that the HOA collectively owns and manages, and 4) have a stormwater management practice that collects water (pond, wetland, or raingarden) on or near the HOA property.

Note: Limited seats are available for this pilot workshop and participants will be purposefully selected to ensure that a variety of stormwater needs are represented.

WHEN: Participants must commit to attending all three workshops in Oakdale, MN. Lunch and materials will be provided at these no-cost workshops:

WORKSHOP #1: What stormwater management practices are on and around your HOA?

Getting to know the stormwater management practices on your HOA property and your local resources.

Wednesday, January 29th from 11am – 1pm

WORKSHOP #2: What are stormwater best management practices and what do they do?

Taking a closer look at the stormwater practices on your HOA property and their benefits.

Tuesday, March 18th from 11am – 1pm

WORKSHOP #3: How can your HOA cost-effectively manage the stormwater practices?

Learning about the best management techniques and tools available for cost-effective planning.

Wednesday, May 7th from 11am – 1pm

HOW TO APPLY: Interested HOA members should apply by filling out the application form through the link or QR code below no later than **December 31st, 2024**.

Participants that attend all three workshops will receive a Certificate of Completion from the University of Minnesota.

z.umn.edu/hoa-course

Questions? Contact Hannah Peterson at HPeterson@mnwcd.org.

Visit mnwcd.org/hoa-stormwater-tools for more information and resources.

East Metro Water Resource Education Program

in partnership with

Water Resources Center
University of Minnesota
Driven to Discover

Sea Grant Minnesota

Minnesota Stormwater Research Council