Attachment D

Surface Water Levels and Flow Data

D-1 Field Forms
D-2 Surface Water Levels, Flow Velocity, and Rating Curves

Attachment D-1
Field Forms

10/20/20

Kaitlyn's Papers

FLOW FORM - CHECKLIST

Date: 10/20/20 | Client: MPCA

Project Number: 60638005 | Field Staff: Kaitlyn Rathe

Weather: 30° PC

Water Level Only Locations

- ☑ 1. Lake Olson: 1.25
- ☑ 2. Lake Jane: 0.72
- ☑ 3. RC22 Pond: 2.44 ft.
- ☑ 4. RC23 Pond: 1.86 ft
- ☑ 5. Goose Lake: 4.68 ft.
- ☑ 6. Eagle Point Lake: 0.76 ft.
- ☑ 7. DG Eagle #3: 0.40
- ☑ 8. Margaret Lake: 2.88 ft.
- ☑ 9. Browns Pond: *needs Parkrey → 3.58 ft.
- ☑ 10. Park Pond: *needs parkrey 1.54 ft
- ☒ ~~11. *Lake Elmo:~~ marco
- ☑ 12. Sunfish Lake: 5.94 ft.
- ☑ 13. Downs Lake: 1.62
- ☑ 14. Tartan Pond: 0.84 ft.
- ☑ 15. Horseshoe Lake: 4.74 ft.
- ☑ 16. North Pond: 1.18 ft.
- ☑ 17. Middle Pond: 1.59 ft
- ☑ 18. South Pond: 7.38 ft.
- ☒ ~~19. *Lake Edith:~~ skip

*not gaugeable yet

PUT STATE Survey ready on this form

Regular or Low Flow Conditions Rquired

- ☐ 1. RC Wetlands #1 (RC3):
- ☐ 2. RC Wetlands #2 (RC2):
- ☐ 3. RC Confluence #1 (RC21):
- ☐ 4. RC Confluence #2 (RC18):
- ☐ 5. DG Eagle #1 (EP4):
- ☐ 6. DG Elmo #1 (EP12):
- ☐ 7. DG Elmo #2 (EP16):
- ☐ 8. DG Horseshoe #1 (WL6):
- ☐ 9. DG Horseshoe #2 (WL7):
- ☐ ~~10. North Channel #1 (WL9 - 1 hr prop owner call, Wed 9 AM):~~ don't do
- ☐ *11. North Channel #2 (WL11 - property owner text): 0.86 ft.

← reference "zoomed" in maps for info on how to get to each location

High Flow Conditions (Recent Rain) Rquired

- ☐ 1. RC Post RR #1 (RC7A):
- ☐ 2. RC Pond System #1 (across road from RC7):
- ☐ 3. RC Pond System #2 (RC9):
- ☐ 4. RC Intermittent #1 (RC10):
- ☐ 5. RC Intermittent #2 (RC11):
- ☐ 6. RC Intermittent #3 (culvert by road, near RC12):

Checklist / Reminder

- ☐ Picture of Sample Location
- ☐ Upload Pictures and Forms and Enter Data in Tables within 2 Weeks

*scan + email $ to AMANDA or put in team + tell AMANDA where it is

8/31/20, post rain .75"

RC3= 0.81'

~~Post RR #1~~ Pond System #1 = 1.2'

RC20 = dry

RC12 = flow at Cooper, 1.46'
at Intermittent #3

Intermittent #2 = 0.69

Drew took ~~video~~ pictures
at RC20
+ RC3 (plus video)

DOC, TOC 100 → 125

DOC 80 → 95

TOC 80 → 95

Chips + gauge

porewater (x) sediment

AECOM Riley

ENVIRONMENTAL FIELD REPORT

Day/Date 9/1/2022

___ of ___

Project Name Project 1007

Location Saint Paul East Metro, MN

Project Number 60618753

Task Number

Weather/Temp.

Client MPCA

Arrive Job

Depart Job

Hours on Job

Travel Time

Project Coordination

Total Chargeable Hours

Mileage

Area Sampled

Summary of Technical and/or Engineering services performed, including Field Test Data, Locations, Elevations and Depths are Estimated.

~~Lake Olson~~

~~Lake Jane~~

Sunfish Lake 6.05

Eagle Pt Lake 0.85

Brown's Pond 3.88

Margaret Lake 3.26

Park Pond 2.29

~~Goose Lake~~ 5.25

Samples Collected: DG ~~Lake Olson~~ #3 (not on map) 1.13

~~Meth Pond~~

~~Middle Pond~~

DG Elmo #1 : 1.06

DG Elmo #1

Equipment and Supplies Used (excluding PPE, baggies, coolers, ice, etc):

Shipping

☐ Pictures of sample locations

Picture Location(s):

International Waybill #:

Comm. Invoice Checklist & Type (S-Soil, W-Water)

☐ Commercial Invoice (S / W)

☐ Commercial Invoice (S / W)

☐ Commercial Invoice (S / W)

☐ Commercial Invoice (S / W)

Print Name

Signature

Title

ENVDAILY.DOC

AECOM

Day/Date Tuesday, Sept 1, 2021

ENVIRONMENTAL FIELD REPORT

___ of ___

Project Name: Project 1007 | Project Number: 60618753

Location: Saint Paul East Metro, MN | Weather/Temp.:

AECOM Staff: | Client: MPCA

Arrive Job: | Sub Contractor: | Area Sampled:

Depart Job: | Sub Arrive Job:

Travel Time: | Sub Depart Job:

Summary of Technical and/or Engineering services performed.

1.29' @ int. #3 0.50' @ int. #2 0.68' @ int. #1
RC12-WAT-BULK-01-090120 @0815 pond system #2: 0.58'
RC20-WAT-BULK-01-090120 @0900 pond system #1: 1.96'
RC7-WAT-BULK-01-090120 @0930 RC22: 2.66'
RC21-WAT-BULK-01-090120 @1005 RC23: 2.29'
RC14-WAT-BULK-01-090120 @1030 RC Cont. #1: 1.10'
RC18-WAT-BULK-01-090120 @1100 full kit RC Cont #2: 2.70'

half kit

Samples Collected: EP19-WAT-BULK-01-090120 @1250 half kit DG EPL #1 2.00'
RC3-WAT-BULK-01-090120 @1435 full
RC3-WAT-BULK-02-090120 @DUP 1440 PFAS only
EP16-WAT-BULK-01-090120 @1550 Tartan Pond: 1.89'
WL6-WAT-BULK-01-090120 @1645 half kit Horseshoe Lake: 4.70'
WL15-WAT-BULK-01-090120 @1735 full DG Horseshoe #2: 2.80'
EP21-WAT-BULK-01-090120 @1325 half kit

~~**Calibration Log PID:** Date/Time:~~ Serial (if multiple):

~~**Calibration Log YSI:** Date/Time:~~ Serial (if multiple):

Results: 10.00: 7.00: 4.00:

VB3-WAT-BULK-01-090120 @1030 half kit

Pictures	Shipping	Drilling
Location Pictured:	International Waybill(s) #:	Location Drilled:
Location(s) of Picture:		Footage Drilled:

Print Name Amanda Langlois

Signature

Title Graduate Tech

AECOM

Day/Date 9/4/20

ENVIRONMENTAL FIELD REPORT

___ of ___

Project Name: Project 1007
Location: Saint Paul East Metro, MN
Project Number: 60618753
Task Number:
Weather/Temp.: Sunny 70s
Client: MPCA

Arrive Job: 730
Depart Job: 1500
Hours on Job: 8 hrs
Travel Time: 30 min
Project Coordination:
Total Chargeable Hours:
Mileage: 90 miles
Area Sampled: RC, ED, WL

Summary of Technical and/or Engineering services performed, including Field Test Data, Locations, Elevations and Depths are Estimated.

Hehl
Gavik

Downs Lake 2.19
RC wetlands #1 0.46
RC wetlands #2 <0.4
Pond system #1
RC2a Pond
RC2B Pond
RC confluence #1 1.07
RC confluence #2 2.16
Sunfish Lake 0.00
Eagle Point Lake 0.01
Margaret Lake 3.24
Park Pond 2.20
Browns Pond 3.72
DB Eagle #1 2.78
DB Elmo #1 1.02
DB Elmo #2 0.74
Tartan Pond 1.81 ?
Horseshoe Lake 4.4
DB Horseshoe #1 2.99
North Pond 2
South Pond 2

Samples Collected:

DL1-WAT-BULK-01-090420 @ 815
LP-1-WAT-BULK-01-090420 @ 845
EP16-WAT-BULK-01-090420 @ 915
WL15-WAT-BULK-01-090420 @ 1000
RC21-WAT-BULK-01-090420 @ 1245
RC3-WAT-BULK-01-090420 @ 1330
EP19-WAT-BULK-01-090420 @ 1100

Equipment and Supplies Used (excluding PPE, baggies, coolers, ice, etc):

Shipping

□ Pictures of sample locations
Picture Location(s):

International Waybill #:

Comm. Invoice Checklist & Type (S-Soil, W-Water)

□ Commercial Invoice (S / W)
□ Commercial Invoice (S / W)
□ Commercial Invoice (S / W)
□ Commercial Invoice (S / W)

Print Name Ilama Tenna

Signature

Title ENG. II

AECOM

ENVIRONMENTAL FIELD REPORT

Day/Date 8-26-20

1 of 1

Project Name Project 1007

Location Saint Paul East Metro, MN

Project Number 60618753

Task Number

Weather/Temp. Hot

Client MPCA

Arrive Job

Depart Job

Hours on Job

Travel Time

Project Coordination

Total Chargeable Hours

Mileage a lot

Area Sampled

Summary of Technical and/or Engineering services performed, including Field Test Data, Locations, Elevations and Depths are Estimated.

LOCATION	Gauge Reading	Time/Date
Lake Jane	1.06	0925 / 8-26-20
Lake Olson	1.48	0940 / 8-26-20
RC Wetland #2	0.30	0955 / 8-26-20
Pond Syst #1	0.78	1000 / 8-26-20
RC22 Pond	1.80	1008 / 8-26-20
RC23 Pond	1.75	1015 / 8-26-20
Margaret Lake	3.30	11:20 / 8-26-20
PARK POND	2.39	11:32

Samples Collected:

DG ELMO #1	1.01	12:00
Sunfish Lake	6.07	12:23

Equipment and Supplies Used (excluding PPE, baggies, coolers, ice, etc):

Shipping

☐ Pictures of sample locations

Picture Location(s):

International Waybill #:

Comm. Invoice Checklist & Type (S-Soil, W-Water)

☐ Commercial Invoice (S / W)

☐ Commercial Invoice (S / W)

☐ Commercial Invoice (S / W)

☐ Commercial Invoice (S / W)

Print Name ALAN GORSKI

Signature

Title

AECOM

Day/Date 8-26-20

ENVIRONMENTAL FIELD REPORT

1 of 1

Project Name Project 1007
Location Saint Paul East Metro, MN
Project Number 60618753
Task Number
Weather/Temp. Hot
Client MPCA

Arrive Job
Depart Job
Hours on Job
Travel Time
Project Coordination
Total Chargeable Hours
Mileage a lot
Area Sampled

Summary of Technical and/or Engineering services performed, including Field Test Data, Locations, Elevations and Depths are Estimated.

LOCATION	Gauge Reading	Time / Date
- Lake Jane	1.06	0925 / 8-26-20
- Lake Olson	1.48	0940 / 8-26-20
RC Wetland #2	0.30	0955 / 8-26-20
- Pond Syst #1	0.78	1000 / 8-26-20
- RC22 Pond	1.80	1008 / 8-26-20
- RC23 Pond	1.75	1015 / 8-26-20
- Margaret Lake	3.30	11:20 / 8-26-20
- PARK POND	2.39	11:32
Samples Collected:		
DG ELMO #1	1.01	12:00
- Sunfish Lake	6.07	12:23

Equipment and Supplies Used (excluding PPE, baggies, coolers, ice, etc):

Shipping

□ Pictures of sample locations
Picture Location(s):

International Waybill #:

Comm. Invoice Checklist & Type (S-Soil, W-Water)

□ Commercial Invoice (S / W)
□ Commercial Invoice (S / W)
□ Commercial Invoice (S / W)
□ Commercial Invoice (S / W)

Print Name ALAN GORSKI
Signature
Title

AECOM

Day/Date 08/26/2020

ENVIRONMENTAL FIELD REPORT

1 of 1

Project Name Project 1007
Location Saint Paul East Metro, MN
Project Number 60618753
Task Number
Weather/Temp. Sunny
Client MPCA

Arrive Job 0735
Depart Job
Hours on Job
Travel Time
Project Coordination
Total Chargeable Hours
Mileage
Area Sampled

Summary of Technical and/or Engineering services performed, including Field Test Data, Locations, Elevations and Depths are Estimated.

08/26/20
DG Eagle #3: 1.56
DG Eagle #1: 2.34
EPL canoe launch: 1.16
Horseshoe Lk: ~4.68-4.7 (covered in mud)
Goose Lk: ~5.29-5.3 (small waves on surface)
Middle Pond: 2.58
South Pond: 8.29
North Pond: 1.86

Samples Collected:

1355 VB3 bulk
1335 VB3 old foam
1343 VB3 fresh foam

Equipment and Supplies Used (excluding PPE, baggies, coolers, ice, etc):

Shipping

□ Pictures of sample locations
Picture Location(s): MGD

International Waybill #: N/A

Comm. Invoice Checklist & Type (S-Soil, W-Water)
□ Commercial Invoice (S / W)
□ Commercial Invoice (S / W)
□ Commercial Invoice (S / W)
□ Commercial Invoice (S / W)

Print Name Marie DelosSantos
Signature
Title Geologist

James' Checklist

FLOW FORM - CHECKLIST

Date: 10/20/20 | Client: MPCA

Project Number: 60638005 | Field Staff: James McCoy

Weather: Cloudy 35°

Water Level Only Locations

- ☐ 1. Lake Olson:
- ☐ 2. Lake Jane:
- ☐ 3. RC22 Pond:
- ☐ 4. RC23 Pond:
- ☐ 5. Goose Lake:
- ☐ 6. Eagle Point Lake:
- ☐ 7. DG Eagle #3:
- ☐ 8. Margaret Lake:
- ☐ 9. Browns Pond: *need s parky
- ☐ 10. Park Pond: *need s park key
- ☐ ~~11. *Lake Elmo:~~ moved
- ☐ 12. Sunfish Lake:
- ☐ 13. Downs Lake:
- ☐ 14. Tartan Pond:
- ☐ 15. Horseshoe Lake:
- ☐ 16. North Pond:
- ☐ 17. Middle Pond:
- ☐ 18. South Pond:
- ☐ ~~19. *Lake Edith:~~ skip

*not gaugeable yet

Regular or Low Flow Conditions Rquired

- ☐ 1. RC Wetlands #1 (RC3): 0.40'
- ☐ 2. RC Wetlands #2 (RC2): 0.31'
- ☐ 3. RC Confluence #1 (RC21): 0.97'
- ☐ 4. RC Confluence #2 (RC18): 2.32'
- ☐ 5. DG Eagle #1 (EP4): 1.15'
- ☐ 6. DG Elmo #1 (EP12): 1.90
- ☐ 7. DG Elmo #2 (EP16): 1.70'
- ☐ 8. DG Horseshoe #1 (WL6): 1.72'
- ☐ 9. DG Horseshoe #2 (WL7): 1.51'
- ☐ ~~10. North Channel #1 (WL9 - 1 hr prop owner call, Wed 9 AM).~~ dont do
- ☐ 11. North Channel #2 (WL11 - property owner text):

High Flow Conditions (Recent Rain) Rquired

- ☐ 1. RC Post RR #1 (RC7A): 0.37', hard to see, very stained pic
- ☐ 2. RC Pond System #1 (across road from RC7): 0.75'
- ☐ 3. RC Pond System #2 (RC9): Dry
- ☐ 4. RC Intermittent #1 (RC10): Dry
- ☐ 5. RC Intermittent #2 (RC11): No gauge, destroyed by tree, Dry in area
- ☐ 6. RC Intermittent #3 (culvert by road, near RC12): Dry

Checklist / Reminder

- ☐ Picture of Sample Location
- ☐ Upload Pictures and Forms and Enter Data in Tables within 2 Weeks

put gauge readings on here

reference "zoomed" in maps

Need email to Amanda or put in teams

Winter Gauging Form

February 2021

SAMPLING TEAM: AS/RF/MS

MARCH 2, 2021

Gauge Name	Nearest Sample Pt	To Be Collected By	Contact Info	Top of Gauge Elevation	Gauge Height	Gauge Reading	Notes
RC Wetlands 1	RC3	**Sampling Team**		992.914	4	0.5	Not damaged, ice
RC wetlands 2	RC5	**Sampling Team**		985.846	4	0.8	NOT DAMAGED, ICE PRESENT
RC Post RR #1	RC7A	Kaitlyn		972.521	4	-	
Pond System #1	Across street from RC7	Kaitlyn		964.253	4	-	
RC22 Pond (north pond)	RC22	Kaitlyn		960.395	4	-	
RC23 Pond (south pond)	RC23	Kaitlyn		959.918	4	-	
Rond system #2	RC9	Kaitlyn		956.693	4	-	
RC Intermittant #1	RC10	Kaitlyn		940.25	4	-	
RC Intermittant #2		Not There		928.52	4		
RC Intermittant #3	culvert at driveway to RC12	Kaitlyn		915.261	4	-	
RC Confluence #1	RC21	**Sampling Team**		910.605	4	2.68	SOLID ICE / FROZEN, NOT DAMAGED
RC Confluence #2	RC18	Kaitlyn		900.899	4	-	
Eagle Point Lake		Removed for winter		893.34	VBWD Gauge		
Margaret Lake	ML1	Kaitlyn		897.717	6	-	
Park Pond	PP1	Kaitlyn		899.06	4	-	
Brown's Pond	BP1	Kaitlyn		896.78	6	-	
DG Eagle #1	EP4	**Sampling Team (on way to EP19)**		897.297	4	1.0	DIRTY, ICE PRESENT
DG Eagle #3 (Eagle Point Lake Dam)	EP7	Kaitlyn		897.956	6	-	
Lake Elmo		Removed for winter		882.94	VBWD Gauge		
DG Elmo #1	EP12	Kaitlyn		884.49	4	-	
DG Elmo# 2	EP16	**Sampling Team - Text Jim 15 minutes ahead**	651-414-1948	884.515	4	2.0	OPEN WATER, NO DAMAGE
Tarten Pond	EP13	**Sampling Team**		879.013	4	1.5	NO DAMAGE, ICE / SNOW PRESENT
Horseshoe Lake		Removed for winter		871.11	VBWD Gauge		
DG Horseshoe Lake 1	WL6	**Sampling Team**		872.335	4	1.0	TOO DIRTY TO ACCURATELY READ, OPEN WATER
DG Horseshoe Lake 2	WL7	Kaitlyn		869.674	4	-	
North Pond		Removed for winter		863.94	VBWD Gauge		
North Channel #1	WL9	Kaitlyn - go here at specified time	Check with Amanda	868.41	4	-	
North Channel #2	WL11	Kaitlyn - text Karla 15 minutes ahead	612-801-9133	867.97	4	-	
Middle Pond	WL12	Kaitlyn - text Maureen 30 minutes ahead	651-470-5386	865.059	4	-	
South Pond		Removed for winter		855.06	VBWD Gauge		
Lake Jane		Removed for winter		921.32	VBWD Gauge		
Lake Olson		Removed for winter		927.28	VBWD Gauge		
Goose Lake		Removed for winter		919.26	VBWD Gauge		
Down's Lake		Removed for winter		886.71	VBWD Gauge		
Sunfish Lake		Removed for winter		894.17	VBWD Gauge		
Friedrich's Pond		Removed for winter		909.28	VBWD Gauge		

VB4 CHANNEL

4.2

CHAN. NORTH OF VB4

0.55

Spring Gauging Form

April 2021

Gauge Name	Nearest Sample Pt	To Be Collected By	Contact Info	Top of Gauge Elevation (updated for VBWD)	Gauge Height	Gauge Reading	Notes
Lake Jane MS	RC2	Gauging Team	Public dock	921.17	VBWD Gauge - Reading from Zero	1.22	
Lake Olson MS	RC1	Gauging Team	8242 or 8258 Hidden Bay Trail	*927.28 (not updated)*	VBWD Gauge - Reading from Zero	1.68	
Sunfish Lake MS	Southwest side of lake	Gauging Team		898.07	VBWD Gauge - Reading from Zero	2.40	
RC Wetlands 1 cannot read	RC3	**Sampling Team**		992.914	4		
~~RC wetlands 2~~	RC5	**Sampling Team**		985.846	4		
RC Post RR #1 MS	RC7A	Gauging Team		972.521	4	1.29	
Pond System #1 MS KR	Across street from RC7	Gauging Team		964.253	4	1.10	flip gray gauge?
~~RC22 Pond (north pond)~~	RC22	**Sampling Team**		960.395	4		
RC23 Pond (south pond) NOT unchecked	RC23	**Sampling Team**		959.918	4		
Rond system #2 MS	RC9	Gauging Team		956.693	4	0.94	flip gauge?
RC Intermittant #1 MS	RC10	Gauging Team		940.25	4	0.90	
RC Intermittant #2 MS	RC11	Gauging Team		928.52	4	1.12	
~~RC Intermittant #3~~	culvert at driveway to RC12	**Sampling Team**		915.261	4		
~~RC Confluence #1~~	RC21	**Sampling Team**		910.605	4		
RC Confluence #2	RC18	**Sampling Team (on way to EP17)**		900.899	4		
Friedrich's Pond KR		Gauging Team	Ave N where hits pond	*909.28 (not updated)*	VBWD Gauge - Reading from Zero	2.30	
Eagle Point Lake KR	EP26	Gauging Team		893.12	VBWD Gauge - Reading from Zero	1.76	
Margaret Lake KR	ML1	Gauging Team		897.717	6	3.30	
Park Pond KR	PP1	Gauging Team		899.06	4	1.66	
Brown's Pond KR MS	BP1 MS	Gauging Team		896.78	6	3.80	
DG Eagle #1	EP4	**Sampling Team (on way to EP19)**		897.297	4		
DG Eagle #3 (Eagle Point Lake Dam) MS	EP7	Gauging Team		897.956	6	0.86	
Lake Elmo MS	East Side of Lake	Gauging Team	2835 LAKE ELMO AVE N	883.09	VBWD Gauge - Reading from Zero	1.70	
DG Elmo #1 MS	EP12	Gauging Team		884.49	4	3.00	
DG Elmo# 2	EP16	**Sampling Team - Text Jim 15 minutes ahead**	651-414-1948	884.515	4		
Tarten Pond	EP13	**Sampling Team - Text Jim**		879.013	4		
Goose Lake KR	GL2 (side of road)	Gauging Team		922.31	VBWD Gauge - Reading from Zero	1.84	

Spring Ga[illegible]ng Form

April 2021

Gauge Name	Nearest Sample Pt	To Be Collected By	Contact Info	Top of Gauge Elevation (updated for VBWD)	Gauge Height	Gauge Reading	Notes
Down's Lake MS		Gauging Team		883.87	VBWD Gauge - Reading from Zero	4.70	
Horseshoe Lake MS	Near BS7	Gauging Team		874.36	VBWD Gauge - Reading from Zero	1.65	
DG Horseshoe Lake 1	WL6	**Sampling Team**		872.335	4		
DG Horseshoe Lake 2 MS	WL7	Gauging Team		869.674	4	1.30	dirty
North Pond MS	WL8	Gauging Team		863.65	VBWD Gauge - Reading from Zero	1.24	
North Channel #1	WL9	DO NOT DO Specified Time ONLY	Check with Amanda	868.41	4		
North Channel #2 MS	WL11	Kaitlyn - text Karla 15 minutes ahead	612-801-9133	867.97	4	0.68	
Middle Pond MS	WL12	Kaitlyn - text Maureen 30 minutes ahead	651-470-5386	865.059	4	3.26	
South Pond MS	WL16	Gauging Team		858.11	VBWD Gauge - Reading from Zero	5.88	
North of VB4 (not main channel)	VB4	No need to gauge					
VB4 Channel PreFault	VB4	Sampling Team					
VB5 Channel PostFault	VB5	Sampling Team			New Gauge		
Lake Edith		Gauging Team	1033 Indian Trail S		New Gauge	1.42	

Attachment D-1: Field Forms

Spring Gauging Form

MAY ~~April~~ 2021

First reading on 5/17 or 5/18 ↓ Second reading on 5/19

5/17/2021
5/18/2021
5/19/2021

Gauge Name	Mini Gauging Event?	Nearest Sample Pt	Location	Contact Info	Gauge Height	Transducer/Flow	Gauge Reading	Notes
Lake Jane	No	RC2	Public dock		VBWD Gauge	No		
Lake Olson	No	RC1	8242 or 8258 Hidden Bay Trail		VBWD Gauge	No		
Sunfish Lake	Yes	Southwest side of lake	10550 Stillwater Blvd, Lake Elmo 55402	property owner has to be emailed ahead of time	VBWD Gauge	No	2.1	~~3.1 WL transducer~~
RC Wetlands 1	Yes	RC3			4	✓ Yes	0.24/0.31	3.10 WL transducer
RC wetlands 2	Yes	RC5			4	✓ Yes	0.35/0.39	3.02 WL transducer
RC Post RR #1	Yes	RC7A			4	✓ Yes	0.30/0.49	2.81 WL transducer
Pond System #1	Yes	Across street from RC7			4	✓ Yes	0.73/0.76	3.11 WL transducer
RC22 Pond (north pond)	Yes	RC22			4	No	0.41	
RC23 Pond (south pond)	Yes	RC23			4	No	N/A	No gauge
Rond system #2	Yes	RC9			4	✓ Yes	0 (DRY)	Dry
RC Intermittant #1	Yes	RC10			4	✓ Yes	0 (DRY)	3.62 WL Transducer 0.71 staff
RC Intermittant #2	Yes	RC11			4	✓ Yes	0 (DRY)	Dry
RC Intermittant #3	Yes	culvert at driveway to RC12			4	✓ Yes	0 (DRY)	Dry
RC Confluence #1	Yes	RC21			4	✓ Yes	0.96	2.84 WL TRANSDUCER
RC Confluence #2	Yes	RC18			4	✓ Yes	2.21/2.18	2.54 WL Transducer
Friedrich's Pond	No		Ave N where hits pond		VBWD Gauge	No		
Eagle Point Lake	Yes	EP26			VBWD Gauge	No	1.2	
Margaret Lake	No	ML1			6	No		
Park Pond	No	PP1			4	No		
Brown's Pond	Yes	BP1			6	No	3.48	
DG Eagle #1	No	EP4			4	No		
DG Eagle #3 (Eagle Point Lake Dam)	Yes	EP7			6	✓ransducer only	0.36/0.43	3.78 WL transducer
Lake Elmo	Yes	East Side of Lake	2835 LAKE ELMO AVE N		VBWD Gauge	No	1.48	
Northern Pipe (smaller pipe)	NA		Access from Lake Elmo Ave N			No - but take flow measurements at		DONE 5/19
Southern Pipe (larger pipe)	NA		Access from Lake Elmo Ave N			No - but take flow measurements at		DONE 5/19
DG Elmo #1	Yes	EP12			4	✓ Yes	1.20	2.96 WL in transducer
DG Elmo# 2	Yes	EP16	**Text Jim morning of and go in throuhg alternate entrance**	651-414-1948	4	✓ Yes	0.95	2.93 1st time pulling 2.94 2nd time pulling
Tarten Pond	No	EP13	**See Above**		4	No		

Spring Gauging Form

~~April~~ May 2021

5/19/2021

Gauge Name	Mini Gauging Event?	Nearest Sample Pt	Location	Contact Info	Gauge Height	Transducer/Flow	Gauge Reading	Notes
Goose Lake	No	GL2 (side of road)			VBWD Gauge	No		
Down's Lake	No				VBWD Gauge	No		
Horseshoe Lake	No	Near BS7			VBWD Gauge	No		
DG Horseshoe Lake 1	Yes	WL6			4	✓ Yes	1.20	2.97 WL transducer
DG Horseshoe Lake 2	Yes	WL7			4	✓ Yes	1.43	3.0 WL transducer
North Pond	No	WL8			VBWD Gauge	No		
North Channel #1	ASK AMANDA	WL9	Specified Time ONLY	Check with Amanda	4	✓ Yes	0.79	3.65 WL transducer
North Channel #2	Yes	WL11	Text Karla 15 minutes ahead	612-801-9133	4	✓ Yes	0.54/0.61	2.96 WL transducer
Middle Pond	No	WL12	Text Maureen 30 minutes ahead	651-470-5386	4	No	2.26	
South Pond	No	WL16			VBWD Gauge	No		
North of VB4 (not main channel)	No	VB4			MGS Gauge	No		
VB4 Channel PreFault	No	VB4				No		
VB5 Channel PostFault	No	VB5				No		
Lake Edith	No			1033 Indian Trail S		No		

Spring Gauging Form

April 2021

Gauge Name	Mini Gauging Event?	Nearest Sample Pt	Location	Contact Info	Gauge Height	Transducer/Flow	Gauge Reading	Notes
Lake Jane	No	RC2	Public dock		VBWD Gauge	No		
Lake Olson	No	RC1	8242 or 8258 Hidden Bay Trail		VBWD Gauge	No		
Sunfish Lake Lake, 5/18	Yes	Southwest side of lake	10550 Stillwater Blvd, Lake Elmo 55402	property owner has to be emailed ahead of time	VBWD Gauge	No		
RC Wetlands 1	Yes	RC3			4	Yes		
RC wetlands 2	Yes	RC5			4	Yes		
RC Post RR #1	Yes	RC7A			4	Yes		
Pond System #1 JM	Yes	Across street from RC7			4	Yes	0.73	
RC22 Pond (north pond) ~~NA~~	Yes	RC22			4	No	0.41	
RC23 Pond (south pond) ~~RB~~ JM	Yes	RC23			4	No	NA	No gauge
Rond system #2 JM	Yes	RC9			4	Yes	DRY	DRY
RC Intermittant #1	Yes	RC10			4	Yes		
RC Intermittant #2	Yes	RC11			4	Yes		
RC Intermittant #3 CK	Yes	culvert at driveway to RC12			4	Yes		
RC Confluence #1 CK	Yes	RC21			4	Yes		
RC Confluence #2 JM	Yes	RC18			4	Yes	2.21	
Friedrich's Pond	No		Ave N where hits pond		VBWD Gauge	No		
Eagle Point Lake	Yes	EP26			VBWD Gauge	No		
Margaret Lake	No	ML1			6	No		
Park Pond	No	PP1			4	No		
Brown's Pond CK	Yes	BP1			6	No		
DG Eagle #1	No	EP4			4	No		
DG Eagle #3 (Eagle Point Lake Dam) CK	Yes	EP7			6	Transducer only		
Lake Elmo JM	Yes	East Side of Lake	2835 LAKE ELMO AVE N		VBWD Gauge	No		
Northern Pipe (smaller pipe)	NA		Access from Lake Elmo Ave N			No - but take flow measurements at		
Southern Pipe (larger pipe)	NA		Access from Lake Elmo Ave N			No - but take flow measurements at		
DG Elmo #1 JM	Yes	EP12			4	Yes		
DG Elmo# 2 JM	Yes	EP16	**Text Jim morning of and go in throuhg alternate entrance**	651-414-1948	4	Yes		
Tarten Pond ~~Pond~~	No	EP13	**See Above**		4	No		

- Elevation
- Depth

Spring Gauging Form
April 2021

Gauge Name	Mini Gauging Event?	Nearest Sample Pt	Location	Contact Info	Gauge Height	Transducer/Flow	Gauge Reading	Notes
Goose Lake	No	GL2 (side of road)			VBWD Gauge	No		
Down's Lake	No				VBWD Gauge	No		
Horseshoe Lake	No	Near BS7			VBWD Gauge	No		
DG Horseshoe Lake 1 JM	Yes	WL6			4	Yes		
DG Horseshoe Lake 2 JM	Yes	WL7			4	Yes		
North Pond	No	WL8			VBWD Gauge	No		
North Channel #1 5/19	ASK AMANDA	WL9	Specified Time ONLY	Check with Amanda	4	Yes		
North Channel #2 CK	Yes	WL11	Text Karla 15 minutes ahead	612-801-9133	4	Yes		
Middle Pond CK	No	WL12	Text Maureen 30 minutes ahead	651-470-5386	4	No		
South Pond	No	WL16			VBWD Gauge	No		
North of VB4 (not main channel)	No	VB4			MGS Gauge	No		
VB4 Channel PreFault	No	VB4				No		
VB5 Channel PostFault	No	VB5				No		
Lake Edith	No			1033 Indian Trail S		No		

Spring Gauging Form

April 2021

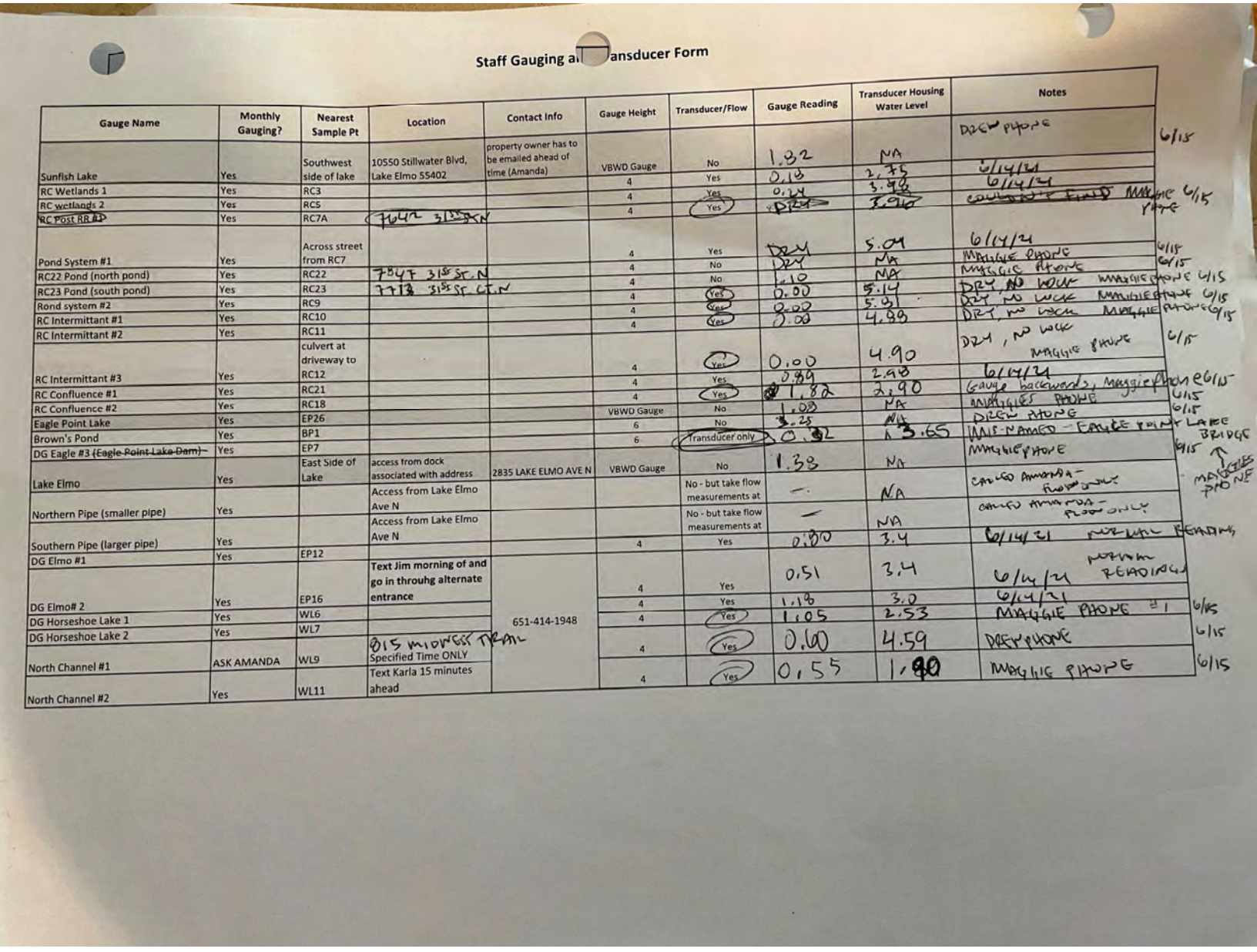
Gauge Name	Mini Gauging Event?	Nearest Sample Pt	Location	Contact Info	Gauge Height	Transducer/Flow	Gauge Reading	Notes
Lake Jane	No	RC2	Public dock		VBWD Gauge	No		
Lake Olson	No	RC1	8242 or 8258 Hidden Bay Trail		VBWD Gauge	No		
Sunfish Lake	Yes	Southwest side of lake	10550 Stillwater Blvd, Lake Elmo 55402	property owner has to be emailed ahead of time	VBWD Gauge	No		
RC Wetlands 1	Yes	RC3			4	Yes	0.24	@ 3:53
RC wetlands 2	Yes	RC5			4	Yes	0.35	@ 3.39
RC Post RR #1	Yes	RC7A			4	Yes	0.30	
Pond System #1	Yes	Across street from RC7			4	Yes		
RC22 Pond (north pond)	Yes	RC22			4	No		
RC23 Pond (south pond)	Yes	RC23			4	No		
Rond system #2	Yes	RC9			4	Yes		
RC Intermittant #1	Yes	RC10			4	Yes	0 (DRY)	@ 3:55
RC Intermittant #2	Yes	RC11			4	Yes	0(DRY)	@ 3:22
RC Intermittant #3	Yes	culvert at driveway to RC12			4	Yes	0(DRY)	@ 3:26
RC Confluence #1	Yes	RC21			4	Yes	0.96	@ 3:11
RC Confluence #2	Yes	RC18			4	Yes		
Friedrich's Pond	No		Ave N where hits pond		VBWD Gauge	No		
Eagle Point Lake	Yes	EP26			VBWD Gauge	No	1.2	@ 8:46
Margaret Lake	No	ML1			6	No		
Park Pond	No	PP1			4	No		
Brown's Pond	Yes	BP1			6	No	3.48	9:16
DG Eagle #1	No	EP4			4	No		
DG Eagle #3 (Eagle Point Lake Dam)	Yes	EP7			6	Transducer only	0.36	8:55
Lake Elmo	Yes	East Side of Lake	2835 LAKE ELMO AVE N		VBWD Gauge	No		
Northern Pipe (smaller pipe)	NA		Access from Lake Elmo Ave N			No - but take flow measurements at		
Southern Pipe (larger pipe)	NA		Access from Lake Elmo Ave N			No - but take flow measurements at		
DG Elmo #1	Yes	EP12			4	Yes	1.20	2.96 WL in transducer
DG Elmo# 2	Yes	EP16	Text Jim morning of and go in throuhg alternate entrance	651-414-1948	4	Yes	0.95	2.93 WL in transducer
Tarten Pond	No	EP13	See Above		4	No		

2:94 WL - When removing transducer

Spring Gauging Form

April 2021

Gauge Name	Mini Gauging Event?	Nearest Sample Pt	Location	Contact Info	Gauge Height	Transducer/Flow	Gauge Reading	Notes
Goose Lake	No	GL2 (side of road)			VBWD Gauge	No		
Down's Lake	No				VBWD Gauge	No		
Horseshoe Lake	No	Near BS7			VBWD Gauge	No		
DG Horseshoe Lake 1	Yes	WL6			4	Yes		
DG Horseshoe Lake 2	Yes	WL7			4	Yes		
North Pond	No	WL8			VBWD Gauge	No		
North Channel #1	ASK AMANDA	WL9	Specified Time ONLY	Check with Amanda	4	Yes		
North Channel #2	Yes	WL11	Text Karla 15 minutes ahead	612-801-9133	4	Yes	0.54	
Middle Pond	No	WL12	Text Maureen 30 minutes ahead	651-470-5386	4	No	1.2	
South Pond	No	WL16			VBWD Gauge	No		
North of VB4 (not main channel)	No	VB4			MGS Gauge	No		
VB4 Channel PreFault	No	VB4				No		
VB5 Channel PostFault	No	VB5				No		
Lake Edith	No			1033 Indian Trail S		No		



Staff Gauging a[illegible]ansducer Form

Gauge Name	Monthly Gauging?	Nearest Sample Pt	Location	Contact Info	Gauge Height	Transducer/Flow	Gauge Reading	Transducer Housing Water Level	Notes
									DRY PIPE 6/15
Sunfish Lake	Yes	Southwest side of lake	10550 Stillwater Blvd, Lake Elmo 55402	property owner has to be emailed ahead of time (Amanda)	VBWD Gauge	No	1.32	NA	
RC Wetlands 1	Yes	RC3			4	Yes	0.18	2.75	6/14/24
RC wetlands 2	Yes	RC5			4	Yes	0.24	3.98	6/14/24
~~RC Post RR #2~~	Yes	RC7A	7642 31ST ST N		4	Yes	~~DRY~~	3.96	~~COULDN'T FIND~~ MAGGIE 6/15 PIPE
Pond System #1	Yes	Across street from RC7			4	Yes	DRY	5.04	6/14/24
RC22 Pond (north pond)	Yes	RC22	7647 31ST ST N		4	No	DRY	NA	MAGGIE PHONE 6/15
RC23 Pond (south pond)	Yes	RC23	7713 31ST ST CT N		4	No	1.10	NA	MAGGIES PHONE 6/15
Rond system #2	Yes	RC9			4	Yes	0.00	5.14	DRY, NO LOCK MAGGIE PHONE 6/15
RC Intermittant #1	Yes	RC10			4	Yes	0.00	5.31	DRY, NO LOCK MAGGIE PHONE 6/15
RC Intermittant #2	Yes	RC11			4	Yes	0.00	4.89	DRY, NO LOCK MAGGIE PHONE 6/15
RC Intermittant #3	Yes	culvert at driveway to RC12			4	Yes	0.00	4.90	DRY, NO LOCK MAGGIE PHONE 6/15
RC Confluence #1	Yes	RC21			4	Yes	0.89	2.98	6/14/24
RC Confluence #2	Yes	RC18			4	Yes	1.82	2.90	Gauge backwards, Maggie phone 6/15
Eagle Point Lake	Yes	EP26			VBWD Gauge	No	1.08	NA	MAGGIES PHONE 6/15
Brown's Pond	Yes	BP1			6	No	3.25	NA	DRY PHONE 6/15
DG Eagle #3 ~~(Eagle Point Lake Dam)~~	Yes	EP7			6	Transducer only	0.92	13.65	MIS-NAMED - EAGLE POINT LAKE BRIDGE
Lake Elmo	Yes	East Side of Lake	access from dock associated with address	2835 LAKE ELMO AVE N	VBWD Gauge	No	1.38	NA	MAGGIE PHONE 6/15
Northern Pipe (smaller pipe)	Yes		Access from Lake Elmo Ave N			No - but take flow measurements at	—	NA	CALLED AMANDA - FLOW ONLY
Southern Pipe (larger pipe)	Yes		Access from Lake Elmo Ave N			No - but take flow measurements at	—	NA	CALLED AMANDA - FLOW ONLY
DG Elmo #1	Yes	EP12			4	Yes	0.80	3.4	6/14/24 NO WATER READINGS
DG Elmo# 2	Yes	EP16	**Text Jim morning of and go in throuhg alternate entrance**		4	Yes	0.51	3.4	6/14/24 NO WATER READINGS
DG Horseshoe Lake 1	Yes	WL6			4	Yes	1.18	3.0	6/14/24
DG Horseshoe Lake 2	Yes	WL7		651-414-1948	4	Yes	1.05	2.53	MAGGIE PHONE #1 6/15
North Channel #1	ASK AMANDA	WL9	815 MIDWEST TRAIL Specified Time ONLY		4	Yes	0.60	4.59	DRY PHONE 6/15
North Channel #2	Yes	WL11	Text Karla 15 minutes ahead		4	Yes	0.55	1.90	MAGGIE PHONE 6/15

Quarterly Gauging 1 of 2

Staff Gauging and Transducer Form
Summer 2021

Gauge Name	Team	Nearest Sample Pt	Location	Contact Info	Gauge Reading	Date	Transducer	Notes (include note if transducer data downloaded)
DG Eagle #1	SAMPLING TEAM	EP4			0.69	7/13/21	No	no visible flow but channel is full
DG Eagle #3 (Eagle Point Lake Dam)	gauging team	EP7			DRY	7/13	Yes	Camille (4)
Lake Elmo	gauging team	East Side of Lake	Access from dock with associated address	2835 LAKE ELMO AVE N	1.32	7/13/21	No	
Northern Pipe (smaller pipe)	gauging team		Access from Lake Elmo Ave N		No gauge		No - but take flow measurements at	FLOW = 0.6 height of culvert
Southern Pipe (larger pipe)	gauging team		Access from Lake Elmo Ave N		No gauge		No - but take flow measurements at	FLOW = 0 really?
DG Elmo #1	gauging team	EP12	Access from Lake Elmo Ave N or golf course (contact Jim for golf course)		0.63	7/13/21	Yes	James (5)
DG Elmo# 2	SAMPLING TEAM	EP16	**Text Jim morning of and go in through alternate entrance**	651-414-1948	0.4	7/13/21	Yes	Camille (2) [redacted] (5)
Tarten Pond	SAMPLING TEAM	EP13	**Text Jim morning of and go in through alternate entrance**	651-414-1948	0.86	7/13/21	No	Camille (3)
Down's Lake	gauging team						No	
Horseshoe Lake	gauging team	Near BS7			1.44	7/13/21	No	James (4)
DG Horseshoe Lake 1	SAMPLING TEAM	WL6			0.89	7/14/21	Yes	*msmd before rain
DG Horseshoe Lake 2	gauging team	WL7			1.0	7/13/21	Yes	James (3)
North Pond	gauging team	WL8			1.78	7/13/21	No	James (2)
North Channel #1	WEDNESDAY AT 9: SAMPLING TEAM	WL9	Specified Time ONLY 815 Midwest Trail	Check with Amanda	0.50	7/14/21	Yes	*msd before rain
North Channel #2	gauging team	WL11	Text Karla 15 minutes ahead	612-801-9133	0.34	7/13/21	Yes	James (1)
Middle Pond	SAMPLING TEAM	WL12	Text Maureen 30 minutes ahead	651-470-5386	0.40	7/14/21	No	msmt may not be 100% accurate as water level was at "edge" of gauge; msmd before rain
South Pond	gauging team	WL16			5.60	7/13/21	No	Camille (1)
Lake Edith	gauging team			1033 Indian Trail S	3.6		No	Cam
North of VB4 (not main channel)	SAMPLING TEAM	VB4			0.66	7/14	No	pre-rain
VB4 Channel PreFault	SAMPLING TEAM	VB4			4.28	7/14	No	pre-rain
VB5 Channel PostFault	SAMPLING TEAM	VB5		Not collected			No	pre-rain

gauge is RUBBED OFF. VALUE IS AN ESTIMATE!

Grey cells are sampling team gauge locations

Quarterly Staff Gaugin 2 of 2

Staff Gauging and Transducer Form
Summer 2021

Gauge Name	Team	Nearest Sample Pt	Location	Contact Info	Gauge Reading	Date	Transducer	Notes (include note if transducer data downloaded)
Lake Jane	gauging team	RC2	Public dock		0.90	7/13/21	No	Cam
Lake Olson	gauging team	RC1	8242 or 8258 Hidden Bay Trail		0.95	7/13/21	No	Cam
Friedrich's Pond	gauging team		East Side of Jonquil Ave N where hits pond		1.3	7/13/21	No	Cam
Sunfish Lake	gauging team	Southwest side of lake	10550 Stillwater Blvd, Lake Elmo 55402	property owner has to be emailed ahead of time (Amanda)	1.5	7/13/21	No	Cam
RC Wetlands 1	SAMPLING TEAM	RC3			0.00 (7/13/21) 0.80	(7/15/21)	Yes	rcmsd after ½" rainfall
RC wetlands 2	SAMPLING TEAM	RC5			0.20 (7/13/21) 0.39	(7/15/21)	Yes	rmsd after ½" rainfall
RC Post RR #1	gauging team	RC7A	7642 31st St N (or from MW14D through RR Culvert)		0.00 dry		Yes	flow at both trm
Pond System #1	gauging team	Across street from RC7			0.00 DRY - No puddle	7/13/21	Yes	Cam
RC22 Pond (north pond)	SAMPLING TEAM	RC22	7847 31st N		0.00 DRY	7/13/2	No	completely dry
RC23 Pond (south pond)	SAMPLING TEAM	RC23	7717 31st Ct N		0.00 see note	7/13/21	No	upto a ft of water in center of pond
Rond system #2	gauging team	RC9			Dry	7/13/21	Yes	Cam
~~RC Intermittant~~ #1	gauging team	RC10			Dry		Yes	
~~RC Intermittant~~ #2	gauging team	RC11			Dry		Yes	
~~RC Intermittant~~ #3	SAMPLING TEAM	culvert at driveway to RC12			Dry		Yes	
RC Confluence #1	SAMPLING TEAM	RC21			0.00 7/13/21 0.50	(7/14/21)	Yes	rcmsd after ½" of rain daily
RC Confluence #2	SAMPLING TEAM	RC18			0.00 (7/13/21)		Yes	only a ½ foot deep + 4' wide puddle upstream of gauge dry downstream of gauge
Eagle Point Lake 7:19	gauging team	EP26			0.69	7/13/21	No	
Brown's Pond	gauging team	BP1			2.8	7/13	No	James (6)
Goose Lake	gauging team	GL2 (side of road)			0.86	7/13	No	James (6)
Margaret Lake	gauging team	ML1			2.33	7/13	No	James (7)
Park Pond	gauging team	PP1			DRY	7/13	No	Riley

Grey cells are sampling team gauge locations

Staff Gauging and Transducer Form

JULY 2021 → 7122121 : Transducer Data Downloaded

Gauge Name	Mini Gauging Event?	Nearest Sample Pt	Location	Contact Info	Transducer	Gauge Reading	Date	Notes (include note if transducer data downloaded)	
Sunfish Lake	Yes	Southwest side of lake	10550 Stillwater Blvd, Lake Elmo 55402	property owner has to be emailed ahead of time (Amanda)	No				
RC Wetlands 1	Yes	RC3			Yes	DRY	7/22	DATA DOWNLOADED	1050 1
RC wetlands 2	Yes	RC5			Yes	~~0.03~~ 0.20	7/22	DATA DOWNLOADED	1106 2
RC Post RR #1	Yes	RC7A	7642 31st St N (or from MW14D through RR Culvert)		Yes	DRY	7/22	DATA DOWNLOADED	1127 4
Pond System #1	Yes	Across street from RC7	EAST OF 7761 31ST ST N		Yes	DRY	7/22	DATA DOWNLOADED	1118 3
RC22 Pond (north pond)	Yes	RC22	7847 31st N		No				
RC23 Pond (south pond)	Yes	RC23	7717 31st Ct N		No				
~~P~~ond system #2	Yes	RC9			Yes	DRY	7/22	DATA DOWNLOADED	1515 16
RC Intermittant #1	Yes	RC10			Yes	DRY	7/22	DATA DOWNLOADED; NO LOCK	1503 15
RC Intermittant #2	Yes	RC11			Yes	DRY	7/22	DATA DOWNLOADED; NO LOCK	1452 14
RC Intermittant #3	Yes	culvert at driveway to RC12			Yes	DRY	7/22	NO LOCK DATA DOWNLOADED	1441 13
RC Confluence #1	Yes	RC21			Yes	DRY	7/22	DATA DOWNLOADED	1427 12
RC Confluence #2	Yes	RC18			Yes	DRY	7/22	DATA DOWNLOADED	1411 11
Eagle Point Lake	Yes	EP26			No				
Brown's Pond	Yes	BP1			No				
DG Eagle #3 ~~(Eagle Point Lake Dam)~~	Yes	EP7	EAGLE POINT LAKE BRIDGE		Yes	DRY	7/22	DATA DOWNLOADED	1537 17
Lake Elmo	Yes	East Side of Lake	Access from dock with associated address	2835 LAKE ELMO AVE N	No				
Northern Pipe (smaller pipe)	Yes		Access from Lake Elmo Ave N		No - but take flow measurements at				
Southern Pipe (larger pipe)	Yes		Access from Lake Elmo Ave N		No - but take flow measurements at				
DG Elmo #1	Yes	EP12	Access from Lake Elmo Ave N or golf course (contact Jim for golf course)		Yes	0.50	7/22	DATA DOWNLOADED	1334 10
DG Elmo# 2	Yes	EP16	**Text Jim morning of and go in through alternate entrance**	651-414-1948	Yes	0.28	7/22	WOOD DOCK/BRIDGE DEBRIS DATA DOWNLOADED	1320 9
DG Horseshoe Lake 1	Yes	WL6			Yes	0.40	7/22	DATA DOWNLOADED	1258 8
DG Horseshoe Lake 2	Yes	WL7			Yes	1.02	7/22	DATA DOWNLOADED	1245 7
North Channel #1	ASK AMANDA	WL9	Specified Time ONLY 815 Midwest Trail	Check with Amanda	Yes	0.50	7/22	DATA DOWNLOADED	1214 5
North Channel #2	Yes	WL11	Text Karla 15 minutes ahead	612-801-9133	Yes	0.18	7/22	DATA DOWNLOADED	1232 6

Grey cells are Valley Branch Watershed District gauges

Staff Gauging a[illegible]ransducer Form

Gauge Name	Monthly Gauging Event?	Nearest Sample Pt	Location	Contact Info	Transducer	Gauge Reading	Transducer Housing Reading	Date	Notes (include note if transducer data downloaded)
Sunfish Lake	Yes	Southwest side of lake	10550 Stillwater Blvd, Lake Elmo 55402	property owner has to be emailed ahead of time (Amanda)	No	1.02	–	8/12/21	
RC Wetlands 1	Yes	RC3			Yes	0.12	3.30		
RC wetlands 2	Yes	RC5			Yes	0.23	3.43		
RC Post RR #1	Yes	RC7A	7642 31st St N (or from MW14D through RR Culvert)		Yes	0.65	3.20		
Pond System #1	Yes	Across street from RC7			Yes	0.58	3.21		
RC22 Pond (north pond)	Yes	RC22	7847 31st N		No	1.78	–		
RC23 Pond (south pond)	Yes	RC23	7717 31st Ct N		No	–	–		Covered by cattails, need to move to middle of pond
Lock - Rond system #2	Yes	RC9			Yes	0.00	5.03		
Lock - RC Intermittant #1	Yes	RC10			Yes	0.00	5.82		
Lock - RC Intermittant #2	Yes	RC11			Yes	0.00	5.04		
Lock - RC Intermittant #3	Yes	culvert at driveway to RC12			Yes	0.00	4.97		
RC Confluence #1	Yes	RC21			Yes	0.00	4.98		
RC Confluence #2	Yes	RC18			Yes	.40	4.48		
Eagle Point Lake	Yes	EP26			No	0.58	–	8/11/21	
Brown's Pond	Yes	BP1			No	2.56	–	8/12/21	
DG Eagle #3 (Eagle Point Lake Dam)	Yes	EP7			Yes	0.00	4.67		
Lake Elmo	Yes	East Side of Lake	Access from dock with associated address	2835 LAKE ELMO AVE N	No	1.44			
Northern Pipe (smaller pipe)	Yes		Access from Lake Elmo Ave N		FLOW	Culvert Water Height 1.72	Flow 0.6		
Southern Pipe (larger pipe)	Yes		Access from Lake Elmo Ave N		FLOW	Culvert Water Height 1.98	Flow 0.0		
DG Elmo #1	Yes	EP12	Access from Lake Elmo Ave N or golf course (contact Jim for golf course)		Yes	1.09	3.10		
DG Elmo# 2	Yes	EP16	**Text Jim morning of and go in through alternate entrance**	**651-414-1948**	Yes	0.85	3.08		
DG Horseshoe Lake 1	Yes	WL6			Yes	1.06	3.12		
DG Horseshoe Lake 2	Yes	WL7			Yes	1.25	3.16		
North Channel #1	ASK AMANI	WL9	**Specified Time ONLY 815 Midwest Trail**	**Wednesday 9 AM**	Yes	0.68	4.79	8/11/21	
North Channel #2	Yes	WL11	**Text Karla 15 minutes ahead**	**612-801-9133**	Yes	0.68	3.40	8/12/21	Downloaded
North Pond	YES FOR AU	WL8			No	1.92			
Middle Pond	YES FOR AU	WL12	**Text Maureen 30 minutes ahead**	**651-470-5386**	No	–	–		
South Pond	YES FOR AU	WL16			No	5.42	–		
DG Eagle #2?						0.32	–	8/11/21	

Staff Gauging and Transducer Form

Gauge Name	Mini Gauging Event?	Nearest Sample Pt	Location	Contact Info	Transducer	Gauge Reading	Date	Notes (include note if transducer data downloaded)
Sunfish Lake	Yes	Southwest side of lake	10550 Stillwater Blvd, Lake Elmo 55402	property owner has to be emailed ahead of time (Amanda)	No	1.04		
RC Wetlands 1	Yes	RC3			Yes	0.20	9/9/21	DTW: 3.22
RC wetlands 2	Yes	RC5			Yes	0.24	9/9/21	DTW: 3.38
RC Post RR #1	Yes	RC7A	7642 31st St N (or from MW14D through RR Culvert)		Yes	0.76	9/9/21	DTW: 2.21
Pond System #1	Yes	Across street from RC7			Yes	0.68	9/9/21	DTW: 2.26
RC22 Pond (north pond)	Yes	RC22	7847 31st N		No	–		Heavy veg cover
RC23 Pond (south pond)	Yes	RC23	7717 31st Ct N		No	–		↓
Rond system #2	Yes	RC9			Yes	0	9/9/21	DTW: 5.11 lock added
RC Intermittant #1	Yes	RC10			Yes	0	9/9/21	DTW: 5.43 lock added
RC Intermittant #2	Yes	RC11			Yes	missed	9/9/21	DTW: 5.06 lock added
RC Intermittant #3	Yes	culvert at driveway to RC12			Yes	0	9/9/21	DTW: 4.98 lock added
RC Confluence #1	Yes	RC21			Yes	0.22	9/9/21	DTW: 3.70
RC Confluence #2	Yes	RC18			Yes	0.38	9/9/21	DTW: 4.48
Eagle Point Lake	Yes	EP26			No	1.12		
Brown's Pond	Yes	BP1			No	2.61		
DG Eagle #3 (Eagle Point Lake Dam)	Yes	EP7			Yes	0.32	9/9/21	DTW: 3.84
Lake Elmo	Yes	East Side of Lake	Access from dock with associated address	2835 LAKE ELMO AVE N	No	1.58		
Northern Pipe (smaller pipe)	Yes		Access from Lake Elmo Ave N		No - but take flow measurements at	Full		Flow = 0.9 fps
Southern Pipe (larger pipe)	Yes		Access from Lake Elmo Ave N		No - but take flow measurements at	2.60		Flow = 0.0
DG Elmo #1	Yes	EP12	Access from Lake Elmo Ave N or golf course (contact Jim for golf course)		Yes	1.45		Data Did NOT download DTW. 2.73
DG Elmo# 2	Yes	EP16	**Text Jim morning of and go in through alternate entrance**	651-414-1948	Yes	1.24		DTW: 2.21
DG Horseshoe Lake 1	Yes	WL6			Yes	1.22	9/9/21	DTW: 3.00 No transducer Downloaded
DG Horseshoe Lake 2	Yes	WL7			Yes	1.38	9/9/21	DTW: 3.07 NO transducer Downloaded
North Channel #1	ASK AMANDA	WL9	Specified Time ONLY 815 Midwest Trail	Check with Amanda	Yes	0.81	9/9/21	DTW: 4.71
North Channel #2	Yes	WL11	Text Karla 15 minutes ahead	612-801-9133	Yes	0.82	9/9/21	DTW: 3.28

Park Road

Grey cells are Valley Branch Watershed District gauges

Gaug[illegible] Table

Gauge Name	Monthly Gauging Event?	Nearest Sample Pt	Location	Contact Info	Transducer	Gauge Reading	Transducer Housing Reading	Date	Notes (include note if transducer data downloaded)
Eagle Point Lake	Yes	EP26			No	0.64	—	10/19/21	—
Goose Lake	No	GL2 (side of road)			No	~~0.00~~ 1.38	—		
Margaret Lake	No	ML1			No	1.34			water edge
Park Pond	No	PP1			No	~~0.00~~ DRY	—		~4 feet south of gauge
Brown's Pond	Yes	BP1			No	2.10		10/14/21	
DG Eagle #3 (Eagle Point Lake Dam)	Yes	EP7			Yes	0.00	—	10/19/21	next to waters edge
Lake Elmo	Yes	East Side of Lake	Access from dock with associated address	Only walk through: 2835 LAKE ELMO AVE N	No	1.35	-	10/19/21	
Northern Pipe (smaller pipe)	Yes		Access from Lake Elmo Ave N		FLOW	Culvert Water Height 1.98	Flow 0.4 ft/sec	10/19/21	
Southern Pipe (larger pipe)	Yes				FLOW	Culvert Water Height 2.06	Flow	10/19/21	
DG Elmo #1	Yes	EP12	Access from Lake Elmo Ave N or golf course (contact Jim)		Yes	1.25	—	10/19/21	
Tarten Pond	No	EP13	**Text Jim morning of and go in through**	651-414-1948	No	0.60	—	10/19/21	
DG Elmo# 2	Yes	EP16		**651-414-1948**	Yes	1.02	—	↓	
Horseshoe Lake	No	Near BS7			No	~1.50		↓	gauge dirty + very hard to read
DG Horseshoe Lake 1	Yes	WL6			Yes	1.03	3.08	10/19/21	
DG Horseshoe Lake 2	Yes	WL7			Yes	0.98	3.23	10/19/21	
North Pond	YES FOR AU	WL8			No	1.86		10/19/21	
North Channel #1	ASK AMAN	WL9	**815 Midwest Trail**	~~Wednesday 9 AM~~ Tuesday	Yes	0.68	4.32	10/20/21	trans. dl don't work
Middle Pond	YES FOR AU	WL12	**Text Maureen 30 minutes**	**651-470-5386**	No	0.61	n/a	10/19/21	
North Channel #2	Yes	WL11	**Text Karla 15 minutes ahead**	**612-801-9133**	Yes	0.62	3.38	10/19/21	downloaded!
South Pond	YES FOR AU	WL16			No	5.86	n/a	10/19/21	
DG Eagle #1	No	EP4			No	0.86			
Down's Lake	No				No	~4.10	—	10/19/21	hard to read gauge
North of VB4 (not main channel)	No	VB4			No				
VB4 Channel PreFault	No	VB4			No	4.26	—	10/19/21	
VB5 Channel PostFault	No	VB5			No	1.40	—	10/19/21	slightly obstructed by vegetation
Lake Edith	No			1033 Indian Trail S	No				

Gaug[illegible] Table

Gauge Name	Monthly Gauging Event?	Nearest Sample Pt	Location	Contact Info	Transducer	Gauge Reading	Transducer Housing Reading	Date	Notes (include note if transducer data downloaded)
Lake Jane	No	RC2	Public dock		No	0.60	—	10/19/21	—
Lake Olson	No	RC1	8242 or 8258 Hidden Bay Trail		No	0.42	—	10/20/21	—
Sunfish Lake	Yes	Southwest side of lake	10550 Stillwater Blvd, Lake Elmo 55402	property owner has to be emailed ahead of time (Amanda)	No	0.48		10/19/21	—
RC Wetlands 1	Yes	RC3			Yes	0.20	3.15	10/19/21	dry at culvert to
RC wetlands 2	Yes	RC5			Yes	0.40	3.21	10/19/21	
RC Post RR #1	Yes	RC7A	7642 31st St N (or from MW14D through RR Culvert)		Yes	DRY	—	↓	Skipped
Pond System #1	Yes	Across street from RC7			Yes	DRY	5.00	10/19/21	downloaded
RC22 Pond (north pond)	Yes	RC22	7847 31st N		No	DRY	—	10/19/21	—
RC23 Pond (south pond)	Yes	RC23	7717 31st Ct N		No	DRY		10/19/21	—
Rond system #2	Yes	RC9			Yes	DRY	4.93	10/19/21	downloaded
RC Intermittant #1 skip to DL	Yes	RC10			Yes				Skipped
~~RC Intermittant #2~~	Yes	RC11	fallen		Yes				
RC Intermittant #3 skip to DL	Yes	culvert at driveway to RC12			Yes	DRY	—		Skipped
RC Confluence #1	Yes	RC21			Yes	DRY	4.97	10/19/21	✓
RC Confluence #2	Yes	RC18			Yes	DRY	~~DRY~~ DRY	10/19/21	downloaded
Friedrich's Pond	No		North (behind house)	owner fine with	No				

Transducers Data downloaded + pulled Nov 21'

Gauge Table

Gage Name	Monthly Gauging Event?	Nearest Sample Pt	Location	Contact Info	Transducer	Gauge Reading	Transducer Housing Reading	Date	Notes (include note if transducer data downloaded)
Eagle Point Lake	Yes	EP26			No				N/A pulled
Goose Lake	No	GL2 (side of road)			No				
Margaret Lake	No	ML1			No				
Park Pond	No	PP1			No				
Brown's Pond	Yes	BP1			No				
DG Eagle #3 (Eagle Point Lake Dam)	Yes	EP7			Yes		4.11	11/2/2021	
Lake Elmo	Yes	East Side of Lake	Access from dock with associated address	Only walk through: 2835 LAKE ELMO AVE N	No				N/A pulled
Northern Pipe (smaller pipe)	Yes		Access from Lake Elmo Ave N		FLOW	Culvert Water Height	Flow		
Southern Pipe (larger pipe)	Yes				FLOW	Culvert Water Height	Flow		
DG Elmo #1	Yes	EP12	Access from Lake Elmo Ave N or golf course (contact Jim)		Yes	1.97	2.10	11/2/21	+ collected
Tartan Pond	No	EP13	**Text Jim morning of and go in through**	651-414-1948	No				
DG Elmo# 2	Yes	EP16		**651-414-1948**	Yes	1.75	2.10	11/2/21	
Horseshoe Lake	No	Near B57			No				
DG Horseshoe Lake 1	Yes	WL6			Yes	1.20	2.90	11/2/2021	
DG Horseshoe Lake 2	Yes	WL7			Yes	1.75	3.14	11/2/2021	
North Pond	YES FOR AU	WL8			No	1.97			
North Channel #1	ASK AMAN	WL9	**815 Midwest Trail**	~~Wednesday 9 AM~~ Thursday	Yes	0.650	4.87	11/2/2021 0900	T collected
Middle Pond	YES FOR AU	WL12	**Text Maureen 30 minutes**	**651-470-5386**	No				
North Channel #2	Yes	WL11	**Text Karla 15 minutes ahead**	**612-801-9133**	Yes	0.725	3.27	11/2/2021 1430	T collected
South Pond	YES FOR AU	WL16			No				
DG Eagle #1	No	EP4			No				
Down's Lake	No				No				
North of VB4 (not main channel)	No	VB4			No				
VB4 Channel PreFault	No	VB4			No				
VB5 Channel PostFault	No	VB5			No				
Lake Edith	No			1033 Indian Trail S	No				

*gauge only

transducer troll download + pull Nov. 21'

Gauge Table

Gauge Name	Monthly Gauging Event?	Nearest Sample Pt	Location	Contact Info	Transducer	Gauge Reading	Transducer Housing Reading	Date	Notes (include note if transducer data downloaded)
~~Lake Jane~~	~~No~~	~~RC2~~	~~Public dock~~		No				
~~Lake Olson~~	No	RC1	8242 or 8258 Hidden Bay Trail		No				
* Sunfish Lake	Yes	Southwest side of lake	10550 Stillwater Blvd, Lake Elmo 55402	property owner has to be emailed ahead of time (Amanda)	No	0.40		11/2	
RC Wetlands 1	Yes	RC3			Yes	8.18	3.22	11/2	\
RC wetlands 2	Yes	RC5			Yes	8.18	3.13	11/2	\
RC Post RR #1	Yes	RC7A	7642 31st St N (or from MW14D through RR Culvert)		Yes	0.250	3.53	11/2	\
Pond System #1	Yes	Across street from RC7			Yes	Dry		11/2	\
* RC22 Pond (north pond)	Yes	RC22	7847 31st N		No	Dry			
* RC23 Pond (south pond)	Yes	RC23	7717 31st Ct N		No	Dry	4.92	11/2	X no
Rond system #2	Yes	RC9			Yes	Dry	4.94	11/2	X
RC Intermittant #1	Yes	RC10			Yes	Dry	5.75	11/2	X
RC Intermittant #2	Yes	RC11			Yes	Dry	4.48	11/2	missing Gauge
RC Intermittant #3	Yes	culvert at driveway to RC12			Yes	Dry	5.0	11/2	X
RC Confluence #1	Yes	RC21			Yes	Dry	4.91	11/2	X Downloaded
RC Confluence #2	Yes	RC18			Yes	Dry	5.76	11/2	\
~~Friedrich's Pond~~	~~No~~		~~North (behind house)~~	~~owner fine with~~	~~No~~				

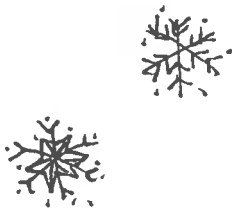
* gauge only

Gaugi[illegible]Table

Gauge Name	Monthly Gauging Event?	Nearest Sample Pt	Location	Contact Info	Transducer	Gauge Reading	Date	Notes (dry or frozen conditions)
RC Wetlands 1	Yes	RC3			No			
RC wetlands 2	Yes	RC5			No			
RC Post RR #1	Yes	RC7A	7642 31st St N		No			
Pond System #1	Yes	Across street from RC7			No			
RC22 Pond (north pond)	Yes	RC22	7847 31st N		No			
RC23 Pond (south pond)	Yes	RC23	7717 31st Ct N		No			
Rond system #2	Yes	RC9			No			
RC Intermittant #1	Yes	RC10			No			
RC Intermittant #3	Yes	culvert at driveway to RC12			No			
RC Confluence #1	Yes	RC21			No			
RC Confluence #2	Yes	RC18			No			
Northern Pipe (smaller pipe)	Yes		Access from Lake Elmo Ave N		FLOW	Culvert Water Height		flow 0.5 - 0.8' / 5 seconds
Southern Pipe (larger pipe)	Yes		Access from Lake Elmo Ave N		FLOW	Culvert Water Height		no flow apparent
DG Elmo #1	Yes	EP12	Access from Lake Elmo Ave N or golf course (contact Jim for golf course)		No	0.52	12/8/21	low flow
DG Elmo# 2	Yes	EP16	**Text Jim morning of and go in through alternate entrance**	**651-414-1948**	No	0.32	12/8/21	low flow, gauge in snow covered part
DG Horseshoe Lake 1	Yes	WL6			No	1.18 ~1.20	12/8/21	water flowing, flow
DG Horseshoe Lake 2	Yes	WL7			No		12/8/21	
North Channel #1	Yes	WL9	**Specified Time ONLY 815 Midwest Trail**	**Wednesday 9 AM**	No	✓		
North Channel #2	Yes	WL11	**Text Karla 30 minutes ahead**	**612-801-9133**	No	0.82	12/8/21	

Gaugi[illegible]Table

Gauge Name	Monthly Gauging Event?	Nearest Sample Pt	Location	Contact Info	Transducer	Gauge Reading	Date	Notes (dry or frozen conditions)
RC Wetlands 1	Yes	RC3			No	0.29	12/8/21	frozen
RC wetlands 2	Yes	RC5			No	0.60	12/8/21	partially frozen, bottom of
RC Post RR #1	Yes	RC7A	7642 31st St N		No	—	12/8/21	dry, few inches of snow gauge i
Pond System #1	Yes	Across street from RC7			No	—	12/8/21	dry, few inches of snow snow
RC22 Pond (north pond)	Yes	RC22	7847 31st N		No	—	12/8/21	dry, few in. of snow, dirt up to ~1.9
RC23 Pond (south pond)	Yes	RC23	7717 31st Ct N		No	—	12/8/21	dirt up to ~0.62, dry, few in. of
Rond system #2	Yes	RC9			No	—	12/8/21	dry, few in. of snow snow
RC Intermittant #1	Yes	RC10			No	0.31	12/8/21	frozen, [illegible] of snow
RC Intermittant #3	Yes	culvert at driveway to RC12			No	—	12/8/21	dry, few in. of snow
RC Confluence [illegible] #1	Yes	RC21			No	[illegible]	12/8/21	dry, snowy
RC Confluence [illegible] #2	Yes	RC18			No	—	12/8/21	dry, sheets of ice gathered above arou
Northern Pipe (smaller pipe)	Yes		Access from Lake Elmo Ave N		FLOW	Culvert Water Height		ALEX
Southern Pipe (larger pipe)	Yes		Access from Lake Elmo Ave N		FLOW	Culvert Water Height		
DG Elmo #1	Yes	EP12	Access from Lake Elmo Ave N or golf course (contact Jim for golf course)		No			
DG Elmo# 2	Yes	EP16	**Text Jim morning of and go in through alternate entrance**	**651-414-1948**	No			ALEX
DG Horseshoe Lake 1	Yes	WL6			No			
DG Horseshoe Lake 2	Yes	WL7			No			
North Channel #1	Yes	WL9	**Specified Time ONLY 815 Midwest Trail**	**Wednesday 9 AM**	No	0.65	12/8/21	
North Channel #2	Yes	WL11	**Text Karla 30 minutes ahead**	**612-801-9133**	No			



Winter 2022 St[illegible] Gauging Table

Gauge Name	Gauge	Nearest Sample Pt	Location	Contact Info / Details	Transducer	Gauge Reading	Date	Notes (dry or frozen conditions)
RC Wetlands 1	Yes	RC3	menards		No	0.60	1/20	Frozen
RC wetlands 2	Yes	RC5	across street from pinz		No	.10	1/20	Frozen
RC Post RR #1	Yes	RC7A	7642 31st St N	near cute foot bridge	No	0.0	1/21	Dry
Pond System #1	Yes	Across street from RC7	across street from 7754 31st N (downhill from road crossing of creek)		No	1.19	1/21	Frozen
RC22 Pond (north pond)	Yes	RC22	7847 31st N		No	1.31	1/21	Frozen
RC23 Pond (south pond)	Yes	RC23	7717 31st Ct N		No	0.0	1/21	Dry
Rond system #2	Yes	RC9	northeast of intersection of Ideal and Stillwater - follow creek from road		No	0.77	1/20	Frozen
RC Intermittant #1	Yes	RC10	west of mailbox for 8268 Stillwater Blvd		No	0.55	1/20	Frozen
RC Intermittant #3	Yes	culvert at driveway to RC12	Directly across street from Tablyn Park		No	1.52	1/20	Frozen
RC Confluence #1	Yes	RC21	Tablyn Park		No	—		
RC Confluence #2	Yes	RC18	Access from park or from trail at dead end of 28th St N		No	—		
DG Eagle #1	Yes	EP4	In Lake Elmo park		FLOW	Culvert Water Height 1.30	1/21	Flow: 0.8 1038
Northern Pipe (smaller pipe)	Yes		Access from Lake Elmo Ave N		FLOW	Culvert Water Height 1.56	↓	Flow: 0.8 1040
Southern Pipe (larger pipe)	Yes		Access from Lake Elmo Ave N		No	0.69	1/20	
DG Elmo #1	Yes	EP12	Access from Lake Elmo Ave N (walk down trail to the east, follow creek)		No	0.50	1/20	
DG Elmo# 2	Yes	EP16	**Text Jim morning of and go in through alternate entrance**	**651-414-1948**	No	1.39	1/20	-Snow level
Tarten Pond	Yes	EP13	**Text Jim morning of and go in through alternate entrance**	**651-414-1948**	No	1.24	1/20	
DG Horseshoe Lake 1	Yes	WL6	Side of road (12th St) near church		No	1.29	1/20	Standing water
DG Horseshoe Lake 2	Yes	WL7	access from 10th St N (west of intersection with Neal Ave)		No	0.65	1/21	
North Channel #1	Yes	WL9	**Specified Time ONLY 815 Midwest Trail**	**Friday 11 AM**	No	0.68	1/21	Frozen
North Channel #2	Yes	WL11	**Text Karla 30 minutes ahead 764 Neal Ave N**	**612-801-9133**	No	1.15	1/21	Frozen
Middle Pond	No	WL12	**Text Maureen 30 minutes ahead 565 Midwest Trail N**	**651-470-5386**	No			

Winter 2022 St— Gauging Table

Gauge Name	Gauge	Nearest Sample Pt	Location	Contact Info / Details	Transducer	Gauge Reading	Date	Notes (dry or frozen conditions)
RC Wetlands 1	Yes	RC3	menards		No			
RC wetlands 2	Yes	RC5	across street from pinz		No			
RC Post RR #1	Yes	RC7A	7642 31st St N	near cute foot bridge	No			
Pond System #1	Yes	Across street from RC7	across street from 7754 31st N (downhill from road crossing of creek)		No			
RC22 Pond (north pond)	Yes	RC22	7847 31st N		No			
RC23 Pond (south pond)	Yes	RC23	7717 31st Ct N		No			
Rond system #2	Yes	RC9	northeast of intersection of Ideal and Stillwater - follow creek from road		No			
RC Intermittant #1	Yes	RC10	west of mailbox for 8268 Stillwater Blvd		No			
RC Intermittant #3	Yes	culvert at driveway to RC12	Directly across street from Tablyn Park		No			
RC Confluence #1	Yes	RC21	Tablyn Park		No			
RC Confluence #2	Yes	RC18	Access from park or from trail at dead end of 28th St N		No	~~1.89~~	1/2~~3~~/22	frozen Approx 1 ft
DG Eagle #1	Yes	EP4	In Lake Elmo park		No		↓	frozen Approx ~~1.5 ft~~ #3 also w/o frozen?
Northern Pipe (smaller pipe)	Yes		Access from Lake Elmo Ave N		FLOW	Culvert Water Height		
Southern Pipe (larger pipe)	Yes		Access from Lake Elmo Ave N		FLOW	Culvert Water Height		
DG Elmo #1	Yes	EP12	Access from Lake Elmo Ave N (walk down trail to the east, follow creek)		No			
DG Elmo# 2	Yes	EP16	**Text Jim morning of and go in through alternate entrance**	**651-414-1948**	No			
Tarten Pond	Yes	EP13	**Text Jim morning of and go in through alternate entrance**	**651-414-1948**	No			
DG Horseshoe Lake 1	Yes	WL6	Side of road (12th St) near church		No			
DG Horseshoe Lake 2	Yes	WL7	access from 10th St N (west of intersection with Neal Ave)		No			
North Channel #1	Yes	WL9	**Specified Time ONLY 815 Midwest Trail**	**Friday 11 AM**	No			
North Channel #2	Yes	WL11	**Text Karla 30 minutes ahead 764 Neal Ave N**	**612-801-9133**	No			
Middle Pond	No	WL12	**Text Maureen 30 minutes ahead 565 Midwest Trail N**	**651-470-5386**	No			

Gauging Table

Gauge Name	Monthly Gauging Event?	Nearest Sample Pt	Location	Contact Info	Transducer	Gauge Reading	Date	Notes (dry or frozen conditions)
RC Wetlands 1	Yes	RC3			No	0.68	2/16/22	~~frozen, few inches of snow~~
RC wetlands 2	Yes	RC5			No	1.04	2/16/22	~~frozen, few in. of snow~~ above
RC Post RR #1	Yes	RC7A	7642 31st St N		No		2/16/22	dry
Pond System #1	Yes	Across street from RC7			No	~~N/A~~ (LL)	2/16/22	dry
RC22 Pond (north pond)	Yes	RC22	7847 31st N		No	1.24	2/16/22	~~frozen~~
RC23 Pond (south pond)	Yes	RC23	7717 ~~31st Ct~~ N		No	1.36	2/16/22	~~frozen~~
Rond system #2	Yes	RC9			No		2/16/22	dry
RC Intermittant #1	Yes	RC10			No	1.84	2/16/22	~~frozen~~
RC Intermittant #3	Yes	culvert at driveway to RC12			No	1.54	2/16/22	~~frozen~~
RC Confluence #1	Yes	RC21			No	1.54	2/16/22	~~frozen~~
Northern Pipe (smaller pipe)	Yes		Access from Lake Elmo Ave N		FLOW	Culvert Water Height 1.6		Flow = 0.0 ft/sec
Southern Pipe (larger pipe)	Yes		Access from Lake Elmo Ave N		FLOW	Culvert Water Height 1.36		Flow = 1.2 ft/sec.
DG Elmo #1	Yes	EP12	Access from Lake Elmo Ave N or golf course (contact Jim for golf course)		No	1.2		Area open, no ice
DG Horseshoe Lake 1	Yes	WL6			No	1.06		not frozen
DG Horseshoe Lake 2	Yes	WL7			No	1.14		not frozen
North Channel #1	Yes	WL9	**Specified Time ONLY 815 Midwest Trail**	**Wednesday 9 AM**	No	0.63		not frozen water flowing
North Channel #2	Yes	WL11	**Text Karla 30 minutes ahead**	**612-801-9133**	No	0.66		water flowing not frozen

Surface Transducer Locations and Work Plan

General Information			Staff Gauge Fields						Transuder and Housing Fields								Date and Approx Time (gauge and casing WLs)	Misc Notes		
Staff Gauge Name	2022 Plan	Location Info	Bench Mark Elevation	2021 Staff Gauge Elevation	Height of Instrument above BM	Top of Gauge to BM Reading (NOT rod)	Staff Gauge Reading	Gauge Condition (take pic)	Trans Type	Serial Number	2021 Casing Elevation	Top of Casing to BM Reading	Rope Length	Manual Depth to Water (casing)	Transducer Depth to Water (casing)	Trans Reset (y/n)		Further Action Needed?	Benchmark Notes	Pictures Taken (y/n)
RC Wetlands 1	Resurvey gauge, casing, and reinstall transducer		994.073	992.893					M5	2128602	992.313									
RC Wetlands 2	Resurvey gauge, casing, and reinstall transducer		988.863	985.633					M5	2128574	985.343		2.96	2.05		Y	3/31 1130	trans time offset - might need to ask Hanna to		
RC Post RR 1	Resurvey gauge, casing, and reinstall transducer	7642 31st St N	972.706	972.606					M5	2135762	972.436		[illegible]	2.52		No	3/31/22 1352	couldn't connect to software, Hanna still needs to be trained		
Pond System 1	Resurvey gauge, casing, and reinstall transducer		969.175	964.215					M5	2128576	964.135		3.75	2.56		Y	3/31/22 1435			
RC22 Pond (north pond)	Resurvey gauge (no transducer)	7847 31st N	962.255	960.565					N/A											
RC23 Pond (south pond)	Resurvey gauge (no transducer)	7717 31st Ct N	960.233	Never surveyed?					N/A											
Pond System 2	Resurvey gauge, casing, and reinstall transducer		959.312	956.632					M5	2135778	956.692		3.60	3.31		Y	3/31/22 1448			
RC Intermittent 1	Resurvey gauge, casing, and reinstall transducer		947.575	940.025			0.94		M5	2128559	940.435		3.45	3.51		Y	3/31/22 1520			
RC Intermittent 2	Remove BOTH casing and gauge, take picture		N/A																N/A	
RC Intermittent 3	Resurvey gauge, casing, and reinstall transducer		926.327	915.797					M5	2128558	915.447		3.63	3.02		Y	3/31/22 1553			
RC Confluence 1	Resurvey gauge, casing, and reinstall transducer		911.754	910.634					M5	2128581	910.494		3.13	2.83		Y	3/31/22 1615			
RC Confluence 2	MOVE gauge and casing, survey all, reinstall transducer	Do with Hanna on Thursday	902.321	900.851					M5	2128562	901.641									

Notes:

Needs surveying and transducer installation

Only resurvey and possible removal task (no transducer)

Removal task only

M5 rated for 16.4 ft (5 meters)

M20 rated for 65.6 ft (20 meters)

Surface Transducer Locations and Work Plan

General Information			Staff Gauge Fields						Transucer and Housing Fields								Date and Approx Time (gauge and casing WLs)	Misc Notes		
Staff Gauge Name	2022 Plan	Location Info	Bench Mark Elevation	2021 Staff Gauge Elevation	Height of Instrument above BM	Top of Gauge to BM Reading (NOT rod)	Staff Gauge Reading	Gauge Condition (take pic)	Trans Type	Serial Number	2021 Casing Elevation	Top of Casing to BM Reading	Rope Length	Manual Depth to Water (casing)	Transducer Depth to Water (casing)	Trans Reset (y/n)		Further Action Needed?	Benchmark Notes	Pictures Taken (y/n)
RC Wetlands 1	Resurvey gauge, casing, and reinstall transducer		994.073	992.893	+ 2.64	− 3.85	0.85 0.82	✓	M5	2128602	992.313	− 4.46	0903 48	2.65	0903		3/29 849		Nail No longer in rod - approximated	
RC Wetlands 2	Resurvey gauge, casing, and reinstall transducer		988.863	985.633	+ 1.38	− 4.63	1.12		M5	2128574	985.343	− 4.89							Aligned North of "bail" in front	Y
RC Post RR 1	Resurvey gauge, casing, and reinstall transducer	7642 31st St N	972.706	972.606	+ 3.37	− 3.52	1.26		M5	2135762	972.436	− 3.61							BM has Flagging in Soil	Y
Pond System 1	Resurvey gauge, casing, and reinstall transducer		969.175	964.215	+ 1.19	− 6.14	0.95		M5	2128576	964.135	− 6.23								
RC22 Pond (north pond)	Resurvey gauge (no transducer)	7847 31st N	962.255	960.565	1.67 +	− 3.85	3.25 Frozen ice		N/A											
RC23 Pond (south pond)	Resurvey gauge (no transducer)	7717 31st Ct N	960.233	Never surveyed?	+ 2.19	− 2.8	2.09 root	✓	N/A								3/31/22 1003			
Pond System 2	Resurvey gauge, casing, and reinstall transducer		959.312	956.632	+ 1.06	− 9.46	0.82		M5	2135778	956.692	− 9.27								
RC Intermittent 1	Resurvey gauge, casing, and reinstall transducer		947.575	940.025	+ 0.65	− 8.18	0.82		M5	2128559	940.435	− ~~7.68~~ 7.78							24 ft east of mailbox	
RC Intermittent 2	Remove BOTH casing and gauge, take picture		N/A																N/A	
RC Intermittent 3	Resurvey gauge, casing, and reinstall transducer		926.327	915.797	+ 0.42		0.49		M5	2128558	915.447									
RC Confluence 1	Resurvey gauge, casing, and reinstall transducer		911.754	910.634	+ 1.11	− 5.84	0.95		M5	2128581	910.494	− 5.96								
RC Confluence 2	MOVE gauge and casing, suvey all, reinstall transducer	Do with Hanna on Thursday	902.321	900.851	+ 2.64	− 2.30	1.50	Good Y	M5	2128562	901.641	− 2.55	4.14	2.24	1232	Y	3/31/22 1225	No	See pics	Y

Notes:

Needs surveying and transducer installation

Only resurvey and possible removal task (no transducer)

Removal task only

M5 rated for 16.4 ft (5 meters)

M20 rated for 65 6 ft (20 meters)

964.920

915.202

Pond System 2 BM = TOC at 854438 / RC Confluence 1 BM = TOC of 854440

RC Intermittent 3 = (926.327 + 0.42) − 7.53 = 919.217 (BM + HOI) ~~BM2~~ Culvert

HOI *2

919.217 + 0.60 = 919.818

SG = 919.818 − 3.92 = (915.898)

12< Intermittent 3

Culvert = 919.217

919.217 + 0.57 = 919.787
HOI

919.787 - 4.28 = 915.507
TH

Transducer Length from rope to sensor: 0.44

Top of "hockey puck" to rope: 0.16

Top of "hockey puck" to top of casing: 3/4"

Surface Transducer Locations and Work Plan

General Information			Staff Gauge Fields						Transucer and Housing Fields								Date and Approx Time (gauge and casing WLs)	Misc Notes		
Staff Gauge Name	2022 Plan	Location Info	Bench Mark Elevation	2021 Staff Gauge Elevation	Height of Instrument above BM	Top of Gauge to BM Reading (NOT rod)	Staff Gauge Reading	Gauge Condition (take pic)	Trans Type	Serial Number	2021 Casing Elevation	Top of Casing to BM Reading	Rope Length	Manual Depth to Water (casing)	Transducer Depth to Water (casing)	Trans Reset (y/n)		Further Action Needed?	Benchmark Notes	Pictures Taken (y/n)
DG Eagle 1	Remove BOTH casing and gauge, take picture		3-29-21 Eagle 3		+ 1.28	2.28	0.58	N/A REPAIRED SG											N/A	
DG Eagle 3	Resurvey gauge, casing, and reinstall transducer		898.981	896.661	+ 1.63	− 2.59	0.50	Needs bolts	M5	2128584	898.151	− 2.39	4.89	3.71	1632	Y	3/29/22 1032	Needs bolts	see pics	Y
Margaret Lake	Resurvey gauge		913.99	897.5	+ SEE Back Side				N/A											
Brown's Pond	Resurvey gauge		894.927	896.507	1.62 +	.04			N/A											
DG Elmo 1	Resurvey gauge, AND remove casing	Access from Lake Elmo Ave N	903.985	884.355	SEE	BACK	1.40		N/A								—			
DG Elmo 2	Remove BOTH casing and gauge	Text Jim (alternate entrance) 651-414-1948			+ 0.92	− 4.70	1.79		N/A										N/A	
Tarten Pond	Resurvey gauge	Text Jim (see above)	882.365	878.684	~~BACK~~ BACK		~~4.60~~		N/A								—			
DG Horseshoe 1	Resurvey gauge and casing (no transducer yet)		879.433	872.253	+ 0.50	− 7.70	1.72	Good Y	unknown		872.643	− 5.50		N/A			3/29/22	No	Marked by wood stake	Y
DG Horseshoe 2	Resurvey gauge and casing (no transducer yet)		882.735	869.565	+ 0.51		1.73	Good Y	unknown		869.945			N/A			3/31/22 SEE	REVERSE	SIDE	
North Channel 1	Resurvey gauge, casing, and reinstall transducer	Wed 9AM 815 Midwest Trail	873.68	868.29	+ 1.52	6.89	~~6.89~~ 1.03	Good Y	M5	2128579	869.81	− 5.40	4.96	4.49	0925	Y	3/31/22 0945	No	See pics	Y
North Channel 2	Resurvey gauge, casing, and reinstall transducer	Text Karla 30 minutes ahead 612 801 9133	871.697	867.997	+ 0.12	− 4.87	1.05	Good Y	M5	2128563	868.057	− 4.82	3.76	3.02	1210	Y	3/29/22 1200	No	"X" (to east on Stanton	Y
* Middle Pond	Resurvey gauge	Text Maureen 30 min ahead 651-470-5386	864.598	864.818	+ 2.69	− 2.48	1.82	okay Y	N/A								3/31/22	Needed nut and washer	See * pics	Y
South of South Pond: Outlet WL	New Location, Plan TBD		N/A NEW	N/A NEW					M5	2128570	N/A NEW									

Notes:
Needs surveying and transducer installation
Only resurvey and possible removal task (no transducer)
Removal task only

M5 rated for 16.4 ft (5 meters)
M20 rated for 65.6 ft (20 meters)

See back

Marked by pink flag

(4.17)*

*BM is approx. 29.5' NW of bird pole

*Add 1.17 ft. first TOC TM Elevations

3-30-22

DG Horshoe 2 → BM = 882.735

HOI * 1 = 0.51

BM 1 = (882.735 + 0.51) − 9.56 = 873.685

873.685

HOI * 2 = 0.88

SG = (873.685 + 0.88) − 4.90 = 869.665

TH = (873.685 + 0.88) − 4.50 = 870.065

North Channel 2 BM = 871.697

3-31-22

HOI = + 0.44

TH = (871.697 + 0.44) − 4.1 = 868.037

SG = (871.697 + 0.44 − 4.15 = 867.987

DG Elmo 1 ⑨ BM = 903.985

3-31-22

SG only

HOI = 1.32

(903.985 + 1.32) − 9.00 = 896.305

⑩ BM = 896.305

HOI = 0.25

(896.305 + 0.25) − 8.50 = 888.055

⑪ 888.055

HOI = 0.61

(888.055 + 0.61) − 4.28 = 884.385

Margaret Lake BM = 913.99

3-31-22

SG only

⑧ (913.99 + 0.87) − 9.42 = 905.44

*No reading, still frozen

⑨ (905.44 + 0.12) − ~~8.42~~ = ~~897.14~~

8.41 = 897.15

Gaug able

Gauge Name	Monthly Gauging?	Nearest Sample Pt	Location	Notification	Transducer	Gauge Reading	Transducer Housing Reading	Date	Time	Notes (include note if transducer data downloaded)
Sunfish Lake	Yes	Southwest side of lake	10550 Stillwater Blvd, Lake Elmo 55402	property owner has to be emailed ahead of time (Amanda)	No					
RC Wetlands 1	Yes	RC3	Menards		Yes	1.00		4/15/22	1325	
RC wetlands 2	Yes	RC5	Culvert across from Pinz		Yes	1.58		4/18/22	1240	
RC Post RR #1	Yes	RC7A	7642 31st St N		Yes	1.33			1350	
Pond System #1	Yes	Across street from RC7	On 31st N, south side		Yes	1.04			1345	
RC22 Pond (north pond)	Yes	RC22	7847 31st N		No	3.16			1410	
RC23 Pond (south pond)	Yes	RC23	7717 31st Ct N		No	1.95			1400	
Rond system #2	Yes	RC9	park on Ideal Ave on eastern shoulder, walk down to creek from road		Yes					
RC Intermittant #1	Yes	RC10	8268 Stillwater Blvd: park on side of road, gauge on east side of driveway bridge		Yes					
RC Intermittant #3	Yes	culvert at driveway to RC12	8740 Stillwater Blvd N: gauge at end of driveway (across street from Tablyn)		Yes					
RC Confluence #1	Yes	RC21	Tablyn Park		Yes	0.52		4/15/22	1100	
RC Confluence #2	Yes	RC18	LEPR - park at western deadend of 28th St N		Yes					
Eagle Point Lake	Yes	EP26	LEPR - canoe launch		No					
DG Eagle #3 (Eagle Point Lake Dam)	Yes	EP7	LEPR - by bridge		Yes					
Lake Elmo	Yes		Access from dock with associated address	Only walk through: 2835 LAKE ELMO AVE N	No					
Northern Pipe (smaller pipe, Lake Elmo)	Yes	EP11	Access from Lake Elmo Ave N		FLOW	Culvert Water Height	Flow			
Southern Pipe (larger pipe, EPL)	Yes	EP10	Access from Lake Elmo Ave N		FLOW	Culvert Water Height	Flow			
DG Elmo #1	Yes	EP12	Access from Lake Elmo Ave N		No					
Horseshoe Lake	Yes	Near BS7	Access from Manning Trail N (northeast corner of lake)		No					
DG Horseshoe Lake 1	Yes	WL6	Across 12th St from St Lucas Church		Not Yet					
DG Horseshoe Lake 2	Yes	WL7	Access from 10th St N - north side of road		Not Yet					
North Pond	Yes	WL8	Access from 10th St N - south side of road		No					
North Channel #1	**ASK AMANDA**	WL9	815 Midwest Trail	**Specified Time ONLY** Thursday 9 AM	Yes					
North Channel #2	Yes	WL11	764 Neal Ave N	**Text Karla 15 min 612-801-9133**	Yes					
Middle Pond	Yes	WL12	565 Midwest Trail N	**Text Maureen 30 min 651-470-5386**	No					
South Pond	Yes	WL16	Acces from Neal Ave N - west side of road		No					
South of South Pond: Outlet WL	Yes		Park along N Hudson, follow P1007 path KMZ to first "daylight" - take msmt at culvert		FLOW	Culvert Water Height	Flow			
Quarterly Gauging Only										
Lake Jane	No	RC2	Public dock -across street from 9189 Lake Jane Trail N		No					
Goose Lake	No	GL2	Visible from southside of 10th St N (right before park entrance)		No					
Brown's Pond	Yes	BP1	LEPR		No					
Margaret Lake	No	ML1	LEPR		No					
Tarten Pond	No	EP13	Golf course: go in through alternate entrance	Text Jim morning of 651-414-1948	No					

*gray cells are valley branch watershed gauges

Gauging Table

Gauge Name	Monthly Gauging?	Nearest Sample Pt	Location	Notification	Transducer	Gauge Reading	Transducer Housing Reading	Date	Time	Notes (include note if transducer data downloaded)
Sunfish Lake	Yes	Southwest side of lake	10550 Stillwater Blvd, Lake Elmo 55402	property owner has to be emailed ahead of time (Amanda)	No					
RC Wetlands 1	Yes	RC3	Menards		Yes					
RC wetlands 2	Yes	RC5	Culvert across from Pinz		Yes					
RC Post RR #1	Yes	RC7A	7642 31st St N		Yes					
Pond System #1	Yes	Across street from RC7	On 31st N, south side		Yes					
RC22 Pond (north pond)	Yes	RC22	7847 31st N		No					
RC23 Pond (south pond)	Yes	RC23	7717 31st Ct N		No					
Rond system #2	Yes	RC9	park on ideal Ave on eastern shoulder, walk down to creek from road		Yes	0.91		4/14/22	1230	
RC Intermittant #1	Yes	RC10	8268 Stillwater Blvd: park on side of road, gauge on east side of driveway bridge		Yes	0.90		4/14/22	1220	
RC Intermittant #3	Yes	culvert at driveway to RC12	8740 Stillwater Blvd N: gauge at end of driveway (across street from Tablyn)		Yes	0.56		4/14/22	1245	
RC Confluence #1	Yes	RC21	Tablyn Park		Yes					
RC Confluence #2	Yes	RC18	LEPR - park at western deadend of 28th St N		Yes	1.34		4/14/22	1550	
Eagle Point Lake	Yes	EP26	LEPR - canoe launch		No					
DG Eagle #3 (Eagle Point Lake Dam)	Yes	EP7	LEPR - by bridge		Yes	0.56		4/14/22	1520	
Lake Elmo	Yes		Access from dock with associated address	Only walk through: 2835 LAKE ELMO AVE N	No					
Northern Pipe (smaller pipe, Lake Elmo)	Yes	EP11	Access from Lake Elmo Ave N		FLOW	Culvert Water Height: full	Flow: 0.8	4/14/22	1315	
Southern Pipe (larger pipe, EPL)	Yes	EP10	Access from Lake Elmo Ave N		FLOW	Culvert Water Height: 2.5 (2.94) 0.44 from top of pipe	Flow: 0.3	4/14/22	1315	EP10 space from top to water
DG Elmo #1	Yes	EP12	Access from Lake Elmo Ave N		No	1.55		4/14/22	1320	
Horseshoe Lake	Yes	Near BS7	Access from Manning Trail N (northeast corner of lake)		No					
DG Horseshoe Lake 1	Yes	WL6	Across 12th St from St Lucas Church		Not Yet	1.64		4/14/22	1410	
DG Horseshoe Lake 2	Yes	WL7	Access from 10th St N - north side of road		Not Yet	1.68		1	1420	
North Pond	Yes	WL8	Access from 10th St N - south side of road		No					
North Channel #1	ASK AMANDA	WL9	815 Midwest Trail	Specified Time ONLY Thursday 9 AM	Yes	0.96		4/14/22	0900	
North Channel #2	Yes	WL11	764 Neal Ave N	Text Karla 15 min 612-801-9133	Yes	0.88		1	1355	
Middle Pond	Yes	WL12	565 Midwest Trail N	Text Maureen 30 min 651-470-5386	No	1.66		1	1440	
South Pond	Yes	WL16	Acces from Neal Ave N - west side of road		No					
South of South Pond: Outlet WL	Yes		Park along N Hudson, follow P1007 path KMZ to first "daylight" - take measmt at culvert		FLOW	Culvert Water Height: FULL	Flow: 0.2	4/14/22	1340	
Quarterly Gauging Only										
Lake Jane	No	RC2	Public dock -across street from 9189 Lake Jane Trail N		No					
Goose Lake	No	GL2	Visible from southside of 10th St N (right before park entrance)		No					
Brown's Pond	Yes	BP1	LEPR		No					
Margaret Lake	No	ML1	LEPR		No					
Tarten Pond	No	EP13	Golf course: go in through alternate entrance	Text Jim morning of 651-414-1948	No	1.76	—	4/14/22	1343	

*gray cells are valley branch watershed gauges

Gauging Table

Gauge Name	Monthly Gauging?	Nearest Sample Pt	Location	Notification	Transducer	Gauge Reading	Transducer Housing Reading	Date	Time	Notes (include note if transducer data downloaded)
Sunfish Lake	Yes	Southwest side of lake	10550 Stillwater Blvd, Lake Elmo 55402	property owner has to be emailed ahead of time (Amanda)	No					
RC Wetlands 1	Yes	RC3	Menards		Yes	0.88	2.57	5/19/22	0915	
RC wetlands 2	Yes	RC5	Culvert across from Pinz		Yes	1.37	2.52	1	0930	
RC Post RR #1	Yes	RC7A	7642 31st St N		Temp Removed					
Pond System #1	Yes	Across street from RC7	On 31st N, south side		Yes	1.35	3.21	5/19/22	1202	both reset + surveyed
RC22 Pond (north pond)	Yes	RC22	7847 31st N		No	3.17	—	5/19/22	0935	
RC23 Pond (south pond)	Yes	RC23	7717 31st Ct N		No	2.07	—	5/19/22	0930	
Rond system #2	Yes	RC9	park on Ideal Ave on eastern shoulder, walk down to creek from road		Yes					
RC Intermittant #1	Yes	RC10	8268 Stillwater Blvd: park on side of road, gauge on east side of driveway bridge		Yes					
RC Intermittant #3	Yes	culvert at driveway to RC12	8740 Stillwater Blvd N: gauge at end of driveway (across street from Tablyn)		Yes	0.23	3.26	5/18/22	1315	only working ~~reset~~ moved
RC Confluence #1	Yes	RC21	Tablyn Park		Yes					
RC Confluence #2	Yes	RC18	LEPR - park at western deadend of 28th St N		Yes					
Eagle Point Lake	Yes	EP26	LEPR - canoe launch		No	3.41	—	5/19/22	1203	
DG Eagle #3 (Eagle Point Lake Dam)	Yes	EP7	LEPR - by bridge		Yes	1.70	2.48	5/19/22	1225	
Lake Elmo	Yes		Access from dock with associated address	Only walk through: 2835 LAKE ELMO AVE N	No					
Northern Pipe (smaller pipe, Lake Elmo)	Yes	EP11	Access from Lake Elmo Ave N		FLOW	Culvert Water Height	Flow 0.70	5/19/22	1250	
Southern Pipe (larger pipe, EPL)	Yes	EP10	Access from Lake Elmo Ave N		FLOW	Culvert Water Height	Flow 0.90	5/19/22	1255	
DG Elmo #1	Yes	EP12	Access from Lake Elmo Ave N		No	3.10	1.01	5/19/22	1300	
Horseshoe Lake	Yes	Near BS7	Access from Manning Trail N (northeast corner of lake)		No					
DG Horseshoe Lake 1	Yes	WL6	Across 12th St from St Lucas Church		Yes	2.64	1.58		1035	
DG Horseshoe Lake 2	Yes	WL7	Access from 10th St N - north side of road		Yes	2.48	1.92		1020	
North Pond	Yes	WL8	Access from 10th St N - south side of road		No	2.63		5/19/22	0945	
North Channel #1	ASK AMANDA	WL9	815 Midwest Trail	Specified Time ONLY Thursday 9 AM	Yes	1.50	3.91	5/18/22	0922	
North Channel #2	Yes	WL11	764 Neal Ave N	Text Karla 15 min 612-801-9133	Yes	1.49	2.59	5/18/22	1001	
Middle Pond	Yes	WL12	565 Midwest Trail N	Text Maureen 30 min 651-470-5386	No	2.57		5/18/22	0934	
South Pond	Yes	WL16	Acces from Neal Ave N - west side of road		No	3.29		5/18/22	0932	
South of South Pond: Outlet WL	Yes		Park along N Hudson, follow P1007 path KMZ to first "daylight" - take msmt at culvert		FLOW	Culvert Water Height	Flow			
Quarterly Gauging Only										
Lake Jane	No	RC2	Public dock -across street from 9189 Lake Jane Trail N		No					
Goose Lake	No	GL2	Visible from southside of 10th St N (right before park entrance)		No					
Brown's Pond	No	BP1	LEPR		No					
Margaret Lake	No	ML1	LEPR		No					
Tarten Pond	No	EP13	Golf course: go in through alternate entrance	Text Jim morning of 651-414-1948	No					

*gray cells are Valley branch watershed gauges

Gaug able

Gauge Name	Monthly Gauging?	Nearest Sample Pt	Location	Notification	Transducer	Gauge Reading	Transducer Housing Reading	Date	Time	Notes (include note if transducer data downloaded)
Sunfish Lake	Yes	Southwest side of lake	10550 Stillwater Blvd, Lake Elmo 55402	property owner has to be emailed ahead of time (Amanda)	No					
RC Wetlands 1	Yes	RC3	Menards		Yes					
RC wetlands 2	Yes	RC5	Culvert across from Pinz		Yes	6.28		5/18/22	1345	
RC Post RR #1	Yes	RC7A	7642 31st St N		Temp Removed					
Pond System #1	Yes	Across street from RC7	On 31st N, south side		Yes					
RC22 Pond (north pond)	Yes	RC22	7847 31st N		No	3.18		5/18/22	1250	
RC23 Pond (south pond)	Yes	RC23	7717 31st Ct N		No	2.06		5/18/22	1305	
Rond system #2	Yes	RC9	park on Ideal Ave on eastern shoulder, walk down to creek from road		Yes	0.86		5/18/22	1220	
RC Intermittant #1	Yes	RC10	8268 Stillwater Blvd: park on side of road, gauge on east side of driveway bridge		Yes					
RC Intermittant #3	Yes	culvert at driveway to RC12	8740 Stillwater Blvd N: gauge at end of driveway (across street from Tablyn)		Yes					
RC Confluence #1	Yes	RC21	Tablyn Park		Yes	1.18		5/18/22	1530	
RC Confluence #2	Yes	RC18	LEPR - park at western deadend of 28th St N		Yes					
Eagle Point Lake	Yes	EP26	LEPR - canoe launch		No					
DG Eagle #3 (Eagle Point Lake Dam)	Yes	EP7	LEPR - by bridge		Yes					
Lake Elmo	Yes		Access from dock with associated address	Only walk through: 2835 LAKE ELMO AVE N	No					
Northern Pipe (smaller pipe, Lake Elmo)	Yes	EP11	Access from Lake Elmo Ave N		FLOW	Culvert Water Height	Flow			
Southern Pipe (larger pipe, EPL)	Yes	EP10	Access from Lake Elmo Ave N		FLOW	Culvert Water Height	Flow			
DG Elmo #1	Yes	EP12	Access from Lake Elmo Ave N		No					
Horseshoe Lake	Yes	Near BS7	Access from Manning Trail N (northeast corner of lake)		No	5.40		5/18/22	1105	
DG Horseshoe Lake 1	Yes	WL6	Across 12th St from St Lucas Church		Yes					
DG Horseshoe Lake 2	Yes	WL7	Access from 10th St N - north side of road		Yes					
North Pond	Yes	WL8	Access from 10th St N - south side of road		No					
North Channel #1	**ASK AMANDA**	WL9	815 Midwest Trail	**Specified Time ONLY** Thursday 9 AM	Yes					
North Channel #2	Yes	WL11	764 Neal Ave N	**Text Karla 15 min 612-801-9133**	Yes					
Middle Pond	Yes	WL12	565 Midwest Trail N	**Text Maureen 30 min 651-470-5386**	No					
South Pond	Yes	WL16	Acces from Neal Ave N - west side of road		No					
South of South Pond: Outlet WL	Yes		Park along N Hudson, follow P1007 path KMZ to first "daylight" - take msmt at culvert		FLOW	Culvert Water Height	Flow			
Quarterly Gauging Only										
Lake Jane	No	RC2	Public dock -across street from 9189 Lake Jane Trail N		No					
Goose Lake	No	GL2	Visible from southside of 10th St N (right before park entrance)		No					
Brown's Pond	No	BP1	LEPR		No					
Margaret Lake	No	ML1	LEPR		No					
Tarten Pond	No	EP13	Golf course: go in through alternate entrance	Text Jim morning of 651-414-1948	No					

*gray cells are valley branch watershed gauges

JUNE 2022 Monthly Gauging 6/22 - 6/23 2022

Gauging Table

Gauge Name	Monthly Gauging?	Nearest Sample Pt	Location	Notification	Transducer	Gauge Reading	Transducer Housing Reading	Date	Time	Notes (include note if transducer data downloaded)
Sunfish Lake	Yes	Southwest side of lake	10550 Stillwater Blvd, Lake Elmo 55402	property owner has to be emailed ahead of time (Amanda)	No	1.56	–	6/23/22	10:55	–
RC Wetlands 1	Yes	RC3	Menards		Yes	0.26	3.14	6/23/22	1610	Yes
RC wetlands 2	Yes	RC5	Culvert across from Pinz		Yes	0.34	3.44	6/23/22	1500	Yes
RC Post RR #1	Yes	RC7A	7642 31st St N		Temp Removed	0.48	4.01	6/23/22	1515	Removed prior
Pond System #1	Yes	Across street from RC7	On 31st N, south side		Yes	Dry	4.92	6/23/22	1420	Yes
RC22 Pond (north pond)	Yes	RC22	7847 31st N		No	Dry	–	6/23/22	1416	–
RC23 Pond (south pond)	Yes	RC23	7717 31st Ct N		No	0.86	–	6/23/22	1430	–
Rond system #2	Yes	RC9	park on Ideal Ave on eastern shoulder, walk down to creek from road		Yes	Dry	4.99	6/23/22	1357	yes
RC Intermittant #1	Yes	RC10	8268 Stillwater Blvd: park on side of road, gauge on east side of driveway bridge		Yes	Dry	5.79	6/23/22	1344	yes
RC Intermittant #3	Yes	culvert at driveway to RC12	8740 Stillwater Blvd N: gauge at end of driveway (across street from Tablyn)		Yes	Dry	4.87	6/23/22	1520	yes
RC Confluence #1	Yes	RC21	Tablyn Park		Yes	1.06	2.75	6/23/22	1312	yes
RC Confluence #2	Yes	RC18	LEPR - park at western deadend of 28th St N		Yes	2.66	0.84	6/23/22	1257	yes
Eagle Point Lake	Yes	EP26	LEPR - Eagle Point Lake canoe launch		No	4.58	–	6/22/22	1725	–
DG Eagle #3 (Eagle Point Lake Dam)	Yes	EP7	LEPR - by bridge		Yes	0.44	3.84	6/23/22		yes
Lake Elmo	Yes	EP21	MOWD - Lake Elmo Outlet Control		No	7.98	-	6/22/22	1445	–
Northern Pipe (smaller pipe, Lake Elmo)	Yes	EP11	Access from Lake Elmo Ave N		FLOW	Culvert Water Height 7.25' Below Top	Flow 0.2	6/22/22	1447	–
Southern Pipe (larger pipe, EPL)	Yes	EP10	Access from Lake Elmo Ave N		FLOW	Culvert Water Height 0.76' below Top	Flow 0.6	6/22/22	1415	–
DG Elmo #1	Yes	EP12	Access from Lake Elmo Ave N		No	0.78	–	6/22/22	1410	–
Horseshoe Lake	Yes	Near BS7	Access from Manning Trail N (northeast corner of lake)		No	5.40	–	6/22/22	1050	–
DG Horseshoe Lake 1	Yes	WL6	Across 12th St from St Lucas Church		Yes	1.50	2.68	6/23/22	1114	yes
DG Horseshoe Lake 2	Yes	WL7	Access from 10th St N - north side of road		Yes	1.42	2.94	6/23/22	1127	yes
North Pond	Yes	WL8	Access from 10th St N - south side of road		No	1.84	–	6/22/22	1150	–
North Channel #1	ASK AMANDA	WL9	815 Midwest Trail	Specified Time ONLY Wed 9 AM	Yes	0.80	4.72	6/22/22	9:15	No - transducer was started; No data 002-2128579 MS
North Channel #2	Yes	WL11	764 Neal Ave N	Text Karla 15 min 612-801-9133	Yes	0.94	3.08	6/23/22	1140	yes
Middle Pond	Yes	WL12	565 Midwest Trail N	Text Maureen 30 min 651-470-5386	No	1.20	–	6/22/22	14:40	–
South Pond	Yes	WL16	Acces from Neal Ave N - west side of road		No	1.95	–	6/22/22	1140	–
South of South Pond: Outlet WL	Yes		Park along N Hudson, follow P1007 path KMZ to first "daylight" - take msmt at culvert		FLOW	Culvert Water Height 0.14' Below Top of Pipe	Flow 0.2	6/23/22	1155	–
Quarterly Gauging Only										
Lake Jane	No	RC2	Public dock -across street from 9189 Lake Jane Trail N		No					
Goose Lake	No	GL2	Visible from southside of 10th St N (right before park entrance)		No					
Brown's Pond	No	BP1	LEPR		No					
Margaret Lake	No	ML1	LEPR		No					
Tarten Pond	No	EP13	Golf course: go in through alternate entrance	Text Jim morning of 651-414-1948	No					

*gray cells are valley branch watershed gauges

DG Eagle #1 1.26 – 6/22/22 1700 –

Gauging Table

Gauge Name	Monthly Gauging?	Nearest Sample Pt	Location	Notification	Transducer	Gauge Reading	Transducer Housing Reading	Date	Time	Notes (include note if transducer data downloaded)
Sunfish Lake	Yes	Southwest side of lake	10550 Stillwater Blvd, Lake Elmo 55402	property owner has to be emailed ahead of time (Amanda)	No	1.26	N/A	7/11	14:15	
RC Wetlands 1	Yes	RC3	Menards		Yes	0.16	3.08	7/11	11:40	
RC wetlands 2	Yes	RC5	Culvert across from Pinz		Yes	dry	4.34	7/11	16:45	
RC Post RR #1	Yes	RC7A	7642 31st St N		Temp Removed	DRY	4.57	7/11	14:40	
Pond System #1	Yes	Across street from RC7	On 31st N, south side		Yes	DRY	5.01	7/11	14:55	
RC22 Pond (north pond)	Yes	RC22	7847 31st N		No	DRY	N/A	7/11		
RC23 Pond (south pond)	Yes	RC23	7717 31st Ct N		No	DRY		7/11	1450	no water until ~30ft past gauge
Rond system #2	Yes	RC9	park on Ideal Ave on eastern shoulder, walk down to creek from road		Yes	DRY	5.52	7/11	1510	
RC Intermittant #1	Yes	RC10	8268 Stillwater Blvd: park on side of road, gauge on east side of driveway bridge		Yes	DRY	5.64	7/11	1535	
RC Intermittant #3	Yes	culvert at driveway to RC12	8740 Stillwater Blvd N: gauge at end of driveway (across street from Tablyn)		Yes	DRY	4.84	7/11	1615	
RC Confluence #1	Yes	RC21	Tablyn Park		Yes	0.88	3.00	7/11	1550	
RC Confluence #2	Yes	RC18	LEPR - park at western deadend of 28th St N		Yes	DRY	4.24	7/11	1708	transducer rusted off
Eagle Point Lake	Yes	EP26	LEPR - Eagle Point Lake canoe launch		No	Nathan				
DG Eagle #3 (Eagle Point Lake Dam)	Yes	EP7	LEPR - by bridge		Yes	0.20	5.01	7/12	1030	
Lake Elmo	Yes	EP21	MOVED - Lake Elmo Canoe Launch		No	Nathan				
Northern Pipe (smaller pipe, Lake Elmo)	Yes	EP11	Access from Lake Elmo Ave N		FLOW	Culvert Water Height	Flow			
Southern Pipe (larger pipe, EPL)	Yes	EP10	Access from Lake Elmo Ave N		FLOW	Culvert Water Height	Flow			
DG Elmo #1	Yes	EP12	Access from Lake Elmo Ave N		No	0.64	3.41	7/11	13:00	
Horseshoe Lake	Yes	Near BS7	Access from Manning Trail N (northeast corner of lake)		No	5.24	N/A	7/11	12:00	
DG Horseshoe Lake 1	Yes	WL6	Across 12th St from St Lucas Church		Yes	0.98	3.11	7/11/22	1145	
DG Horseshoe Lake 2	Yes	WL7	Access from 10th St N - north side of road		Yes	1.12	3.10	7/11/22	11:00	cap rusted off of transducer housing
North Pond	Yes	WL8	Access from 10th St N - south side of road		No	1.60	N/A	7/11/22	12:10	
North Channel #1	ASK AMANDA	WL9	815 Midwest Trail	Specified Time ONLY Wed 9 AM	Yes	0.50	5.12	7/11/22	10:40	
North Channel #2	Yes	WL11	764 Neal Ave N	Text Karla 15 min 612-801-9133	Yes	0.36	3.76	7/11/22	11:24	
Middle Pond	Yes	WL12	565 Midwest Trail N	Text Maureen 30 min 651-470-5386	No	0.31	N/A	7/11/22	12:30	
South Pond	Yes	WL16	Acces from Neal Ave N - west side of road		No	0.50	5.02	7/11/22	10:40	↗ 1.06
South of South Pond: Outlet WL	Yes		Park along N Hudson, follow P1007 path KMZ to first "daylight" - take msmt at culvert		FLOW	Culvert Water Height	Flow	7/11/22	10:05	
Quarterly Gauging Only										
Lake Jane	No	RC2	Public dock -across street from 9189 Lake Jane Trail N		No					
Goose Lake	No	GL2	Visible from southside of 10th St N (right before park entrance)		No					
Brown's Pond	No	BP1	LEPR		No					
Margaret Lake	No	ML1	LEPR		No					
Tarten Pond	No	EP13	Golf course: go in through alternate entrance	Text Jim morning of 651-414-1948	No					

*gray cells are valley branch watershed gauges

Nathan could not find Tarten Pond

MONDAY 7/11/22 @10-11am

July 2022 Full Gauging 7/11/22

Gauging Table

Gauge Name	Monthly Gauging?	Nearest Sample Pt	Location	Notification	Transducer	Gauge Reading	Transducer Housing Reading	Date	Time	Notes (include note if transducer data downloaded)
Sunfish Lake	Yes	Southwest side of lake	10550 Stillwater Blvd, Lake Elmo 55402	property owner has to be emailed ahead of time (Amanda)	No					
RC Wetlands 1	Yes	RC3	Menards		Yes					
RC wetlands 2	Yes	RC5	Culvert across from Pinz		Yes					
RC Post RR #1	Yes	RC7A	7642 31st St N		Temp Removed					
Pond System #1	Yes	Across street from RC7	On 31st N, south side		Yes					
RC22 Pond (north pond)	Yes	RC22	7847 31st N		No					
RC23 Pond (south pond)	Yes	RC23	7717 31st Ct N		No					
Rond system #2	Yes	RC9	park on Ideal Ave on eastern shoulder, walk down to creek from road		Yes					
RC Intermittant #1	Yes	RC10	8268 Stillwater Blvd: park on side of road, gauge on east side of driveway bridge		Yes					
RC Intermittant #3	Yes	culvert at driveway to RC12	8740 Stillwater Blvd N: gauge at end of driveway (across street from Tablyn)		Yes					
RC Confluence #1	Yes	RC21	Tablyn Park		Yes					
RC Confluence #2	Yes	RC18	LEPR - park at western deadend of 28th St N		Yes					
Eagle Point Lake	Yes	EP26	LEPR - Eagle Point Lake canoe launch		No	4.256	—	7/11/22	16:34	
DG Eagle #3 (Eagle Point Lake Dam)	Yes	EP7	LEPR - by bridge		Yes					
Lake Elmo	Yes	EP21	MOVED - Lake Elmo Canoe Launch		No	4.98	—	7/11/22	16:55	
Northern Pipe (smaller pipe, Lake Elmo)	Yes	EP11	Access from Lake Elmo Ave N		FLOW	Culvert Water Height	Flow			
Southern Pipe (larger pipe, EPL)	Yes	EP10	Access from Lake Elmo Ave N		FLOW	Culvert Water Height	Flow			
DG Elmo #1	Yes	EP12	Access from Lake Elmo Ave N		No					
Horseshoe Lake	Yes	Near B57	Access from Manning Trail N (northeast corner of lake)		No					
DG Horseshoe Lake 1	Yes	WL6	Across 12th St from St Lucas Church		Yes					
DG Horseshoe Lake 2	Yes	WL7	Access from 10th St N - north side of road		Yes					
North Pond	Yes	WL8	Access from 10th St N - south side of road		No					
North Channel #1	ASK AMANDA	WL9	815 Midwest Trail	Specified Time ONLY Wed 9 AM	Yes					
North Channel #2	Yes	WL11	764 Neal Ave N	Text Karla 15 min 612-801-9133	Yes					
Middle Pond	Yes	WL12	565 Midwest Trail N	Text Maureen 30 min 651-470-5386	No					
South Pond	Yes	WL16	Acces from Neal Ave N - west side of road		No					
South of South Pond: Outlet WL	Yes		Park along N Hudson, follow P1007 path KMZ to first "daylight" - take msmt at culvert		FLOW	Culvert Water Height	Flow			
Quarterly Gauging Only										
Lake Jane	No	RC2	Public dock across street from 9189 Lake Jane Trail N		No	1.12	—	7/11/22	16:49	
Goose Lake	No	GL2	Visible from southside of 10th St N (right before park entrance)		No	1.80	—	7/11/22	1620	
Brown's Pond	No	BP1	LEPR		No	1.63	—	7/11/22	1626	
Margaret Lake	No	ML1	LEPR		No	2.08	—	7/11/22	1630	
Tarten Pond	No	EP13	Golf course: go in through alternate entrance	Text Jim morning of 651-414-1948	No	Could Not locate				

*gray cells are valley branch watershed gauges

Gaug ab able

Gauge Name	Monthly Gauging?	Nearest Sample Pt	Location	Notification	Transducer	Gauge Reading	Transducer Housing Reading	Date	Time	Notes (include note if transducer data downloaded)
Sunfish Lake	Yes	Southwest side of lake	10550 Stillwater Blvd, Lake Elmo 55402	property owner has to be emailed ahead of time (Amanda)	No	1.98	—	8/16/22	7:40	—
RC Wetlands 1	Yes	RC3	Menards		Yes	0.18	3.22	8/16/22	13:40	
RC wetlands 2	Yes	RC5	Culvert across from Pinz		Yes	0.34	3.41	8/16/22	12:00	155feet - No
RC Post RR #1	Yes	RC7A	7642 31st St N		Temp Removed	1.03	3.46	8/16/22	1:15	uninstalled
Pond System #1	Yes	Across street from RC7	On 31st N, south side		Yes	0.86	3.73	8/16/22	10:33	DL
RC22 Pond (north pond)	Yes	RC22	7847 31st N		No	2.26	—	8/16/22	11:38	
RC23 Pond (south pond)	Yes	RC23	7717 31st Ct N		No	1.40	—	8/16/22	10:56	—
Rond system #2	Yes	RC9	park on Ideal Ave on eastern shoulder, walk down to creek from road		Yes	DRY	4.93	8/16/22	10:04	Downloaded
RC Intermittant #1	Yes	RC10	8268 Stillwater Blvd: park on side of road, gauge on east side of driveway bridge		Yes	DRY	5.85	8/16/22	9:15	Downloaded
RC Intermittant #3	Yes	culvert at driveway to RC12	8740 Stillwater Blvd N: gauge at end of driveway (across street from Tablyn)		Yes	DRY	4.90	8/16/22	9:49	Downloaded
RC Confluence #1	Yes	RC21	Tablyn Park		Yes	DRY	4.98	8/16/22	9:43	Downloaded
RC Confluence #2	Yes	RC18	LEPR - park at western deadend of 28th St N		Yes	DRY	4.72	8/16/22	13:13	Downloaded
Eagle Point Lake	Yes	EP26	LEPR - Eagle Point Lake canoe launch		No	DRY	—	8/17/22	11:40	—
DG Eagle #3 (Eagle Point Lake Dam)	Yes	EP7	LEPR - by bridge		Yes	DRY	4.70		12:02	DL'd, good
Lake Elmo	Yes	EP21	MOVED - Lake Elmo Canoe Launch		No	5.00	—	↓	13:35	—
Northern Pipe (smaller pipe, Lake Elmo)	Yes	EP11	Access from Lake Elmo Ave N		FLOW	Culvert Water Height 1.3'	Flow 0.1	8/16/22	13:50	—
Southern Pipe (larger pipe, EPL)	Yes	EP10	Access from Lake Elmo Ave N		FLOW	Culvert Water Height 1.52	Flow 0.0	8/16/22	13:50	—
DG Elmo #1	Yes	EP12	Access from Lake Elmo Ave N		No	0.66	—	8/16/22	13:55	—
Horseshoe Lake	Yes	Near BS7	Access from Manning Trail N (northeast corner of lake)		No	5.26	—	8/16/22	14:35	—
DG Horseshoe Lake 1	Yes	WL6	Across 12th St from St Lucas Church		Yes	0.98	3.28	8/16/22	14:11	DL'd
DG Horseshoe Lake 2	Yes	WL7	Access from 10th St N - north side of road		Yes	1.14	3.22	8/16/22	16:15	DL'd
North Pond	Yes	WL8	Access from 10th St N - south side of road		No	1.62	— 8/16/22	8/16/22	16:06	8/16/22 —
North Channel #1	ASK AMANDA	WL9	815 Midwest Trail	Specified Time ONLY Wed 9 AM	Yes	0.52	5.01	8/17/22	9:11	File named DG Horseshoe #2, changed, DL'd.
North Channel #2	Yes	WL11	764 Neal Ave N	Text Karla 15 min 612-801-9133	Yes	0.18 0.18	3.95	8/16/22	15:31	DL'd
Middle Pond	Yes	WL12	565 Midwest Trail N	Text Maureen 30 min 651-470-5386	No	Dry	—	8/16/22	15:05	—
South Pond	Yes	WL16	Acces from Neal Ave N - west side of road		No	Dry	—	8/16/22	15:44	—
South of South Pond: Outlet WL	Yes		Park along N Hudson, follow P1007 path KMZ to first "daylight" - take msmt at culvert		FLOW	Culvert Water Height 0.3'	Flow 0.0	8/16/22	15:58	—
Quarterly Gauging Only										
Lake Jane	No	RC2	Public dock -across street from 9189 Lake Jane Trail N		No					
Goose Lake	No	GL2	Visible from southside of 10th St N (right before park entrance)		No					
Brown's Pond	No	BP1	LEPR		No					
Margaret Lake	No	ML1	LEPR		No					
Tarten Pond	No	EP13	Golf course: go in through alternate entrance	Text Jim morning of 651-414-1948	No					

*gray cells are valley branch watershed gauges

Transducer data good?

— No, was reset

Yes

reset, time was off

yes

Gaug[illegible]able

Gauge Name	Monthly Gauging?	Nearest Sample Pt	Location	Notification	Transducer	Gauge Reading	Transducer Housing Reading	Date	Time	Notes (include note if transducer data downloaded)
Sunfish Lake	Yes	Southwest side of lake	10550 Stillwater Blvd, Lake Elmo 55402	property owner has to be emailed ahead of time - (Amanda)	No					
RC Wetlands 1	Yes	RC3	Menards		Yes					
RC wetlands 2	Yes	RC5	Culvert across from Pinz		Yes					
RC Post RR #1	Yes	RC7A	7642 31st St N		Temp Removed					
Pond System #1	Yes	Across street from RC7	On 31st N, south side		Yes					
RC22 Pond (north pond)	Yes	RC22	7847 31st N		No					
RC23 Pond (south pond)	Yes	RC23	7717 31st Ct N		No					
Rond system #2	Yes	RC9	park on Ideal Ave on eastern shoulder, walk down to creek from road		Yes					
RC Intermittant #1	Yes	RC10	8268 Stillwater Blvd: park on side of road, gauge on east side of driveway bridge		Yes					
RC Intermittant #3	Yes	culvert at driveway to RC12	8740 Stillwater Blvd N: gauge at end of driveway (across street from Tablyn)		Yes					
RC Confluence #1	Yes	RC21	Tablyn Park		Yes					
RC Confluence #2	Yes	RC18	LEPR - park at western deadend of 28th St N		Yes					
Eagle Point Lake	Yes	EP26	LEPR - Eagle Point Lake canoe launch		No	DRY	—	8/17/22	11:40	—
DG Eagle #3 (Eagle Point Lake Dam)	Yes	EP7	LEPR - by bridge		Yes	DRY	4.70	8/17/22	12:02	DL'd - good
Lake Elmo	Yes	EP21	MOVED - Lake Elmo Canoe Launch		No	5.00	—	8/[illegible]/22	13:35	—
Northern Pipe (smaller pipe, Lake Elmo)	Yes	EP11	Access from Lake Elmo Ave N		FLOW	Culvert Water Height	Flow			
Southern Pipe (larger pipe, EPL)	Yes	EP10	Access from Lake Elmo Ave N		FLOW	Culvert Water Height	Flow			
DG Elmo #1	Yes	EP12	Access from Lake Elmo Ave N		No					
Horseshoe Lake	Yes	Near BS7	Access from Manning Trail N (northeast corner of lake)		No					
DG Horseshoe Lake 1	Yes	WL6	Across 12th St from St Lucas Church		Yes					
DG Horseshoe Lake 2	Yes	WL7	Access from 10th St N - north side of road		Yes					
North Pond	Yes	WL8	Access from 10th St N - south side of road		No					
North Channel #1	**ASK AMANDA**	WL9	815 Midwest Trail	**Specified Time ONLY** Wed 9 AM	Yes	0.52	5.01	8/17/22	9:11	File name listed as DG Horseshoe #2, changed in Folder.
North Channel #2	Yes	WL11	764 Neal Ave N	**Text Karla 15 min 612-801-9133**	Yes					
Middle Pond	Yes	WL12	565 Midwest Trail N	**Text Maureen 30 min 651-470-5386**	No					
South Pond	Yes	WL16	Acces from Neal Ave N - west side of road		No					
South of South Pond: Outlet WL	Yes		Park along N Hudson, follow P1007 path KMZ to first "daylight" - take msmt at culvert		FLOW	Culvert Water Height	Flow			
Quarterly Gauging Only										
Lake Jane	No	RC2	Public dock -across street from 9189 Lake Jane Trail N		No					
Goose Lake	No	GL2	Visible from southside of 10th St N (right before park entrance)		No					
Brown's Pond	No	BP1	LEPR		No					
Margaret Lake	No	ML1	LEPR		No					
Tarten Pond	No	EP13	Golf course: go in through alternate entrance	Text Jim morning of 651-414-1948	No					

*gray cells are valley branch watershed gauges

DG Eagle #1, Between PZDs and PZDs, → 0.44' transducer hanging, No transducer

Sept 2022 Monthly Staff Gauging

Gauging Table

Gauge Name	Monthly Gauging?	Nearest Sample Pt	Location	Notification	Transducer	Gauge Reading	Transducer Housing Reading	Date	Time	Notes (include note if transducer data downloaded)
Sunfish Lake	Yes	Southwest side of lake	10550 Stillwater Blvd, Lake Elmo 55402	property owner has to be emailed ahead of time (Amanda)	No					
RC Wetlands 1	Yes	RC3	Menards		Yes	0.16	3.23	9/13/22	1455	Yes
RC wetlands 2	Yes	RC5	Culvert across from Pinz		Yes	0.34	3.45	9/13/22	1440	Yes
RC Post RR #1	Yes	RC7A	7642 31st St N	Yes ~~No~~ (sign removed)		0.60	3.95	9/13/22	1525	Yes Brush Debris
Pond System #1	Yes	Across street from RC7	On 31st N, south side		Yes	Dry	4.97	9/13/22	1515	Yes
RC22 Pond (north pond)	Yes	RC22	7847 31st N		No	DRY	—	9(13)22	0931	—
RC23 Pond (south pond)	Yes	RC23	7717 31st Ct N		No	0.90	—	9/14/22	0936	—
Rond system #2	Yes	RC9	park on Ideal Ave on eastern shoulder, walk down to creek from road		Yes	Dry	5.00	9/13/22	1423	yes
RC Intermittant #1	Yes	RC10	8268 Stillwater Blvd: park on side of road, gauge on east side of driveway bridge		Yes	Dry	5.84	9/13/22	1415	yes
RC Intermittant #3	Yes	culvert at driveway to RC12	8740 Stillwater Blvd N: gauge at end of driveway (across street from Tablyn)		Yes	Dry	4.90	9/13/22	1350	yes
RC Confluence #1	Yes	RC21	Tablyn Park		Yes	Dry	4.93	9/13/22	1356	yes
RC Confluence #2	Yes	RC18	LEPR - park at western deadend of 28th St N		Yes	Dry	4.84	9/14/22	1205	yes
Eagle Point Lake	Yes	EP26	LEPR - Eagle Point Lake canoe launch		No	4.04	—	9/13/22	1105	—
DG Eagle #3 (Eagle Point Lake Dam)	Yes	EP7	LEPR - by bridge		Yes	Dry	4.28	9/13/22	1113	yes
Lake Elmo	Yes	EP21	MOVED - Lake Elmo Canoe Launch		No	5.00	—	9/13/22	1205	—
Northern Pipe (smaller pipe, Lake Elmo)	Yes	EP11	Access from Lake Elmo Ave N		FLOW	Culvert Water Height 1.28	Flow 0.5	9/14/22	1145	—
Southern Pipe (larger pipe, EPL)	Yes	EP10	Access from Lake Elmo Ave N		FLOW	Culvert Water Height 1.56	Flow 0.0	9/14/22	1147	—
DG Elmo #1	Yes	EP12	Access from Lake Elmo Ave N		No	0.62	—	9/14/22	1149	—
Horseshoe Lake	Yes	Near BS7	Access from Manning Trail N (northeast corner of lake)		No	5.25	—	9/13/22	1127	—
DG Horseshoe Lake 1	Yes	WL6	Across 12th St from St Lucas Church		Yes	0.72	3.52	9/14/22	1106	Yes
DG Horseshoe Lake 2	Yes	WL7	Access from 10th St N - north side of road		Yes	1.02	3.34	9/14/22	9:54	Yes
North Pond	Yes	WL8	Access from 10th St N - south side of road		No	1.60	—	9/13/22	1227	—
North Channel #1	ASK AMANDA	WL9	815 Midwest Trail	Specified Time ONLY Wed 9 AM	Yes	0.50	4.98	9/14/22	912	Yes
North Channel #2	Yes	WL11	764 Neal Ave N	Text Karla 15 min 612-801-9133	Yes	0.38	3.67	9/14/22	1019	Yes
Middle Pond	Yes	WL12	565 Midwest Trail N	Text Maureen 30 min 651-470-5386	No	Dry	—	9/13/22	1137	—
South Pond	Yes	WL16	Acces from Neal Ave N - west side of road		No	Dry	—	9/13/22	1215	—
South of South Pond: Outlet WL	Yes		Park along N Hudson, follow P1007 path KMZ to first "daylight" - take msmt at culvert		FLOW	Culvert Water Height 1.16	Flow 0.0	9/14/22	1040	—
Quarterly Gauging Only										
Lake Jane	No	RC2	Public dock -across street from 9189 Lake Jane Trail N		No					
Goose Lake	No	GL2	Visible from southside of 10th St N (right before park entrance)		No					
Brown's Pond	No	BP1	LEPR		No					
Margaret Lake	No	ML1	LEPR		No					
Tarten Pond	No	EP13	Golf course: go in through alternate entrance	Text Jim morning of 651-414-1948	No					

*gray cells are valley branch watershed gauges

2022 11 11

Gaug[illegible]able

Monthly gauging

Gauge Name	Monthly Gauging?	Nearest Sample Pt	Location	Notification	Transducer	Gauge Reading	Transducer Housing Reading	Date	Time	Notes (include note if transducer data downloaded)
Sunfish Lake	Yes	Southwest side of lake	10550 Stillwater Blvd, Lake Elmo 55402	property owner has to be emailed ahead of time (Amanda)	No	1.40	—	10/11/22	1400	—
RC Wetlands 1	Yes	RC3	Menards		Yes	DRY	DRY	10/10/22	0952	yes
RC wetlands 2	Yes	RC5	Culvert across from Pinz		Yes	0.30	3.41		0916	yes
RC Post RR #1	Yes	RC7A	~~7642 31st St N~~		Temp Removed	DRY	DRY	10/11/22		
Pond System #1	Yes	Across street from RC7	On 31st N, south side		Yes	DRY	DRY		0934	yes
RC22 Pond (north pond)	Yes	RC22	7847 31st N		No	DRY	DRY		0936	—
RC23 Pond (south pond)	Yes	RC23	7717 31st Ct N		No	DRY	DRY		0930	—
Rond system #2	Yes	RC9	park on Ideal Ave on eastern shoulder, walk down to creek from road		Yes	DRY	DRY		0946	Yes
RC Intermittant #1	Yes	RC10	8268 Stillwater Blvd: park on side of road, gauge on east side of driveway bridge		Yes	DRY	DRY		1002	
RC Intermittant #3	Yes	culvert at driveway to RC12	8740 Stillwater Blvd N: gauge at end of driveway (across street from Tablyn)		Yes	DRY	DRY		1037	Yes
RC Confluence #1	Yes	RC21	Tablyn Park		Yes	DRY	DRY		1035	Yes
RC Confluence #2	Yes	RC18	LEPR - park at western deadend of 28th St N		Yes	DRY	DRY	10/11/22	12:20	Yes
Eagle Point Lake	Yes	EP26	LEPR - Eagle Point Lake canoe launch		No	DRY	Dry	10/10/22	10:25	—
DG Eagle #3 (Eagle Point Lake Dam)	Yes	EP7	LEPR - by bridge		Yes	Dry	4.89/Dry	10/10/22	10:55	Yes
Lake Elmo	Yes	EP21	MOVED - Lake Elmo Canoe Launch		No	4.92	—	10/10/22	11:54	—
Northern Pipe (smaller pipe, Lake Elmo)	Yes	EP11	Access from Lake Elmo Ave N		FLOW	Culvert Water Height	Flow			
Southern Pipe (larger pipe, EPL)	Yes	EP10	Access from Lake Elmo Ave N		FLOW	Culvert Water Height	Flow			
DG Elmo #1	Yes	EP12	Access from Lake Elmo Ave N		No	0.68	—	10/10/22	1137	—
Horseshoe Lake	Yes	Near BS7	Access from Manning Trail N (northeast corner of lake)		No	5.14	—	10/10/22	1518	—
DG Horseshoe Lake 1	Yes	WL6	Across 12th St from St Lucas Church		Yes	0.46	3.77	10/11/22	1100	Yes
DG Horseshoe Lake 2	Yes	WL7	Access from 10th St N - north side of road		Yes	0.60	3.74	10/11/22	11:13	Yes
North Pond	Yes	WL8	Access from 10th St N - south side of road		No	1.42	—	10/11/22	11:48	—
North Channel #1	ASK AMANDA	WL9	815 Midwest Trail	Specified Time ONLY	Yes	0.22	5.18	10/11/22	9:02	Yes
North Channel #2	Yes	WL11	764 Neal Ave N	Text Karla 15 min 612-801-9133	Yes	Dry	Dry	10/11/22	11:30	Yes
Middle Pond	Yes	WL12	565 Midwest Trail N	Text Maureen 30 min 651-470-5386	No	DRY	DRY	10/10/22	1254	—
South Pond	Yes	WL16	Acces from Neal Ave N - west side of road		No	DRY	DRY		1250	—
South of South Pond: Outlet WL	Yes		~~Park along N Hudson, follow P1007~~ path KMZ to first "daylight" - take msmt at culvert		FLOW	Culvert Water Height: Dry	Flow: —	10/6/22	11:38	—
Quarterly Gauging Only										
Lake Jane	No	RC2	Public dock -across street from 9189 Lake Jane Trail N		No					
Goose Lake	No	GL2	Visible from southside of 10th St N (right before park entrance)		No					
Brown's Pond	No	BP1	LEPR		No					
Margaret Lake	No	ML1	LEPR		No					
Tarten Pond	No	EP13	Golf course: go in through alternate entrance	Text Jim morning of 651-414-1948	No					

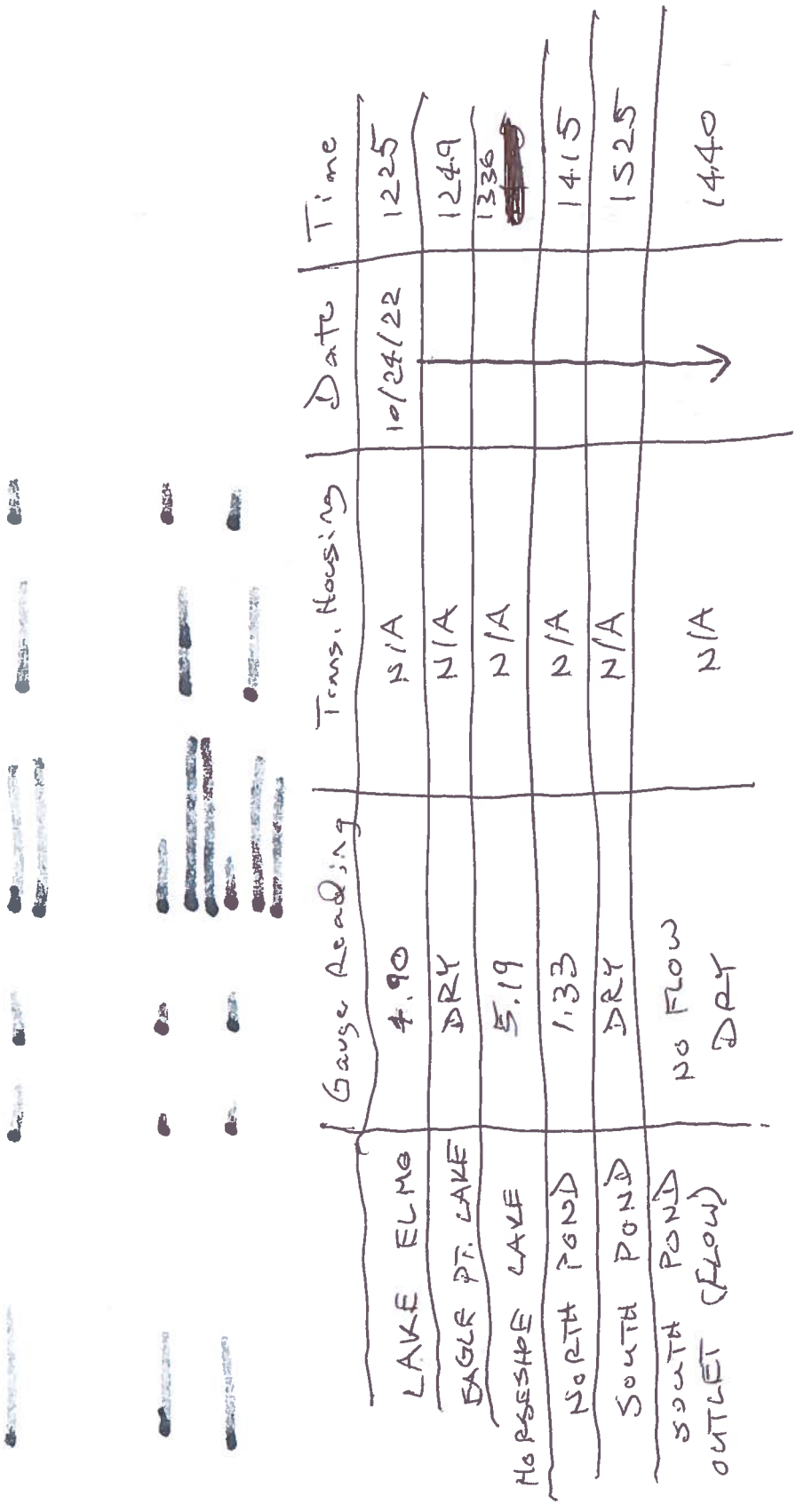
*gray cells are valley branch watershed gauges

Winter 2022 St[illegible] Gauging Table

DATE & TIME

Gauge Name	Gauge	Nearest Sample Pt	Location	Contact Info / Details	Transducer	Gauge Reading	HOUSING [illegible]	[illegible] (dry or frozen conditions)	
RC Wetlands 1	Yes	RC3	menards		No	0.12	3.36	10/25/22	0940
RC wetlands 2	Yes	RC5	across street from pinz		No	0.32	3.44	10/25/22	1120
RC Post RR #1	Yes	RC7A	7642 31st St N	near cute foot bridge	No	DRY	—	10/24/22	
Pond System #1	Yes	Across street from RC7	across street from 7754 31st N (downhill from road crossing of creek)		No	DRY	—	10/24/22	
RC22 Pond (north pond)	Yes	RC22	7847 31st N		No	DRY	N/A	10/25/22	1150
RC23 Pond (south pond)	Yes	RC23	7717 31st Ct N		No	DRY	N/A	10/25/22	1155
Rond system #2	Yes	RC9	northeast of intersection of Ideal and Stillwater - follow creek from road		No	DRY	—	10/24/22	
RC Intermittant #1	Yes	RC10	west of mailbox for 8268 Stillwater Blvd		No	DRY	5.91	10/25/22	1225
RC Intermittant #3	Yes	culvert at driveway to RC12	Directly across street from Tablyn Park		No	DRY	5.81	10/25/22	1235
RC Confluence #1	Yes	RC21	Tablyn Park		No	DRY	5.13	10/25/22	1250
RC Confluence #2	Yes	RC18	Access from park or from trail at dead end of 28th St N		No	DRY	4.93	10/25/22	1300
DG Eagle #[illegible]3	Yes	[illegible]	In Lake Elmo park		No	DRY	5.25	10/24/22	1241
Northern Pipe (smaller pipe)	Yes		Access from Lake Elmo Ave N	FLOW: 0.0	FLOW	Culvert Water Height 1.55	N/A	10/24/22	1300
Southern Pipe (larger pipe)	Yes		Access from Lake Elmo Ave N	FLOW: 0.0	FLOW	Culvert Water Height 1.78	N/A	10/24/22	1302
DG Elmo #1	Yes	EP12	Access from Lake Elmo Ave N (walk down trail to the east, follow creek)		No	0.87	3.29	*PIC ON M. LARSON PHONE 10/24/22	1300
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]				
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]				
DG Horseshoe Lake 1	Yes	WL6	Side of road (12th St) near church		No	0.52	3.64	10/24/22	1346
DG Horseshoe Lake 2	Yes	WL7	access from 10th St N (west of intersection with Neal Ave)		No	0.74	3.67	10/24/22	1404
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]				
North Channel #2	Yes	WL11	**Text Karla 30 minutes ahead 764 Neal Ave N**	**612-801-9133**	No	DRY	5.06	10/24/22	1420
Middle Pond	No	WL12	**Text Maureen 30 minutes ahead 565 Midwest Trail N**	**651-470-5386**	No	DRY	N/A	10/24/22	1430

*SEE REVERSE SIDE



	Gauge Reading	Trans. Housing	Date	Time
LAKE ELMO	4.90	N/A	10/24/22	1225
EAGLE PT. LAKE	DRY	N/A		1249
HORSESHOE LAKE	5.19	N/A		1336
NORTH POND	1.33	N/A		1415
SOUTH POND	DRY	N/A		1525
SOUTH POND OUTLET (FLOW)	NO FLOW DRY	N/A	→	1440

Gauge Table

Gauge Name	Monthly Gauging?	Nearest Sample Pt	Location	Notification	Transducer	Gauge Reading	Transducer Housing Reading	Date	Time	Notes (include note if transducer data downloaded)
RC Wetlands 1	Yes	RC3	Menards		Yes	0.18	3.00	11-15-24	1012	002-2128652
RC wetlands 2	Yes	RC5	Culvert across from Pinz		Yes	0.90	4.04	↓	0944	002-2128574
RC Post RR #1	not sure if transducer is there?	RC7A	7642 31st St N		Temp Removed ?	0.92	3.69	11-5-24	1415	002-2135762
Pond System #1	Yes	Across street from RC7	On 31st N, south side		Yes	Frozen	Frozen		1500	002-2128576
Rond system #2	Yes	RC9	park on Ideal Ave on eastern shoulder, walk down to creek from road		Yes				1505	002-2135778
RC Intermittant #1	Yes	RC10	8268 Stillwater Blvd: park on side of road, gauge on east side of driveway bridge		Yes	DRY	5.52		1058	002-2128554
RC Intermittant #3	Yes	culvert at driveway to RC12	8740 Stillwater Blvd N: gauge at end of driveway (across street from Tablyn)		Yes	DRY	4.14		1305	002-2128559
RC Confluence #1	Yes	RC21	Tablyn Park		Yes	DRY	4.91	↓	1020	002-2128551
RC Confluence #2	Yes	RC18	LEPR - park at western deadend of 28th St N		Yes	DRY	4.83	11-25-24	1102	002-2128562
DG Eagle #3 (Eagle Point Lake Dam)	Yes	EP7	LEPR - by bridge		Yes	DRY	5.50		1020	002-2128584
DG Horseshoe Lake 1	Yes	WL6	Across 12th St from St Lucas Church		Yes	0.92	3.37		1242	002-2128568
DG Horseshoe Lake 2	Yes	WL7	Access from 10th St N - north side of road		Yes	1.21	3.20		1302	004-2135254
North Channel #1	ASK AMANDA	WL9	815 Midwest Trail	Tues 9 AM Specified Time ONLY	Yes	0.68	4.94		0903	002-2128579
North Channel #2	Yes	WL11	764 Neal Ave N	Text Karla 15 min 612-801-9133	Yes	0.33	3.85	↓	0830	002-2128563

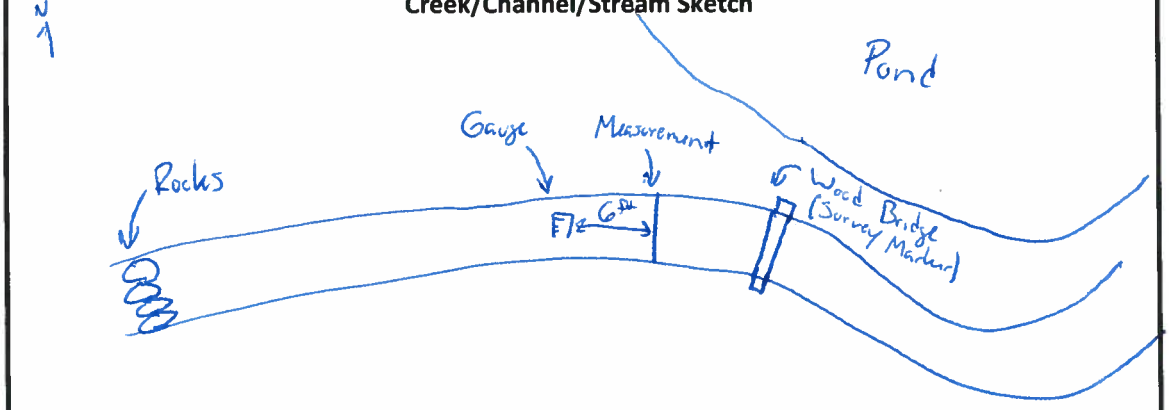
FLOW FORM

Date and Time: 8/17/20 1310 | Client: MPCA

Sample Location ID: RC Post RR # 1 | Field Staff: JM + RF

Project Number: 60618753 | Weather: Sunny 75°

Creek/Channel/Stream Sketch



Stream Gauge: **Stream Segment Total Width =** 8.6 ft

Section No.	Dist to Initial Point	Width	Depth	Velocity at 0.6 D	Area	Discharge
	inches	inches	feet	ft/s	ft^2	ft^3/s
1	12		0.46	0.0		
2	24		0.80	0.0		
3	36		0.97	0.0		
4	48		1.01	0.0		
5	60		1.12	0.0		
6	72		0.92	0.0		
7	84		0.62	0.0		
8	96		0.49	0.0		
9						
10						
11						
12						
13						

Stream Width	Number of Vertical Measurements	Q = V*A
3' < 9'		
9' < 16'		
16' < 33'		

Notes

Measured S to N. 6ft downstream of gauge. Wooden bridge as survey marker.

Sample Checklist

☐ Picture of Sample Location ☐ GPS'd

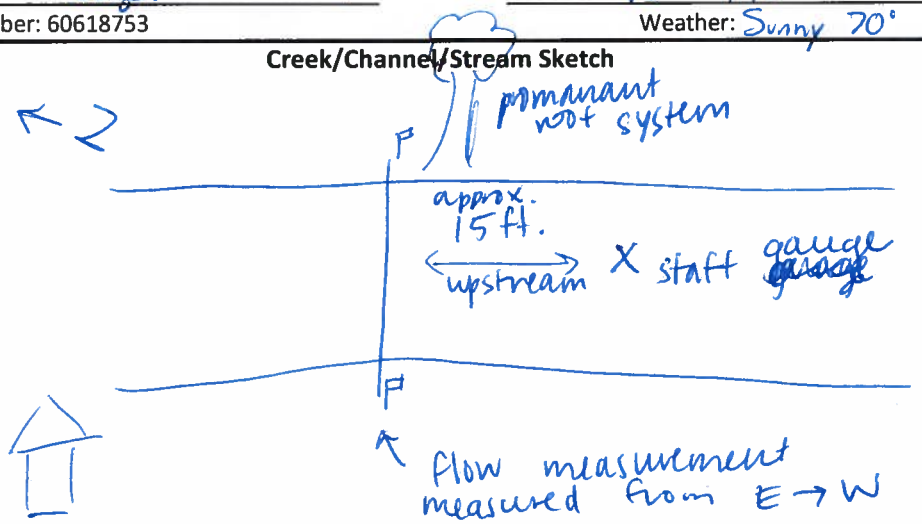
Location of photos:

24 Hours in advance
Suzanne (651-436-6516)

FLOW FORM

Date and Time: 8/18/20 0915
Client: MPCA
Sample Location ID: Gauge North Channel #1
Field Staff: RF + KR
Project Number: 60618753
Weather: Sunny 70°

Creek/Channel/Stream Sketch



Staff: 0.75 ft
Stream Segment Total Width = 18 ft

Section No.	Dist to Initial Point	Width	Depth	Velocity at 0.6 D	Area	Discharge
	inches	inches	feet	ft/s	ft^2	ft^3/s
1	1.5 ft.		0.2	0.0		
2	3 ft.		0.54	0.2		
3	4.5 ft.		0.68	0.3		
4	6 ft.		0.74	0.7		
5	7.5 ft.		0.82	0.8		
6	9 ft.		0.9	0.9		
7	10.5 ft.		0.99	1.0		
8	12 ft.		0.86	0.9		
9	13.5 ft.		0.75	0.7		
10	15 ft.		0.62	0.4		
11	16.5 ft.		0.2	0.1		
12						
13						

Stream Width	Number of Vertical Measurements	Q = V*A
3' < 9'	5-8	
9' < 16'	8-10	
16' < 33'	10-20	

Notes

Flow measured from E→W

Sample Checklist

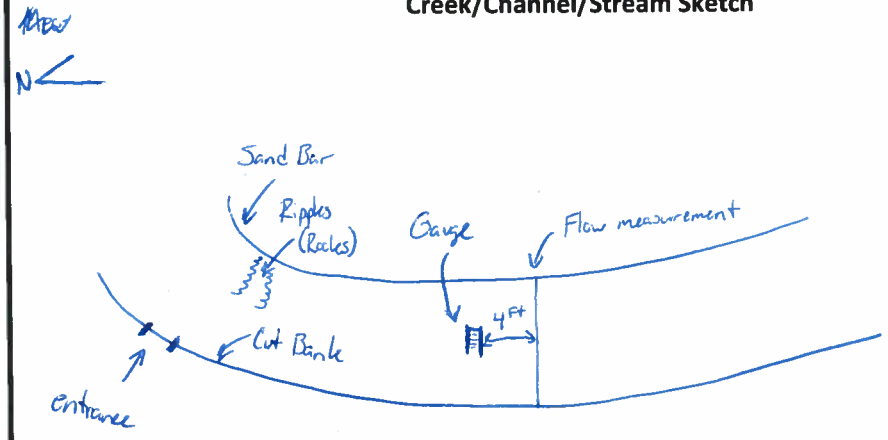
☑ Picture of Sample Location ☐ GPS'd

Location of photos: Riley phone

FLOW FORM

Date and Time: 8/17/20 0940
Client: MPCA
Sample Location ID: RC Confluence #1
Field Staff: JM + RF
Project Number: 60618753
Weather: Sunny 70°

Creek/Channel/Stream Sketch



Stream Gauge: 1.15
Stream Segment Total Width = 10.3ft

Section No.	Dist to Initial Point	Width	Depth	Velocity at 0.6 D	Area	Discharge
	inches	inches	feet	ft/s	ft^2	ft^3/s
1	12		0.58	0.2		
2	24		0.93	0.5		
3	36		1.12	0.6		
4	48		1.24	0.5		
5	60		1.18	0.5		
6	72		1.12	0.4		
7	84		1.03	0.3		
8	96		0.82	0.2		
9	108		0.60	0.2		
10						
11						
12						
13						

4-5

Stream Width	Number of Vertical Measurements	Q = V*A
3' < 9'	5-8	
9' < 16'	8-10	
16' < 33'	10-20	

Notes

Measured W to E. 4ft down stream from gauge

Sample Checklist

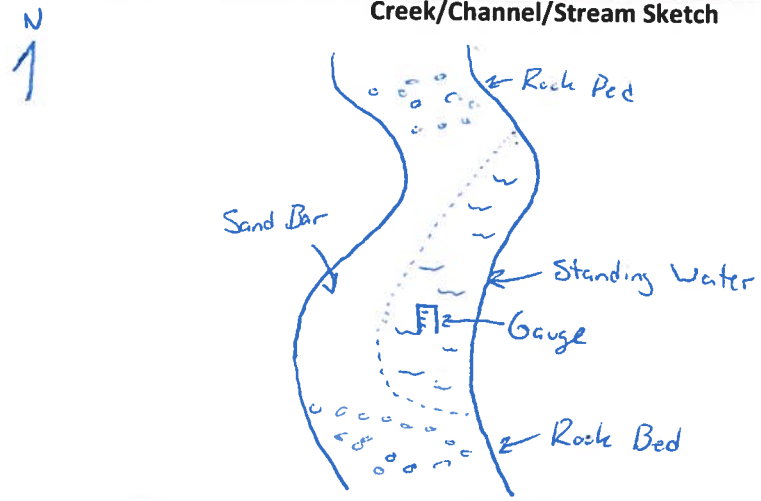
☒ Picture of Sample Location ☐ GPS'd

Location of photos:

FLOW FORM

Date and Time: 8/17/20 1015
Client: MPCA
Sample Location ID: RC Intermittent #3
Field Staff: JM + RF
Project Number: 60618753
Weather: Sunny 70

Creek/Channel/Stream Sketch



Stream Gauge: 0.42 ft
Stream Segment Total Width = 3.6 ft

Section No.	Dist to Initial Point	Width	Depth	Velocity at 0.6 D	Area	Discharge
	inches	inches	feet	ft/s	ft^2	ft^3/s
1	6		0.10	NA		—
2	12		0.28	NA		—
3	18		0.31	NA		—
4	24		0.30	NA		—
5	30		0.26	NA		—
6	36		0.10	NA		—
7						
8						
9						
10						
11						
12						
13						

Stream Width	Number of Vertical Measurements	Q = V*A
3' < 9'		
9' < 16'		
16' < 33'		

Notes

No flow. Width measured E to W. @ 1 foot downstream of gauge

Sample Checklist

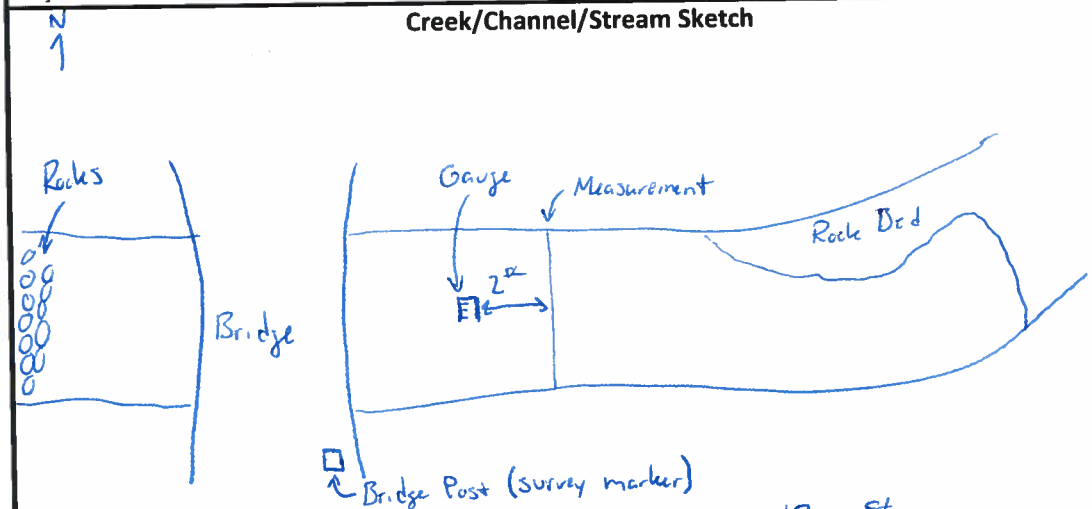
☒ Picture of Sample Location ☐ GPS'd

Location of photos:

FLOW FORM

Date and Time: 8/17/20 1100
Client: MPCA
Sample Location ID: RC Intermittent #1
Field Staff: JM + RF
Project Number: 60618753
Weather: Sunny 70

Creek/Channel/Stream Sketch



Stream Gauge: 0.46
Stream Segment Total Width = 13.0 ft

Section No.	Dist to Initial Point	Width	Depth	Velocity at 0.6 D	Area	Discharge
	inches	inches	feet	ft/s	ft^2	ft^3/s
1	12		0.48	NA		-
2	24		0.66	NA		-
3	36		0.76	NA		-
4	48		0.78	NA		-
5	60		0.70	NA		-
6	72		0.60	NA		-
7	84		0.50	NA		-
8	96		0.36	NA		-
9	108		0.30	NA		-
10	120		0.30	NA		-
11	132		≈0.20	NA		-
12	144		≈0.20	NA		-
13	156		≈0.10	NA		-

Stream Width	Number of Vertical Measurements	Q = V*A
3' < 9'		
9' < 16'		
16' < 33'		

Notes

No flow. Measured S to N. 2ft downstream of gauge. Bridge post used as survey marker

Sample Checklist

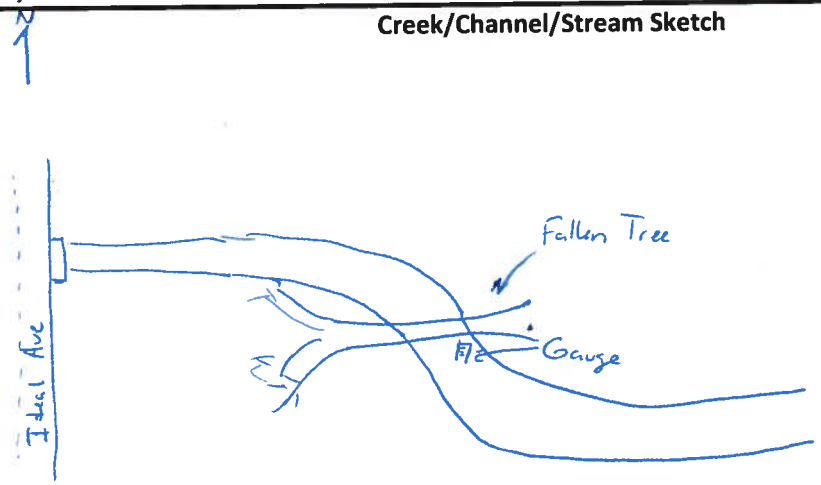
☐ Picture of Sample Location ☐ GPS'd

Location of photos:

FLOW FORM

Date and Time: 8/17/20 1115
Client: MPCA
Sample Location ID: Pond System #2
Field Staff: JM + RF
Project Number: 60618753
Weather: Sunny 70°

Creek/Channel/Stream Sketch



Stream Gauge: 0 Ft
Stream Segment Total Width = 0 Ft
Dry Bed: 7 ft

Section No.	Dist to Initial Point	Width	Depth	Velocity at 0.6 D	Area	Discharge
	inches	inches	feet	ft/s	ft^2	ft^3/s
1						
2						
3						
4						
5						
6						
7						
8						
9						
10						
11						
12						
13						

Stream Width	Number of Vertical Measurements	Q = V*A
3' < 9'		
9' < 16'		
16' < 33'		

Notes

No flow, No standing water

Sample Checklist

☒ Picture of Sample Location ☐ GPS'd

Location of photos:

FLOW FORM

Date and Time: 8/17/20 1215

Client: MPCA

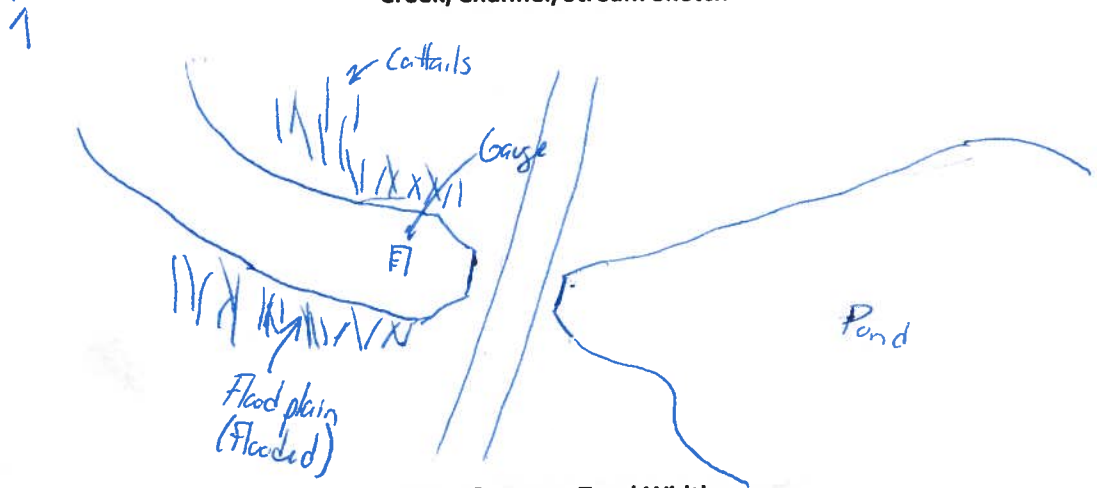
Sample Location ID: DG Eagle #1

Field Staff: JM + RF

Project Number: 60618753

Weather: Sunny 75°

Creek/Channel/Stream Sketch



Stream Segment Total Width =

Section No.	Dist to Initial Point	Width	Depth	Velocity at 0.6 D	Area	Discharge
	inches	inches	feet	ft/s	ft^2	ft^3/s
1						
2						
3						
4						
5						
6						
7						
8						
9						
10						
11						
12						
13						

Stream Width	Number of Vertical Measurements	Q = V*A
3' < 9'		
9' < 16'		
16' < 33'		

Notes

No flow, Flooded

Sample Checklist

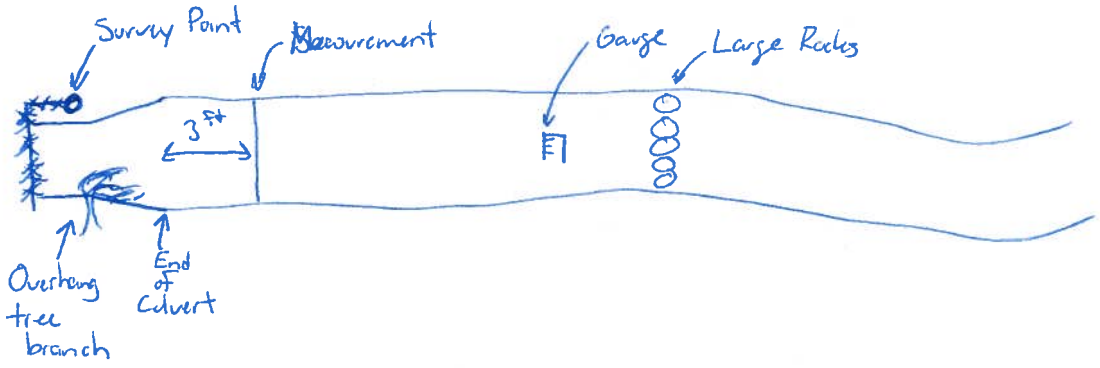
☒ Picture of Sample Location ☐ GPS'd

Location of photos:

FLOW FORM

Date and Time: 8/17/20 1245
Client: MPCA
Sample Location ID: Pond System #1
Field Staff: JM + RF
Project Number: 60618753
Weather: Sunny 75°

Creek/Channel/Stream Sketch



Stream Gauge: 0.82
Stream Segment Total Width = 9.4 ft

Section No.	Dist to Initial Point	Width	Depth	Velocity at 0.6 D	Area	Discharge
	inches	inches	feet	ft/s	ft^2	ft^3/s
1	12		0.05	NF		
2	24		0.34	NF		
3	36		0.48	0.0		
4	48		0.52	0.0		
5	60		0.46	NF		
6	72		0.48	NF		
7	84		0.46	NF		
8	96		0.28	NF		
9						
10						
11						
12						
13						

Stream Width	Number of Vertical Measurements	Q = V*A
3' < 9'		
9' < 16'		
16' < 33'		

Notes

Measured S to N. 3' from bottom of culvert. Survey point on fence post ← downstream

Sample Checklist

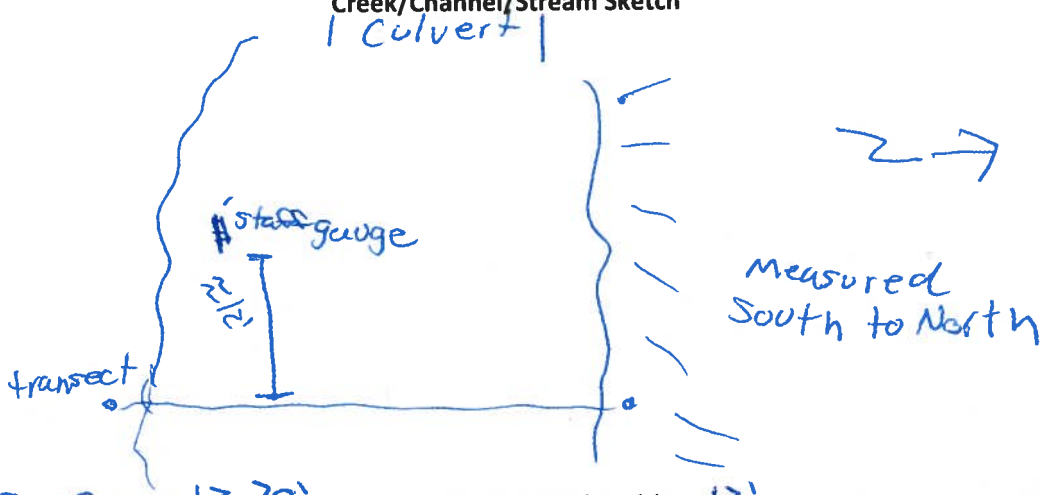
☐ Picture of Sample Location ☐ GPS'd

Location of photos:

FLOW FORM

Date and Time: 8/17/20 1330
Client: MPCA
Sample Location ID: RC Confluence #2
Field Staff: JM + RF
Project Number: 60618753
Weather: Sunny 75°

Creek/Channel/Stream Sketch



Staff Gauge: 2.78'
Stream Segment Total Width = 12'

Section No.	Dist to Initial Point	Width	Depth	Velocity at 0.6 D	Area	Discharge
	inches	inches	feet	ft/s	ft^2	ft^3/s
1	12		0.9	0.0		
2	24		1.4	0.0		
3	36		2.30	0.1		
4	48		1.99	0.1		
5	60		1.96	0.1		
6	72		1.81	0.1		
7	84		1.68	0.1		
8	96		1.50	0.2		
9	108		1.28	0.1		
10	120		1.0	0.2		
11	132		0.66	0.0		
12						
13						

Stream Width	Number of Vertical Measurements	Q = V*A
3' < 9'		
9' < 16'		
16' < 33'		

Notes

Sample Checklist

☒ Picture of Sample Location ☐ GPS'd

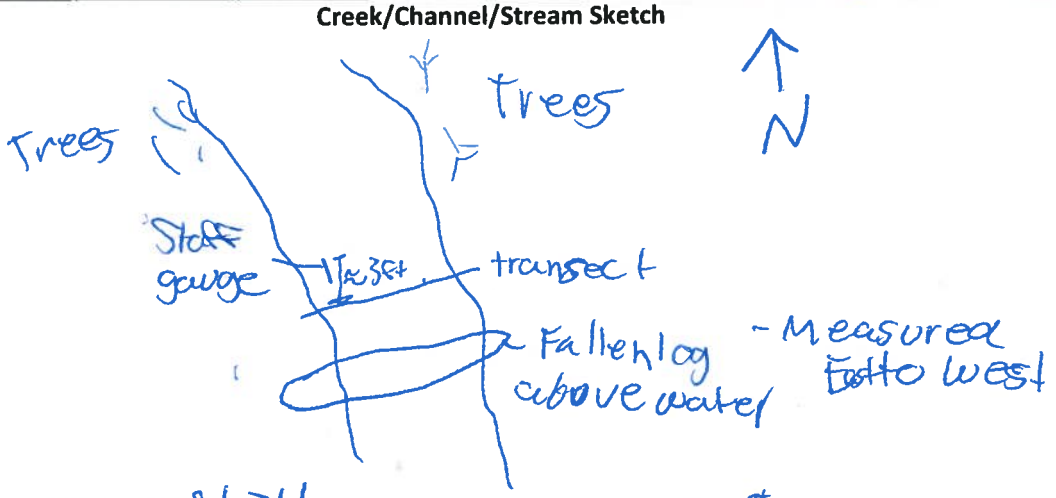
Location of photos: RF

Culvert for survey point

FLOW FORM

Date and Time: 8/17/20 1430
Client: MPCA
Sample Location ID: DG Elmo #2
Field Staff: JM + RF
Project Number: 60618753
Weather: Sunny 75°

Creek/Channel/Stream Sketch



Staff Gauge: 1.24 **Stream Segment Total Width =** 20ft

Section No.	Dist to Initial Point	Width	Depth	Velocity at 0.6 D	Area	Discharge
	inches	inches	feet	ft/s	ft^2	ft^3/s
1	12		0.72	0.4		
2	30		1.39	0.8		
3	48		1.70	0.5		
4	66		2.02	0.8		
5	84		2.18	0.5		
6	102		2.22	0.5		
7	120		2.13	0.5		
8	138		2.06	0.3		
9	156		1.68	0.1		
10	174		1.96	0.2		
11	192		1.22	0.0		
12	210		0.89	0.0		
13	228		0.36	0.6		

Stream Width	Number of Vertical Measurements	Q = V*A
3' < 9'		
9' < 16'		
16' < 33'		

Notes

Sample Checklist

☒ Picture of Sample Location ☐ GPS'd
Location of photos: RF

No permenant marker for survey

Text/Call 30 minutes before

Karla (612-801-9133)

FLOW FORM

Date and Time: 8/18/20 0945

Client: MPCA

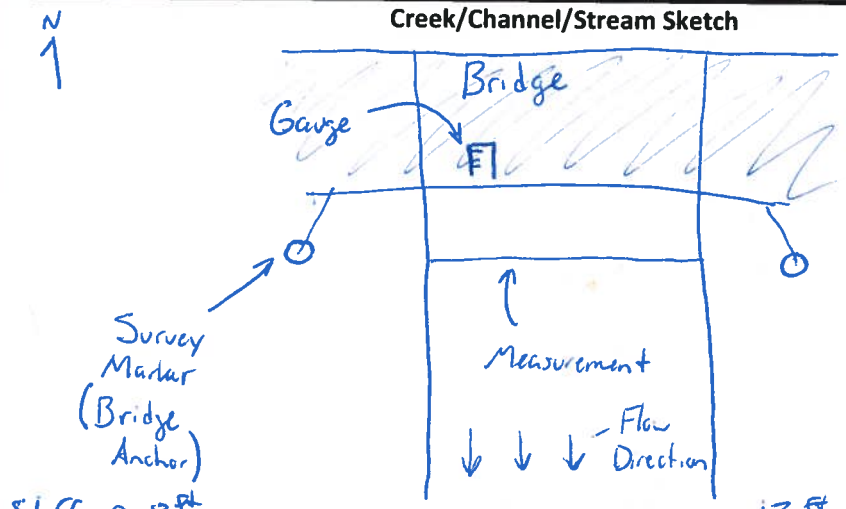
Sample Location ID: Gauge North Channel #2

Field Staff: RF KR

Project Number: 60618753

Weather: Sunny 70°

Creek/Channel/Stream Sketch



Stream Segment Total Width = 13 ft

Section No.	Dist to Initial Point	Width	Depth	Velocity at 0.6 D	Area	Discharge
	inches	inches	feet	ft/s	ft^2	ft^3/s
1	1 ft		0.7	0.7		
2	2 ft		0.75	0.6		
3	3 ft		0.8	0.9		
4	4 ft		0.82	0.9		
5	5 ft		0.85	1.0		
6	6 ft		0.80	0.8		
7	7 ft		0.85	0.9		
8	8 ft		0.92	0.9		
9	9 ft		0.92	0.9		
10	10 ft		0.85	0.7		
11	11 ft		0.72	0.7		
12	12 ft		0.4	0.5		
13						

Stream Width	Number of Vertical Measurements	Q = V*A
3' < 9'	5-8	
9' < 16'	8-10	
16' < 33'	10-20	

Notes

Flow N to S. Measured W to E. Use W bridge anchor as survey marker. Flow measured in line with S bridge anchors

Sample Checklist

☒ Picture of Sample Location ☐ GPS'd

Location of photos: Riley

FLOW FORM

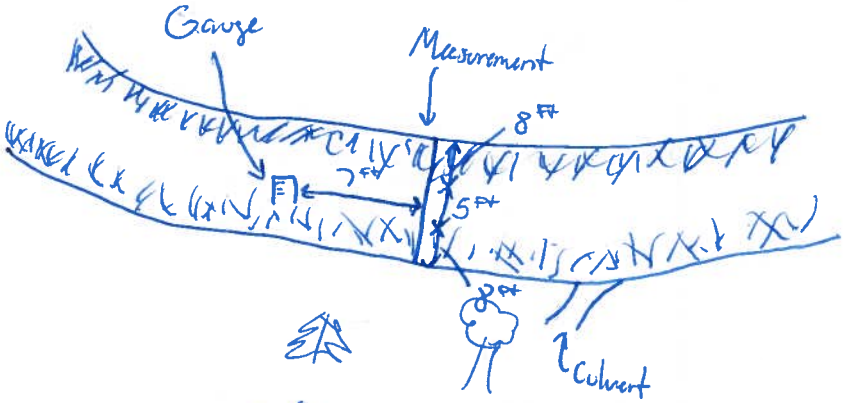
Date and Time: 8/18/20 10:30 | Client: MPCA

Sample Location ID: Gauge DG Horseshoe #2 | Field Staff: RF KF

Project Number: 60618753 | Weather: Sunny 70°

N
1

Creek/Channel/Stream Sketch



Staff gauge = 1.7 ft. **Stream Segment Total Width =** 20 ft.

Section No.	Dist to Initial Point	Width	Depth	Velocity at 0.6 D	Area	Discharge
	inches	inches	feet	ft/s	ft^2	ft^3/s
1	2 ft		0.7	0		
2	4 ft		1.3	0		
3	6 ft		1.4	0.2		
4	8 ft		1.4	0.1		
5	10 ft		1.7	0.4		
6	12 ft		1.75	0.4		
7	14 ft		1.8	0.0		
8	16 ft		1.45	0.0		
9	18 ft		1.05	0.0		
10	20 ft		0.6	0.0		
11						
12						
13						

N-edge of cattails

S-edge of cattails

Stream Width	Number of Vertical Measurements	Q = V*A
3' < 9'		
9' < 16'		
16' < 33'		

Notes

Measured N to S. Flow W to E. Flow thru 5 ft of cattail opening. No flow in cattails. Made narrow path to each bank to maintain accurate flow

Sample Checklist

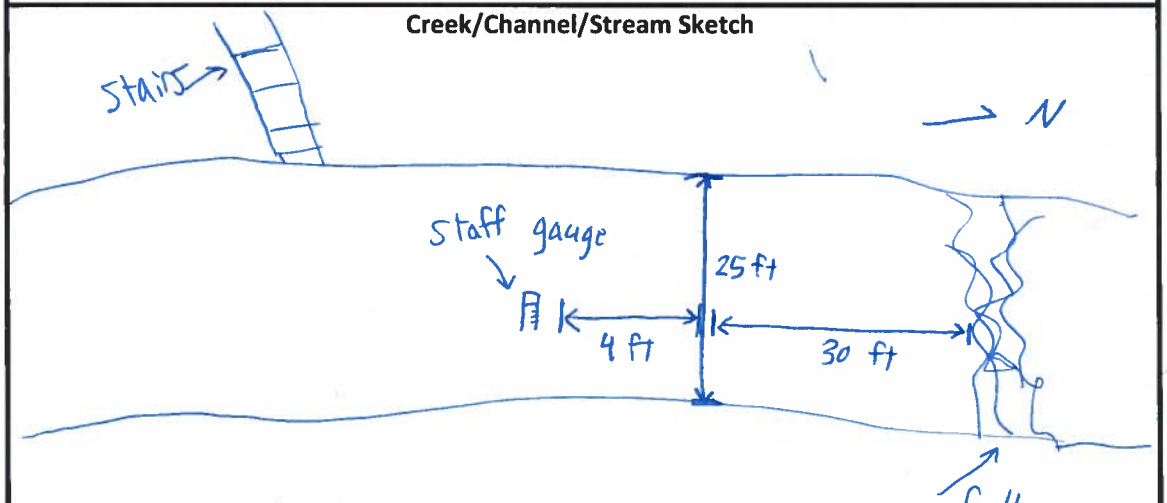
☑ Picture of Sample Location ☐ GPS'd

Location of photos: Drive

FLOW FORM

Date and Time: 8/18/20
Client: MPCA
Sample Location ID: Gauge DG Elmo #1
Field Staff: KR BK RF
Project Number: 60618753
Weather:

Creek/Channel/Stream Sketch



staff gauge = 1.50 ft **Stream Segment Total Width** = 25 ft

Section No.	Dist to Initial Point	Width	Depth	Velocity at 0.6 D	Area	Discharge
	~~inches~~ feet	inches	feet	ft/s	ft^2	ft^3/s
1	2		0.72	0		
2	4		1.19	0.7		
3	6		1.53	0.6		
4	8		1.55	0.7		
5	10		1.46	0.4		
6	12		1.5	0.6		
7	14		1.53	0.3		
8	16		1.46	0		
9	18		1.44	0.2		
10	20		1.38	0.3		
11	22		1.16	0.5		
12	24		0.7	0		
13						

Stream Width	Number of Vertical Measurements	Q = V*A
3' < 9'		
9' < 16'		
16' < 33'		

Notes

Sample Checklist

☐ Picture of Sample Location ☐ GPS'd

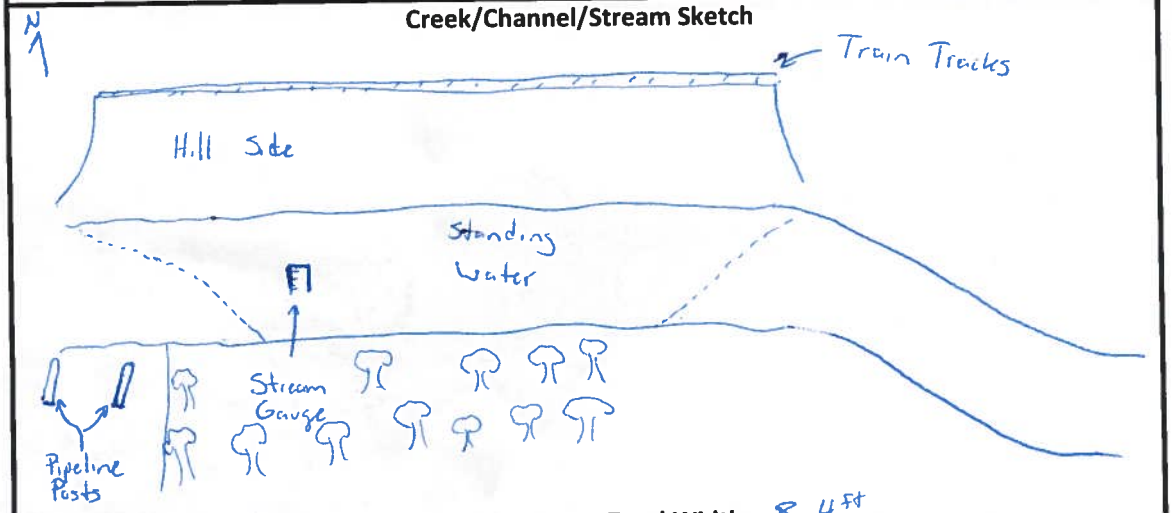
Location of photos:

* measuring East to West
* far left railing of stairs is survey point

FLOW FORM

Date and Time: 8/17/20 1030
Client: MPCA
Sample Location ID: RC Intermittent #2
Field Staff: JM + RF
Project Number: 60618753
Weather: Sunny 70

Creek/Channel/Stream Sketch



Stream Gauge: 0.12
Stream Segment Total Width = 8.4 ft

Section No.	Dist to Initial Point	Width	Depth	Velocity at 0.6 D	Area	Discharge
	inches	inches	feet	ft/s	ft^2	ft^3/s
1	12		0.1	NA		—
2	24		0.1			—
3	36		0.1			—
4	48		0.1			—
5	60		0.2			—
6	72		0.3			—
7	84		0.3			—
8	96		0.1			—
9						
10						
11						
12						
13						

Stream Width	Number of Vertical Measurements	Q = V*A
3' < 9'		
9' < 16'		
16' < 33'		

Notes

No flow, measured N to S. 2ft downstream of gauge.

Sample Checklist

☒ Picture of Sample Location ☐ GPS'd

Location of photos:

SURFACE WATER SAMPLING FORM

Date and Time: 9/2/2020 11:20
Client: MPCA
Sample Location ID: Pond System #1
Field Staff: RF CK
Project Number: 60638005
Weather: 80 Sun
Corresponding Staff Gauge Msmt (ft): 0.84 feet

Creek/Channel/Stream Sketch

NO FLOW 

Stream Segment Total Width =

Msmt No.	Dist to Initial Point	Depth	Velocity (measure from 1/3 of depth *from* the bottom)	Area	Discharge
	feet	feet	ft/s	ft^2	ft^3/s
1					
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					

Measurement Guide

Stream Width	Number of Vertical Measurements
0' - 3'	3-5
3' - 9'	5-8
9' - 15'	8-10
15' - 30'	10-20
>30'	20

Notes

Sample Checklist

☐ Picture of Sample Location ☐ GPS'd

Location of photos:

SURFACE WATER SAMPLING FORM

Date and Time: 9/2/2020 11:00
Sample Location ID: RC Post RR #1
Project Number: 60638005
Corresponding Staff Gauge Msmt (ft): 1.1 feet

Client: MPCA
Field Staff: RF CK
Weather: 80° SUN

Creek/Channel/Stream Sketch

Width 10 feet

Stream Segment Total Width =

Msmt No.	Dist to Initial Point	Depth	Velocity (measure from 1/3 of depth *from* the bottom)	Area	Discharge
	feet	feet	ft/s	ft^2	ft^3/s
1	1	.32	0		
2	2	.62	0		
3	3	.88	0		
4	4	1.0	.1		
5	5	1.2	0		
6	6	1.18	0.0		
7	7	.98	0		
8	8	.7	0		
9	9	.54	0		
10					
11					
12					
13					

Measurement Guide

Stream Width	Number of Vertical Measurements
0' - 3'	3-5
3' - 9'	5-8
9' - 15'	8-10
15' - 30'	10-20
>30'	20

Notes

Measured in 1 foot increments,

Sample Checklist

☐ Picture of Sample Location ☐ GPS'd
Location of photos:

SURFACE WATER SAMPLING FORM

Date and Time: 9/2/20 10:45
Client: MPCA
Sample Location ID: RC Wetlands #2
Field Staff: RF CK
Project Number: 60638005
Weather: 80 SUN
Corresponding Staff Gauge Msmt (ft):

Creek/Channel/Stream Sketch

width = 3.5 feet

depth = .32 feet

Stream Segment Total Width =

Msmt No.	Dist to Initial Point	Depth	Velocity (measure from 1/3 of depth ***from*** the bottom)	Area	Discharge
	feet	feet	ft/s	ft^2	ft^3/s
1	0.5	.1 ft	0		
2	1	.2	0		
3	1.5	.37	.4		
4	2	.35	.5		
5	2.5	.3	.5		
6	3	.2	0		
7					
8					
9					
10					
11					
12					
13					

Measurement Guide

Stream Width	Number of Vertical Measurements
0' - 3'	3-5
3' - 9'	5-8
9' - 15'	8-10
15' - 30'	10-20
>30'	20

Notes

Measured North to south

Sample Checklist

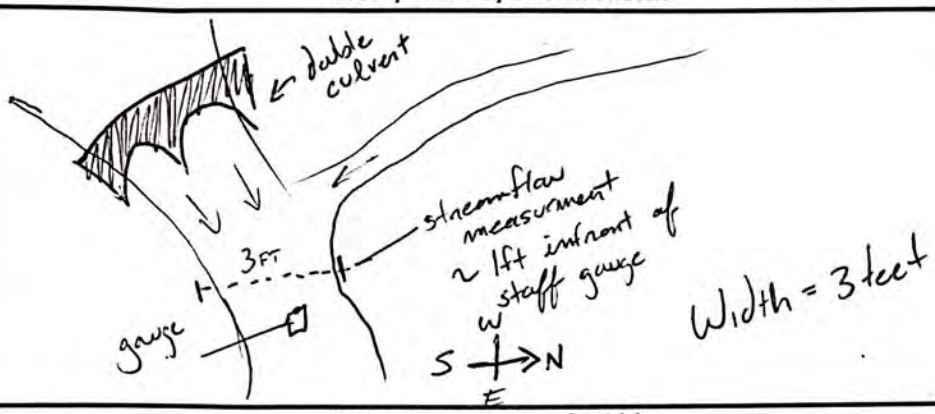
□ Picture of Sample Location □ GPS'd

Location of photos:

SURFACE WATER SAMPLING FORM

Date and Time: 9/2/20 10:30
Client: MPCA
Sample Location ID: RC Wetlands #1
Field Staff: RF CK
Project Number: 60638005
Weather: 75 SUN
Corresponding Staff Gauge Msmt (ft):

Creek/Channel/Stream Sketch



Stream Segment Total Width =

Msmt No.	Dist to Initial Point	Depth	Velocity (measure from 1/3 of depth *from* the bottom)	Area	Discharge
	feet	feet	ft/s	ft^2	ft^3/s
1	0.5	.52	0		
2	1.5	.7	0		
3	2.5	.74	0		
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					

Measurement Guide

Stream Width	Number of Vertical Measurements
0' - 3'	3-5
3' - 9'	5-8
9' - 15'	8-10
15' - 30'	10-20
>30'	20

Notes

Measurments taken North to South
Visible flow on the SURFACE, DEBRIS FLOATING DOWNSTREAM, BUT NO FLOW READING

Sample Checklist

☐ Picture of Sample Location ☐ GPS'd

Location of photos:

SURFACE WATER SAMPLING FORM

Date and Time: 9/2/2020 9:40
Client: MPCA
Sample Location ID: North Channel #2
Field Staff: RF CK
Project Number: 60638005
Weather: 75° SUN
Corresponding Staff Gauge Msmt (ft):

Creek/Channel/Stream Sketch

Depth guage = .75 feet

Channel width = 13 feet

Stream Segment Total Width =

Msmt No.	Dist to Initial Point	Depth	Velocity (measure from 1/3 of depth *from* the bottom)	Area	Discharge
	feet	feet	ft/s	ft^2	ft^3/s
1	1 ft in	.55	0.7		
2	2	.75	0.8		
3	3	.84	0.7		
4	4	.84	1.0		
5	5	.86	1.1		
6	6	.75	1.1		
7	7	.8	1.1		
8	8	.78	1.0		
9	9	.77	1.0		
10	10	.76	0.8		
11	11	.67	0.6		
12	12	.42	.4		
13	13				

Measurement Guide

Stream Width	Number of Vertical Measurements
0' - 3'	3-5
3' - 9'	5-8
9' - 15'	8-10
15' - 30'	10-20
>30'	20

Notes

Measured east to west, at one foot increments

Sample Checklist

☐ Picture of Sample Location ☐ GPS'd

Location of photos:

SURFACE WATER SAMPLING FORM

Date and Time: 9/2/2020 9:15
Client: MPCA
Sample Location ID: North Channel #1
Field Staff: CK RF
Project Number: 60638005
Weather: ☀ 70° Sun
Corresponding Staff Gauge Msmt (ft): .85

Creek/Channel/Stream Sketch

channel width = 16 feet

Stream Segment Total Width =

Msmt No.	Dist to Initial Point	Depth	Velocity (measure from 1/3 of depth *from* the bottom)	Area	Discharge
	feet	feet	ft/s	ft^2	ft^3/s
1	1	.37	0		
2	2.5	.6	0.2		
3	4	.68	0.6		
4	5.5	.72	0.8		
5	7	.8	1.0		
6	8.5	.86	1.1		
7	10	.86	1.1		
8	11.5	.78	0.8		
9	13	.66	0.5		
10	14.5	.46	0.3		
11					
12					
13					

Measurement Guide

Stream Width	Number of Vertical Measurements
0' - 3'	3-5
3' - 9'	5-8
9' - 15'	8-10
15' - 30'	10-20
>30'	20

Notes

Measured east to west every 1.5 feet

Sample Checklist

☐ Picture of Sample Location ☐ GPS'd
Location of photos:

FLOW FORM

Date and Time: 8/21/20 Client: MPCA

Sample Location ID: DG Horseshoe 1 Field Staff: KR RF

Project Number: 60618753 Weather: Sunny 70°

Creek/Channel/Stream Sketch

* Approximated depths for points 5-6 due to lack of height on flow meter.

Staff: 2.96 ft **Stream Segment Total Width = 30 ft**

Section No.	Dist to Initial Point	Width	Depth	Velocity at 0.6 D	Area	Discharge
	~~inches~~ ft	inches	feet	ft/s	ft^2	ft^3/s
1	2.5		0.96	0.0		
2	5		1.82	0.2		
3	7.5		2.46	0.0		
4	10		2.8	0.0		
5	12.5		≈3.15	1.2		
6	15		≈3.20	0.8		
7	17.5		2.94	0.0		
8	20		2.70	0.0		
9	22.5		2.04	0.0		
10	25		1.45	0.0		
11	27.5		1.05	0.0		
12	30		≈0.2	0.0		
13						

Stream Width	Number of Vertical Measurements	Q = V*A
3' < 9'		
9' < 16'		
16' < 33'		

Notes

Measured S to N. Water overflowing banks slightly. Edge of cattails S end is at 11ft, N end at 17.5 ft

Sample Checklist

☐ Picture of Sample Location ☐ GPS'd

Location of photos:

FLOW FORM

Date and Time: 8/21/20 1000 Client: MPCA

Sample Location ID: DG Horseshoe 2 Field Staff: KR RF

Project Number: 60618753 Weather: Sunny 70°

Creek/Channel/Stream Sketch

Staff gauge = 2.0 **Stream Segment Total Width =** 29ft.

Section No.	Dist to Initial Point	Width	Depth	Velocity at 0.6 D	Area	Discharge
	~~inches~~	inches	feet	ft/s	ft^2	ft^3/s
1	2ft.		1.1	0.0		
2	4 ft.		1.55	0.0		
3	6 ft.		2.17	0.0		
4	8 ft.		2.5	0.0		
5	10 ft.		2.4	0.5		
6	12 ft.		2.6	0.8		
7	14 ft.		2.82	1.3		
8	16 ft.		2.92	0.3		
9	18 ft.		2.41	0.0		
10	20 ft.		2.18	0.0		
11	22 ft.		1.88	0.0		
12	24 ft.		1.22	0.0		
13	26 ft.		0.6	0.0		
	28 ft.		0.2	0.0		

edge of reeds @ 11ft.

edge of reeds @ 16ft.

Stream Width	Number of Vertical Measurements	Q = V*A
3' < 9'		
9' < 16'		
16' < 33'		

Notes

lots of reeds - higher WL than Tuesday

Measured N to S.

Sample Checklist

☐ Picture of Sample Location ☐ GPS'd

Location of photos: no photo

FLOW FORM

Date and Time: 8/21/2020 0915 | Client: MPCA

Sample Location ID: DG Eagle 1 | Field Staff: KR RF

Project Number: 60618753 | depth ✓ | Weather: Sunny 70°

Creek/Channel/Stream Sketch

30 ft
32 ft.
0.3 0.0
0.2

Staff gauge: 2.6ft **Stream Segment Total Width =** 33

Section No.	Dist to Initial Point	Width	Depth	Velocity at 0.6 D	Area	Discharge
	~~inches~~	inches	feet	ft/s	ft^2	ft^3/s
1	2 ft		0.94	0.0		
2	4ft		1.39			
3	6ft.		1.96			
4	8ft		2.27			
5	10 ft.		2.8			
6	12ft		3.06			
7	14		3.05			
8	16		3.0			
9	18		2.9			
10	20		2.76			
11	22		2.49			
12	24		2.24	↓		
13	26		1.65			
	28		10.9			

Stream Width	Number of Vertical Measurements	Q = V*A
3' < 9'		
9' < 16'		
16' < 33'		

Notes

measured S → N
slight flow observed from W → E

Sample Checklist

☑ Picture of Sample Location ☐ GPS'd

Location of photos: Riley

FLOW FORM

Date and Time: 8/25/20 1:30
Client: MPCA
Sample Location ID: Dr. Elmo #1
Field Staff: RF CK
Project Number: 60618753
Weather: 80 SUN

Creek/Channel/Stream Sketch

Depth 0.96 FEET **Stream Segment Total Width =** 22FT

Section No.	Dist to Initial Point	Width	Depth	Velocity at 0.6 D	Area	Discharge
	inches	inches	feet	ft/s	ft^2	ft^3/s
1	1 FT		0.52	1.0		
2	3		0.78	1.5		
3	5		1.06	0.9		
4	7		.96	1.1		
5	9		.97	0.5		
6	11		1.01	1.0		
7	13		1.0	0.3		
8	15		0.95	0.4		
9	17		0.94	0.3		
10	19		0.8	0		
11	21		0.4	0		
12						
13						

Stream Width	Number of Vertical Measurements	Q = V*A
3' < 9'		
9' < 16'		
16' < 33'		

Notes

MEASURED EAST TO WEST, MEASURED EVERY 2 FEET STARTING AT 1 FOOT

Sample Checklist

□ Picture of Sample Location □ GPS'd

Location of photos:

SURFACE WATER SAMPLING FORM

Date and Time: 9/2/2020
Client: MPCA
Sample Location ID: DG Elmo #1
Field Staff: RF CK B
Project Number: 60638005
Weather: 80 Sun
Corresponding Staff Gauge Msmt (ft): 1.0 foot

Creek/Channel/Stream Sketch

width = 23 foot
depth = 1.0 foot

Stream Segment Total Width =

Msmt No.	Dist to Initial Point	Depth	Velocity (measure from 1/3 of depth *from* the bottom)	Area	Discharge
	feet	feet	ft/s	ft^2	ft^3/s
1	2 feet	0.48	0		
2	4	0.9	0.1		
3	6	0.92	0.2		
4	8	0.98	0.2		
5	10	1.0	0.1		
6	12	1.08	0.7		
7	14	1.0	1.0		
8	16	1.02	0.8		
9	18	1.12	1.0		
10	20	0.6	1.3		
11	22	0.606	1.0		
12					
13					

Measurement Guide

Stream Width	Number of Vertical Measurements
0' - 3'	3-5
3' - 9'	5-8
9' - 15'	8-10
15' - 30'	10-20
>30'	20

Notes

Measured west to east, in 2 foot increments

Sample Checklist

□ Picture of Sample Location □ GPS'd

Location of photos:

FLOW FORM

Date and Time: 9/25/20 1400
Client: MPCA
Sample Location ID: DG Elmo #2
Field Staff: CK RF
Project Number: 60618753
Weather: 80 SUN

Creek/Channel/Stream Sketch

Staff: 0.6
Stream Segment Total Width = 18 ft

Section No.	Dist to Initial Point	Width	Depth	Velocity at 0.6 D	Area	Discharge
	inches	inches	feet	ft/s	ft^2	ft^3/s
1	1 FOOT		0.2	0		
2	2.5		0.88	0		
3	~~4.0~~ 4.0		0.12	0.1		
4	5.5		1.28	0.1		
5	7		1.4	0.7		
6	8.5		1.5	1.0		
7	10		1.56	1.1		
8	11.5		1.55	1.3		
9	13		1.4	1.4		
10	14.5		1.1	1.1		
11	16		0.82	0.8		
12	17.5		0.1	0		
13	19					

Stream Width	Number of Vertical Measurements	Q = V*A
3' < 9'		
9' < 16'		
16' < 33'		

Notes

18 FEET WIDE, STARTING AT 1 FOOT IN FROM THE WEST BANK

Sample Checklist

☐ Picture of Sample Location ☐ GPS'd

Location of photos:

SURFACE WATER SAMPLING FORM

Date and Time: 9/2/20 13:60
Client: MPCA
Sample Location ID: DG Elmo #2
Field Staff: RF CK
Project Number: 60638005
Weather: 85 Sun
Corresponding Staff Gauge Msmt (ft):

Creek/Channel/Stream Sketch

Width = 18 feet

Depth = 0.78 feet

Stream Segment Total Width =

Msmt No.	Dist to Initial Point	Depth	Velocity (measure from 1/3 of depth *from* the bottom)	Area	Discharge
	feet	feet	ft/s	ft^2	ft^3/s
1	1.5	0.6	0.2		
2	3	1.0	0.3		
3	4.5	1.26	0.5		
4	6	1.48	0.6		
5	7.5	1.66	0.9		
6	9	1.70	0.8		
7	10.5	1.65	1.1		
8	12	1.50	0.8		
9	13.5	1.22	0.6		
10	15	0.8	0.4		
11					
12					
13					

Measurement Guide

Stream Width	Number of Vertical Measurements
0' - 3'	3-5
3' - 9'	5-8
9' - 15'	8-10
15' - 30'	10-20
>30'	20

Notes

measured west to east, in 1.5 feet increments

Sample Checklist

☐ Picture of Sample Location ☐ GPS'd

Location of photos:

FLOW FORM

Date and Time: 8/25/20 12:20 Client: MPCA

Sample Location ID: RC-Confluence N Field Staff: RF

Project Number: 60618753 Weather: 80 SUN

Creek/Channel/Stream Sketch

Staff: 2.72 FT **Stream Segment Total Width =** 10.5 FT

Section No.	Dist to Initial Point	Width	Depth	Velocity at 0.6 D	Area	Discharge
	inches	inches	feet	ft/s	ft^2	ft^3/s
1	0.5 FT		0.35FT	0		
2	1.5 FT		0.7FT	0		
3	2.5 FT		0.92FT	0.4		
4	3.5 FT		0.88	0.1		
5	4.5 FT		0.92	0		
6	5.5		0.86	0		
7	6.5		0.84	0		
8	7.5		0.94	0.1		
9	8.5		0.98	0		
10	9.5		0.9	0		
11						
12						
13						

Stream Width	Number of Vertical Measurements	Q = V*A
3' < 9'		
9' < 16'		
16' < 33'		

Notes

MEASURED CHANNEL NORTH TO SOUTH, 1 FOOT INCREMENTS STARTING .5FT

Sample Checklist

☐ Picture of Sample Location ☐ GPS'd

Location of photos:

SURFACE WATER SAMPLING FORM

Date and Time: RC Confluence #2 9/2/2020 12:40
Client: MPCA
Sample Location ID:
Field Staff: ZF CK B
Project Number: 60638005
Weather: 80°F Sun
Corresponding Staff Gauge Msmt (ft): ~2.66

Creek/Channel/Stream Sketch

channel width 10 feet

Stream Segment Total Width =

Msmt No.	Dist to Initial Point	Depth	Velocity (measure from 1/3 of depth *from* the bottom)	Area	Discharge
	feet	feet	ft/s	ft^2	ft^3/s
1	1	.48	0.2		
2	2	.82	0.4		
3	3	.84	0.4		
4	4	.80	0.3		
5	5	.83	0.4		
6	6	.82	0.4		
7	7	.88	0.3		
8	8	.88	0.3		
9	9	.86	0		
10	~~10~~				
11					
12					
13					

Measurement Guide

Stream Width	Number of Vertical Measurements
0' - 3'	3-5
3' - 9'	5-8
9' - 15'	8-10
15' - 30'	10-20
>30'	20

Notes

Measured North to South @ 1 foot increments

Sample Checklist

☐ Picture of Sample Location ☐ GPS'd

Location of photos:

FLOW FORM

Date and Time: 8/25/20 1245
Client: MPCA
Sample Location ID: RC Confluence #1
Field Staff: RF CK
Project Number: 60618753
Weather: 80 SUN

Creek/Channel/Stream Sketch

Staff 1.12

Stream Segment Total Width = 10.6 ft

Section No.	Dist to Initial Point	Width	Depth	Velocity at 0.6 D	Area	Discharge
	inches	inches	feet	ft/s	ft^2	ft^3/s
1	1 FT		0.38	0		
2	2FT		0.85	0		
3	3FT		1.18	0.3		
4	4		1.18	0.5		
5	5		1.19	0.7		
6	6		1.18	0.6		
7	7		1.06	0.4		
8	8		0.85	0.1		
9	9		0.6	0.1		
10	10		0.32	0		
11						
12						
13						

Stream Width	Number of Vertical Measurements	Q = V*A
3' < 9'		
9' < 16'		
16' < 33'		

Notes

Measured W to E, Measured at 30 seconds average, intervals, flow going north to south

Sample Checklist

☐ Picture of Sample Location ☐ GPS'd

Location of photos:

SURFACE WATER SAMPLING FORM

Date and Time: 9/2/2020 11:40
Client: MPCA
Sample Location ID: KL Confluence #1
Field Staff: RF CK
Project Number: 60638005
Weather: 80°F SUN
Corresponding Staff Gauge Msmt (ft): 1.08 feet

Creek/Channel/Stream Sketch

width = 11 feet

Stream Segment Total Width =

Msmt No.	Dist to Initial Point	Depth	Velocity (measure from 1/3 of depth *from* the bottom)	Area	Discharge
	feet	feet	ft/s	ft^2	ft^3/s
1	1	.2	0		
2	2	.62	0.2		
3	3	.8	0.3		
4	4	1.02	0.3		
5	5	1.08	0.5		
6	6	1.14	0.4		
7	7	1.15	0.1		
8	8	1.10	0		
9	9	.78	0		
10	10	.2	0		
11					
12					
13					

Measurement Guide

Stream Width	Number of Vertical Measurements
0' - 3'	3-5
3' - 9'	5-8
9' - 15'	8-10
15' - 30'	10-20
>30'	20

Notes

Measurments taken from east to west, every foot

Sample Checklist

☐ Picture of Sample Location ☐ GPS'd

Location of photos:

SURFACE WATER SAMPLING FORM

Date and Time: 9/9/2020 8:30
Client: MPCA
Sample Location ID: North Channel #2
Field Staff: RF CK
Project Number: 60638005
Weather: 55°F CLOUDY
Corresponding Staff Gauge Msmt (ft):

Creek/Channel/Stream Sketch

WIDTH = ~~XX~~ FEET
19.5

gauge depth = 1.82 FEET

Stream Segment Total Width =

Msmt No.	Dist to Initial Point	Depth	Velocity (measure from 1/3 of depth *from* the bottom)	Area	Discharge
	feet	feet	ft/s	ft^2	ft^3/s
1	1FT IN	0.4	0		
2	2.5	0.98	0.1		
3	4	1.54	0.7		
4	5.5	1.86	0.8		
5	7	1.9	1.1		
6	8.5	1.88	1.1		
7	10	1.84	1.1		
8	11.5	1.84	1.0		
9	13	1.84	1.0		
10	14.5	1.74	0.7		
11	16	1.27	0.8		
12	17.5	0.74	0		
13	19	0.32	0		

Measurement Guide

Stream Width	Number of Vertical Measurements
0' - 3'	3-5
3' - 9'	5-8
9' - 15'	8-10
15' - 30'	10-20
>30'	20

Notes

MEASURED EAST TO WEST, STARTING @ 1 FOOT IN FROM BANK @ 1.5 FOOT INTERVALS.

Sample Checklist

☐ Picture of Sample Location ☐ GPS'd

Location of photos:

SURFACE WATER SAMPLING FORM

Date and Time: 9/9/2020 9:00AM
Client: MPCA
Sample Location ID: North Channel #1
Field Staff: RF CK
Project Number: 60638005
Weather: 60°F CLOUDY
Corresponding Staff Gauge Msmt (ft):

Creek/Channel/Stream Sketch

WIDTH = 19.5 FEET ACROSS

GAUGE DEPTH = 1.72 FEET DEEP

Stream Segment Total Width =

Msmt No.	Dist to Initial Point	Depth	Velocity (measure from 1/3 of depth ***from*** the bottom)	Area	Discharge
	feet	feet	ft/s	ft^2	ft^3/s
1	1.5 FEET	0.5	0		
2	3	1.09	0.5		
3	4.5	1.41	0.8		
4	6	1.49	0.9		
5	7.5	1.73	0.8		
6	9	1.73	1.0		
7	10.5	1.74	1.1		
8	12	1.66	1.1		
9	13.5	1.59	0.9		
10	15	1.54	0.8		
11	16.5	1.37	0.6		
12	18	1.15	0.5		
13	19.5	0.63	0		

Measurement Guide

Stream Width	Number of Vertical Measurements
0' - 3'	3-5
3' - 9'	5-8
9' - 15'	8-10
15' - 30'	10-20
>30'	20

Notes

MEASURED WEST TO EAST @ 1.5 FOOT INCREMENTS STARTING @ 1.5 FEET FROM THE BANK

Sample Checklist

☐ Picture of Sample Location ☐ GPS'd

Location of photos:

SURFACE WATER SAMPLING FORM

Date and Time: 9/9/2020 9:30 AM
Client: MPCA
Sample Location ID: HORSE SHOE #2
Field Staff: RF CK
Project Number: 60638005
Weather: 60°F CLOUDY
Corresponding Staff Gauge Msmt (ft): 2.68

Creek/Channel/Stream Sketch

WIDTH = 29 FEET ACROSS

MAIN CHANNEL IS BETWEEN 12 AND 17 FEET WIDE

WATER IS ALMOST OVER THE FLAGS PREVIOUSLY STAKED.

Stream Segment Total Width =

Msmt No.	Dist to Initial Point	Depth	Velocity (measure from 1/3 of depth *from* the bottom)	Area	Discharge
	feet	feet	ft/s	ft^2	ft^3/s
1	1	0.39	0		
2	3	1.2	0		
3	5	1.67	0		
4	7	2.2	0		
5	9	2.53	0.1		
6	11	2.54	0.5		
7	13	2.78	0.6		
8	15	2.72	1.4		
9	17	2.73	0.2		
10	19	2.58	0		
11	21	2.15	0		
12	23	1.96	0		
13	25	1.23	0		
	27	0.68	0		

Measurement Guide

Stream Width	Number of Vertical Measurements
0' - 3'	3-5
3' - 9'	5-8
9' - 15'	8-10
15' - 30'	10-20
>30'	20

Notes

MEASURED NORTH TO SOUTH, 29 FEET ACROSS, @ 2 FOOT INCREMENTS, STARTING 1 FOOT IN FROM BANK

Sample Checklist

☐ Picture of Sample Location ☐ GPS'd

Location of photos:

SURFACE WATER SAMPLING FORM

Date and Time: 9/9/2020 10:20 AM
Client: MPCA
Sample Location ID: HORSESHOE #1
Field Staff: RF [illegible]CK [illegible]
Project Number: 60638005
Weather: 60's F CLOUDY
Corresponding Staff Gauge Msmt (ft): 3.0

Creek/Channel/Stream Sketch

WIDTH = 29.5 FEET

FLAGS PREVIOUSLY STAKED ARE ALMOST UNDER WATER

MAIN CHANNEL GOES FROM 11 FEET IN TO 19 FEET IN THEN CATTAILS START ON EITHER SIDE

Stream Segment Total Width =

Msmt No.	Dist to Initial Point	Depth	Velocity (measure from 1/3 of depth *from* the bottom)	Area	Discharge
	feet	feet	ft/s	ft^2	ft^3/s
1	1	.63	0		
2	3	1.16	0		
3	5	1.19	0		
4	7	2.49	0		
5	9	2.99	0.1		
6	11	3.04	0.1		
7	13	~3.2	1.3		
8	15	~3.2	0.7		
9	17	2.96	0.2		
10	19	2.84	0		
11	21	2.52	0		
12	23	1.9	0		
13	25	1.55	0		
14	27	1.05	0		

15th measurment

st | depth | flow
.9 | 0.52 | 0

Measurement Guide

Stream Width	Number of Vertical Measurements
0' - 3'	3-5
3' - 9'	5-8
9' - 15'	8-10
15' - 30'	10-20
>30'	20

Notes

MEASURED SOUTH TO NORTH, 29.5 FEET ACROSS, STARTING 1 FOOT IN FROM BANK

Sample Checklist

☐ Picture of Sample Location ☐ GPS'd

Location of photos:

SURFACE WATER SAMPLING FORM

Date and Time: 9/9/2020 11:00
Client: MPCA
Sample Location ID: CONFLUENCE #1
Field Staff: RF CK
Project Number: 60638005
Weather: 60° CLOUD
Corresponding Staff Gauge Msmt (ft): 1.02

Creek/Channel/Stream Sketch

10.5 FEET WIDE

Stream Segment Total Width =

Msmt No.	Dist to Initial Point	Depth	Velocity (measure from 1/3 of depth *from* the bottom)	Area	Discharge
	feet	feet	ft/s	ft^2	ft^3/s
1	1	.2	0		
2	2	.77	0		
3	3	1.06	0		
4	4	1.14	0.1		
5	5	1.1	0		
6	6	1.0	0		
7	7	.98	0		
8	8	.77	0		
9	9	.49	0		
10	10	.2	0		
11					
12					
13					

Measurement Guide

Stream Width	Number of Vertical Measurements
0' - 3'	3-5
3' - 9'	5-8
9' - 15'	8-10
15' - 30'	10-20
>30'	20

Notes

Measured west to east, starting @ 1 FOOT IN FROM BANK

Sample Checklist

☐ Picture of Sample Location ☐ GPS'd

Location of photos:

SURFACE WATER SAMPLING FORM

Date and Time: 9/2/2020 11:40 | Client: MPCA

Sample Location ID: KL Confluence #1 | Field Staff: RF CK

Project Number: 60638005 | Weather: 80°F SUN

Corresponding Staff Gauge Msmt (ft): 1.08 feet

Creek/Channel/Stream Sketch

width = 11 feet

Stream Segment Total Width =

Msmt No.	Dist to Initial Point	Depth	Velocity (measure from 1/3 of depth *from* the bottom)	Area	Discharge
	feet	feet	ft/s	ft^2	ft^3/s
1	1	.2	0		
2	2	.62	0.2		
3	3	.8	0.3		
4	4	1.02	0.3		
5	5	1.08	0.5		
6	6	1.14	0.4		
7	7	1.15	0.1		
8	8	1.10	0		
9	9	.78	0		
10	10	.2	0		
11					
12					
13					

Measurement Guide

Stream Width	Number of Vertical Measurements
0' - 3'	3-5
3' - 9'	5-8
9' - 15'	8-10
15' - 30'	10-20
>30'	20

Notes

Measurments taken from east to west, every foot

Sample Checklist

☐ Picture of Sample Location ☐ GPS'd

Location of photos:

FLOW FORM

Date and Time: 8/21/20 1000 | Client: MPCA

Sample Location ID: DG Horseshoe 2 | Field Staff: KR RF

Project Number: 60618753 | Weather: Sunny 70°

Creek/Channel/Stream Sketch

Staff gauge = 2.6 **Stream Segment Total Width =** 29ft.

Section No.	Dist to Initial Point	Width	Depth	Velocity at 0.6 D	Area	Discharge
	~~inches~~	inches	feet	ft/s	ft^2	ft^3/s
1	2ft.		1.1	0.0		
2	4 ft.		1.55	0.0		
3	6 ft.		2.17	0.0		
4	8 ft.		2.5	0.0		
5	10 ft.		2.4	0.9		
6	12 ft.		2.6	0.8		
7	14 ft.		2.62	1.3		
8	16 ft.		2.92	0.3		
9	18 ft.		2.41	0.0		
10	20 ft.		2.18	0.0		
11	22 ft.		1.98	0.0		
12	24 ft.		1.22	0.0		
13	26 ft.		0.6	0.0		
	28 ft.		0.2	0.0		

edge of reads @ 11ft.

edge of reads @ 2ft.

Stream Width	Number of Vertical Measurements	Q = V*A
3' < 9'		
9' < 16'		
16' < 33'		

Notes

lots of reads - higher WL than Tuesday

Measured N to S.

Sample Checklist

☐ Picture of Sample Location ☐ GPS'd

Location of photos: no photo

SURFACE WATER SAMPLING FORM

Date and Time: 9/2/2020 | Client: MPCA

Sample Location ID: DG Elmo #1 | Field Staff: RF CK B

Project Number: 60638005 | Weather: 80 Sun

Corresponding Staff Gauge Msmt (ft): 1.0 feet

Creek/Channel/Stream Sketch

width = 23 feet

depth = 1.0 foot

Stream Segment Total Width =

Msmt No.	Dist to Initial Point	Depth	Velocity (measure from 1/3 of depth ***from*** the bottom)	Area	Discharge
	feet	feet	ft/s	ft^2	ft^3/s
1	2 feet	0.48	0		
2	4	0.8	0.1		
3	6	0.92	0.2		
4	8	0.98	0.2		
5	10	1.0	0.1		
6	12	1.08	0.7		
7	14	1.0	1.0		
8	16	1.02	0.8		
9	18	1.12	1.0		
10	20	0.6	1.3		
11	22	0.606	1.0		
12					
13					

Measurement Guide

Stream Width	Number of Vertical Measurements
0' - 3'	3-5
3' - 9'	5-8
9' - 15'	8-10
15' - 30'	10-20
>30'	20

Notes

Measured west to east, in 2 foot increments

Sample Checklist

☐ Picture of Sample Location ☐ GPS'd

Location of photos:

FLOW FORM

Date and Time: 8/25/20 1400 | Client: MPCA

Sample Location ID: DG Elmo #2 | Field Staff: CK RF

Project Number: 60618753 | Weather: 80 SUN

Creek/Channel/Stream Sketch

Staff: 0.6 **Stream Segment Total Width =** 18 ft

Section No.	Dist to Initial Point	Width	Depth	Velocity at 0.6 D	Area	Discharge
	inches	inches	feet	ft/s	ft^2	ft^3/s
1	1 FOOT		0.2	0		
2	2.5		0.88	0		
3	~~4.5~~ 4.0		0.12	0.1		
4	5.5		1.28	0.1		
5	7		1.4	0.7		
6	8.5		1.5	1.0		
7	10		1.56	1.1		
8	11.5		1.55	1.3		
9	13		1.4	1.4		
10	14.5		1.1	1.1		
11	16		0.82	0.8		
12	17.5		0.1	0		
13	19					

Stream Width	Number of Vertical Measurements	Q = V*A
3' < 9'		
9' < 16'		
16' < 33'		

Notes

18 FEET WIDE, STARTING AT 1 FOOT IN FROM THE WEST BANK

Sample Checklist

☐ Picture of Sample Location ☐ GPS'd

Location of photos:

SURFACE WATER SAMPLING FORM

Date and Time: 9/2/2020 9:15
Client: MPCA
Sample Location ID: North Channel #1
Field Staff: EK RF
Project Number: 60638005
Weather: ~ 70° Sun
Corresponding Staff Gauge Msmt (ft): .85

Creek/Channel/Stream Sketch

channel width = 16 feet

Stream Segment Total Width =

Msmt No.	Dist to Initial Point	Depth	Velocity (measure from 1/3 of depth ***from*** the bottom)	Area	Discharge
	feet	feet	ft/s	ft^2	ft^3/s
1	1	.37	0		
2	2.5	.6	0.2		
3	4	.68	0.6		
4	5.5	.72	0.8		
5	7	.8	1.0		
6	8.5	.86	1.1		
7	10	.86	1.1		
8	11.5	.78	0.8		
9	13	.66	0.5		
10	14.5	.46	0.3		
11					
12					
13					

Measurement Guide

Stream Width	Number of Vertical Measurements
0' - 3'	3-5
3' - 9'	5-8
9' - 15'	8-10
15' - 30'	10-20
>30'	20

Notes

Measured east to west every 1.5 feet

Sample Checklist

□ Picture of Sample Location □ GPS'd

Location of photos:

FLOW FORM

Date and Time: 8/21/20
Client: MPCA
Sample Location ID: DG Horseshoe 1
Field Staff: KR RF
Project Number: 60618753
Weather: Sunny 70°

Creek/Channel/Stream Sketch

* Approximated depths for points 5-6 due to lack of height on flow meter.

Staff: 2.96 ft

Stream Segment Total Width = 30 ft

Section No.	Dist to Initial Point	Width	Depth	Velocity at 0.6 D	Area	Discharge
	~~inches~~ ft	inches	feet	ft/s	ft^2	ft^3/s
1	2.5		0.96	0.0		
2	5		1.82	0.2		
3	7.5		2.46	0.0		
4	10		2.8	0.0		
5	12.5		≈3.15	1.2		
6	15		≈3.20	0.8		
7	17.5		2.94	0.0		
8	20		2.70	0.0		
9	22.5		2.04	0.0		
10	25		1.45	0.0		
11	27.5		1.05	0.0		
12	30		≈0.2	0.0		
13						

Stream Width	Number of Vertical Measurements	Q = V*A
3' < 9'		
9' < 16'		
16' < 33'		

Notes

Measured S to N. Water overflowing banks slightly. Edge of cattails S end is at 11ft, N end at 17.5 ft

Sample Checklist

☐ Picture of Sample Location ☐ GPS'd

Location of photos:

SURFACE WATER SAMPLING FORM

Date and Time: 9/2/2020 9:40 | Client: MPCA

Sample Location ID: North Channel #2 | Field Staff: RF CK

Project Number: 60638005 | Weather: 75° SUN

Corresponding Staff Gauge Msmt (ft):

Creek/Channel/Stream Sketch

Depth guage = .75 feet

Channel width = 13 feet

Stream Segment Total Width =

Msmt No.	Dist to Initial Point	Depth	Velocity (measure from 1/3 of depth *from* the bottom)	Area	Discharge
	feet	feet	ft/s	ft^2	ft^3/s
1	1 ft in	.55	0.7		
2	2	.75	0.8		
3	3	.84	0.7		
4	4	.84	1.0		
5	5	.86	1.1		
6	6	.75	1.1		
7	7	.8	1.1		
8	8	.78	1.0		
9	9	.77	1.0		
10	10	.76	0.8		
11	11	.67	0.6		
12	12	.42	.4		
13	13				

Measurement Guide

Stream Width	Number of Vertical Measurements
0' - 3'	3-5
3' - 9'	5-8
9' - 15'	8-10
15' - 30'	10-20
>30'	20

Notes

Measured east to west, at one foot increments

Sample Checklist

☐ Picture of Sample Location ☐ GPS'd

Location of photos:

SURFACE WATER SAMPLING FORM

Date and Time: 9/2/20 10:45 | Client: MPCA

Sample Location ID: RC Wetlands #2 | Field Staff: RF CK

Project Number: 60638005 | Weather: 80 SUN

Corresponding Staff Gauge Msmt (ft):

Creek/Channel/Stream Sketch

width = 3.5 feet

depth = .32 feet

Stream Segment Total Width =

Msmt No.	Dist to Initial Point	Depth	Velocity (measure from 1/3 of depth ***from*** the bottom)	Area	Discharge
	feet	feet	ft/s	ft^2	ft^3/s
1	0.5	.1 ft	0		
2	1	.2	0		
3	1.5	.33	.4		
4	2	.35	.5		
5	2.5	.3	.5		
6	3	.2	0		
7					
8					
9					
10					
11					
12					
13					

Measurement Guide

Stream Width	Number of Vertical Measurements
0' - 3'	3-5
3' - 9'	5-8
9' - 15'	8-10
15' - 30'	10-20
>30'	20

Notes

Measured North to south

Sample Checklist

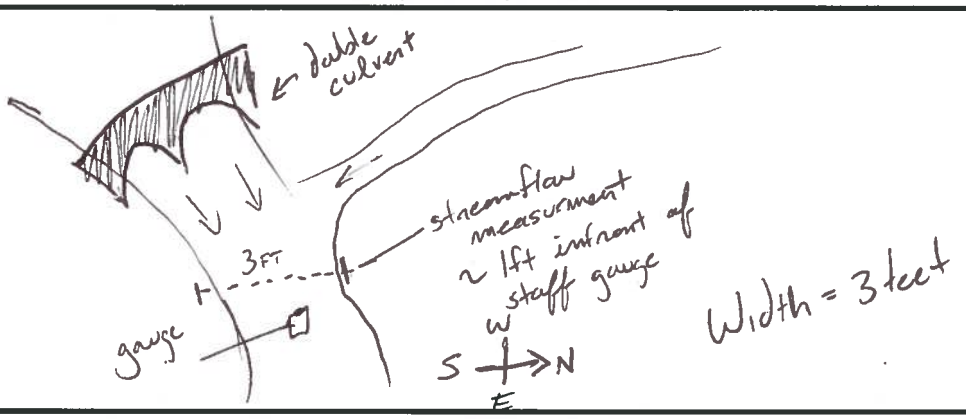
☐ Picture of Sample Location ☐ GPS'd

Location of photos:

SURFACE WATER SAMPLING FORM

Date and Time: 9/2/20 10:30
Client: MPCA
Sample Location ID: RC Wetlands #1
Field Staff: RF CK
Project Number: 60638005
Weather: 75 SUN
Corresponding Staff Gauge Msmt (ft):

Creek/Channel/Stream Sketch



Stream Segment Total Width =

Msmt No.	Dist to Initial Point	Depth	Velocity (measure from 1/3 of depth *from* the bottom)	Area	Discharge
	feet	feet	ft/s	ft^2	ft^3/s
1	0.5	.52	0		
2	1.5	.7	0		
3	2.5	.74	0		
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					

Measurement Guide

Stream Width	Number of Vertical Measurements
0' - 3'	3-5
3' - 9'	5-8
9' - 15'	8-10
15' - 30'	10-20
>30'	20

Notes

Measurments taken North to South
Visible flow on the SURFACE, DEBRIS FLOATING DOWNSTREAM, BUT NO FLOW READING

Sample Checklist

□ Picture of Sample Location □ GPS'd

Location of photos:

SURFACE WATER SAMPLING FORM

Date and Time: 9/2/2020 11:00
Client: MPCA
Sample Location ID: RC Post RR #1
Field Staff: RF CK
Project Number: 60638005
Weather: 80° SUJ
Corresponding Staff Gauge Msmt (ft): 1.1 feet

Creek/Channel/Stream Sketch

Width 10 feet

Stream Segment Total Width =

Msmt No.	Dist to Initial Point	Depth	Velocity (measure from 1/3 of depth *from* the bottom)	Area	Discharge
	feet	feet	ft/s	ft^2	ft^3/s
1	1	.32	0		
2	2	.62	0		
3	3	.88	0		
4	4	1.0	.1		
5	5	1.2	0		
6	6	1.18	0.0		
7	7	.98	0		
8	8	.7	0		
9	9	.54	0		
10					
11					
12					
13					

Measurement Guide

Stream Width	Number of Vertical Measurements
0' - 3'	3-5
3' - 9'	5-8
9' - 15'	8-10
15' - 30'	10-20
>30'	20

Notes

Measured in 1 foot increments,

Sample Checklist

☐ Picture of Sample Location ☐ GPS'd

Location of photos:

SURFACE WATER SAMPLING FORM

Date and Time: 9/2/2020 11:20 | Client: MPCA

Sample Location ID: Pond System #1 | Field Staff: RF CK

Project Number: 60638005 | Weather: 80 Sun

Corresponding Staff Gauge Msmt (ft): 0.84 feet

Creek/Channel/Stream Sketch

NO FLOW

Stream Segment Total Width =

Msmt No.	Dist to Initial Point	Depth	Velocity (measure from 1/3 of depth *from* the bottom)	Area	Discharge
	feet	feet	ft/s	ft^2	ft^3/s
1					
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					

Measurement Guide

Stream Width	Number of Vertical Measurements
0' - 3'	3-5
3' - 9'	5-8
9' - 15'	8-10
15' - 30'	10-20
>30'	20

Notes

Sample Checklist

☐ Picture of Sample Location ☐ GPS'd

Location of photos:

SURFACE WATER SAMPLING FORM

Date and Time: 9/17/20

Sample Location ID: RL21 0900

Project Number: 60638005

Corresponding Staff Gauge Msmt (ft): 1ft.

Client: MPCA

Field Staff: Kaitlyn + Mark

Weather: 45° sunny some clouds

Creek/Channel/Stream Sketch

Stream Segment Total Width = 11 ft

Msmt No.	Dist to Initial Point	Depth	Velocity (measure from 1/3 of depth ***from*** the bottom)	Area	Discharge
	feet	feet	ft/s	ft^2	ft^3/s
1	1	0.3	0.0		
2	2	0.62	0.1		
3	3	0.72	0.1		
4	4	0.92	0.2		
5	5	0.98	0.1		
6	6	1.1	0.1		
7	7	0.98	0.1		
8	8	1.02	0.1		
9	9	0.51	0.0		
10	~~7~~ edge of water				
11					
12					
13					

Measurement Guide

Stream Width	Number of Vertical Measurements
0' - 3'	3-5
3' - 9'	5-8
9' - 15'	8-10
15' - 30'	10-20
>30'	20

Notes

measured E→W

Sample Checklist

☒ Picture of Sample Location ☐ GPS'd

Location of photos: Kaitlyn's phone

SURFACE WATER SAMPLING FORM

Date and Time: 9/17/20 0830
Client: MPCA
Sample Location ID: RC10
Field Staff: Kaitlyn + Margi
Project Number: 60638005
Weather: 45° sunny - some clouds
Corresponding Staff Gauge Msmt (ft): 2.45

Creek/Channel/Stream Sketch

@ stream edge

Stream Segment Total Width = 11 FT.

Msmt No.	Dist to Initial Point	Depth	Velocity (measure from 1/3 of depth ***from*** the bottom)	Area	Discharge
	feet	feet	ft/s	ft^2	ft^3/s
1	2 1	0.52	0.0		
2	3 2	0.96	0.0		
3	4 3	1.14	0.0		
4	5 4	1.24	0.0		
5	6 5	1.40	0.0		
6	7 6	1.50	0.0		
7	8 7	1.68	0.0		
8	9 8	1.60	0.0		
9	10 9	1.64	0.0		
10	11 10	1.76	0.0		
11					
12					
13					

Measurement Guide

Stream Width	Number of Vertical Measurements
0' - 3'	3-5
3' - 9'	5-8
9' - 15'	8-10
15' - 30'	10-20
>30'	20

Notes

Measured NE → SW

Sample Checklist

☒ Picture of Sample Location ☐ GPS'd
Location of photos: Kaitlyn

SURFACE WATER SAMPLING FORM

Date and Time: 9/17/20 0930
Client: MPCA
Sample Location ID: EP4
Field Staff: Kaitlyn + Marie
Project Number: 60638005
Weather: 50 sunny
Corresponding Staff Gauge Msmt (ft): 1.36

Creek/Channel/Stream Sketch

Stream Segment Total Width = 23' (0'-23')

Msmt No.	Dist to Initial Point	Depth	Velocity (measure from 1/3 of depth ***from*** the bottom)	Area	Discharge
	feet	feet	ft/s	ft^2	ft^3/s
1	2	0.72	0.0		
2	4	1.24	0.0		
3	6	1.64	0.0		
4	8	1.80	0.0		
5	10	1.80	0.0		
6	12	1.68	0.0		
7	14	1.66	0.0		
8	16	1.46	0.0		
9	18	1.22	0.0		
10	20	0.88	0.0		
11	22	0.40	0.0		
12					
13					

Measurement Guide

Stream Width	Number of Vertical Measurements
0' - 3'	3-5
3' - 9'	5-8
9' - 15'	8-10
15' - 30'	10-20
>30'	20

Notes

Measured West → East

Sample Checklist

☒ Picture of Sample Location ☐ GPS'd

Location of photos: Kaitlyn

EPL Gauge 82-0109
0.28

SURFACE WATER SAMPLING FORM

Date and Time: 9/17/20 1010
Client: MPCA
Sample Location ID: FP12
Field Staff: Kaitlyn + Marie
Project Number: 60638005
Weather: 50° sunny
Corresponding Staff Gauge Msmt (ft): 0.60

Creek/Channel/Stream Sketch

Stream Segment Total Width = 18' (2' – 20')

Msmt No.	Dist to Initial Point	Depth	Velocity (measure from 1/3 of depth ***from*** the bottom)	Area	Discharge
	feet	feet	ft/s	ft^2	ft^3/s
1	1.5	0.44	0.0		
2	3.0	0.90	0.0		
3	4.5	1.12	0.1		
4	6.0	1.30	0.1		
5	7.5	1.40	0.2		
6	9.0	1.58	0.3		
7	10.5	1.56	0.4		
8	12.0	1.52	0.4		
9	13.5	1.40	0.3		
10	15.0	1.10	0.1		
11	16.5	0.78	0.0		
12					
13					

Measurement Guide

Stream Width	Number of Vertical Measurements
0' - 3'	3-5
3' - 9'	5-8
9' - 15'	8-10
15' - 30'	10-20
>30'	20

Notes

Measured west → east

Sample Checklist

☒ Picture of Sample Location ☐ GPS'd

Location of photos: Kaitlyn's phone + Marie's phone

SURFACE WATER SAMPLING FORM

Date and Time: 9/17/20 1130
Client: MPCA
Sample Location ID: EP16
Field Staff: Kaitlyn + Marie
Project Number: 60638005
Weather: 50° sunny
Corresponding Staff Gauge Msmt (ft): 0.86

Creek/Channel/Stream Sketch

Stream Segment Total Width = 22' (1.5' - 23.5')

Msmt No.	Dist to Initial Point	Depth	Velocity (measure from 1/3 of depth ***from*** the bottom)	Area	Discharge
	feet	feet	ft/s	ft^2	ft^3/s
1	1.5	0.36	0.1		
2	3.0	0.62	0.0		
3	4.5	0.72	0.0		
4	6.0	0.74	0.1		
5	7.5	0.84	0.2		
6	9.0	0.88	0.2		
7	10.5	0.92	0.3		
8	12.0	0.92	0.6		
9	13.5	0.82	0.4		
10	15.0	0.90	0.4		
11	16.5	0.96	0.4		
12	18.0	0.94	0.5		
13	19.5	0.54	0.7		
	21.0	0.50	Measurement Guide 0.7		

Stream Width	Number of Vertical Measurements
0' - 3'	3-5
3' - 9'	5-8
9' - 15'	8-10
15' - 30'	10-20
>30'	20

Notes

Measured south → north

Sample Checklist

☒ Picture of Sample Location ☐ GPS'd

Location of photos: Marie

SURFACE WATER SAMPLING FORM

Date and Time: 9/17/20 1200
Client: MPCA
Sample Location ID: WL6
Field Staff: Kaitlyn + Marie
Project Number: 60638005
Weather: 50° sunny
Corresponding Staff Gauge Msmt (ft): 1.64

Creek/Channel/Stream Sketch

Stream Segment Total Width = 22' (4'-26')

Msmt No.	Dist to Initial Point	Depth	Velocity (measure from 1/3 of depth *from* the bottom)	Area	Discharge
	feet	feet	ft/s	ft^2	ft^3/s
1	6	0.94	0.0		
2	8	1.54	0.0		
3	10	1.57	0.0		
4	12	1.88	0.7		
5	14	1.98	0.4		
6	16	2.02	0.3		
7	18	1.66	0.0		
8	20	1.50	0.0		
9	22	0.80	0.0		
10	24	0.48	0.0		
11					
12					
13					

11' = edge of cattails on southern bank

17' = edge of cattails on northern bank

* near staff gauge

Measurement Guide

Stream Width	Number of Vertical Measurements
0' - 3'	3-5
3' - 9'	5-8
9' - 15'	8-10
15' - 30'	10-20
>30'	20

Notes

Measured south → north; observed multiple piles of off-white, fluffy foam collecting near fallen cattails

Sample Checklist

☒ Picture of Sample Location ☐ GPS'd

Location of photos: Kaitlyn

South

north

SURFACE WATER SAMPLING FORM

Date and Time: 9/17/20 12:25
Client: MPCA
Sample Location ID: WL7
Field Staff: Kaitlyn + Mattie
Project Number: 60638005
Weather: 50° sunny
Corresponding Staff Gauge Msmt (ft): 1.59

Creek/Channel/Stream Sketch

Stream Segment Total Width = 21' (1'-22')

Msmt No.	Dist to Initial Point	Depth	Velocity (measure from 1/3 of depth *from* the bottom)	Area	Discharge
	feet	feet	ft/s	ft^2	ft^3/s
1	1.5	0.38	0.0		
2	3.0	0.90	0.0		
3	5.5	1.00	0.0		
4	7.0	1.36	0.0		
5	8.5	1.58	0.1		
6	10.0	1.68	0.8		
7	11.5	1.58	0.4		
8	13.0	1.60	0.3		
9	14.5	1.60	0.0		
10	16.0	1.22	0.0		
11	17.5	1.30	0.0		
12	19.0	0.80	0.0		
13	20.5	0.54	0.0		

9' = edge of cattails on southern bank

14' = edge of cattails on northern bank

Measurement Guide

Stream Width	Number of Vertical Measurements
0' - 3'	3-5
3' - 9'	5-8
9' - 15'	8-10
15' - 30'	10-20
>30'	20

Notes

Measured south → north

Sample Checklist

☒ Picture of Sample Location ☐ GPS'd
Location of photos: Kaitlyn's phone

SURFACE WATER SAMPLING FORM

Date and Time: 09[illegible] 9/16/25
Client: MPCA
Sample Location ID: WL9
Field Staff: AS, [illegible] KR
Project Number: 60638005
Weather: cloudy 60s
Corresponding Staff Gauge Msmt (ft):

Creek/Channel/Stream Sketch

D F
14 : 0.68, 0.4
15 : 0.48, 0.3
16 : 0.32, 0.3

Gauge : 0.4 ft

Stream Segment Total Width = 17 ft

Msmt No.	Dist to Initial Point	Depth	Velocity (measure from 1/3 of depth ***from*** the bottom)	Area	Discharge
	feet	feet	ft/s	ft^2	ft^3/s
1	Eastside	0.1	0 Inlet		
2	to	0.5	0.2		
3	west	0.6	0.1		
4	↓	0.7	0.3		
5		0.74	0.3		
6		0.78	0.7		
7		0.84	0.6		
8		0.96	0.6		
9		0.90	0.90		
10		0.92	0.70		
11		0.92	0.60		
12		0.86	0.60		
13		0.76	0.50		

Measurement Guide

Stream Width	Number of Vertical Measurements
0' - 3'	3-5
3' - 9'	5-8
9' - 15'	8-10
15' - 30'	10-20
>30'	20

Notes

Sample Checklist

☑ Picture of Sample Location ☐ GPS'd
Location of photos: A6

SURFACE WATER SAMPLING FORM

Date and Time: 9/17/20
Client: MPCA
Sample Location ID: WL11 1240
Field Staff: Kaitlyn + Maine
Project Number: 60638005
Weather: 50° sunny
Corresponding Staff Gauge Msmt (ft): 0.92

Creek/Channel/Stream Sketch

Stream Segment Total Width = 14' (1'-15')

Msmt No.	Dist to Initial Point	Depth	Velocity (measure from 1/3 of depth ***from*** the bottom)	Area	Discharge
	feet	feet	ft/s	ft^2	ft^3/s
1	2	0.4	0.0		
2	3	0.72	0.0		
3	4	0.92	0.3		
4	5	1.02	0.5		
5	6	1.02	0.7		
6	7	1.06	0.8		
7	8	0.92	0.8		
8	9	0.98	0.7		
9	10	0.96	0.8		
10	11	0.95	0.6		
11	12	0.92	0.6		
12	13	0.60	0.4		
13	14	0.60	0.3		

Measurement Guide

Stream Width	Number of Vertical Measurements
0' - 3'	3-5
3' - 9'	5-8
9' - 15'	8-10
15' - 30'	10-20
>30'	20

Notes

Measured east → west

Sample Checklist

☒ Picture of Sample Location ☐ GPS'd
Location of photos: Kaitlyn's phone

SURFACE WATER SAMPLING FORM

Date and Time: 9/30/26 0941
Client: MPCA
Sample Location ID: NWTh channel 2
Field Staff: KR RF
Project Number: 60638005
Weather: Sunny PC 55°
Corresponding Staff Gauge Msmt (ft): 0.90

Creek/Channel/Stream Sketch

Stream Segment Total Width = 13 ft.

Msmt No.	Dist to Initial Point	Depth	Velocity (measure from 1/3 of depth ***from*** the bottom)	Area	Discharge
	feet	feet	ft/s	ft^2	ft^3/s
1	1	0.5	0.1		
2	2.5	0.93	0.5		
3	4	0.98	0.8		
4	5.5	1.0	0.9		
5	7	0.84	0.8		
6	9.5	0.91	0.8		
7	10	0.91	0.8		
8	11.5	0.86	0.5		
9					
10					
11					
12					
13					

Measurement Guide

Stream Width	Number of Vertical Measurements
0' - 3'	3-5
3' - 9'	5-8
9' - 15'	8-10
15' - 30'	10-20
>30'	20

Notes

Measured E→W

Sample Checklist

☒ Picture of Sample Location ☐ GPS'd
Location of photos: Kathryn's phone

SURFACE WATER SAMPLING FORM

Date and Time: 9/30/20 1020
Client: MPCA
Sample Location ID: Horseshoe 2
Field Staff: KR RF
Project Number: 60638005
Weather: Sunny PC
Corresponding Staff Gauge Msmt (ft): 2.62

Creek/Channel/Stream Sketch

Stream Segment Total Width = 22.5 ft.

Msmt No.	Dist to Initial Point	Depth	Velocity (measure from 1/3 of depth ***from*** the bottom)	Area	Discharge
	feet	feet	ft/s	ft^2	ft^3/s
1	0	1.32	0.0		
2	9	1.61	0.0		
3	10	1.62	0.6		
4	11	1.68	0.7		
5	12	1.7	0.9		
6	13	1.7	1.2		
7	14	1.82	0.7		
8	15	1.74	0.0		
9					
10					
11					
12					
13					

Measurement Guide

Stream Width	Number of Vertical Measurements
0' - 3'	3-5
3' - 9'	5-8
9' - 15'	8-10
15' - 30'	10-20
>30'	20

Notes

Sample Checklist

☑ Picture of Sample Location ☐ GPS'd
Location of photos: Kathryn's phone

channel open from 9-4 ft. (cattails)
Weather E→W

SURFACE WATER SAMPLING FORM

Date and Time: 9/30/24 1034
Client: MPCA
Sample Location ID: Horseshoe
Field Staff: KR RF
Project Number: 60638005
Weather: Sunny P.C 56
Corresponding Staff Gauge Msmt (ft): 1.79

Creek/Channel/Stream Sketch

Stream Segment Total Width = 24 ft.

Msmt No.	Dist to Initial Point	Depth	Velocity (measure from 1/3 of depth ***from*** the bottom)	Area	Discharge
	feet	feet	ft/s	ft^2	ft^3/s
1	9|0	1.78	0.0		
2	11	2.01	0.4		
3	12	2.4	0.5		
4	13	1.79	1.0		
5	14	2.0	1.1		
6	15	1.99	0.5		
7	16	1.77	0.0		
8					
9					
10					
11					
12					
13					

Measurement Guide

Stream Width	Number of Vertical Measurements
0' - 3'	3-5
3' - 9'	5-8
9' - 15'	8-10
15' - 30'	10-20
>30'	20

Notes

cattails from 10-17
measured NW → SE

Sample Checklist

☒ Picture of Sample Location ☐ GPS'd
Location of photos: Kaitlyn

SURFACE WATER SAMPLING FORM

Date and Time: 9/30/20
Client: MPCA
Sample Location ID: WL9
Field Staff: KR RF
Project Number: 60638005
Weather: Sunny PC 55°
Corresponding Staff Gauge Msmt (ft): 0.94

Creek/Channel/Stream Sketch

Stream Segment Total Width =

Msmt No.	Dist to Initial Point	Depth	Velocity (measure from 1/3 of depth ***from*** the bottom)	Area	Discharge
	feet	feet	ft/s	ft^2	ft^3/s
1	1	0.33	0		
2	2.5	0.63	0.1		
3	4	0.74	0.4		
4	5.5	0.75	0.7		
5	7	0.88	1.0		
6	8.5	0.94	0.9		
7	10	0.93	0.9		
8	11.5	0.94	1.0		
9	13	0.76	0.5		
10	14.5	0.63	0		
11					
12					
13					

Measurement Guide

Stream Width	Number of Vertical Measurements
0' - 3'	3-5
3' - 9'	5-8
9' - 15'	8-10
15' - 30'	10-20
>30'	20

Notes

Sample Checklist

☒ Picture of Sample Location ☐ GPS'd
Location of photos: Kathryn's phone

SURFACE WATER SAMPLING FORM

Date and Time: 9/30/21 1055
Sample Location ID: DG Elm 01
Project Number: 60638005
Corresponding Staff Gauge Msmt (ft): 1.36

Client: MPCA
Field Staff: RR RF
Weather: Sunny RC 55°

Creek/Channel/Stream Sketch

Stream Segment Total Width =

Msmt No.	Dist to Initial Point	Depth	Velocity (measure from 1/3 of depth ***from*** the bottom)	Area	Discharge
	feet	feet	ft/s	ft^2	ft^3/s
1					
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					

Measurement Guide

Stream Width	Number of Vertical Measurements
0' - 3'	3-5
3' - 9'	5-8
9' - 15'	8-10
15' - 30'	10-20
>30'	20

Notes

Not Measured - no flow

Sample Checklist

☐ Picture of Sample Location ☐ GPS'd

Location of photos:

SURFACE WATER SAMPLING FORM

Date and Time: 10/7/2
Client: MPCA
Sample Location ID: N. Channel 2
Field Staff: JM, RF
Project Number: 60638005
Weather: Sunny
Corresponding Staff Gauge Msmt (ft):

Creek/Channel/Stream Sketch

-Staff gauge: 1.32'
-Width: 16.5'

Stream Segment Total Width =

Msmt No.	Dist to Initial Point	Depth	Velocity (measure from 1/3 of depth *from* the bottom)	Area	Discharge
	feet	feet	ft/s	ft^2	ft^3/s
1	1	0.53	0		
2	2.5	1.07	0		
3	4	1.36	0.2		
4	5.5	1.42	0.1		
5	7	1.44	0.2		
6	8.5	1.34	0.1		
7	10	1.37	0.3		
8	11.5	1.36	0.2		
9	13	1.15	0.0		
10					
11					
12					
13					

Measurement Guide

Stream Width	Number of Vertical Measurements
0' - 3'	3-5
3' - 9'	5-8
9' - 15'	8-10
15' - 30'	10-20
>30'	20

Notes

Sample Checklist

☐ Picture of Sample Location ☐ GPS'd

Location of photos:

SURFACE WATER SAMPLING FORM

Date and Time: 10/7/20
Client: MPCA
Sample Location ID: North Channel 1
Field Staff: RF JM
Project Number: 60638005
Weather: Sunny 60
Corresponding Staff Gauge Msmt (ft):

Creek/Channel/Stream Sketch

- 16ft wide
- Staff gauge 0.94'

Stream Segment Total Width =

Msmt No.	Dist to Initial Point	Depth	Velocity (measure from 1/3 of depth *from* the bottom)	Area	Discharge
	feet	feet	ft/s	ft^2	ft^3/s
1	1	0.43	0		
2	2.5	0.66	0		
3	4	0.78	0		
4	5.5	0.80	0.2		
5	7	0.89	0.6		
6	8.5	0.96	0.5		
7	10	0.94	0.6		
8	11.5	0.95	0.6		
9	13	0.76	0.3		
10	14.5	0.63	0.0		
11					
12					
13					

Measurement Guide

Stream Width	Number of Vertical Measurements
0' - 3'	3-5
3' - 9'	5-8
9' - 15'	8-10
15' - 30'	10-20
>30'	20

Notes

Sample Checklist

☐ Picture of Sample Location ☐ GPS'd

Location of photos:

SURFACE WATER SAMPLING FORM

Date and Time: 10/13/20 10:40
Client: MPCA
Sample Location ID: 2C INTERMITTENT 2
Field Staff: Dream Team RFCK
Project Number: 60638005
Weather: 60° SUN
Corresponding Staff Gauge Msmt (ft): BROKEN

Creek/Channel/Stream Sketch

No Flow

Stream Segment Total Width =

Msmt No.	Dist to Initial Point	Depth	Velocity (measure from 1/3 of depth ***from*** the bottom)	Area	Discharge
	feet	feet	ft/s	ft^2	ft^3/s
1					
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					

Measurement Guide

Stream Width	Number of Vertical Measurements
0' - 3'	3-5
3' - 9'	5-8
9' - 15'	8-10
15' - 30'	10-20
>30'	20

Notes

Sample Checklist

☐ Picture of Sample Location ☐ GPS'd

Location of photos:

SURFACE WATER SAMPLING FORM

Date and Time: 10/13/20 11AM
Sample Location ID: RC INTERMITTANT 1
Project Number: 60638005
Corresponding Staff Gauge Msmt (ft): 0.88

Client: MPCA
Field Staff: Dream Team RECK
Weather: 60° Sun

Intermittant **Creek/Channel/Stream Sketch**

No flow

Stream Segment Total Width =

Msmt No.	Dist to Initial Point	Depth	Velocity (measure from 1/3 of depth ***from*** the bottom)	Area	Discharge
	feet	feet	ft/s	ft^2	ft^3/s
1					
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					

Measurement Guide

Stream Width	Number of Vertical Measurements
0' - 3'	3-5
3' - 9'	5-8
9' - 15'	8-10
15' - 30'	10-20
>30'	20

Notes

Sample Checklist

☐ Picture of Sample Location ☐ GPS'd

Location of photos:

SURFACE WATER SAMPLING FORM

Date and Time: 10/13/20 9:55
Client: MPCA
Sample Location ID: Pond System 2
Field Staff: RF CK Dream Team
Project Number: 60638005
Weather: Sun 60°
Corresponding Staff Gauge Msmt (ft): 0.9

Creek/Channel/Stream Sketch

6 feet wide
Measured at .5 foot intervals
Starting at .5 feet in from
the North bank

Stream Segment Total Width =

Msmt No.	Dist to Initial Point	Depth	Velocity (measure from 1/3 of depth ***from*** the bottom)	Area	Discharge
	feet	feet	ft/s	ft^2	ft^3/s
1	0.5	.36	0		
2	1	.54	0		
3	1.5	.66	0		
4	2	.74	0		
5	2.5	.82	.2		
6	3	.67	0		
7	3.5	.61			
8	4	.46			
9	4.5	.47			
10	5	.44			
11	[redacted]				
12					
13					

Measurement Guide

Stream Width	Number of Vertical Measurements
0' - 3'	3-5
3' - 9'	5-8
9' - 15'	8-10
15' - 30'	10-20
>30'	20

Notes

Sample Checklist

☑ Picture of Sample Location ☐ GPS'd

☑ Collection of photos

SURFACE WATER SAMPLING FORM

Date and Time: 10/13/20 9:45 Client: MPCA

Sample Location ID: RC Post Railroad 1 Field Staff: RFCK

Project Number: 60638005 Weather: 60° SUN

Corresponding Staff Gauge Msmt (ft): 1.24 feet

Creek/Channel/Stream Sketch

No flow

Stream Segment Total Width =

Msmt No.	Dist to Initial Point	Depth	Velocity (measure from 1/3 of depth ***from*** the bottom)	Area	Discharge
	feet	feet	ft/s	ft^2	ft^3/s
1					
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					

Measurement Guide

Stream Width	Number of Vertical Measurements
0' - 3'	3-5
3' - 9'	5-8
9' - 15'	8-10
15' - 30'	10-20
>30'	20

Notes

Sample Checklist

☐ Picture of Sample Location ☐ GPS'd

Location of photos:

SURFACE WATER SAMPLING FORM

Date and Time: 10/13/20 9:30
Client: MPCA
Sample Location ID: POND System 1
Field Staff: RF CK
Project Number: 60638005
Weather: SUN 60°F
Corresponding Staff Gauge Msmt (ft): 0.95 ft

Creek/Channel/Stream Sketch

6 feet wide
Measurement taken every half foot starting at 0.5 feet from west bank

Stream Segment Total Width =

Msmt No.	Dist to Initial Point	Depth	Velocity (measure from 1/3 of depth *from* the bottom)	Area	Discharge
	feet	feet	ft/s	ft^2	ft^3/s
1	0.5	0.3	0		
2	1	0.3	0		
3	1.5	0.38	0		
4	2	0.42	0		
5	2.5	0.48	0		
6	3	0.51	0		
7	3.5	0.82	0		
8	4	0.91	0		
9	4.5	0.96	0.2		
10	5	1.06	0.3		
11	5.5	1.12	0.4		
12					
13					

Measurement Guide

Stream Width	Number of Vertical Measurements
0' - 3'	3-5
3' - 9'	5-8
9' - 15'	8-10
15' - 30'	10-20
>30'	20

Notes

Sample Checklist

☐ Picture of Sample Location ☐ GPS'd

Location of photos:

SURFACE WATER SAMPLING FORM

Date and Time: 10/13/20 12:00
Client: MPCA
Sample Location ID: DG ELMO 1
Field Staff: DREAMTEAM RF CK
Project Number: 60638005
Weather:
Corresponding Staff Gauge Msmt (ft): 1.81 feet

Creek/Channel/Stream Sketch

IT APPEARS SOMETHING IS CLOGGING THE FLOW UPSTREAM, INHIBITING FLOW

Stream Segment Total Width =

Msmt No.	Dist to Initial Point	Depth	Velocity (measure from 1/3 of depth *from* the bottom)	Area	Discharge
	feet	feet	ft/s	ft^2	ft^3/s
1					
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					

Measurement Guide

Stream Width	Number of Vertical Measurements
0' - 3'	3-5
3' - 9'	5-8
9' - 15'	8-10
15' - 30'	10-20
>30'	20

Notes

Sample Checklist

☐ Picture of Sample Location ☐ GPS'd

Location of photos:

DG Elmo 1

DG Elmo 2

SURFACE WATER SAMPLING FORM

Date and Time: 3/11/21 1250

Client: MPCA

Sample Location ID: RC Wetlands #2

Field Staff: RF KR

Project Number: 60638005

Weather: Sunny 42

Corresponding Staff Gauge Msmt (ft): 1.90

Creek/Channel/Stream Sketch

Stream Segment Total Width = 2.5 m

Msmt No.	Dist to Initial Point	Depth	Velocity (measure from 1/3 of depth ***from*** the bottom)	Area	Discharge
	~~feet~~ m	feet	ft/s	ft^2	ft^3/s
1	0.33	1.7	0.0		
2	0.66	1.75	0.5		
3	1	1.65	0.4		
4	1.33	1.56	0.2		
5	1.66	1.64	0.0		
6	2	1.65	0.3		
7	2.33	1.51	0.5		
8					
9					
10					
11					
12					
13					

Measurement Guide

Stream Width	Number of Vertical Measurements
0' - 3'	3-5
3' - 9'	5-8
9' - 15'	8-10
15' - 30'	10-20
>30'	20

Notes

Sample Checklist

☐ Picture of Sample Location ☐ GPS'd

Location of photos:

SURFACE WATER SAMPLING FORM

Date and Time: 3/22/21 1025
Client: MPCA
Sample Location ID: RC confl. #2
Field Staff: KR RF
Project Number: 60638005
Weather: 50° sunny PC
Corresponding Staff Gauge Msmt (ft): 2.42 ft.

Creek/Channel/Stream Sketch

Stream Segment Total Width = 3 meters

Msmt No.	Dist to Initial Point	Depth	Velocity (measure from 1/3 of depth ***from*** the bottom)	Area	Discharge
	feet	feet	ft/s	ft^2	ft^3/s
1	0.3	0.77	0		
2	0.6	0.74	0		
3	1.0	0.74	0.4		
4	1.3	0.73	0.5		
5	1.6	0.78	0.5		
6	2.0	0.77	0.5		
7	2.3	0.85	0.4		
8	2.6	0.58	0		
9	3.0	0.39	0		
10					
11					
12					
13					

Measurement Guide

Stream Width	Number of Vertical Measurements
0' - 3'	3-5
3' - 9'	5-8
9' - 15'	8-10
15' - 30'	10-20
>30'	20

Notes

Sample Checklist

☒ Picture of Sample Location ☐ GPS'd

Location of photos: Riley's phone

FLOW FORM

Date and Time: 3/22/21 1055

Sample Location ID: Horseshoe 2

Project Number: 60618753

Client: MPCA

Field Staff: RF KR

Weather: 50° Cloudy

Creek/Channel/Stream Sketch

Not measured in cattails

↓

measurement

↓

Stream Segment Total Width = 7m (3-4.5m)

Section No.	Dist to Initial Point	Width	Depth	Velocity at 0.6 D	Area	Discharge
	inches	inches	feet	ft/s	ft^2	ft^3/s
1	3m		1.84	0.3		
2	3.3m		1.82	0.9		
3	3.6m		1.90	0.3		
4	3.9m		1.92	1.1		
5	4.2m		1.98	0.7		
6						
7						
8						
9						
10						
11						
12						
13						

Stream Width	Number of Vertical Measurements	Q = V*A
3' < 9'		
9' < 16'		
16' < 33'		

Notes

Sample Checklist

☒ Picture of Sample Location ☐ GPS'd

Location of photos: Riley's phone.

SURFACE WATER SAMPLING FORM

Date and Time: 3/22/21 0945

Client: MPCA

Sample Location ID: ~~Rich~~ Pond syst. 1

Field Staff: KR RF

Project Number: 60638005

Weather: sunny 45° DC

Corresponding Staff Gauge Msmt (ft): 0.96

Creek/Channel/Stream Sketch

Stream Segment Total Width = 2 meters

Msmt No.	Dist to Initial Point	Depth	Velocity (measure from 1/3 of depth ***from*** the bottom)	Area	Discharge
	feet	feet	ft/s	ft^2	ft^3/s
1	0.1	0.8	0.1		
2	0.3	0.88	0.4		
3	0.5	1.03	0.3		
4	0.7	0.93	0		
5	1.0	0.9	0		
6	1.1	0.81	0.		
7	1.3	0.66			
8	1.5	0.38			
9	1.7	40.1			
10					
11					
12					
13					

Measurement Guide

Stream Width	Number of Vertical Measurements
0' - 3'	3-5
3' - 9'	5-8
9' - 15'	8-10
15' - 30'	10-20
>30'	20

Notes

Visited Post RR 1 - staff gauge 1.17ft. No flow - Riley has photos

Sample Checklist

☑ Picture of Sample Location ☐ GPS'd

Location of photos: Riley's phone

Pond syst #2 0.78 ft. some flow in areas w/ low water over rocks - Riley has photos

RC Int. #1 - same 0.76ft.

SURFACE WATER SAMPLING FORM

Date and Time: 3/22/21 0915
Sample Location ID: RC wetland #1
Project Number: 60638005
Corresponding Staff Gauge Msmt (ft): 0.58

Client: MPCA
Field Staff: KR RF
Weather: 45° sunny, PC

Creek/Channel/Stream Sketch

Stream Segment Total Width = 1 meter

Msmt No.	Dist to Initial Point	Depth	Velocity (measure from 1/3 of depth ***from*** the bottom)	Area	Discharge
	~~feet~~ m	feet	ft/s	ft^2	ft^3/s
1	0.2 m	0.96	0		
2	0.4 m	0.8	0.7		
3	0.6 m	0.7	0.3		
4	0.8 m	0.47	0		
5					
6					
7					
8					
9					
10					
11					
12					
13					

Measurement Guide

Stream Width	Number of Vertical Measurements
0' - 3'	3-5
3' - 9'	5-8
9' - 15'	8-10
15' - 30'	10-20
>30'	20

Notes

Sample Checklist

☒ Picture of Sample Location ☐ GPS'd

Location of photos: Riley's phone

SURFACE WATER SAMPLING FORM

Date and Time: 3/22/21

Client: MPCA

Sample Location ID: RL Wetlands #2

Field Staff: KR RF

Project Number: 60638005

Weather: 45° sunny PC

Corresponding Staff Gauge Msmt (ft): 0.58

Creek/Channel/Stream Sketch

Stream Segment Total Width = 2.5 meters

Msmt No.	Dist to Initial Point	Depth	Velocity (measure from 1/3 of depth ***from*** the bottom)	Area	Discharge
	~~feet~~ m	feet	ft/s	ft^2	ft^3/s
1	0.3 m	0.36	D		
2	0.6 m	0.4	0.8		
3	~~1~~ 1m	0.41	0		
4	1.3	0.33	0		
5	1.6	0.5	0.8		
6	2.0	0.41	0		
7	2.3	0.25	0		
8					
9					
10					
11					
12					
13					

Measurement Guide

Stream Width	Number of Vertical Measurements
0' - 3'	3-5
3' - 9'	5-8
9' - 15'	8-10
15' - 30'	10-20
>30'	20

Notes

Sample Checklist

☑ Picture of Sample Location ☐ GPS'd

Location of photos: Riley's phone

FLOW FORM

Date and Time: 3/25/21 12:20

Sample Location ID: BC Intermittent 2

Project Number: 60618753

Client: MPCA

Field Staff: RF CK

Weather:

Creek/Channel/Stream Sketch

gauge = 1.32

width = 10 FT

Stream Segment Total Width =

Section No.	Dist to Initial Point	Width	Depth	Velocity at 0.6 D	Area	Discharge
	~~inches~~ ~~FT~~	inches	feet	ft/s	ft^2	ft^3/s
1	1 FT		0.77	0		
2	2		0.93	0.3		
3	3		0.88	0.6		
4	4		0.82	0.7		
5	5		0.78	1.0		
6	6		0.73	1.2		
7	7		0.77	1.1		
8	8		0.72	0.9		
9	9		0.68	0.3		
10						
11						
12						
13						

Stream Width	Number of Vertical Measurements	Q = V*A
3' < 9'		
9' < 16'		
16' < 33'		

Notes

Sample Checklist

☑ Picture of Sample Location ☐ GPS'd

Location of photos:

SURFACE WATER SAMPLING FORM

Date and Time: 3/25/21

Sample Location ID: Pond System 1

Project Number: 60638005

Corresponding Staff Gauge Msmt (ft):

Client: MPCA

Field Staff: RF CK

Weather:

Creek/Channel/Stream Sketch

gauge depth = 1.3 ft

width = 6.5 FT

Stream Segment Total Width =

Msmt No.	Dist to Initial Point	Depth	Velocity (measure from 1/3 of depth ***from*** the bottom)	Area	Discharge
	feet	feet	ft/s	ft^2	ft^3/s
1	0.5	1.36	1.1		
2	1.5	1.3	1.2		
3	2.5	1.3	1.0		
4	3.5	1.14	0.2		
5	4.5	0.99	0.0		
6	5.5	0.68	0		
7					
8					
9					
10					
11					
12					
13					

Measurement Guide

Stream Width	Number of Vertical Measurements
0' - 3'	3-5
3' - 9'	5-8
9' - 15'	8-10
15' - 30'	10-20
>30'	20

Notes

Sample Checklist

☑ Picture of Sample Location ☐ GPS'd

Location of photos: CK

FLOW FORM

Date and Time: 3/25/21 12:00

Client: MPCA

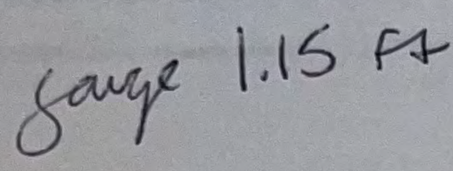
Sample Location ID: POND System 2

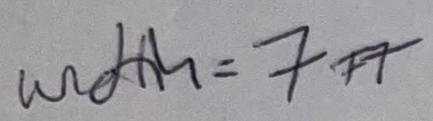
Field Staff: RF CK

Project Number: 60618753

Weather: 50°F Sun

Creek/Channel/Stream Sketch





Stream Segment Total Width =

Section No.	Dist to Initial Point	Width	Depth	Velocity at 0.6 D	Area	Discharge
	~~inches~~ ft	inches	feet	ft/s	ft^2	ft^3/s
1	0.5 ft		0.41	0		
2	1.5		0.7	2.6		
3	2.5		0.6	2.9		
4	3.5		0.48	2.6		
5	4.5		0.44	0.6		
6	5.5		0.38	1.3		
7	6.5		0.35	0		
8						
9						
10						
11						
12						
13						

Stream Width	Number of Vertical Measurements	Q = V*A
3' < 9'		
9' < 16'		
16' < 33'		

Notes

Sample Checklist

☒ Picture of Sample Location ☐ GPS'd

Location of photos: CK

FLOW FORM

Date and Time: 3/25/21 11:35

Sample Location ID: Post RR 1

Project Number: 60618753

Client: MPCA

Field Staff:

Weather:

Creek/Channel/Stream Sketch

gauge = 1.45 feet deep

width = 10ft

Stream Segment Total Width =

Section No.	Dist to Initial Point	Width	Depth	Velocity at 0.6 D	Area	Discharge
	~~inches~~ ft	inches	feet	ft/s	ft^2	ft^3/s
1	1		0.92	0.3		
2	2		1.3	0.6		
3	3		1.36	0.6		
4	4		1.36	0.4		
5	5		1.34	0.4		
6	6		1.44	0.5		
7	7		1.46	0.2		
8	8		1.53	0.1		
9	9		1.06	0		
10						
11						
12						
13						

Stream Width	Number of Vertical Measurements	Q = V*A
3' < 9'		
9' < 16'		
16' < 33'		

Notes

Sample Checklist

☒ Picture of Sample Location ☐ GPS'd

Location of photos: CL

FLOW FORM

Date and Time: 3/25/2021

Client: MPCA

Sample Location ID: RC WETLANDS 1

Field Staff: RF CK

Project Number: 60618753

Weather:

Creek/Channel/Stream Sketch

3 FEET WIDE

Stream Segment Total Width =

Section No.	Dist to Initial Point	Width	Depth	Velocity at 0.6 D	Area	Discharge
	~~inches~~ FT	inches	feet	ft/s	ft^2	ft^3/s
1	0.5 FT		1.2	1.3		
2	1 FT		1.26	1.8		
3	1.5 FT		1.38	1.4		
4	2 FT		1.44	0.3		
5	2.5 FT		0.83	0		
6						
7						
8						
9						
10						
11						
12						
13						

Stream Width	Number of Vertical Measurements	Q = V*A
3' < 9'		
9' < 16'		
16' < 33'		

Notes

Sample Checklist

☐ Picture of Sample Location ☐ GPS'd

Location of photos:

FLOW FORM

Date and Time: 3/25/21 9:40

Client: MPCA

Sample Location ID: RC WETLANDS 2

Field Staff: RF CK

Project Number: 60618753

Weather:

Creek/Channel/Stream Sketch

Staff gauge = 1.54 ft

8 FT wide

Stream Segment Total Width =

Section No.	Dist to Initial Point	Width	Depth	Velocity at 0.6 D	Area	Discharge
	~~inches~~ FT	inches	feet	ft/s	ft^2	ft^3/s
1	0.5		1.02	0.7		
2	1.5		1.42	0.7		
3	2.5		1.4	0.2		
4	3.5		1.29	0		
5	4.5		1.38	0		
6	5.5		1.36	0.6		
7	6.5		1.32	0.9		
8	7.5		0.9	0		
9						
10						
11						
12						
13						

Stream Width	Number of Vertical Measurements	Q = V*A
3' < 9'		
9' < 16'		
16' < 33'		

Notes

Sample Checklist

☒ Picture of Sample Location ☐ GPS'd

Location of photos: CK

SURFACE WATER SAMPLING FORM

Date and Time: 3/9/21 1015

Sample Location ID: HORSESHOE #1

Project Number: 60638005

Corresponding Staff Gauge Msmt (ft): 1-3

Client: MPCA

Field Staff: KR + RF

Weather: 40° Sunny PC

Creek/Channel/Stream Sketch

0-6 ~~total~~ meters - reeds from 0-2m and 4-6 meter

Stream Segment Total Width =

Msmt No.	Dist to Initial Point	Depth	Velocity (measure from 1/3 of depth ***from*** the bottom)	Area	Discharge
	~~feet~~ meters	feet	ft/s	ft^2	ft^3/s
1	0.0 m	0.39	0.0		
2	0.3 m	1.49	0.2		
3	0.6 m	1.54	0.5		
4	1.0 m	1.39	1.1		
5	1.3 m	1.5	1.2		
6	1.6 m	1.5	0.7		
7	2.0 m	1.28	0.0		
8					
9					
10					
11					
12					
13					

Measurement Guide

Stream Width	Number of Vertical Measurements
0' - 3'	3-5
3' - 9'	5-8
9' - 15'	8-10
15' - 30'	10-20
>30'	20

Notes

Sample Checklist

☑ Picture of Sample Location ☐ GPS'd

Location of photos: Riley's phone

SURFACE WATER SAMPLING FORM

Date and Time: 3/8/21 1000

Sample Location ID: Horseshoe #2

Project Number: 60638005

Corresponding Staff Gauge Msmt (ft): 1.42

Client: MPCA

Field Staff: KR + RE

Weather: 40° sunny PC

Creek/Channel/Stream Sketch

0.5m - 2.5m reeds

2.5m - 4.5 m open channel 4.5 - 6.5 reeds

Stream Segment Total Width = ~~2.35~~ 2m

Msmt No.	Dist to Initial Point	Depth	Velocity (measure from 1/3 of depth ***from*** the bottom)	Area	Discharge
	~~feet~~ m	feet	ft/s	ft^2	ft^3/s
0.01	~~0.0~~ m	~~1.25~~	0		
0.32	~~0.3~~ m	1.25	0		
0.63	~~0.6~~ m	1.53	1.1		
1.04	~~1.0~~ m	1.5	0.9		
1.35	1.3m	1.51	1.1		
6	1.6m	1.3	0.2		
7	~~2.0m~~				
8					
9					
10					
11					
12					
13					

Measurement Guide

Stream Width	Number of Vertical Measurements
0' - 3'	3-5
3' - 9'	5-8
9' - 15'	8-10
15' - 30'	10-20
>30'	20

Notes

Sample Checklist

☑ Picture of Sample Location ☐ GPS'd

Location of photos: Riley's phone

SURFACE WATER SAMPLING FORM

Date and Time: 3/8/21 0910

Client: MPCA

Sample Location ID: North Channel #1

Field Staff: KR RF

Project Number: 60638005

Weather: 40° sunny PC

Corresponding Staff Gauge Msmt (ft): 0.93 ft.

*took depth on flow meter

Creek/Channel/Stream Sketch

NOTE- using meter tape measure - pay attention to units

Stream Segment Total Width = 5 meters (16.5 ft.)

Msmt No.	Dist to Initial Point	Depth	Velocity (measure from 1/3 of depth ***from*** the bottom)	Area	Discharge
	feet	feet	ft/s	ft^2	ft^3/s
1	0.5 m	0.3 ft.	0		
2	1 m	0.49	0.2		
3	1.5m	0.59	0.6		
4	2m	0.609	0.9		
5	2.5m	0.74	1.1		
6	3 m	0.78	0.9		
7	3.5m	0.72	0.8		
8	4.0 m	0.6	0.5		
9	4.5 m	0.46	0.0		
10					
11					
12					
13					

Measurement Guide

Stream Width	Number of Vertical Measurements
0' - 3'	3-5
3' - 9'	5-8
9' - 15'	8-10
15' - 30'	10-20
>30'	20

Notes

Sample Checklist

☑ Picture of Sample Location ☐ GPS'd

Location of photos: Rileys Phone

SURFACE WATER SAMPLING FORM

Date and Time: 3/9/21

Client: MPCA

Sample Location ID: PINS parking lot

Field Staff: KR + RF

Project Number: 60638005

Weather: 50° sunny

Corresponding Staff Gauge Msmt (ft): 0.52 ft

Creek/Channel/Stream Sketch

measured across S bank to N bank

Stream Segment Total Width = 2m

Msmt No.	Dist to Initial Point	Depth	Velocity (measure from 1/3 of depth ***from*** the bottom)	Area	Discharge
	~~feet~~ m	feet	ft/s	ft^2	ft^3/s
1	0.0	~0.3	0		
2	0.3	0.44	0.0		
3	0.6	0.5	0.2		
4	1.0	0.4	0.5		
5	1.3	0.28	0.1		
6	1.6	low water - no flow			
7	2.	low water - no flow			
8					
9					
10					
11					
12					
13					

Measurement Guide

Stream Width	Number of Vertical Measurements
0' - 3'	3-5
3' - 9'	5-8
9' - 15'	8-10
15' - 30'	10-20
>30'	20

Notes

Sample Checklist

☒ Picture of Sample Location ☐ GPS'd

Location of photos: Rileys phone

SURFACE WATER SAMPLING FORM

Date and Time: # 3/11/21 31500
Client: MPCA
Sample Location ID: RC unt. #2
Field Staff: KR RC
Project Number: 60638005
Weather: Sunny 50
Corresponding Staff Gauge Msmt (ft):

Creek/Channel/Stream Sketch

* bottom of stream bed covered in ice - not actual stream bottom

Stream Segment Total Width = 3.5 m

Msmt No.	Dist to Initial Point	Depth	Velocity (measure from 1/3 of depth ***from*** the bottom)	Area	Discharge
	~~feet~~ m	feet	ft/s	ft^2	ft^3/s
1	0.3 m	0.35	0.8		
2	0.6 m	0.48	1.7		
3	1.0 m	0.55	1.1		
4	1.3 m	0.58	1.6		
5	1.6 m	0.6	1.3		
6	2.0 m	0.64	1.1		
7	2.3 m	0.65	1.2		
8	2.6 m	0.6	0.9		
9	3.0 m	0.37	0.4		
10					
11					
12					
13					

Measurement Guide

Stream Width	Number of Vertical Measurements
0' - 3'	3-5
3' - 9'	5-8
9' - 15'	8-10
15' - 30'	10-20
>30'	20

Notes

Sample Checklist

☐ Picture of Sample Location ☐ GPS'd

Location of photos: KR RC

SURFACE WATER SAMPLING FORM

Date and Time: 3/11/21 1410

Sample Location ID: Int. #1

Project Number: 60638005

Corresponding Staff Gauge Msmt (ft): 1.28

Client: MPCA

Field Staff: KR RF

Weather: Sunny 50°

Creek/Channel/Stream Sketch

Stream Segment Total Width = 4.5 m

Msmt No.	Dist to Initial Point	Depth	Velocity (measure from 1/3 of depth ***from*** the bottom)	Area	Discharge
	~~feet~~ m	feet	ft/s	ft^2	ft^3/s
1	0.3 m	0.89	0.4		
2	0.6 m	0.88	0.5		
3	1.0 m	1.02	0.8		
4	1.3 m	1.04	0.7		
5	1.6 m	1.12	0.7		
6	2.0 m	1.28	0.5		
7	2.3 m	1.37	0.6		
8	2.6 m	1.47	0.5		
9	3.0 m	1.51	0.0		
10	3.3 m	1.42	0.2		
11	3.6 m	1.32	0.0		
12	4.0 m	1.06	0.0		
13	4.3 m	0.3	0.0		

Measurement Guide

Stream Width	Number of Vertical Measurements
0' - 3'	3-5
3' - 9'	5-8
9' - 15'	8-10
15' - 30'	10-20
>30'	20

Notes

Sample Checklist

☒ Picture of Sample Location ☐ GPS'd

Location of photos: Files

SURFACE WATER SAMPLING FORM

Date and Time: 3/11/21 1430

Sample Location ID: Int. #2

Project Number: 60638005

Corresponding Staff Gauge Msmt (ft): 1.42

Client: MPCA

Field Staff: KR RF

Weather: sunny 50°

Creek/Channel/Stream Sketch

Stream Segment Total Width = 3 m

Msmt No.	Dist to Initial Point	Depth	Velocity (measure from 1/3 of depth ***from*** the bottom)	Area	Discharge
	~~feet~~ m	feet	ft/s	ft^2	ft^3/s
1	0.3	0.7	0.6		
2	0.6	0.75	1.3		
3	1.0	0.73	1.5		
4	1.3	1.07	0.8		
5	1.6	1.26	0.5		
6	2.0	1.01	0.8		
7	2.3	1.02	0.5		
8	2.6	0.90	0.4		
9					
10					
11					
12					
13					

Measurement Guide

Stream Width	Number of Vertical Measurements
0' - 3'	3-5
3' - 9'	5-8
9' - 15'	8-10
15' - 30'	10-20
>30'	20

Notes

Sample Checklist

☒ Picture of Sample Location ☐ GPS'd

Location of photos: Riley

SURFACE WATER SAMPLING FORM

Date and Time: 3/11/21 1311

Sample Location ID: Pond System #1

Project Number: 60638005

Corresponding Staff Gauge Msmt (ft): 1.38

Client: MPCA

Field Staff: RF KR

Weather: Sunny 42

Creek/Channel/Stream Sketch

Stream Segment Total Width = 2m

Msmt No.	Dist to Initial Point	Depth	Velocity (measure from 1/3 of depth ***from*** the bottom)	Area	Discharge
	~~feet~~ m	feet	ft/s	ft^2	ft^3/s
1	0.25	1.39	1.8		
2	0.5	1.52	1.1		
3	0.75	1.38	0.4		
4	1	1.32	0.7		
5	1.25	1.17	0.5		
6	1.5	0.96	0.4		
7	1.75	0.69	0.0		
8					
9					
10					
11					
12					
13					

Measurement Guide

Stream Width	Number of Vertical Measurements
0' - 3'	3-5
3' - 9'	5-8
9' - 15'	8-10
15' - 30'	10-20
>30'	20

Notes

Sample Checklist

☐ Picture of Sample Location ☐ GPS'd

Location of photos:

SURFACE WATER SAMPLING FORM

Date and Time: 3/11/21

Sample Location ID: Pond System #2

Project Number: 60638005

Corresponding Staff Gauge Msmt (ft): 1.30

Client: MPCA

Field Staff: KR + RF

Weather: Sunny 50°

Creek/Channel/Stream Sketch

*moved flags downstream ~5m due to logs/grass/debris

Stream Segment Total Width = 2 m

Msmt No.	Dist to Initial Point	Depth	Velocity (measure from 1/3 of depth ***from*** the bottom)	Area	Discharge
	~~feet~~ m	feet	ft/s	ft^2	ft^3/s
1	0.3	0.76	1.4		
2	0.6	0.75	1.9		
3	1.0	0.77	2.5		
4	1.3	0.54	2.4		
5	1.6	0.52	1.6		
6	2	0.46	0.3		
7					
8					
9					
10					
11					
12					
13					

Measurement Guide

Stream Width	Number of Vertical Measurements
0' - 3'	3-5
3' - 9'	5-8
9' - 15'	8-10
15' - 30'	10-20
>30'	20

Notes

Sample Checklist

☒ Picture of Sample Location ☐ GPS'd

Location of photos: Riley's phone

SURFACE WATER SAMPLING FORM

Date and Time: 3/11/21

Sample Location ID: Post RR #1

Project Number: 60638005

Corresponding Staff Gauge Msmt (ft): 1.52

Client: MPCA

Field Staff: KR + RF

Weather: Sunny 50

Creek/Channel/Stream Sketch

Stream Segment Total Width = 3 m

Msmt No.	Dist to Initial Point	Depth	Velocity (measure from 1/3 of depth ***from*** the bottom)	Area	Discharge
	~~feet~~ m	feet	ft/s	ft^2	ft^3/s
1	0.3	1.0	0		
2	0.6	1.13	0.5		
3	1.0	1.44	0.4		
4	1.3	1.43	0.5		
5	1.6	1.42	0.8		
6	2.0	1.52	0.4		
7	2.3	1.6	0.4		
8	2.6	1.21	0.4		
9					
10					
11					
12					
13					

Measurement Guide

Stream Width	Number of Vertical Measurements
0' - 3'	3-5
3' - 9'	5-8
9' - 15'	8-10
15' - 30'	10-20
>30'	20

Notes

Sample Checklist

☑ Picture of Sample Location ☐ GPS'd

Location of photos: ~~Kaitlyn's~~ Riley's phone

SURFACE WATER SAMPLING FORM

Date and Time: 3/11/21 · 1230

Client: MPCA

Sample Location ID: RC Wetlands #1

Field Staff: RF

Project Number: 60638005

Weather: Sunny 42

Corresponding Staff Gauge Msmt (ft): 1.28

Creek/Channel/Stream Sketch

Stream Segment Total Width = 1 m

Msmt No.	Dist to Initial Point	Depth	Velocity (measure from 1/3 of depth ***from*** the bottom)	Area	Discharge
	~~feet~~ m	feet	ft/s	ft^2	ft^3/s
1	0.2	1.28	1.0		
2	0.4	1.54	1.6		
3	0.6	1.6	1.0		
4	0.8	1.4	0.2		
5					
6					
7					
8					
9					
10					
11					
12					
13					

Measurement Guide

Stream Width	Number of Vertical Measurements
0' - 3'	3-5
3' - 9'	5-8
9' - 15'	8-10
15' - 30'	10-20
>30'	20

Notes

Sample Checklist

☒ Picture of Sample Location ☐ GPS'd

Location of photos: Riley's phone

FLOW FORM

Date and Time: 4/6/2021 / 11:10

Sample Location ID: RC - intermittent 2

Project Number: 60618753

Client: MPCA

Field Staff: RF, BK

Weather: Sunny, 58°F

Creek/Channel/Stream Sketch

- there is flow but not enough to detect with flow gauge.

staff gauge measurement = 1.12 ft

Stream Segment Total Width =

Section No.	Dist to Initial Point	Width	Depth	Velocity at 0.6 D	Area	Discharge
	inches	inches	feet	ft/s	ft^2	ft^3/s
1						
2						
3						
4						
5						
6						
7						
8						
9						
10						
11						
12						
13						

Stream Width	Number of Vertical Measurements	Q = V*A
3' < 9'		
9' < 16'		
16' < 33'		

Notes

Sample Checklist

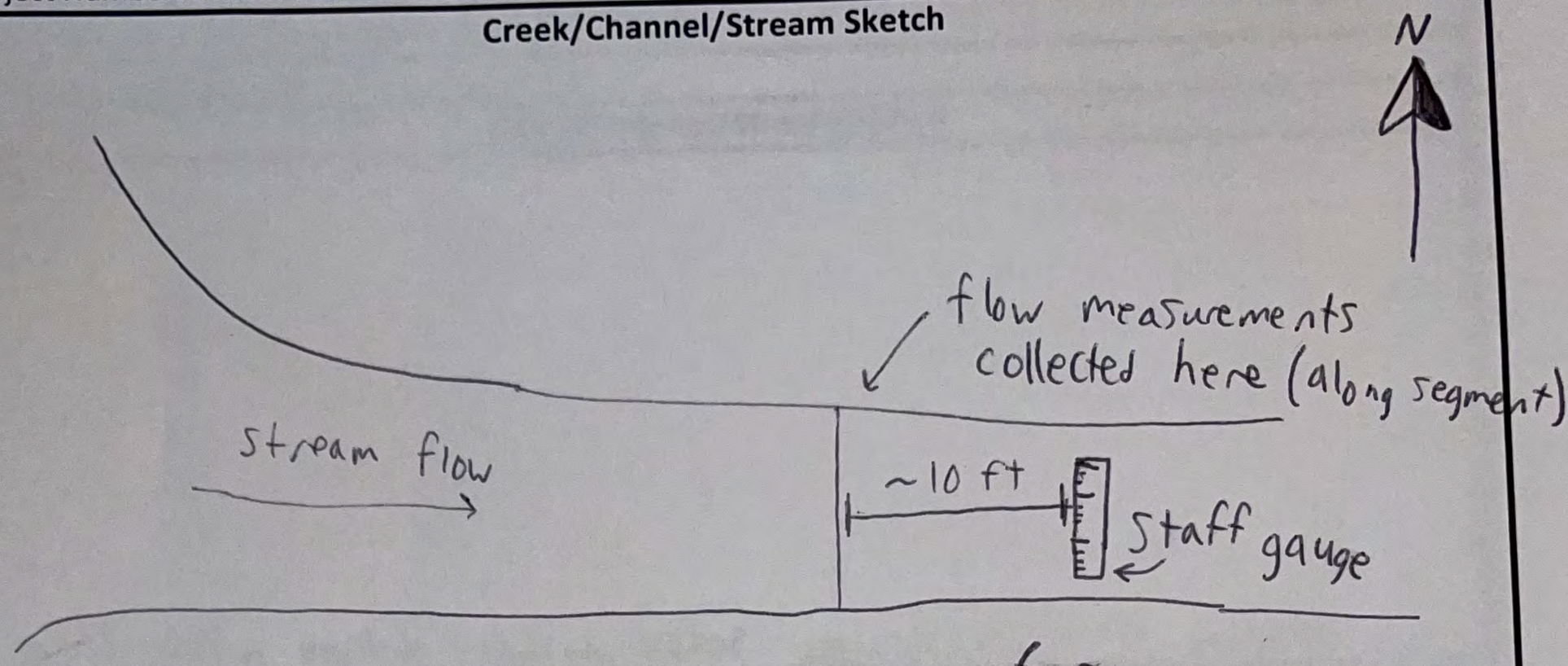
☐ Picture of Sample Location ☐ GPS'd

Location of photos:

FLOW FORM

Date and Time: 4/6/2021 0950
Client: MPCA
Sample Location ID: North Channel 1 (WL-9)
Field Staff: RF, BK
Project Number: 60618753
Weather: Sunny, 55°F

Creek/Channel/Stream Sketch



Stream Segment Total Width = 16 ft

Section No.	Dist to Initial Point	Width	Depth	Velocity at 0.6 D	Area	Discharge
	Feet ~~inches~~	inches	feet	ft/s	ft^2	ft^3/s
1	0.5		0.24	0		
2	2		0.61	0.1		
3	3.5		0.74	0.5		
4	5		0.81	0.9		
5	6.5		0.87	0.9		
6	8		0.93	1.2		
7	9.5		0.95	1.1		
8	11		0.98	1.1		
9	12.5		0.83	0.6		
10	14		0.59	0.3		
11	15.5		0.26	0		
12						
13						

Stream Width	Number of Vertical Measurements	Q = V*A
3' < 9'		
9' < 16'		
16' < 33'		

Notes

Sample Checklist

☐ Picture of Sample Location ☐ GPS'd

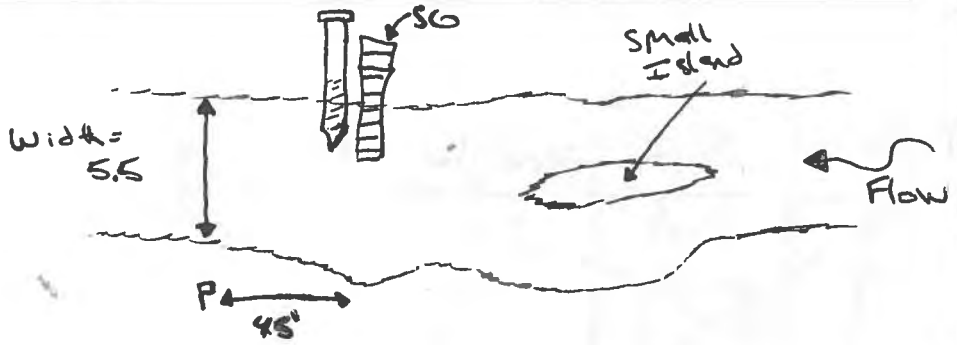
Location of photos:

* staff gauge reinstalled measurement: 1.02 ft

SURFACE WATER SAMPLING FORM

Date and Time: 4-26-21 / 1330
Client: MPCA
Sample Location ID: RC Wetlands 2
Field Staff: BK and GS
Project Number: 60638005
Weather: 46°F Cloudy
Corresponding Staff Gauge Msmt (ft): 0.79

Creek/Channel/Stream Sketch



Stream Segment Total Width = 5.5

Msmt No.	Dist to Initial Point	Depth	Velocity (measure from 1/3 of depth *from* the bottom)	Area	Discharge
	feet	feet	ft/s	ft^2	ft^3/s
1	0.75	0.590	0.5		
2	1.5	0.68	0.6		
3	2.25	0.6	0.3		
4	3.0	0.75	0.5		
5	3.75	0.63	0.6		
6	4.5	0.61	0.4		
7					
8					
9					
10					
11					
12					
13					

Measurement Guide

Stream Width	Number of Vertical Measurements
0' - 3'	3-5
3' - 9'	5-8
9' - 15'	8-10
15' - 30'	10-20
>30'	20

Notes

0.79 on 4/26/21 dropped to 0.44 on 4/27/21 flow remeasured, see back of form

Sample Checklist

☒ Picture of Sample Location ☐ GPS'd

Location of photos:

Turn over →

4-27-2021 / 1650
RC Wetlands 2
Staff Gauge = 0.44'
Stream Width = 5.0'

Distance	Depth	Velocity
0.5	0.15	0
1.0	0.25	
1.5	(GS)	
2.0		
2.5		
0.75	0.25	0
1.5	0.32	0.6
2.25	0.33	0.2
3.0	0.38	0.4
3.75	0.34	0.5
4.5	0.25	0.3
(GS) ~~5.25~~		

4-28-2021/0945
RC Wetlands 2
Staff Gauge = 0.60'
Stream Width = 5.5'

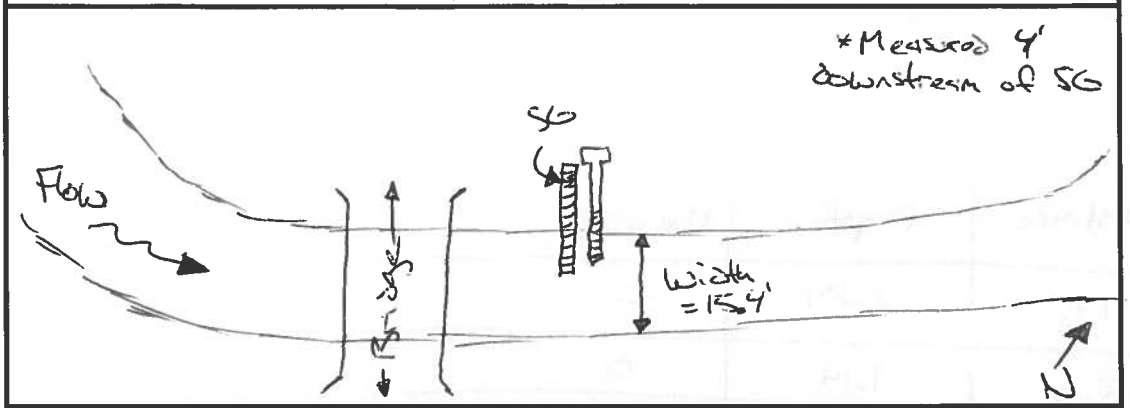
GS & BK
58°F Sunny

Distance (ft)	Depth (ft)	Velocity (Ft/s)
0.75	0.37	0.3
1.5 ~~0.50~~	0.5 ~~0.8~~	0.8
2.25	0.48	0.2
3	0.58	0.3
3.75	0.47	0.6
~~4.5~~	0.43	0.3

SURFACE WATER SAMPLING FORM

Date and Time: 4-26-2021 / 1620
Client: MPCA
Sample Location ID: RC Intermittent 1
Field Staff: GS and BK
Project Number: 60638005
Weather: 46°F Light Rain
Corresponding Staff Gauge Msmt (ft): 0.84'

Creek/Channel/Stream Sketch



Stream Segment Total Width = 15.4'

Msmt No.	Dist to Initial Point	Depth	Velocity (measure from 1/3 of depth *from* the bottom)	Area	Discharge
	feet	feet	ft/s	ft^2	ft^3/s
1	1.5	0.73	0		
2	3.0	1.01	0		
3	4.5	1.03	0		
4	6.0	1.0	0		
5	7.5	0.82	0		
6	9.0	0.75	0		
7	10.5	0.58	0		
8	12.0	0.51	0		
9	13.5	0.44	0		
10					
11					
12					
13					

Measurement Guide

Stream Width	Number of Vertical Measurements
0' - 3'	3-5
3' - 9'	5-8
9' - 15'	8-10
15' - 30'	10-20
>30'	20

Notes

Sample Checklist

☒ Picture of Sample Location ☐ GPS'd

Location of photos:

Flow Remeasured 4-28-21

4-28-21 / 1040

GS & BK

50°F Sunny

RC Intermittent 1

Staff Gauge: 1.01'

Stream Width: 15'

Distance	Depth	Velocity
1.5	0.84	0
3.0	1.14	0
4.5	1.19	0
6.0	1.17	0.1
7.5	0.98	0.3
9.0	0.94	0.3
10.5	0.77	0.1
12 ~~13.0~~ (GS)	0.71	0.1
13.5	0.60	0

* Same location measurements as 4-26-21

SURFACE WATER SAMPLING FORM

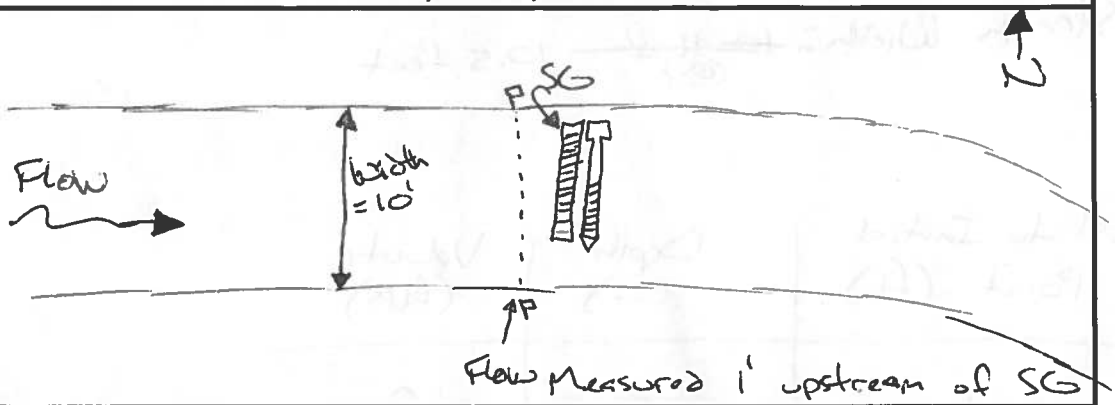
Date and Time: 4-26-21 / 1546 Client: MPCA

Sample Location ID: RC Intermittent 2 Field Staff: GS and BK

Project Number: 60638005 Weather: 48°F Rain

Corresponding Staff Gauge Msmt (ft): 1.05

Creek/Channel/Stream Sketch



Stream Segment Total Width = 10.5

Msmt No.	Dist to Initial Point	Depth	Velocity (measure from 1/3 of depth *from* the bottom)	Area	Discharge
	feet	feet	ft/s	ft^2	ft^3/s
1	1	0.44	0		
2	2	0.41	0		
3	3	0.49	0		
4	4	0.61	0		
5	5	0.70	0		
6	6	0.60	0		
7	7	0.68	0		
8	8	0.64	0		
9	9	0.51	0		
10					
11					
12					
13					

Measurement Guide

Stream Width	Number of Vertical Measurements
0' - 3'	3-5
3' - 9'	5-8
9' - 15'	8-10
15' - 30'	10-20
>30'	20

Notes

Sample Checklist

☒ Picture of Sample Location ☐ GPS'd

Location of photos:

Measured Again on 4-28-21

4-28-2021 / 1005

GS & BK

45°F Sunny

RC Intermittent 2

Staff Gauge: 1.27'

Stream Width: ~~10 11 ft~~ (GS) 10.5 feet

Dist to Initial Point (ft)	Depth (ft)	Velocity (ft/s)
1	0.54	0
2	0.75	0
3	0.85	0
4	0.86	0.2
5	0.93	0.2
6	0.97	~~0.2~~ (GS) 0.4
7	0.83	1.0
8	0.76	0.8
9	0.68	0.4
10	0.48	0

SURFACE WATER SAMPLING FORM

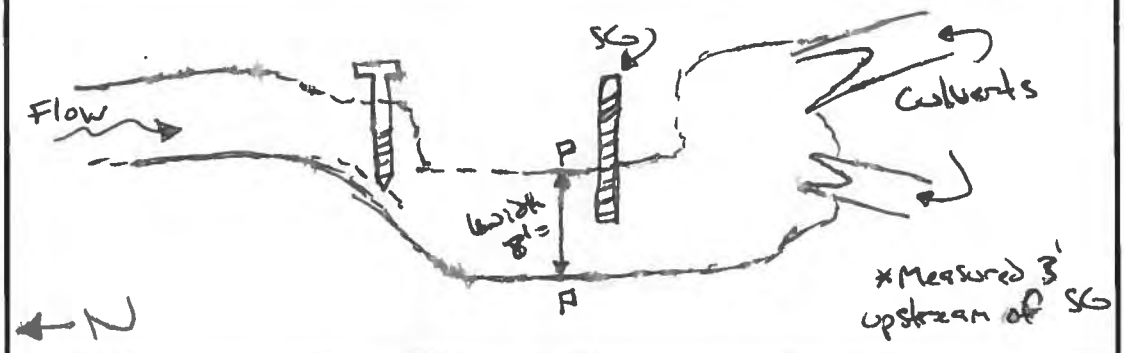
Date and Time: 4-26-21 / 1600 Client: MPCA

Sample Location ID: RC Intermittent 3 Field Staff: GS and BK

Project Number: 60638005 Weather: 46°F Rain

Corresponding Staff Gauge Msmt (ft): 0.49'

Creek/Channel/Stream Sketch



Stream Segment Total Width = 8'

Msmt No.	Dist to Initial Point	Depth	Velocity (measure from 1/3 of depth *from* the bottom)	Area	Discharge
	feet	feet	ft/s	ft^2	ft^3/s
1	1	0.30	0		
2	2	0.45	0		
3	3	0.72	0		
4	4	0.67	0		
5	5	0.72	0		
6	6	0.63	0		
7	7	0.69	0		
8					
9					
10					
11					
12					
13					

Measurement Guide

Stream Width	Number of Vertical Measurements
0' - 3'	3-5
3' - 9'	5-8
9' - 15'	8-10
15' - 30'	10-20
>30'	20

Notes

Sample Checklist

☒ Picture of Sample Location ☐ GPS'd

Location of photos:

Flow Remeasured 4-28-21

4-28-2021 | 1130

GS & BK

RC ~~Intermittent~~ 3

52°F Partly Sunny

Staff Gauge: 0.7'

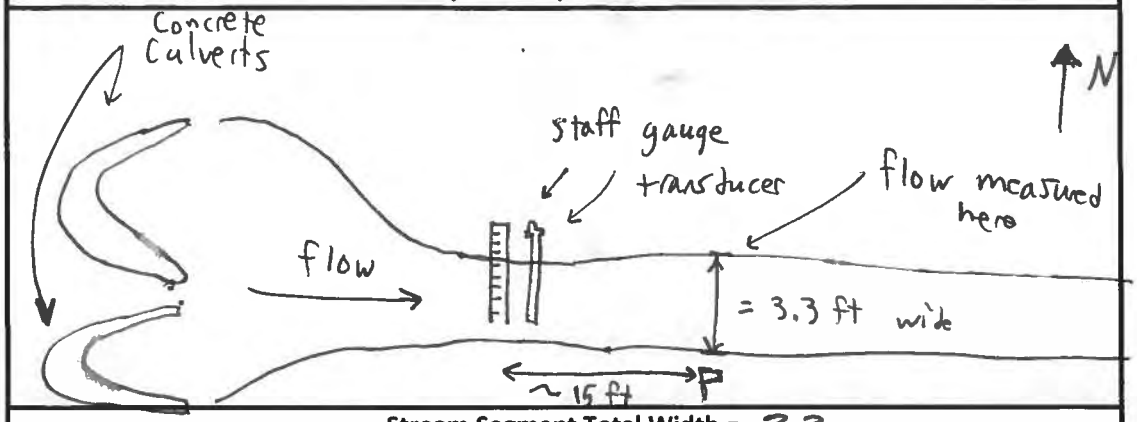
Stream Width: 8'

(ft) Distance	(ft) Depth	(ft/s) Velocity
1	0.92	0.5
2	0.89	0.6
3	0.86	0.7
4	0.86	0.6
5	0.94	0.4
6	0.76	0.2
7	0.35	0.3

SURFACE WATER SAMPLING FORM

Date and Time: 4/26/21 1225
Client: MPCA
Sample Location ID: RC Wetland 51
Field Staff: BK and GS
Project Number: 60638005
Weather: Cloudy, 45°F
Corresponding Staff Gauge Msmt (ft): 0.47

Creek/Channel/Stream Sketch



Stream Segment Total Width = 3.3

Msmt No.	Dist to Initial Point	Depth	Velocity (measure from 1/3 of depth *from* the bottom)	Area	Discharge
	feet	feet	ft/s	ft^2	ft^3/s
1	1	0.42	0.4		
2	2	0.68	0.5		
3	3	0.53	0.0		
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					

Measurement Guide

Stream Width	Number of Vertical Measurements
0' - 3'	(3)-5
3' - 9'	5-8
9' - 15'	8-10
15' - 30'	10-20
>30'	20

Notes

Sample Checklist

☑ Picture of Sample Location ☐ GPS'd

Location of photos:

picture taken 1246 by GS

Measured Again on 4-28-21

4-28-2021 | 1625 GS & BK

RC Wetlands 1

Staff Gauge = 0.6'

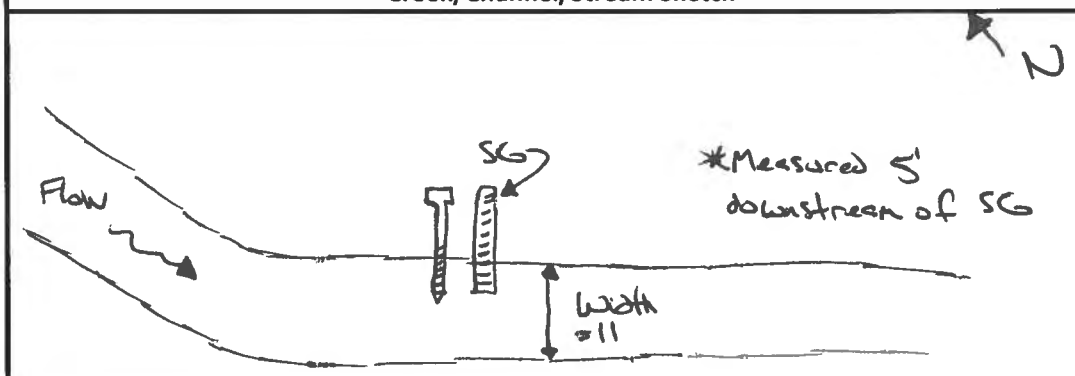
Stream Width = 3.3'

Dist. (ft)	Depth (ft)	Velocity (ft/s)
1	0.69	1.0
2	0.38	1.1
3	0.37	0.2

SURFACE WATER SAMPLING FORM

Date and Time: 4-26-21 1700
Client: MPCA
Sample Location ID: RC Confluence 1
Field Staff: GS and RK
Project Number: 60638005
Weather: 46°F
Corresponding Staff Gauge Msmt (ft): 1.1

Creek/Channel/Stream Sketch



Stream Segment Total Width = 11.0'

Msmt No.	Dist to Initial Point	Depth	Velocity (measure from 1/3 of depth ***from*** the bottom)	Area	Discharge
	feet	feet	ft/s	ft^2	ft^3/s
1	1	0.2	0		
2	2	0.65	0.2		
3	3	1.06	0.2		
4	4	1.08	0.4		
5	5	1.18	0.3		
6	6	1.09	0.4		
7	7	1.01	0.4		
8	8	0.78	0		
9	9	0.63	0.2		
10					
11					
12					
13					

Measurement Guide

Stream Width	Number of Vertical Measurements
0' - 3'	3-5
3' - 9'	5-8
9' - 15'	8-10
15' - 30'	10-20
>30'	20

Notes

Sample Checklist

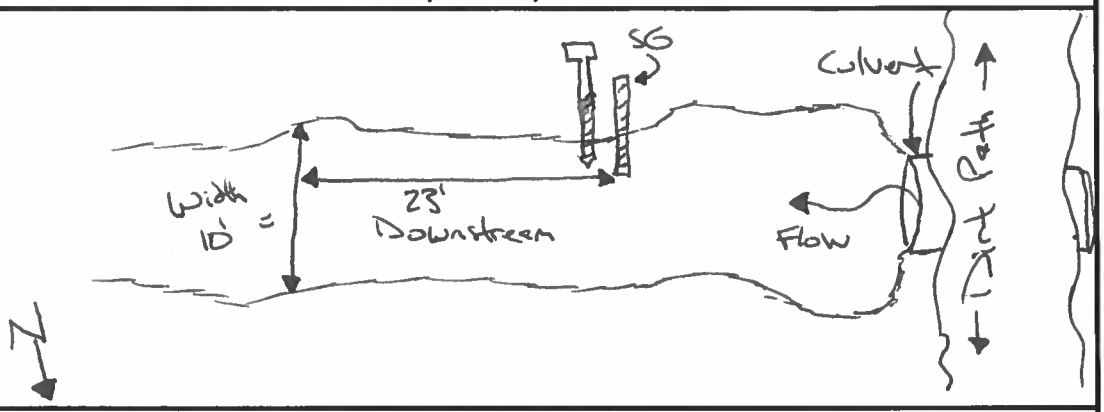
☒ Picture of Sample Location ☐ GPS'd

Location of photos:

SURFACE WATER SAMPLING FORM

Date and Time: 4-26-21 / 1748
Client: MPCA
Sample Location ID: RC Confluence 2
Field Staff: GS and BK
Project Number: 60638005
Weather: 44°F overcast
Corresponding Staff Gauge Msmt (ft): 1.51

Creek/Channel/Stream Sketch



Stream Segment Total Width = 10.0'

Msmt No.	Dist to Initial Point	Depth	Velocity (measure from 1/3 of depth *from* the bottom)	Area	Discharge
	feet	feet	ft/s	ft^2	ft^3/s
1	1	0.75	0.2		
2	2	0.69	0.3		
3	3	0.89	0.4		
4	4	0.93	0.3		
5	5	0.91	0.5		
6	6	0.87	0.5		
7	7	0.89	0.4		
8	8	0.92	0.5		
9	9	0.91	0.3		
10					
11					
12					
13					

Measurement Guide

Stream Width	Number of Vertical Measurements
0' - 3'	3-5
3' - 9'	5-8
9' - 15'	8-10
15' - 30'	10-20
>30'	20

Notes

Sample Checklist

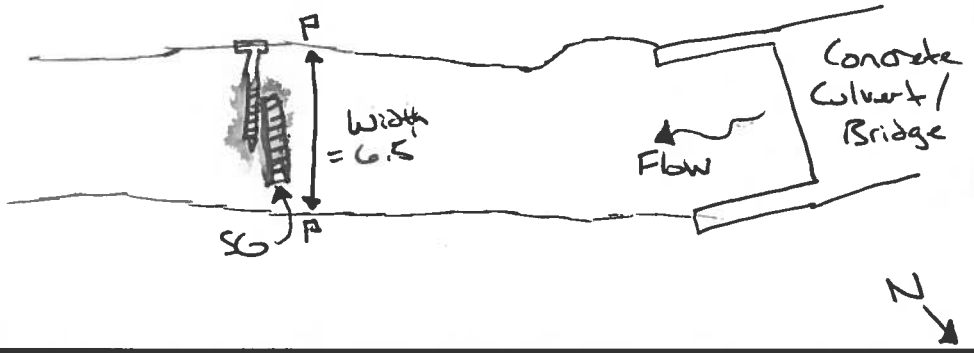
☒ Picture of Sample Location ☐ GPS'd

Location of photos:

SURFACE WATER SAMPLING FORM

Date and Time: 4-26-21 | 1423
Client: MPCA
Sample Location ID: RC Pond System 1
Field Staff: GS and BK
Project Number: 60638005
Weather: Cloudy, 48°F
Corresponding Staff Gauge Msmt (ft): 1.07'

Creek/Channel/Stream Sketch



Stream Segment Total Width = 6.5 ft

Msmt No.	Dist to Initial Point	Depth	Velocity (measure from 1/3 of depth *from* the bottom)	Area	Discharge
	feet	feet	ft/s	ft^2	ft^3/s
1	1	1.08	0.8		
2	2	1.02	0.4		
3	3	1.06	0		
4	4	0.96	0		
5	5	0.78	0		
6	6	<0.3	0		
7					
8					
9					
10					
11					
12					
13					

Measurement Guide

Stream Width	Number of Vertical Measurements
0' - 3'	3-5
3' - 9'	5-8
9' - 15'	8-10
15' - 30'	10-20
>30'	20

Notes

Sample Checklist

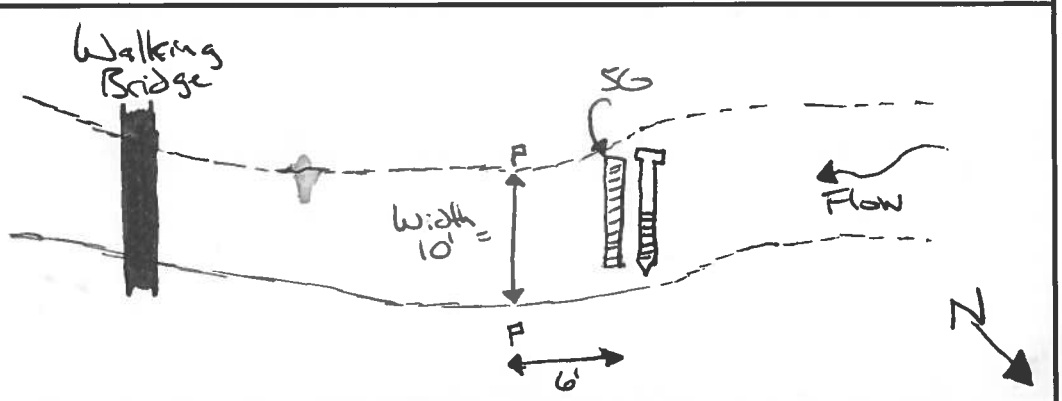
☒ Picture of Sample Location ☐ GPS'd

Location of photos:

SURFACE WATER SAMPLING FORM

Date and Time: 4-26-21 1400
Client: MPCA
Sample Location ID: RC Post RR1
Field Staff: GS and BK
Project Number: 60638005
Weather: 46°F Cloudy
Corresponding Staff Gauge Msmt (ft): 1.28'

Creek/Channel/Stream Sketch



Stream Segment Total Width = 10'

Msmt No.	Dist to Initial Point	Depth	Velocity (measure from 1/3 of depth *from* the bottom)	Area	Discharge
	feet	feet	ft/s	ft^2	ft^3/s
1	1	0.85	0		
2	2	1.24	0		
3	3	1.26	0		
4	4	1.17	0		
5	5	1.14	0.1		
6	6	1.07	0		
7	7	1.08	0		
8	8	1.14	0		
9	9	0.73	0		
10					
11					
12					
13					

Measurement Guide

Stream Width	Number of Vertical Measurements
0' - 3'	3-5
3' - 9'	5-8
9' - 15'	8-10
15' - 30'	10-20
>30'	20

Notes

Under cut bank on north side of channel

Sample Checklist

☒ Picture of Sample Location ☐ GPS'd

Location of photos:

SURFACE WATER SAMPLING FORM

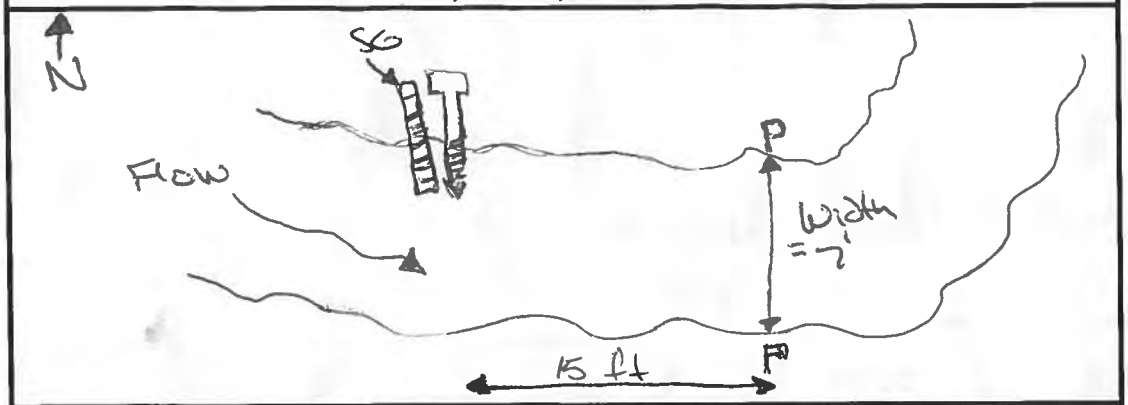
Date and Time: 4-26-21 / 1521 Client: MPCA

Sample Location ID: IZC Pond System 2 Field Staff: GS and BK

Project Number: 60638005 Weather: 48°F Rain

Corresponding Staff Gauge Msmt (ft): 0.86

Creek/Channel/Stream Sketch



Stream Segment Total Width = 7'

Msmt No.	Dist to Initial Point	Depth	Velocity (measure from 1/3 of depth *from* the bottom)	Area	Discharge
	feet	feet	ft/s	ft^2	ft^3/s
1	1 / 0.1 → ~~0.3~~		0		
2	2 / 0.1 → ~~0.3~~		0.7		
~~3~~	~~0.1 → 0.3~~				
4	3	0.2	1.7		
5	4	0.31	1.1		
6	5	0.42	0.8		
7	6	0.25	1.0		
8					
9					
10					
11					
12					
13					

GS

Measurement Guide

Stream Width	Number of Vertical Measurements
0' - 3'	3-5
3' - 9'	5-8
9' - 15'	8-10
15' - 30'	10-20
>30'	20

Notes

Sample Checklist

☒ Picture of Sample Location ☐ GPS'd

Location of photos:

Flow Remeasured 4-28-21

4-28-21 GS & BK

RC Pond System 2

Staff Gauge: 1.01'

Stream Width: 7

Distance (ft)	Depth (ft)	Velocity (ft/s)
1	0.44	0.9
2	0.5	2.2
3	0.44	2.1
4	0.39	1.8
5	~ 0.25	1.6
6	~ 0.20	0.5

*Rope Length = 65 1/2" (65 5/8")

Discharge Pipes - Flow

FLOW FORM - CHECKLIST

Date: 4-27-2021 | 1245
Client: MPCA
Project Number: 60638005
Field Staff: GS & CK
Weather: 47°F Mostly Cloudy

~~Water Level Only Locations~~

- ☐ 1. Lake Olson:
- ☐ 2. Lake Jane:
- ☐ 3. RC22 Pond:
- ☐ 4. RC23 Pond:
- ☐ 5. Goose Lake:
- ☐ 6. Eagle Point Lake:
- ☐ 7. DG Eagle #3:
- ☐ 8. Margaret Lake:
- ☐ 9. Browns Pond:
- ☐ 10. Park Pond:
- ☐ 11. *Lake Elmo:
- ☐ 12. Sunfish Lake:
- ☐ 13. Downs Lake:
- ☐ 14. Tartan Pond:
- ☐ 15. Horseshoe Lake:
- ☐ 16. North Pond:
- ☐ 17. Middle Pond:
- ☐ 18. South Pond:
- ☐ 19. *Lake Edith:

GS

*not gaugeable yet

Regular or Low Flow Conditions Rquired

- ☐ 1. RC Wetlands #1 (RC3):
- ☐ 2. RC Wetlands #2 (RC2):
- ☐ 3. RC Confluence #1 (RC21):
- ☐ 4. RC Confluence #2 (RC18):
- ☐ 5. DG Eagle #1 (EP4):
- ☐ 6. DG Elmo #1 (EP12):
- ☐ 7. DG Elmo #2 (EP16):
- ☐ 8. DG Horseshoe #1 (WL6):
- ☐ 9. DG Horseshoe #2 (WL7):
- ☐ 10. North Channel #1 (WL9 - **1 hr prop owner call, Wed 9 AM**):
- ☐ 11. North Channel #2 (WL11 - property owner text):

Location	Velocity (ft/s)
- North Pipe (Smaller)	= 0.8
- South Pipe (Bigger)	= 0.4

* Both fully Submerged

~~High Flow Conditions (Recent Rain) Rquired~~

- ☐ 1. RC Post RR #1 (RC7A):
- ☐ 2. RC Pond System #1 (across road from RC7):
- ☐ 3. RC Pond System #2 (RC9):
- ☐ 4. RC Intermittent #1 (RC10):
- ☐ 5. RC Intermittent #2 (RC11):
- ☐ 6. RC Intermittent #3 (culvert by road, near RC12):

GS

Checklist / Reminder

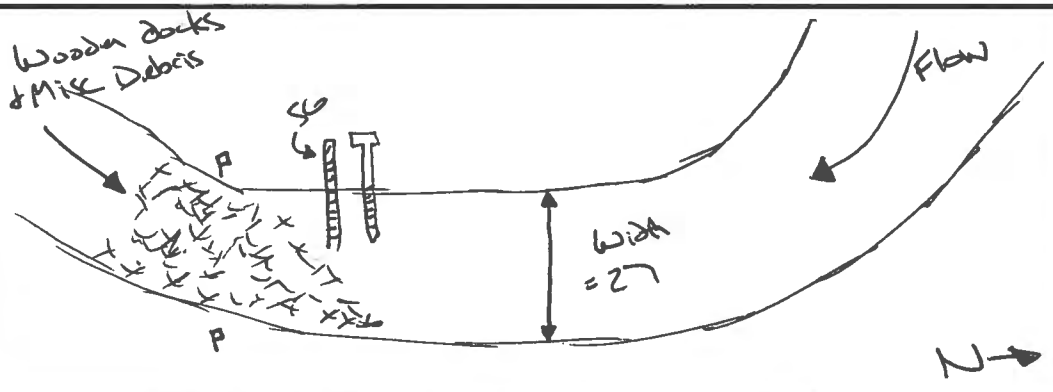
- ☒ Picture of Sample Location
- ☐ Upload Pictures and Forms and Enter Data in Tables within 2 Weeks

* Out of Surface Water Sampling Forms

SURFACE WATER SAMPLING FORM

Date and Time: 4-27-21 / 1419	Client: MPCA
Sample Location ID: DG Elmo 2	Field Staff: GS & BK
Project Number: 60638005	Weather: 47°F
Corresponding Staff Gauge Msmt (ft): 2.05	Cloudy

Creek/Channel/Stream Sketch



Stream Segment Total Width = 27 feet

Msmt No.	Dist to Initial Point	Depth	Velocity (measure from 1/3 of depth ***from*** the bottom)	Area	Discharge
	feet	feet	ft/s	ft^2	ft^3/s
1	2	1.04	0		
2	4	1.70	0		
3	6	2.36	0		
4	8	2.32	0		
5	10	2.62	0.1		
6	12	2.73	0		
7	14	2.84	0		
8	16	2.91	0		
9	18	2.96	0		
10	20	2.69	0		
11	22	2.28	0		
12	24	1.51	0		
13	26	0.48	0		

Measurement Guide

Stream Width	Number of Vertical Measurements
0' - 3'	3-5
3' - 9'	5-8
9' - 15'	8-10
15' - 30'	10-20
>30'	20

Notes

Due to debris in the stream, flow measured 15 ft upstream of staff gauge (SG)

Sample Checklist

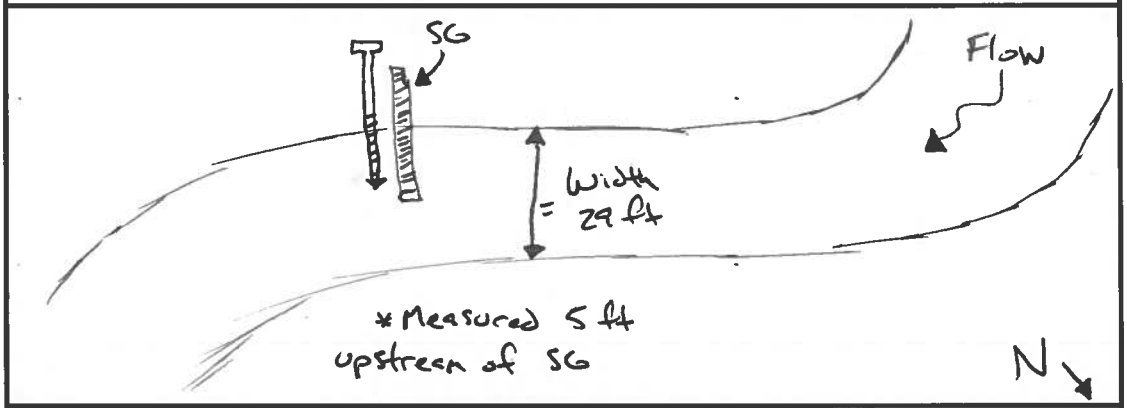
☒ Picture of Sample Location ☐ GPS'd

Location of photos:

SURFACE WATER SAMPLING FORM

Date and Time: 4-27-21 1240
Client: MPCA
Sample Location ID: DG Elmo 1
Field Staff: GS & BK
Project Number: 60638005
Weather:
Corresponding Staff Gauge Msmt (ft): 2.27
Cloudy

Creek/Channel/Stream Sketch



Stream Segment Total Width = 29 ft

Msmt No.	Dist to Initial Point	Depth	Velocity (measure from 1/3 of depth *from* the bottom)	Area	Discharge
	feet	feet	ft/s	ft^2	ft^3/s
1	2	0.7	0		
2	4	1.79	0		
3	6	1.91	0.1		
4	8	2.25	0		
5	10	2.29	0		
6	12	2.25	0		
7	14	2.31	0		
8	16	2.3	0		
9	~~18~~	~~2.3~~			(GS)
10	18 ~~20~~	2.25	0		
11	20 ~~22~~	2.20	0		
12	22 ~~24~~	2.14	0		
13	24 ~~26~~	1.82	0		
	26 ~~28~~	1.35	Measurement Guide 0		

Dist	D.	V.
28	0.48	0

Stream Width	Number of Vertical Measurements
0' - 3'	3-5
3' - 9'	5-8
9' - 15'	8-10
15' - 30'	10-20
>30'	20

Notes

Sample Checklist

☒ Picture of Sample Location ☐ GPS'd

Location of photos:

SURFACE WATER SAMPLING FORM

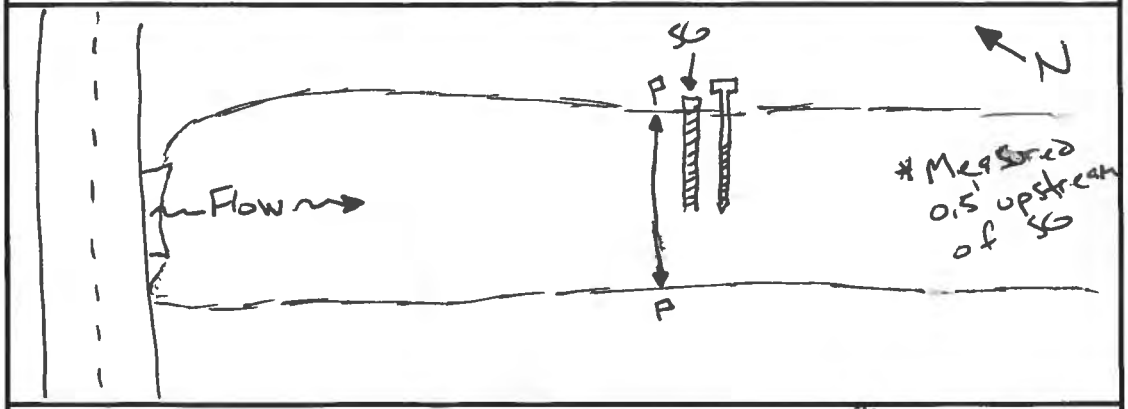
Date and Time: 4-27-21 | 1147 | Client: MPCA

Sample Location ID: DG Horseshoe 1 | Field Staff: GS & RK

Project Number: 60638005 | Weather: Light Rain

Corresponding Staff Gauge Msmt (ft): 1.69'

Creek/Channel/Stream Sketch



Stream Segment Total Width = 22 ft

Msmt No.	Dist to Initial Point	Depth	Velocity (measure from 1/3 of depth ***from*** the bottom)	Area	Discharge
	feet	feet	ft/s	ft^2	ft^3/s
1	2	0.51	0		
2	4	1.08	0		
3	6	1.42	0		
4	8	1.71	0		
5	10	1.87	0.4		
6	12	1.79	1.5		
7	14	1.87	0.6		
8	16	1.61	0		
9	18	1.65	0		
10	20	0.51	0		
11					
12					
13					

Measurement Guide

Stream Width	Number of Vertical Measurements
0' - 3'	3-5
3' - 9'	5-8
9' - 15'	8-10
15' - 30'	10-20
>30'	20

Notes

Sample Checklist

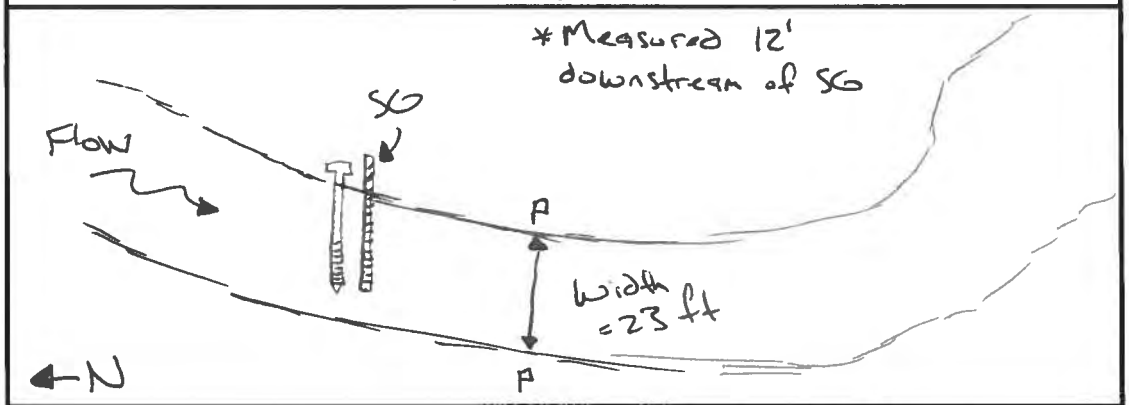
☑ Picture of Sample Location ☐ GPS'd

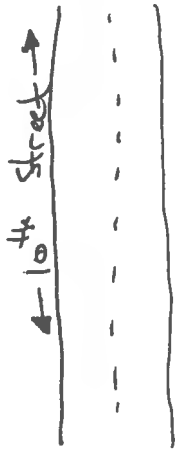
Location of photos:

SURFACE WATER SAMPLING FORM

Date and Time: 4-22-24 | 1031
Client: MPCA
Sample Location ID: DG Horseshoe 2
Field Staff: GS and BK
Project Number: 60638005
Weather: 46°F Partly Cloudy
Corresponding Staff Gauge Msmt (ft): 1.88

Creek/Channel/Stream Sketch





Stream Segment Total Width = 23 ft

Msmt No.	Dist to Initial Point	Depth	Velocity (measure from 1/3 of depth *from* the bottom)	Area	Discharge
	feet	feet	ft/s	ft^2	ft^3/s
1	2	0.74	0		
2	4	~~0.74~~ (GS)	0		
3	6	1.69	0		
4	8	1.92	0		
5	10	2.08	1.0		
6	12	1.99	0.7		
7	14	1.76	0		
8	16	1.69	0		
9	18	1.47	0		
10	20	0.81	0		
11	22	0.44	0		
12					
13					

Depth = 1.2'

Measurement Guide

Stream Width	Number of Vertical Measurements
0' - 3'	3-5
3' - 9'	5-8
9' - 15'	8-10
15' - 30'	10-20
>30'	20

Notes

Sample Checklist

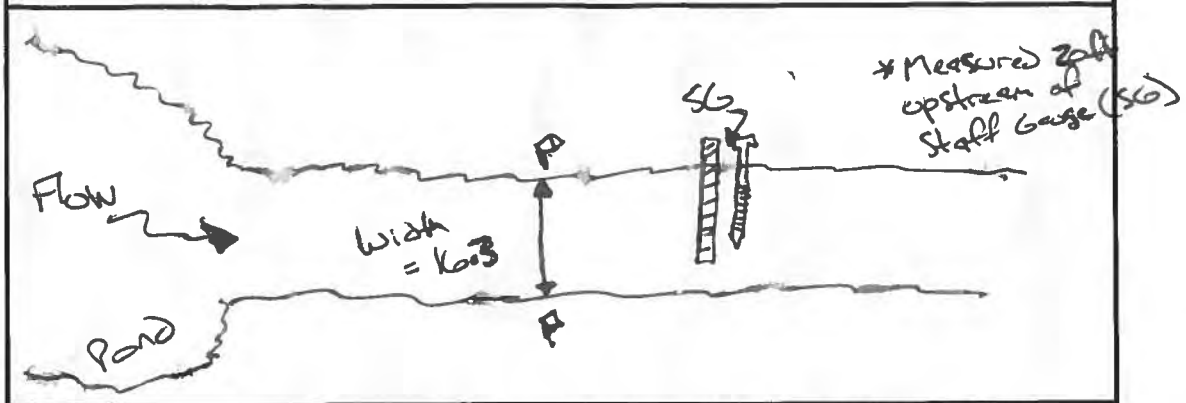
☒ Picture of Sample Location ☐ GPS'd

Location of photos:

SURFACE WATER SAMPLING FORM

Date and Time: 4/27/24 / 0957
Client: MPCA
Sample Location ID: North Channel 1
Field Staff: GS and BK
Project Number: 60638005
Weather: Cloudy 42°F
Corresponding Staff Gauge Msmt (ft): 1.04 ft

Creek/Channel/Stream Sketch



Stream Segment Total Width = ~~17.5~~ 16.3

Msmt No.	Dist to Initial Point	Depth	Velocity (measure from 1/3 of depth *from* the bottom)	Area	Discharge
	feet	feet	ft/s	ft^2	ft^3/s
1	1	0.25	0.1		
2	2	0.58	0.3		
3	3	0.74	0.6		
4	4	0.83	0.9		
5	5	0.91	1.6		
6	6	0.96	1.0		
7	7	0.94	1.0		
8	8	0.96	1.1		
9	9	0.96	0.89		
10	10	0.89	1.0		
11	11	0.83	0.9		
12	12	0.76	0.7		
13	13	0.77	0.6		

St.	D.	V.
14	0.59	0.4
15	0.45	0.59

Measurement Guide

Stream Width	Number of Vertical Measurements
0' - 3'	3-5
3' - 9'	5-8
9' - 15'	8-10
15' - 30'	10-20
>30'	20

Notes

Transducer Notes = Rope Length: 6.5' - ~~5~~ 0.36' = Installation

Sample Checklist

☒ Picture of Sample Location ☐ GPS'd

Location of photos:

BM = 973.68
Backsite = 2.33
TOC = Laser - FS = +0.75 (inches)
FS = 1.2

FLOW FORM

Date and Time: 5/18/21 15:25
Client: MPCA
Sample Location ID: RC Confluence #1
Field Staff: CK JM
Project Number: 60638005
Weather: 70° cloudy
Corresponding Staff Gauge Msmt (ft): 1.0 ft

Creek/Channel/Stream Sketch

11 FEET WIDE

Stream Segment Total Width =

Msmt No.	Dist to Initial Point	Depth	Velocity (measure from 1/3 of depth ***from*** the bottom)	Area	Discharge
	feet	feet	ft/s	ft^2	ft^3/s
1	1	0.2	0		
2	2	0.56	0.3		
3	3	0.72	0		
4	4	0.92	0		
5	5	0.90	0.2		
6	6	1.02	0.2		
7	7	0.98	0		
8	8	0.96	0		
9	9	0.74	0		
10					
11					
12					
13					

Measurement Guide

Stream Width	Number of Vertical Measurements
0' - 3'	3-5
3' - 9'	5-8
9' - 15'	8-10
15' - 30'	10-20
>30'	20

Notes

Sample Checklist

☐ Picture of Sample Location ☐ GPS'd

Location of photos: Camera

Flow

~~SURFACE WATER SAMPLING FORM~~

Date and Time: 4/23/21 1645 Client: MPCA

Sample Location ID: Discharge pipes Field Staff: AS / AJ

Project Number: 60638005 Weather: Overcast 50's

Corresponding Staff Gauge Msmt (ft): N/A

Creek/Channel/Stream Sketch

Biggie pipe (southern pipe) - EPL : 0.4

Smaller pipe (northern) - Lake Elmo Pipe : 0.8

~~both fully submerged : 0.8~~

Stream Segment Total Width =

Msmt No.	Dist to Initial Point	Depth	Velocity (measure from 1/3 of depth *from* the bottom)	Area	Discharge
	feet	feet	ft/s	ft^2	ft^3/s
1					
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					

Measurement Guide

Stream Width	Number of Vertical Measurements
0' - 3'	3-5
3' - 9'	5-8
9' - 15'	8-10
15' - 30'	10-20
>30'	20

Notes

Sample Checklist

☑ Picture of Sample Location ☐ GPS'd

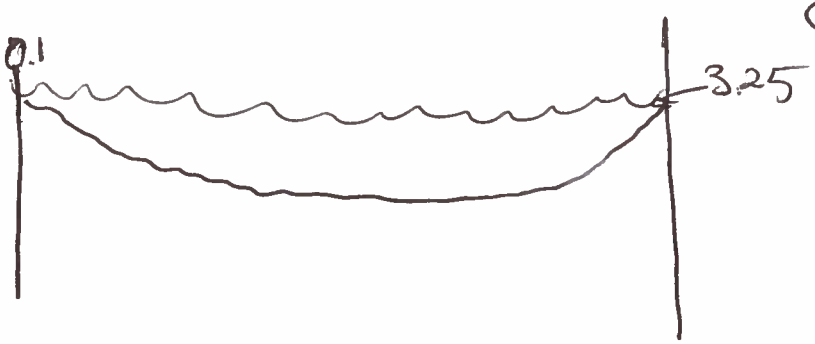
Location of photos: On phone

Flow

~~SURFACE WATER SAMPLING FORM~~

Date and Time: 4/23/21
Client: MPCA
Sample Location ID: Confluence #1
Field Staff: AS/AL
Project Number: 60638005
Weather: Overcast
Corresponding Staff Gauge Msmt (ft): 1.08 ft

Creek/Channel/Stream Sketch



0.1 – 3.25
10 msmts
-at 0.315 increments

Stream Segment Total Width =

starting at 0.1 ft along tape

Msmt No.	Dist to Initial Point ~~feet~~ Meters	Depth ~~feet~~ cm	Velocity (measure from 1/3 of depth *from* the bottom) ft/s	Area ft^2	Discharge ft^3/s
1	0.475	19	0.0		
2	0.730	26.2	0.0		
3	1.045	35.3	0.1		
4	1.36	37.5	0.4		
5	1.675	36	0.5		
6	1.99	36.5	0.3		
7	2.305	28	0.0		
8	2.62	27	0.0		
9	2.935	16.5	0.3		
10	3.25				
11					
12					
13					

Measurement Guide

Stream Width	Number of Vertical Measurements
0' - 3'	3-5
3' - 9'	5-8
9' - 15'	8-10
15' - 30'	10-20
>30'	20

Notes

Sample Checklist
☑ Picture of Sample Location ☐ GPS'd
Location of photos: Amanda phone

Flow

SURFACE WATER SAMPLING FORM

Date and Time: 4/22/21 Client: MPCA

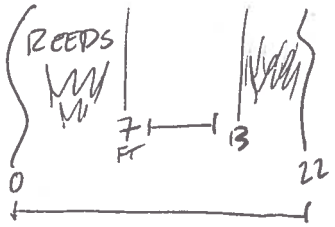
Sample Location ID: HORSESHOE 1 (CHURCH) Field Staff: CK KR

Project Number: 60638005 Weather: 60 Sun

Corresponding Staff Gauge Msmt (ft): 1.68

Creek/Channel/Stream Sketch

22 FEET WIDE



Total channel width = 22 FT
Channel width between reeds is 8 FEET
↳ Starts 7 FEET IN FROM BANK

6

Stream Segment Total Width =

Msmt No.	Dist to Initial Point	Depth	Velocity (measure from 1/3 of depth *from* the bottom)	Area	Discharge
	feet	feet	ft/s	ft^2	ft^3/s
1	1	1.92	0.7		
2	2	1.94	1.0		
3	3	1.96	0.7		
4	4	1.88	0.4		
5	5	2.0	0.2		
6					
7					
8					
9					
10					
11					
12					
13					

Measurement Guide

Stream Width	Number of Vertical Measurements
0' - 3'	3-5
3' - 9'	5-8
9' - 15'	8-10
15' - 30'	10-20
>30'	20

Notes

Sample Checklist

☒ Picture of Sample Location ☐ GPS'd

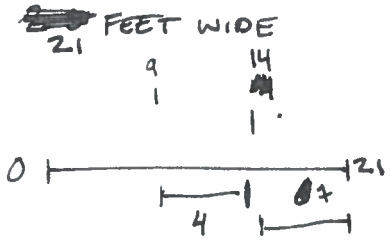
Location of photos: Camera @ 2:41 pm

Flow

SURFACE WATER SAMPLING FORM

Date and Time: 4/22/21 @ 2:50pm
Client: MPCA
Sample Location ID: HORSESHOE 2 (CULVERT)
Field Staff: CK KR
Project Number: 60638005
Weather: 60 Sun
Corresponding Staff Gauge Msmt (ft): 1.8 FT

Creek/Channel/Stream Sketch



Stream Segment Total Width =

Msmt No.	Dist to Initial Point	Depth	Velocity (measure from 1/3 of depth *from* the bottom)	Area	Discharge
	feet	feet	ft/s	ft^2	ft^3/s
1	9	2.02	0		
2	10	2.0	0		
3	11	2.02	1.0		
4	12	2.04	0.7		
5	13	2.0	0.3		
6	14	1.98	0.1		
7					
8					
9					
10					
11					
12					
13					

Measurement Guide

Stream Width	Number of Vertical Measurements
0' - 3'	3-5
3' - 9'	5-8
9' - 15'	8-10
15' - 30'	10-20
>30'	20

Notes

Sample Checklist

☐ Picture of Sample Location ☐ GPS'd

Location of photos: Kathryn @ 3:03pm

Time: 1340 Field Staff: KR and BK

36 Location: RC Wetlands 1 Project: P1007 Date: 4/21

Distance to Initial Point:	Depth:	Velocity:
0.5 ft	0.64 ft	0.3
1 ft	0.64 ft	0.3
1.5 ft	0.5 ft	0.1

Channel Width = 2 ft

Staff Gauge Measurement: 0.44 ft

Time: 1400 Project: P1007 Date: 4/24/26
Location: RC Wetlands 2

Distance to Initial Point:	Depth:	Velocity:
0.5 ft	0.32 ft	0.4
1 ft	0.30 ft	0.2
1.5 ft	< 0.30 ft	0
2 ft	< 0.30 ft	0
2.5 ft	0.40 ft	0
3.0 ft	0.32 ft	0
3.5 ft	0.30 ft	0
4 ft	< 0.30 ft	0

Channel Width = 4.5 ft
Staff Gauge Measurement = 0.44 ft

* Water visibly flowing but not fast enough to register on flow meter/gauge.

38 Time: 1410 Date: 4/21/21

Location: RC Post RR 1 Project: P1007

Distance to Initial Point:	Depth:	Velocity:
1 ft	0.94 ft	0
2 ft	1.16 ft	0
3 ft	1.02 ft	0
4 ft	1.14 ft	0
5 ft	0.98 ft	0
6 ft	0.94 ft	0
7 ft	0.70 ft	0
8 ft	0.64 ft	0

Channel Width = 9 ft

Staff Gauge Reading = 1.12 ft

* water visibly flowing but velocity not high enough to register on flow meter/gauge

Time: 1425 | Date: 4/21/21

Location: Pond System | Project: P1007

Distance to Initial Point:	Depth:	Velocity:
1 ft	1.04 ft	0
2 ft	1.12 ft	0
3 ft	0.38 ft	0
4 ft	0.86 ft	0
5 ft	0.70 ft	0

Channel Width = 6 ft
Staff Gauge Reading = 0.88 ft

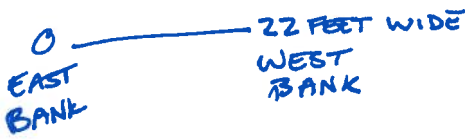
40 Time: 1435 Date: 4/21/21
Location: Pond System 2 Project: P1007
Distance to Initial Point: Depth: Velocity

*stream too dry - picture taken

FLOW FORM

Date and Time: 5/18/21
Client: MPCA
Sample Location ID: DG ELMO #1
Field Staff: CK JM
Project Number: 60638005
Weather: Sun 80F
Corresponding Staff Gauge Msmt (ft): 1.20

Creek/Channel/Stream Sketch



Stream Segment Total Width =

Msmt No.	Dist to Initial Point	Depth	Velocity (measure from 1/3 of depth ***from*** the bottom)	Area	Discharge
	feet	feet	ft/s	ft^2	ft^3/s
1	1	0.6	0.3		
2	3	0.82	0.6		
3	5	1.16	0.3		
4	7	1.2	0.3		
5	9	1.17	0.4		
6	11	1.22	0		
7	13	1.21	0		
8	15	1.12	0		
9	17	1.12	0		
10	19	0.98	0		
11	21	0.74	0		
12					
13					

Measurement Guide

Stream Width	Number of Vertical Measurements
0' - 3'	3-5
3' - 9'	5-8
9' - 15'	8-10
15' - 30'	10-20
>30'	20

Notes

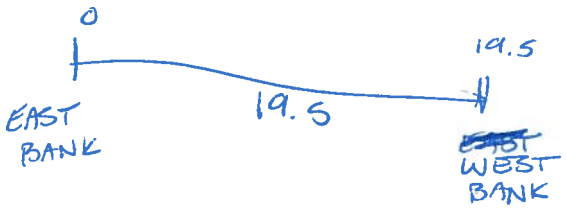
Sample Checklist

☐ Picture of Sample Location ☐ GPS'd
Location of photos: Camille

FLOW FORM

Date and Time: 5/18/21 12pm
Client: MPCA
Sample Location ID: DG ELMO #2
Field Staff: CK JM
Project Number: 60638005
Weather: SUN 80°F
Corresponding Staff Gauge Msmt (ft): 0.95

Creek/Channel/Stream Sketch



Stream Segment Total Width =

Msmt No.	Dist to Initial Point	Depth	Velocity (measure from 1/3 of depth ***from*** the bottom)	Area	Discharge
	feet	feet	ft/s	ft^2	ft^3/s
3 1	1	0.5	0		
5 2	3	1.20	0		
7 3	5	1.64	0.1		
9 4	7	1.82	0.1		
11 5	9	1.88	0		
13 6	11	1.93	0		
15 7	13	1.62	0		
17 8	15	1.38	0		
19 9	17	1.0	0		
10					
11					
12					
13					

Measurement Guide

Stream Width	Number of Vertical Measurements
0' - 3'	3-5
3' - 9'	5-8
9' - 15'	8-10
15' - 30'	10-20
>30'	20

Notes

Sample Checklist

☐ Picture of Sample Location ☐ GPS'd

Location of photos: Survey

FLOW FORM

Date and Time: 5/18/21 14:00
Client: MPCA
Sample Location ID: DG Horseshoe #1
Field Staff: CK SM
Project Number: 60638005
Weather: Sun 80
Corresponding Staff Gauge Msmt (ft): 1.20

Creek/Channel/Stream Sketch

18 FEET ACROSS
2 FT INCREMENTS

Stream Segment Total Width =

Msmt No.	Dist to Initial Point	Depth	Velocity (measure from 1/3 of depth *from* the bottom)	Area	Discharge
	feet	feet	ft/s	ft^2	ft^3/s
1	2	0.4	0		
2	4	1.14	0		
3	6	1.10	0		
4	8	1.48	0.6		
5	10	1.48	0.8		
6	12	1.36	0.4		
7	14	1.16	0		
8	16	0.8	0		
9					
10					
11					
12					
13					

Measurement Guide

Stream Width	Number of Vertical Measurements
0' - 3'	3-5
3' - 9'	5-8
9' - 15'	8-10
15' - 30'	10-20
>30'	20

Notes

Sample Checklist

☐ Picture of Sample Location ☐ GPS'd

Location of photos: Camden James

FLOW FORM

Date and Time: 5/18/21 14:30
Client: MPCA
Sample Location ID: DG HORSESHOE #2
Field Staff: CK JM
Project Number: 60638005
Weather: SUN 80°
Corresponding Staff Gauge Msmt (ft): 1.43

Creek/Channel/Stream Sketch

19 FEET ACROSS

Stream Segment Total Width =

Msmt No.	Dist to Initial Point	Depth	Velocity (measure from 1/3 of depth *from* the bottom)	Area	Discharge
	feet	feet	ft/s	ft^2	ft^3/s
1	2	0.3	0		
2	4	0.89	0		
3	6	1.38	0		
4	8	1.52	0.6		
5	10	1.5	1.0		
6	12	1.48	0		
7	14	0.98	0		
8	16	0.68	0		
9	18	0.25	0		
10					
11					
12					
13					

Measurement Guide

Stream Width	Number of Vertical Measurements
0' - 3'	3-5
3' - 9'	5-8
9' - 15'	8-10
15' - 30'	10-20
>30'	20

Notes

Sample Checklist

☐ Picture of Sample Location ☐ GPS'd

Location of photos: Camera

FLOW FORM

Date and Time: 5/19/21
Client: MPCA
Sample Location ID: Small pipe
Field Staff: SM, RF
Project Number: 60638005
Weather: Cloudy
Corresponding Staff Gauge Msmt (ft):

Creek/Channel/Stream Sketch

Stream Segment Total Width =

Msmt No.	Dist to Initial Point	Depth	Velocity (measure from 1/3 of depth *from* the bottom)	Area	Discharge
	feet	feet	ft/s	ft^2	ft^3/s
1	~	2.05	0.7		
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					

Measurement Guide

Stream Width	Number of Vertical Measurements
0' - 3'	3-5
3' - 9'	5-8
9' - 15'	8-10
15' - 30'	10-20
>30'	20

Notes

Sample Checklist

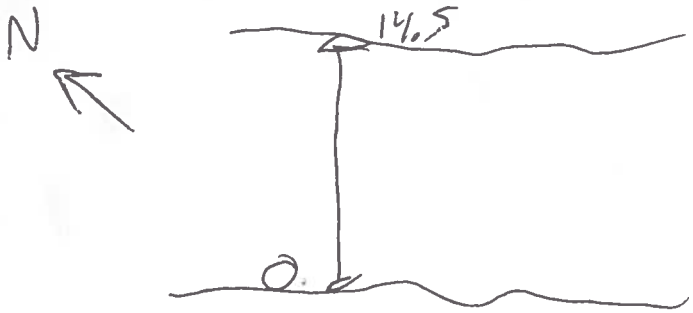
☑ Picture of Sample Location ☐ GPS'd

Location of photos: SM

FLOW FORM

Date and Time: 5/19/21 0930
Client: MPCA
Sample Location ID: North Channel 1
Field Staff: JM/RF
Project Number: 60638005
Weather: Sprinkling
Corresponding Staff Gauge Msmt (ft): 0.79

Creek/Channel/Stream Sketch



Stream Segment Total Width =

Msmt No.	Dist to Initial Point	Depth	Velocity (measure from 1/3 of depth *from* the bottom)	Area	Discharge
	feet	feet	ft/s	ft^2	ft^3/s
1	1.0	0.3	0.0		
2	2.5	0.49	0.0		
3	4.0	0.48	0.60		
4	5.5	0.58	1.0		
5	7.0	0.62	1.1		
6	8.5	0.64	0.9		
7	10.0	0.61	1.1		
8	11.5	0.50	0.60		
9	13.0	0.38	0.30		
10					
11					
12					
13					

Measurement Guide

Stream Width	Number of Vertical Measurements
0' - 3'	3-5
3' - 9'	5-8
9' - 15'	8-10
15' - 30'	10-20
>30'	20

Notes

Sample Checklist

☒ Picture of Sample Location ☐ GPS'd
Location of photos: JM

FLOW FORM

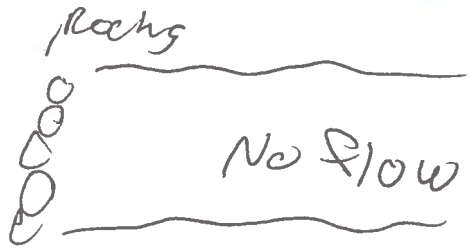
Date and Time: 5/19/21 1120 Client: MPCA

Sample Location ID: ~~Pond 3~~ Pond System 1 Field Staff: JM/RF

Project Number: 60638005 Weather: Cloudy 60

Corresponding Staff Gauge Msmt (ft): 0.76

Creek/Channel/Stream Sketch



Stream Segment Total Width =

Msmt No.	Dist to Initial Point	Depth	Velocity (measure from 1/3 of depth ***from*** the bottom)	Area	Discharge
	feet	feet	ft/s	ft^2	ft^3/s
1					
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					

Measurement Guide

Stream Width	Number of Vertical Measurements
0' - 3'	3-5
3' - 9'	5-8
9' - 15'	8-10
15' - 30'	10-20
>30'	20

Notes

Sample Checklist

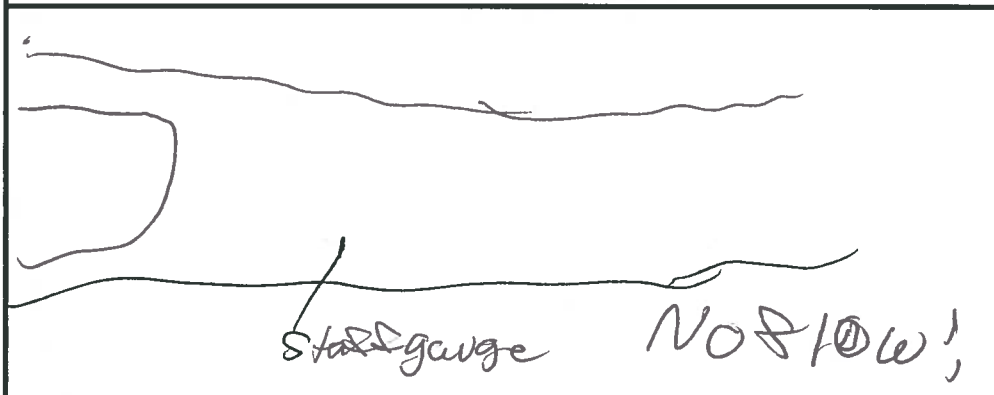
☒ Picture of Sample Location ☐ GPS'd

Location of photos:

FLOW FORM

Date and Time: 5/19/21
Client: MPCA
Sample Location ID: RC Confluence #2
Field Staff: JM / RP
Project Number: 60638005
Weather: Cloudy 65
Corresponding Staff Gauge Msmt (ft): 2.18

Creek/Channel/Stream Sketch



Stream Segment Total Width =

Msmt No.	Dist to Initial Point	Depth	Velocity (measure from 1/3 of depth ***from*** the bottom)	Area	Discharge
	feet	feet	ft/s	ft^2	ft^3/s
1					
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					

Measurement Guide

Stream Width	Number of Vertical Measurements
0' - 3'	3-5
3' - 9'	5-8
9' - 15'	8-10
15' - 30'	10-20
>30'	20

Notes

Sample Checklist

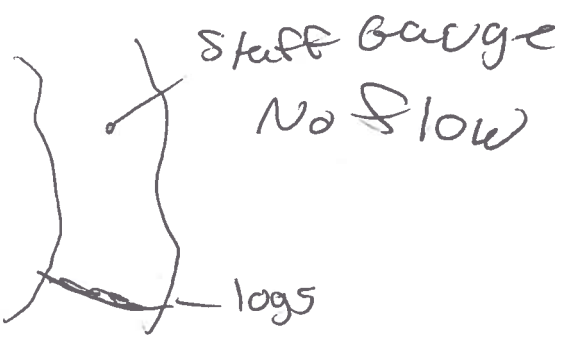
☐ Picture of Sample Location ☐ GPS'd

Location of photos:

FLOW FORM

Date and Time: 5/19/21 1135
Client: MPCA
Sample Location ID: RC Post RR#1
Field Staff: JM/RF
Project Number: 60638005
Weather: Cloudy, 60
Corresponding Staff Gauge Msmt (ft): 0.99

Creek/Channel/Stream Sketch



Stream Segment Total Width =

Msmt No.	Dist to Initial Point	Depth	Velocity (measure from 1/3 of depth ***from*** the bottom)	Area	Discharge
	feet	feet	ft/s	ft^2	ft^3/s
1					
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					

Measurement Guide

Stream Width	Number of Vertical Measurements
0' - 3'	3-5
3' - 9'	5-8
9' - 15'	8-10
15' - 30'	10-20
>30'	20

Notes

Sample Checklist

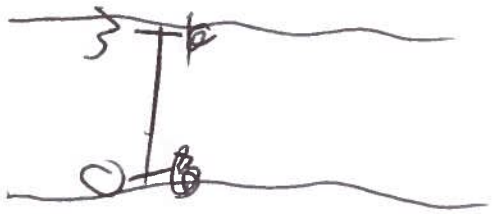
☒ Picture of Sample Location ☐ GPS'd

Location of photos: JM

FLOW FORM

Date and Time: 5/19/21
Client: MPCA
Sample Location ID: RC wetland 1
Field Staff: JM/KF
Project Number: 60638005
Weather: Cloudy 56
Corresponding Staff Gauge Msmt (ft): 0.31

Creek/Channel/Stream Sketch



Stream Segment Total Width =

Msmt No.	Dist to Initial Point	Depth	Velocity (measure from 1/3 of depth *from* the bottom)	Area	Discharge
	feet	feet	ft/s	ft^2	ft^3/s
1	1	0.58	0.1		
2	2	0.43	0.0		
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					

Measurement Guide

Stream Width	Number of Vertical Measurements
0' - 3'	3-5
3' - 9'	5-8
9' - 15'	8-10
15' - 30'	10-20
>30'	20

Notes

Sample Checklist

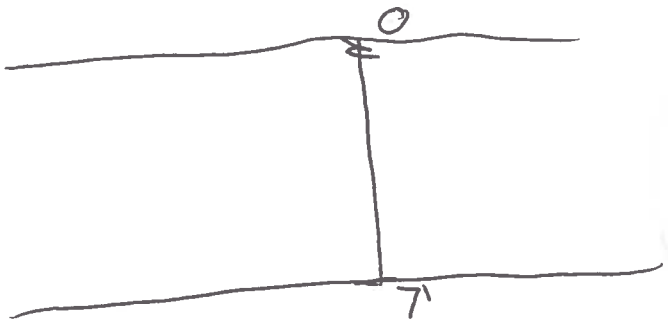
☒ Picture of Sample Location ☐ GPS'd

Location of photos: JM

FLOW FORM

Date and Time: 5/19/21 1100
Client: MPCA
Sample Location ID: RC Wetlands 2
Field Staff: JM/RF
Project Number: 60638005
Weather: Cloudy 60
Corresponding Staff Gauge Msmt (ft): 0.36

Creek/Channel/Stream Sketch



Stream Segment Total Width =

Msmt No.	Dist to Initial Point	Depth	Velocity (measure from 1/3 of depth ***from*** the bottom)	Area	Discharge
	feet	feet	ft/s	ft^2	ft^3/s
1	1.0	≈0.2	0.0		
2	2.5	0.37	0.4		
3	4.0	0.36	0.0		
4	5.5	≈0.25	0.4		
5	7.0	0.30	0.1		
6	8.5	≈0.20	0.0		
7					
8					
9					
10					
11					
12					
13					

Measurement Guide

Stream Width	Number of Vertical Measurements
0' - 3'	3-5
3' - 9'	5-8
9' - 15'	8-10
15' - 30'	10-20
>30'	20

Notes

Sample Checklist

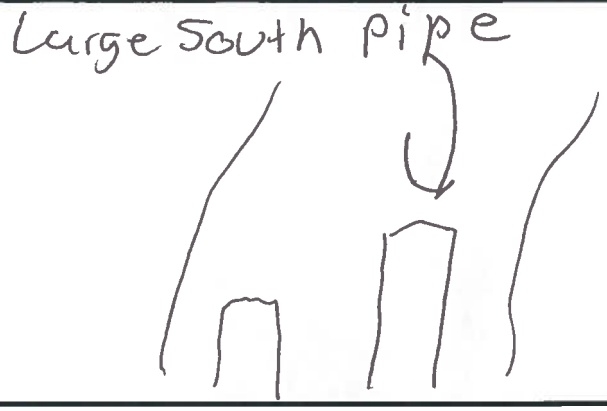
☑ Picture of Sample Location ☐ GPS'd

Location of photos:

FLOW FORM

Date and Time: 5/19/21 0935
Client: MPCA
Sample Location ID: Large pipe
Field Staff: JM/RF
Project Number: 60638005
Weather: Cloudy/Sprinkle
Corresponding Staff Gauge Msmt (ft):

Creek/Channel/Stream Sketch



Stream Segment Total Width =

Msmt No.	Dist to Initial Point	Depth	Velocity (measure from 1/3 of depth ***from*** the bottom)	Area	Discharge
	feet	feet	ft/s	ft^2	ft^3/s
1		2.52	0.0		
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					

Measurement Guide

Stream Width	Number of Vertical Measurements
0' - 3'	3-5
3' - 9'	5-8
9' - 15'	8-10
15' - 30'	10-20
>30'	20

Notes

Sample Checklist

☑ Picture of Sample Location ☐ GPS'd

Location of photos: JM

FLOW FORM

Date and Time: 8-27-21
Client: MPCA
Sample Location ID: Wetlands 1
Field Staff:
Project Number: 60638005
Weather:
Corresponding Staff Gauge Msmt (ft): 0.67 ft

Creek/Channel/Stream Sketch

0.67 ft: Stream gauge reading

3 ft wide

Heavily overgrown with vegatation

Stream Segment Total Width =

Msmt No.	Dist to Initial Point	Depth	Velocity (measure from 1/3 of depth *from* the bottom)	Area	Discharge
	feet	feet	ft/s	ft^2	ft^3/s
1	0.5	0.86	0.5		
2	1.0	0.82	0.3		
3	1.5	0.73	0.3		
4	2.0	0.67	0.5		
5	2.5	0.38	0.5		
6					
7					
8					
9					
10					
11					
12					
13					

Measurement Guide

Stream Width	Number of Vertical Measurements
0' - 3'	3-5
3' - 9'	5-8
9' - 15'	8-10
15' - 30'	10-20
>30'	20

Notes

Sample Checklist

□ Picture of Sample Location □ GPS'd

Location of photos:

FLOW FORM

Date and Time: 3-27-21 12:25
Client: MPCA
Sample Location ID: Wetlands 2
Field Staff:
Project Number: 60638005
Weather:
Corresponding Staff Gauge Msmt (ft): 2.16

Creek/Channel/Stream Sketch

13 ft wide, but measuring from 2-9 ft

Stream Segment Total Width =

Msmt No.	Dist to Initial Point	Depth	Velocity (measure from 1/3 of depth *from* the bottom)	Area	Discharge
	feet	feet	ft/s	ft^2	ft^3/s
1	0.5	1.52	0.1		
2	1.0	1.66	0.7		
3	1.5	1.61	0.9		
4	2.0	1.96	0.4		
5	2.5	2.04	0.3		
6	3.0	2.00	0.0		
7	3.5	1.95	0.3		
8					
9					
10					
11					
12					
13					

Measurement Guide

Stream Width	Number of Vertical Measurements
0' - 3'	3-5
3' - 9'	5-8
9' - 15'	8-10
15' - 30'	10-20
>30'	20

Notes

Sample Checklist

☐ Picture of Sample Location ☐ GPS'd

Location of photos:

FLOW FORM

Date and Time: 8-27-21 12:50 | Client: MPCA

Sample Location ID: Post RR | Field Staff:

Project Number: 60638005 | Weather:

Corresponding Staff Gauge Msmt (ft): 1.63

Creek/Channel/Stream Sketch

10 ft wide

Stream Segment Total Width =

Msmt No.	Dist to Initial Point	Depth	Velocity (measure from 1/3 of depth *from* the bottom)	Area	Discharge
	feet	feet	ft/s	ft^2	ft^3/s
1	1.0	1.4	0.9		
2	2.0	1.46	1.0		
3	3.0	1.34	1.0		
4	4.0	1.26	0.7		
5	5.0	1.30	0.8		
6	6.0	1.45	0.8		
7	7.0	1.48	0.6		
8	8.0	1.30	0.0		
9					
10					
11					
12					
13					

Measurement Guide

Stream Width	Number of Vertical Measurements
0' - 3'	3-5
3' - 9'	5-8
9' - 15'	8-10
15' - 30'	10-20
>30'	20

Notes

Sample Checklist

☐ Picture of Sample Location ☐ GPS'd

Location of photos:

FLOW FORM

Date and Time: 8-27-21
Client: MPCA
Sample Location ID: Pond system 1
Field Staff:
Project Number: 60638005
Weather:
Corresponding Staff Gauge Msmt (ft): 2.42

Creek/Channel/Stream Sketch

7 feet wide

Stream Segment Total Width =

Msmt No.	Dist to Initial Point	Depth	Velocity (measure from 1/3 of depth *from* the bottom)	Area	Discharge
	feet	feet	ft/s	ft^2	ft^3/s
1	0.5	1.36	0.9		
2	1.5	1.45	1.3		
3	2.5	1.44	1.3		
4	3.5	1.42	1.1		
5	4.5	1.06	0.5		
6	5.5	1.18	0.3		
7	6.5	—	0		
8					
9					
10					
11					
12					
13					

Measurement Guide

Stream Width	Number of Vertical Measurements
0' - 3'	3-5
3' - 9'	5-8
9' - 15'	8-10
15' - 30'	10-20
>30'	20

Notes

Sample Checklist

☐ Picture of Sample Location ☐ GPS'd

Location of photos:

FLOW FORM

Date and Time: 8-27-21
Client: MPCA
Sample Location ID:
Field Staff:
Project Number: 60638005
Weather:
Corresponding Staff Gauge Msmt (ft): 1.28

Creek/Channel/Stream Sketch

7 feet wide

Stream Segment Total Width =

Msmt No.	Dist to Initial Point	Depth	Velocity (measure from 1/3 of depth *from* the bottom)	Area	Discharge
	feet	feet	ft/s	ft^2	ft^3/s
1	0.5	0.48	0.5		
2	1.5	0.46	2.1		
3	2.5	0.58	2.5		
4	3.5	0.64	2.8		
5	4.5	0.74	2.7		
6	5.5	0.68	2.3		
7	6.5	0.42	0.2		
8					
9					
10					
11					
12					
13					

Measurement Guide

Stream Width	Number of Vertical Measurements
0' - 3'	3-5
3' - 9'	5-8
9' - 15'	8-10
15' - 30'	10-20
>30'	20

Notes

Sample Checklist

☐ Picture of Sample Location ☐ GPS'd

Location of photos:

FLOW FORM

Date and Time: 8-27-21 | Client: MPCA

Sample Location ID: Intermittent 1 | Field Staff:

Project Number: 60638005 | Weather:

Corresponding Staff Gauge Msmt (ft): 1.25

Creek/Channel/Stream Sketch

15 ft wide

Stream Segment Total Width =

Msmt No.	Dist to Initial Point	Depth	Velocity (measure from 1/3 of depth *from* the bottom)	Area	Discharge
	feet	feet	ft/s	ft^2	ft^3/s
1	1.0	0.81	0.60		
2	2.5	0.94	1.00		
3	4.0	0.97	0.7		
4	5.5	1.10	1.0		
5	7.0	1.18	0.8		
6	8.5	1.24	0.8		
7	10.0	1.28	0.7		
8	11.5	1.30	0.2		
9	13.0	1.12	0.0		
10					
11					
12					
13					

Measurement Guide

Stream Width	Number of Vertical Measurements
0' - 3'	3-5
3' - 9'	5-8
9' - 15'	8-10
15' - 30'	10-20
>30'	20

Notes

Sample Checklist

☐ Picture of Sample Location ☐ GPS'd

Location of photos:

FLOW FORM

Date and Time: 8-27-21	Client: MPCA
Sample Location ID: Intermittent 2	Field Staff:
Project Number: 60638005	Weather:
Corresponding Staff Gauge Msmt (ft):	

Creek/Channel/Stream Sketch

Staff gauge bent; floating branches knocked over staff gauge.

Stream Segment Total Width =

Msmt No.	Dist to Initial Point	Depth	Velocity (measure from 1/3 of depth *from* the bottom)	Area	Discharge
	feet	feet	ft/s	ft^2	ft^3/s
1					
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					

Measurement Guide

Stream Width	Number of Vertical Measurements
0' - 3'	3-5
3' - 9'	5-8
9' - 15'	8-10
15' - 30'	10-20
>30'	20

Notes

Sample Checklist

☐ Picture of Sample Location ☐ GPS'd

Location of photos:

FLOW FORM

Date and Time: 8-27-21	Client: MPCA
Sample Location ID: Intermittent 3	Field Staff:
Project Number: 60638005	Weather:
Corresponding Staff Gauge Msmt (ft): 0.96	

Creek/Channel/Stream Sketch

8.5 feet wide

Stream Segment Total Width =

Msmt No.	Dist to Initial Point	Depth	Velocity (measure from 1/3 of depth *from* the bottom)	Area	Discharge
	feet	feet	ft/s	ft^2	ft^3/s
1	1.0	0.6	0.2		
2	2.0	0.71	0.4		
3	3.0	0.98	0.2		
4	4.0	1.3	0.6		
5	5.0	1.57	1.4		
6	6.0	1.46	1.4		
7	7.0	1.22	1.1		
8	8.0	0.28	0.5		
9					
10					
11					
12					
13					

Measurement Guide

Stream Width	Number of Vertical Measurements
0' - 3'	3-5
3' - 9'	5-8
9' - 15'	8-10
15' - 30'	10-20
>30'	20

Notes

Sample Checklist

☐ Picture of Sample Location ☐ GPS'd

Location of photos:

FLOW FORM

Date and Time: 8-27-21	Client: MPCA
Sample Location ID: Confluence 1	Field Staff:
Project Number: 60638005	Weather:
Corresponding Staff Gauge Msmt (ft): 1.28	

Creek/Channel/Stream Sketch

11 feet wide

Stream Segment Total Width =

Msmt No.	Dist to Initial Point	Depth	Velocity (measure from 1/3 of depth *from* the bottom)	Area	Discharge
	feet	feet	ft/s	ft^2	ft^3/s
1	1.0	0.5	0.5		
2	2.5	1.1	0.9		
3	4.0	1.28	1.3		
4	5.5	1.25	1.1		
5	7.0	1.20	0.9		
6	8.5	0.89	0.8		
7	11.00	0.52	0.5		
8					
9					
10					
11					
12					
13					

Measurement Guide

Stream Width	Number of Vertical Measurements
0' - 3'	3-5
3' - 9'	5-8
9' - 15'	8-10
15' - 30'	10-20
>30'	20

Notes

Sample Checklist

☐ Picture of Sample Location ☐ GPS'd

Location of photos:

FLOW FORM

Date and Time: 8-27-21 | Client: MPCA

Sample Location ID: | Field Staff:

Project Number: 60638005 | Weather:

Corresponding Staff Gauge Msmt (ft):

Creek/Channel/Stream Sketch

North Pipe: Depth ~~1.48~~ Full, Velocity -0.9

South Pipe: Depth -2.48, Velocity -0.0

Stream Segment Total Width =

Msmt No.	Dist to Initial Point	Depth	Velocity (measure from 1/3 of depth *from* the bottom)	Area	Discharge
	feet	feet	ft/s	ft^2	ft^3/s
1					
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					

Measurement Guide

Stream Width	Number of Vertical Measurements
0' - 3'	3-5
3' - 9'	5-8
9' - 15'	8-10
15' - 30'	10-20
>30'	20

Notes

Sample Checklist

☐ Picture of Sample Location ☐ GPS'd

Location of photos:

FLOW FORM

Date and Time: 9-8-21
Client: MPCA
Sample Location ID: North Channel 1
Field Staff:
Project Number: 60638005
Weather:
Corresponding Staff Gauge Msmt (ft): 0.81

Creek/Channel/Stream Sketch

15 ft. wide

Stream Segment Total Width =

Msmt No.	Dist to Initial Point	Depth	Velocity (measure from 1/3 of depth *from* the bottom)	Area	Discharge
	feet	feet	ft/s	ft^2	ft^3/s
1	1.5	0.36	0.0		
2	3.0	0.52	0.5		
3	4.5	0.68	0.9		
4	6.0	0.76	1.1		
5	7.5	0.73	1.0		
6	9.0	0.68	0.9		
7	10.5	0.60	0.7		
8	12.0	0.48	0.0		
9	13.5		0.0		
10					
11					
12					
13					

Measurement Guide

Stream Width	Number of Vertical Measurements
0' - 3'	3-5
3' - 9'	5-8
9' - 15'	8-10
15' - 30'	10-20
>30'	20

Notes

Sample Checklist

☐ Picture of Sample Location ☐ GPS'd

Location of photos:

FLOW FORM

Date and Time: 9 - 3 - 21
Client: MPCA
Sample Location ID: Confluence 1
Field Staff:
Project Number: 60638005
Weather:
Corresponding Staff Gauge Msmt (ft): 1.38

Creek/Channel/Stream Sketch

11 ft wide

Stream Segment Total Width =

Msmt No.	Dist to Initial Point	Depth	Velocity (measure from 1/3 of depth *from* the bottom)	Area	Discharge
	feet	feet	ft/s	ft^2	ft^3/s
1	1.0	0.57	0.7		
2	2.5	1.20	1.0		
3	4.0	1.45	1.6		
4	5.5	1.38	1.5		
5	7.0	1.29	1.4		
6	8.5	1.06	1.1		
7	10.0	0.63	1.1		
8					
9					
10					
11					
12					
13					

Measurement Guide

Stream Width	Number of Vertical Measurements
0' - 3'	3-5
3' - 9'	5-8
9' - 15'	8-10
15' - 30'	10-20
>30'	20

Notes

Sample Checklist

☐ Picture of Sample Location ☐ GPS'd

Location of photos:

FLOW FORM

Date and Time: 9-3-21

Client: MPCA

Sample Location ID: Intermittent 3

Field Staff:

Project Number: 60638005

Weather:

Corresponding Staff Gauge Msmt (ft): 1.1

Creek/Channel/Stream Sketch

8 ft wide

Stream Segment Total Width =

Msmt No.	Dist to Initial Point	Depth	Velocity (measure from 1/3 of depth *from* the bottom)	Area	Discharge
	feet	feet	ft/s	ft^2	ft^3/s
1	1.0	1.30	1.4		
2	2.0	1.44	1.9		
3	3.0	1.75	2.1		
4	4.0	1.66	1.4		
5	5.0	1.28	0.8		
6	6.0	0.94	0.3		
7	7.0	0.68	0.8		
8	8.0	0.58	0.1		
9					
10					
11					
12					
13					

Measurement Guide

Stream Width	Number of Vertical Measurements
0' - 3'	3-5
3' - 9'	5-8
9' - 15'	8-10
15' - 30'	10-20
>30'	20

Notes

Sample Checklist

☐ Picture of Sample Location ☐ GPS'd

Location of photos:

FLOW FORM

Date and Time: 9-3-21
Client: MPCA
Sample Location ID: Pond System 1
Field Staff:
Project Number: 60638005
Weather:
Corresponding Staff Gauge Msmt (ft): 1.52

Creek/Channel/Stream Sketch

3.5 ft wide

Stream Segment Total Width =

Msmt No.	Dist to Initial Point	Depth	Velocity (measure from 1/3 of depth *from* the bottom)	Area	Discharge
	feet	feet	ft/s	ft^2	ft^3/s
1	0.5	1.56	1.10		
2	1.5	1.67	2.0		
3	2.5	1.76	1.9		
4	3.5	1.48	1.9		
5	4.5	1.35	1.1		
6	5.5	1.19	0.4		
7	6.5		0.0		
8					
9					
10					
11					
12					
13					

Measurement Guide

Stream Width	Number of Vertical Measurements
0' - 3'	3-5
3' - 9'	5-8
9' - 15'	8-10
15' - 30'	10-20
>30'	20

Notes

Sample Checklist

☐ Picture of Sample Location ☐ GPS'd

Location of photos:

FLOW FORM

Date and Time: 9-3-21
Client: MPCA
Sample Location ID: Pond System 2
Field Staff:
Project Number: 60638005
Weather:
Corresponding Staff Gauge Msmt (ft): 1.46

Creek/Channel/Stream Sketch

7 ft wide

Stream Segment Total Width =

Msmt No.	Dist to Initial Point	Depth	Velocity (measure from 1/3 of depth *from* the bottom)	Area	Discharge
	feet	feet	ft/s	ft^2	ft^3/s
1	1.0	0.67	1.8		
2	2.0	0.70	2.3		
3	3.0	0.86	3.4		
4	4.0	0.92	2.7		
5	5.0	1.02	2.7		
6	6.0	0.91	1.2		
7					
8					
9					
10					
11					
12					
13					

Measurement Guide

Stream Width	Number of Vertical Measurements
0' - 3'	3-5
3' - 9'	5-8
9' - 15'	8-10
15' - 30'	10-20
>30'	20

Notes

Sample Checklist

☐ Picture of Sample Location ☐ GPS'd

Location of photos:

FLOW FORM

Date and Time: 9-3-21
Client: MPCA
Sample Location ID: Intermittent 1
Field Staff:
Project Number: 60638005
Weather:
Corresponding Staff Gauge Msmt (ft): 1.37

Creek/Channel/Stream Sketch

15 ft wide

Stream Segment Total Width =

Msmt No.	Dist to Initial Point	Depth	Velocity (measure from 1/3 of depth *from* the bottom)	Area	Discharge
	feet	feet	ft/s	ft^2	ft^3/s
1	1.0	0.91	0.90		
2	2.5	1.05	1.10		
3	4.0	1.09	0.70		
4	5.5	1.26	1.00		
5	7.0	1.28	1.00		
6	8.5	1.46	0.9		
7	10.0	1.47	0.7		
8	11.5	1.48	0.6		
9	13.0	1.27	0.0		
10	14.5		0.0		
11					
12					
13					

Measurement Guide

Stream Width	Number of Vertical Measurements
0' - 3'	3-5
3' - 9'	5-8
9' - 15'	8-10
15' - 30'	10-20
>30'	20

Notes

Sample Checklist

☐ Picture of Sample Location ☐ GPS'd

Location of photos:

FLOW FORM

Date and Time: 9-3-21
Client: MPCA
Sample Location ID: Past RR
Field Staff:
Project Number: 60638005
Weather:
Corresponding Staff Gauge Msmt (ft): 1.70

Creek/Channel/Stream Sketch

11 feet wide

Stream Segment Total Width =

Msmt No.	Dist to Initial Point	Depth	Velocity (measure from 1/3 of depth *from* the bottom)	Area	Discharge
	feet	feet	ft/s	ft^2	ft^3/s
1	1.0	0.78	0.0		
2	2.0	0.89	0.4		
3	3.0	0.94	1.0		
4	4.0	1.07	1.5		
5	5.0	1.25	1.4		
6	6.0	1.40	1.2		
7	7.0	1.64	1.0		
8	8.0	1.41	1.2		
9					
10					
11					
12					
13					

Measurement Guide

Stream Width	Number of Vertical Measurements
0' - 3'	3-5
3' - 9'	5-8
9' - 15'	8-10
15' - 30'	10-20
>30'	20

Notes

Sample Checklist

☐ Picture of Sample Location ☐ GPS'd

Location of photos:

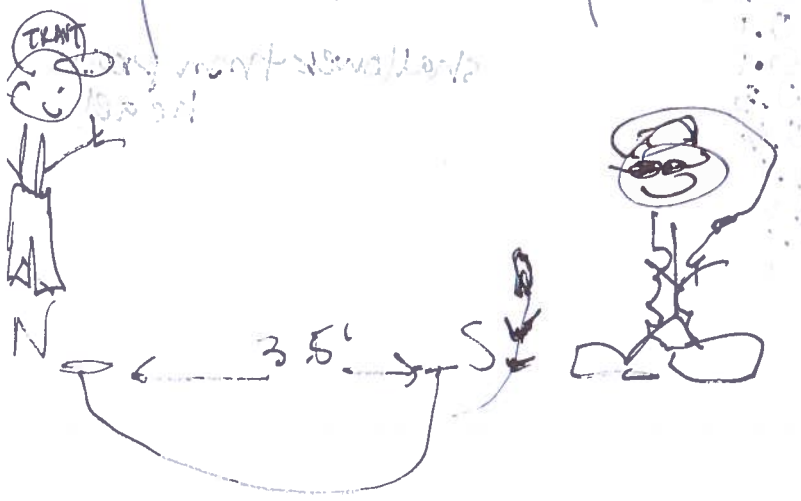
4/1/22 12:37

RC Wetland #1

GOAL/RJ

gauge: 1.0

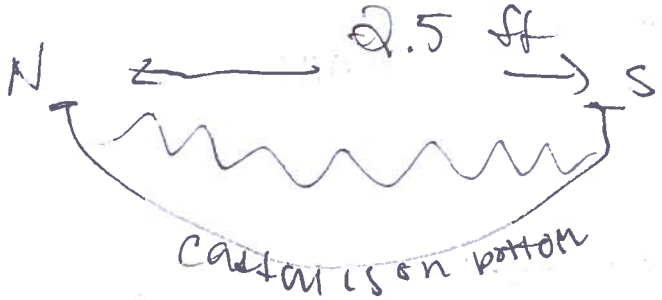
	Dist.	Depth	Velocity
1	6"	0.66	0.0
2	1'	1.0	0.3
3	1.5'	1.0	0.0
4	2	1.14	0.4
5	2.5	1.13	0.1
6	3'	0.43	0.0



e readings, every 6"

Re Wetland #2
4/1/22 1245

GG | AS/AL
sunny
gauge: 1.46



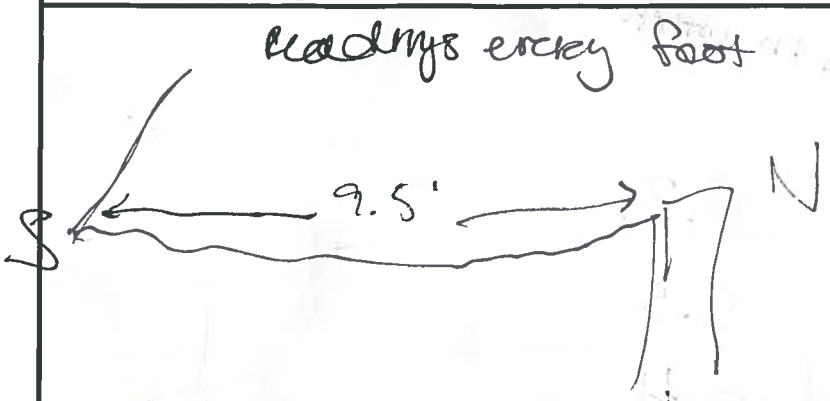
30 ft east of gauge

1	0'	0.59	0.3
2	6"	1.32	0.5
3	1'	1.40	0.4
4	1.5	1.20	0.8
5	2	1.16	1.4
6	2.5	0.36	0.0

FLOW FORM

Date and Time: 4/1/22 1025
Client: MPCA
Sample Location ID: RO Post RR 1
Field Staff: Sunny
Project Number: 60663338
Weather:
Corresponding Staff Gauge Msmt (ft): 1.26

Creek/Channel/Stream Sketch



Stream Segment Total Width =

Msmt No.	Dist to Initial Point	Depth	Velocity (measure from 1/3 of depth *from* the bottom)	Area	Discharge
	feet	feet	ft/s	ft^2	ft^3/s
1	1	0.36	0.0		
2	2	0.38	0.0		
3	3	0.51	0.0		
4	4	0.75	0.0		
5	5	0.88	0.0		
6	6	0.97	0.1		
7	7	1.16	0.2		
8	8	1.08	0.3		
9	9	1.25	0.4		
10					
11					
12					
13					

Measurement Guide

Stream Width	Number of Vertical Measurements
0' - 3'	3-5
3' - 9'	5-8
9' - 15'	8-10
15' - 30'	10-20
>30'	20

Notes

Sample Checklist

☐ Picture of Sample Location ☐ GPS'd

Location of photos:

FLOW FORM

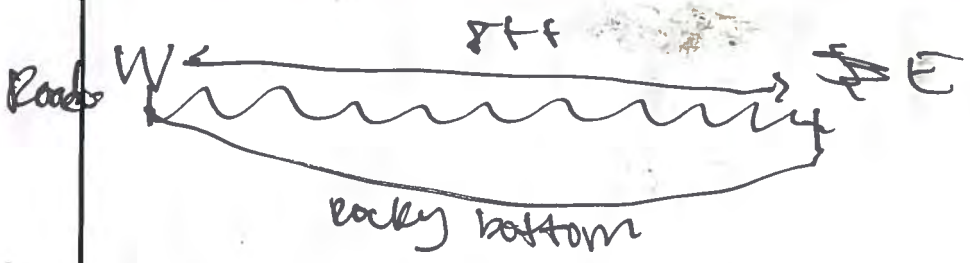
Date and Time: ~~4/11/22~~ 4/11/22 1043 | Client: MPCA

Sample Location ID: Pond Outlet 1 | Field Staff: AL/ML

Project Number: 60663338 | Weather: sunny

Corresponding Staff Gauge Msmt (ft): 1.07

Creek/Channel/Stream Sketch



Stream Segment Total Width =

Msmt No.	Dist to Initial Point	Depth	Velocity (measure from 1/3 of depth *from* the bottom)	Area	Discharge
	feet	feet	ft/s	ft^2	ft^3/s
1	1	0.45	0.0		
2	2	0.45	0.1		
3	3	NO.38	0.1		shallower than probe head
4	4	0.36	0.3		
5	5	0.36	0.6		
6	6	0.41	1.1		
7	7	0.41	1.0		
8	8	0.36	0.1		
9					
10					
11					
12					
13					

Measurement Guide

Stream Width	Number of Vertical Measurements
0' - 3'	3-5
3' - 9'	5-8
9' - 15'	8-10
15' - 30'	10-20
>30'	20

Notes

Sample Checklist

☑ Picture of Sample Location AL ☐ GPS'd

Location of photos:

FLOW FORM

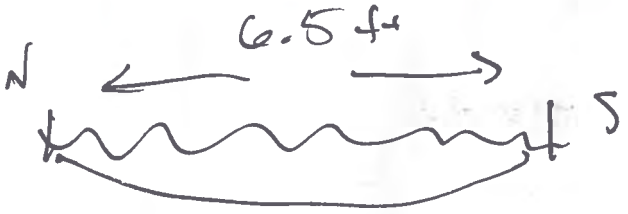
Date and Time: 4/1/22 1045 | Client: MPCA

Sample Location ID: Pond System #2 | Field Staff: AC / MM

Project Number: 60663338 | Weather: Sunny

Corresponding Staff Gauge Msmt (ft): 0.92

Creek/Channel/Stream Sketch



Stream Segment Total Width =

Msmt No.	Dist to Initial Point	Depth	Velocity (measure from 1/3 of depth *from* the bottom)	Area	Discharge
	feet	feet	ft/s	ft^2	ft^3/s
1	1	0.82	0.0		
2	2	0.95	0.1		
3	3	1.13	0.0		
4	4	1.08	0.6		
5	5	0.77	1.0		
6	5.75	0.39	0.2		
7					
8					
9					
10					
11					
12					
13					

Measurement Guide

Stream Width	Number of Vertical Measurements
0' - 3'	3-5
3' - 9'	5-8
9' - 15'	8-10
15' - 30'	10-20
>30'	20

Notes

Sample Checklist

☐ Picture of Sample Location ☐ GPS'd

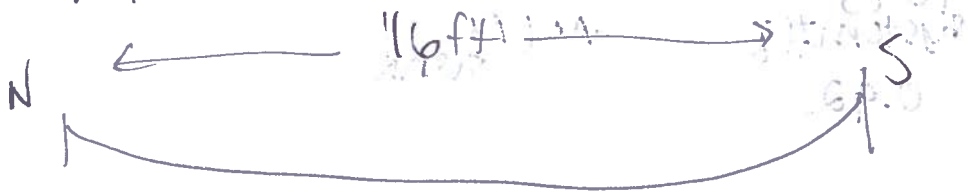
Location of photos:

4/1/22 1125

RC Interim #1

Acme sunny

Sauge reading: 0.94



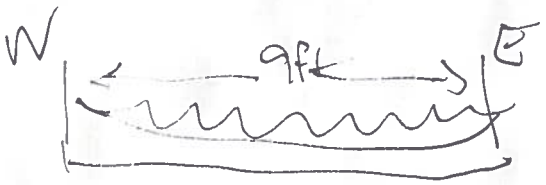
#	distance	depth	velocity
1	1	0.39	0.0
2	2	0.61	0.0
3	3	0.60	0.0
4	4	0.63	0.0
5	5	0.69	0.0
6	6	0.77	0.1
7	7	0.82	0.2
8	8	0.84	0.1
9	9	0.91	0.0
10	10	0.88	0.0
11	11	1.07	0.0
12	12	0.86	0.0
13	13	0.81	0.0
14	14	0.54	0.0
15	15	0.15	0.0

FLOW FORM

Date and Time: 4/1/22 11:15
Client: MPCA
Sample Location ID: RC Int. #3
Field Staff: AL/MK
Project Number: 60663338
Weather: sunny
Corresponding Staff Gauge Msmt (ft): 0.73

Creek/Channel/Stream Sketch

9 ft, 1-ft msmts



Staff Gauge ~10ft south of cross-section
+ transducer ~5ft N of cross-section

Stream Segment Total Width =

Msmt No.	Dist to Initial Point	Depth	Velocity (measure from 1/3 of depth *from* the bottom)	Area	Discharge
	feet	feet	ft/s	ft^2	ft^3/s
1	1	0.91	0.1		
2	2	1.23	0.1		
3	3	1.46	0.2		
4	4	1.59	0.5		
5	5	1.48	0.0		
6	6	1.53	0.0		
7	7	1.53	0.0		
8	8	1.23	0.0		
9					
10					
11					
12					
13					

Measurement Guide

Stream Width	Number of Vertical Measurements
0' - 3'	3-5
3' - 9'	5-8
9' - 15'	8-10
15' - 30'	10-20
>30'	20

Notes

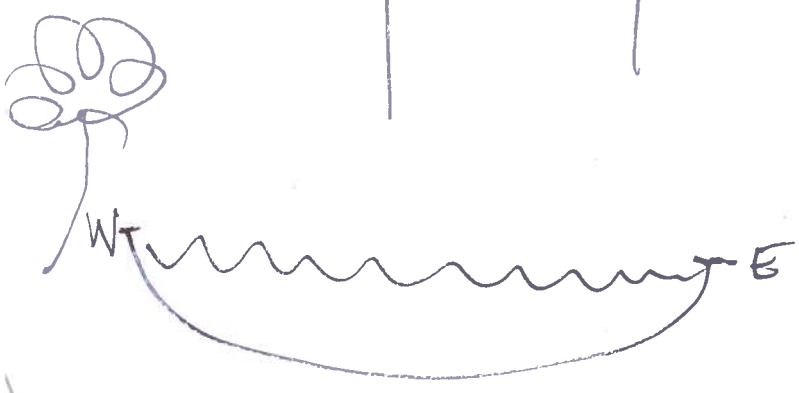
Sample Checklist
☑ Picture of Sample Location AL ☐ GPS'd
Location of photos:

RC confluence #1
4/1/22 1315

GG/AL/AS
sunny

gauge: 1.02

	Distance	Depth	Velocity
1	1'	0.59	0.0
2	2'	0.73	0.0
3	3'	0.80	0.0
4	4'	0.82	0.0
5	5'	0.87	0.1
6	6'	0.92	0.1
7	7'	0.84	0.0
8	8'	0.43	0.0



about 75' North of staff gauge (deep + tricky low flow at gauge)

SURFACE WATER SAMPLE FORM

Location ID: EP11 (small/north) Date: 3/28&2

Location Type: EP10 (larger/south) Field Staff: AS/AL

BANK/SHORE IN WATER BODY WETLANDS Duplicate or MS/MSD Taken: No

CREEK/CHANNEL CENTER - during rain (pipe) CREEK/CHANNEL BANK

Waterbody Type and General Description (erosion vs depositional):

EP11 (small) - almost completely submerged : 2.12 / 0.8

EP10 (bis) - most of it in water : 2.36 / 0.5

Heavy rain within last 7 days or evidence of flooding? higher water levels but flow looks unaltered

Other details (including distance/direction from existing location/frozen conditions):

SAMPLE POINT CONDITIONS

Surface water estimated depth (inches) at sample point:

Surface water estimated width at sample location (feet):

Sample location relative to channel bottom and distance from bank: immediately upstream of each culv

Water clarity, color, odor:

Flow Speed (circle): NO — LOW L-M MODERATE M-H HIGH

FIELD WATER QUALITY PARAMETERS

Temperature (°C): 5.45 5.02 (EP10) pH: 7.32 (EP10) 8.08 (EP11)

Temp corr cond (umhos/cm): 0.448 / 0.369 (EP11) Dissolved Oxygen: 10.24 / 10.51 (EP11) ORP: 230.1 / 216.9 (EP1

SAMPLES COLLECTED

SAMPLE ID: EP11-WAT-BULK-01-032822 Time: 1530

DUP SAMPLE ID: EP10-WAT-BULK-01-032822 Time: 1535

MS/MSD SAMPLE ID: Time:

FOAM SAMPLE ID: Time:

Foam Observations (if applicable)

Foam observed? ☐ Yes ☒ No

Old or Fresh: Color:

Relative location to sediment or water sample (up/down/cross gradient):

Approximate height and width of pile (inches) or just bubbles:

Organic matter (specifically in foam)?

Obvious source of turbulence/disturbance that created foam?

If wind-generated, note the direction and speed of wind:

Why does it appear to be accumulating (dam, bend, etc):

Is it continuing to accumulate?

Is there foam floating down stream?

Sample Checklist

☒ Picture of Sample Location (**required**) ☐ GPS'd

☐ Picture of Foam (before, collected, and bottled) ☐ Decontaminated tools and glove change

Location of photos:

Sample Naming Convention

LOCID-DIRECTION-WAT-BULK-01-MMDDYY

DIRECTION: cardinal direction from existing location (N,S,W,E); if in same location, within 15 feet, use C for colocated

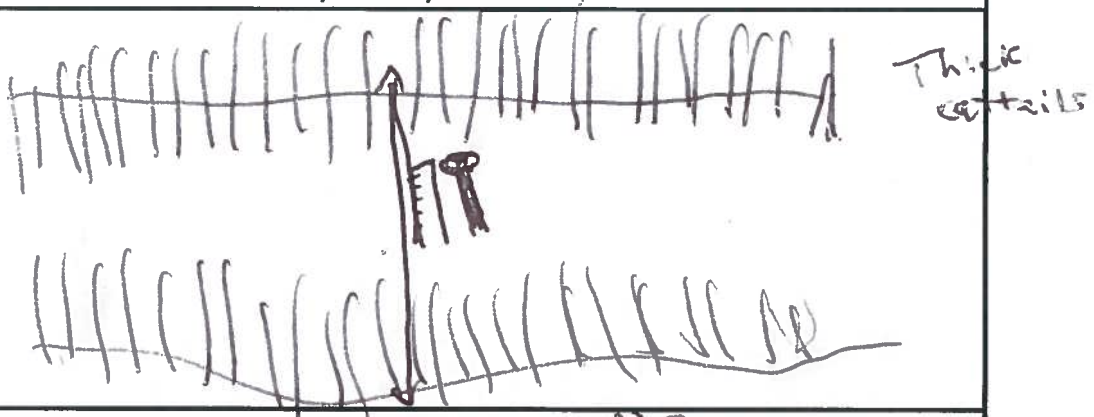
Examples: RC3-E-WAT-BULK-01-092221 (if east of RC3); EP18-C-WAT-BULK-01-0922221 (If in same location as EP18)

DUP (4 bottles) : RC3-E-WAT-BULK-02-092221 MS/MSD (8 bottles): RC3-E-WAT-BULK-03-092221

FLOW FORM

Date and Time: 3/29/22 1561
Client: MPCA
Sample Location ID: DG Horseshoe 1
Field Staff: GS, AS, GG
Project Number: 60663338
Weather: 42°F, Cloudy
Corresponding Staff Gauge Msmt (ft): 1.72

Creek/Channel/Stream Sketch



Stream Segment Total Width = 23.5

Msmt No.	Dist to Initial Point	Depth	Velocity (measure from 1/3 of depth ***from*** the bottom)	Area	Discharge
	feet	feet	ft/s	ft^2	ft^3/s
1	1.5	0.20	0.0		
2	3.0	0.48	0.0		
3	4.5	0.88	0.0		
4	6.0	1.52	0.0		
5	7.5	1.52	0.0		
6	9.0	1.74	0.0		
7	10.5	1.80	0.9		
8	12.0	1.90	0.7		
9	13.5	1.92	1.2		
10	15.0	1.80	0.1		
11	16.5	1.72	0.0		
12	18.0	1.72	0.0		
13	19.5	1.02	0.0		
14	21	0.74	0.0		
15	22.5	0.30	0.0		

Measurement Guide

Stream Width	Number of Vertical Measurements
0' - 3'	3-5
3' - 9'	5-8
9' - 15'	8-10
15' - 30'	10-20
>30'	20

Notes

Sample Checklist

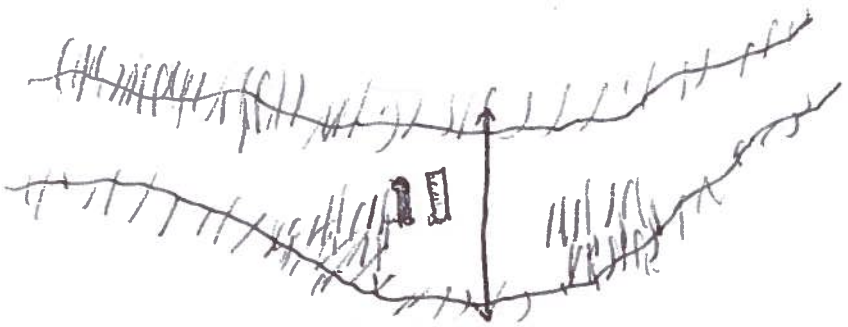
☐ Picture of Sample Location ☐ GPS'd

Location of photos:

FLOW FORM

Date and Time: 3/29/22 1430
Client: MPCA
Sample Location ID: DG Horseshoe 2
Field Staff: GS, AS, GS
Project Number: 60663338
Weather: 42°F, Cloudy
Corresponding Staff Gauge Msmt (ft): 1.73

Creek/Channel/Stream Sketch



Stream Segment Total Width = 25 ft

Msmt No.	Dist to Initial Point	Depth	Velocity (measure from 1/3 of depth *from* the bottom)	Area	Discharge
	feet	feet	ft/s	ft^2	ft^3/s
1	1.5	0.40	0.0		
2	3.0	0.82	0.0		
3	4.5	0.64	0.0		
4	6.0	1.48	0.2		
5	7.5	1.32	0.0		
6	9.0	1.06	0.0		
7	10.5	1.22	0.3		
8	12.0	1.44	0.8		
9	13.5	1.70	1.2		
10	15.0	1.78	1.1		
11	16.5	1.40	0.1		
12	18.0	1.45	0.0		
13	19.5	1.08	0.3		
14	21.0	0.90	0.0		
15	22.5	0.64	0.0		
16	24.0	0.46	0.0		

Measurement Guide

Stream Width	Number of Vertical Measurements
0' - 3'	3-5
3' - 9'	5-8
9' - 15'	8-10
15' - 30'	10-20
>30'	20

Notes

Sample Checklist

☒ Picture of Sample Location ☐ GPS'd

Location of photos:

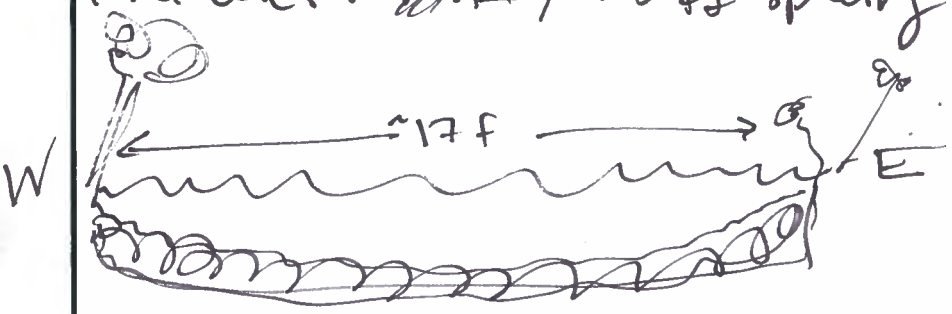
FLOW FORM

Date and Time: 3/3/22
Sample Location ID: N. Channel
Project Number: 60663338
Corresponding Staff Gauge Msmt (ft): 1.0

Client: MPCA
Field Staff:
Weather: 30's overcast

Creek/Channel/Stream Sketch

Total width 17 ft, 1.5 ft spacing = 11 readings



Stream Segment Total Width =

Msmt No.	Dist to Initial Point	Depth	Velocity (measure from 1/3 of depth *from* the bottom)	Area	Discharge
	feet	feet	ft/s	ft^2	ft^3/s
1	1.5	0.40	.2		
2	3	0.65	0.4		
3	4.5	0.80	0.4		
4	6	0.98	0.8		
5	7.5	1.06	1.0		
6	9	1.15	0.5		
7	10.5	0.98	0.1		
8	12	0.98	0.0		
9	13.5	0.85	0.0		
10	15	0.68	0.8		
11					
12					
13					

Measurement Guide

Stream Width	Number of Vertical Measurements
0' - 3'	3-5
3' - 9'	5-8
9' - 15'	8-10
15' - 30'	10-20
>30'	20

Notes

Sample Checklist

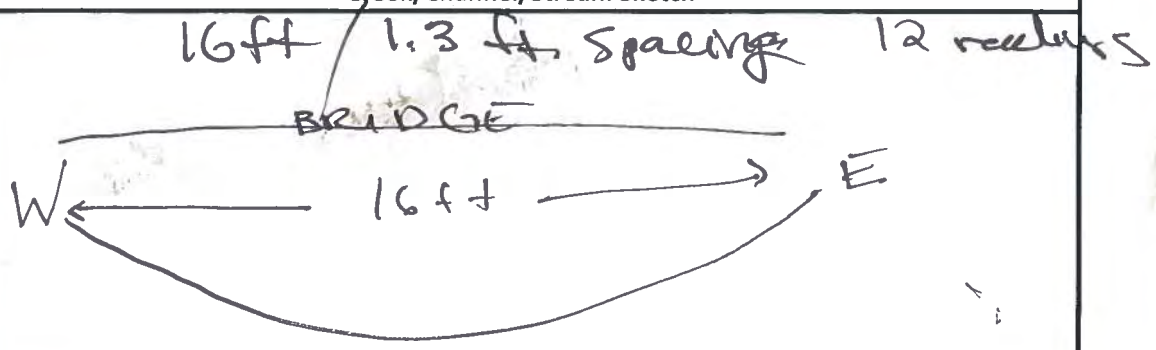
☑ Picture of Sample Location ☐ GPS'd

Location of photos: AL

FLOW FORM

Date and Time: 3/31/22
Client: MPCA
Sample Location ID: W Channel #2
Field Staff: AS/AL/GG/GS/MM
Project Number: 60663338
Weather: 30's
Corresponding Staff Gauge Msmt (ft): 1.05

Creek/Channel/Stream Sketch



Stream Segment Total Width =

Msmt No.	Dist to Initial Point	Depth	Velocity (measure from 1/3 of depth *from* the bottom)	Area	Discharge
	feet	feet	ft/s	ft^2	ft^3/s
1	1.33	0.44	0.0		
2	2.66	0.86	~~0.0~~ 0.5		
3	~~3.94~~	1.11	0.6		
4	5.33	1.18	0.5		
5	6.66	1.20	0.6		
6	8	1.14	0.9		
7	9.33	1.17	0.6		
8	10.66	1.12	0.7		
9	12	1.08	0.4		
10	13.33	0.99	0.5		
11	14.66	~~0.52~~ 0.40	0.0		
12					
13					

Measurement Guide

Stream Width	Number of Vertical Measurements
0' - 3'	3-5
3' - 9'	5-8
9' - 15'	8-10
15' - 30'	10-20
>30'	20

Notes

Sample Checklist

☑ Picture of Sample Location AL ☐ GPS'd

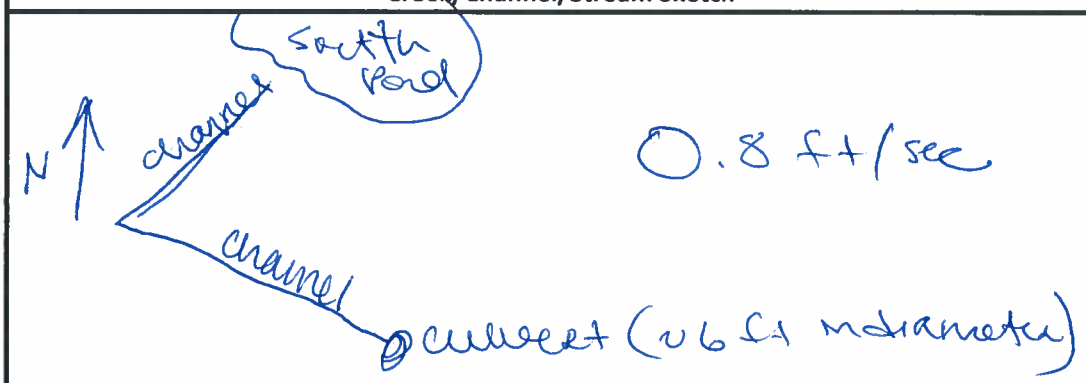
Location of photos:

Sample 0.5ft 26+

FLOW FORM

Date and Time: 3/31/22 @ 1030
Client: MPCA
Sample Location ID: South Pond Outlet
Field Staff: HT/MC/AL
Project Number: 60663338
Weather: Overcast / 30's
Corresponding Staff Gauge Msmt (ft): N/A

Creek/Channel/Stream Sketch



Stream Segment Total Width =

Msmt No.	Dist to Initial Point	Depth	Velocity (measure from 1/3 of depth *from* the bottom)	Area	Discharge
	feet	feet	ft/s	ft^2	ft^3/s
1					
2					
3					
4					
5			N/A		
6					
7					
8					
9					
10					
11					
12					
13					

Measurement Guide

Stream Width	Number of Vertical Measurements
0' - 3'	3-5
3' - 9'	5-8
9' - 15'	8-10
15' - 30'	10-20
>30'	20

Notes

Sample Checklist

☑ Picture of Sample Location ☐ GPS'd

Location of photos: ~~DNR~~ phone

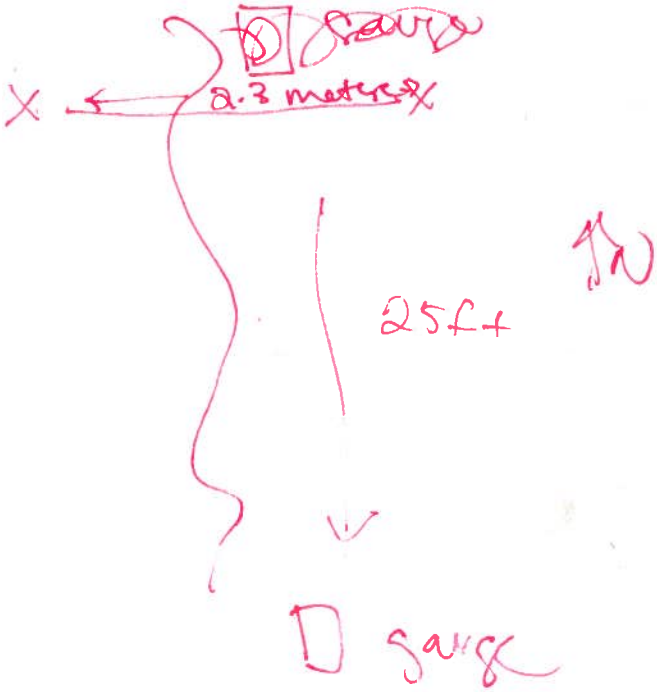
HT

2.3 meters

Meters	Depth ft	Flow ft/s
0.3	0.1	0.0
0.6	0.31	0.0
0.9	0.28	0.8
1.2	0.32	0.5
1.5	0.21	0.7
1.8	0.30	0.5
2.1	0.31	0.4

RC INT. #3
4/14/22 @
1245
Gauge reading: ~~0.56~~ 0.56
AL + ML
snow

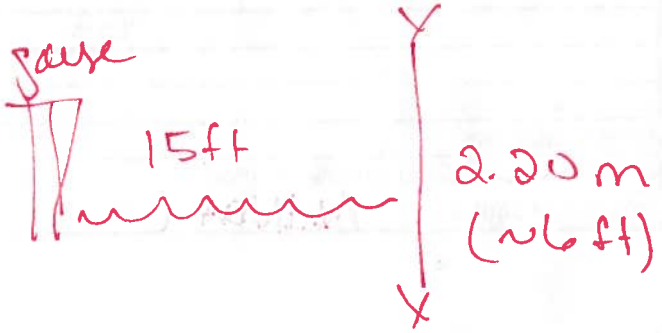
PIC ✓
At phone



RC POND SYSTEM #2
4/14/22 @ 1230 44mm
gauge: 0.91

meters	depth (ft)	flow ft/sec
0.3	0.1	0.0
0.6	0.49	0.0
0.9	0.48	0.1
1.2	0.39	0.0
		0.8
1.5	0.31	
1.8	0.34	0.5
2.1	0.1	0.0

RC ✓
AL phone

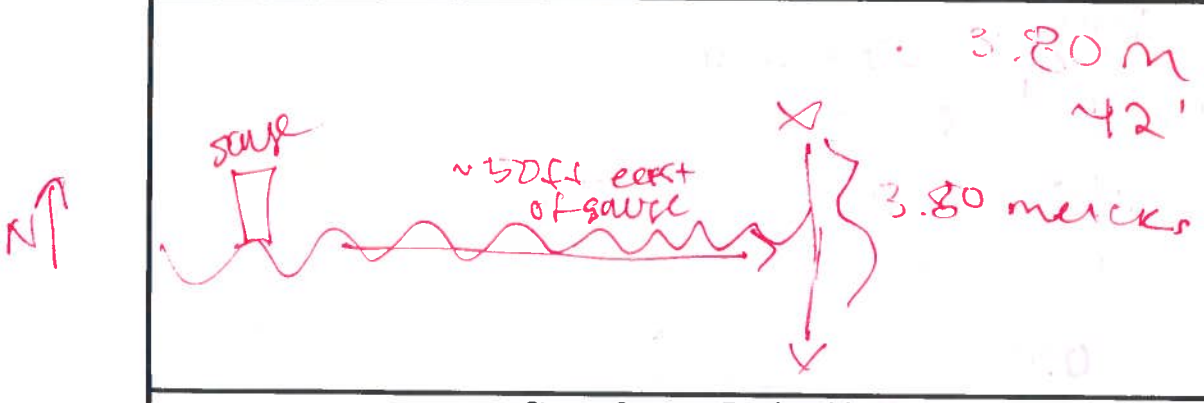


FLOW FORM

Date and Time: 4/14/22 1220
Sample Location ID: RC Int. #1
Project Number: 60663338
Corresponding Staff Gauge Msmt (ft): 0.90

Client: MPCA
Field Staff: AL | ML
Weather: snow

Creek/Channel/Stream Sketch



Stream Segment Total Width =

Msmt No.	Dist to Initial Point	Depth	Velocity (measure from 1/3 of depth *from* the bottom)	Area	Discharge
	~~feet~~ m	feet	ft/s	ft^2	ft^3/s
1	0.5	0.1	0.0		
2	1.0	0.3	0.0		
3	1.5	0.44	0.1		
4	2.0	0.70	0.3		
5	2.5	0.71	0.2		
6	3.0	0.63	0.2		
7	3.5	0.34	0.0		
8	3.7	0.1	0.0		
9					
10					
11					
12					
13					

Measurement Guide

Stream Width	Number of Vertical Measurements
0' - 3'	3-5
3' - 9'	5-8
9' - 15'	8-10
15' - 30'	10-20
>30'	20

Notes

Sample Checklist

☐ Picture of Sample Location ☐ GPS'd
Location of photos: AMANDA L.

DG ELMO

FLOW FORM

Date and Time: 4/4/23 1126
Sample Location ID: N PIPE
Project Number: 60663338
Corresponding Staff Gauge Msmt (ft): 1.63

Client: MPCA
Field Staff: ML/NP
Weather: 39 + Smy

Creek/Channel/Stream Sketch

N Pipe
Depth from bottom pipe to H_2O = ~3 ft - 4 ft
* entirety of Pipe is in water *

$Flow_{Avg} = 0.7$

Stream Segment Total Width =

Msmt No.	Dist to Initial Point	Depth	Velocity (measure from 1/3 of depth *from* the bottom)	Area	Discharge
	feet	feet	ft/s	ft^2	ft^3/s
1					
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					

Measurement Guide

Stream Width	Number of Vertical Measurements
0' - 3'	3-5
3' - 9'	5-8
9' - 15'	8-10
15' - 30'	10-20
>30'	20

Notes

Sample Checklist

☒ Picture of Sample Location ☐ GPS'd
Location of photos: ML

S pipe

Depth from bottom pipe to H_2O = 4.2 ft

(OR) 3.5 inches of pipe from H_2O level to top of pipe

$Flow_{Hg.}$ = 0.6

DG ELMO

FLOW FORM

Date and Time: 4/8/22 ~~1122~~ 1132
Client: MPCA
Sample Location ID: ~~DG~~ S Pipe
Field Staff: ML/NP
Project Number: 60663338
Weather: 39+ Sunny
Corresponding Staff Gauge Msmt (ft): 1.63

Creek/Channel/Stream Sketch

S Pipe

Depth from bottom pipe to H_2O ~4.2 ft

OR 3.5 inches of space from H_2O level to top of pipe

$Flow_{AVG} = 0.6$

Stream Segment Total Width =

Msmt No.	Dist to Initial Point	Depth	Velocity (measure from 1/3 of depth *from* the bottom)	Area	Discharge
	feet	feet	ft/s	ft^2	ft^3/s
1					
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					

Measurement Guide

Stream Width	Number of Vertical Measurements
0' - 3'	3-5
3' - 9'	5-8
9' - 15'	8-10
15' - 30'	10-20
>30'	20

Notes

Sample Checklist

☒ Picture of Sample Location ☐ GPS'd

Location of photos: ML

FLOW FORM

Date and Time: 7/6/22, 1300 | Client: MPCA

Sample Location ID: SD S Inlet Pipe | Field Staff: ML/RT

Project Number: 60663338 | Weather: 72 • Clear

Corresponding Staff Gauge Msmt (ft)

Creek/Channel/Stream Sketch

All of pipe under water. Diameter = 36"

$Flow_{Avg} = 0.6$

Stream Segment Total Width =

Msmt No.	Dist to Initial Point	Depth	Velocity (measure from 1/3 of depth ***from*** the bottom)	Area	Discharge
	feet	feet	ft/s	ft^2	ft^3/s
1					
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					

Measurement Guide

Stream Width	Number of Vertical Measurements
0' - 3'	3-5
3' - 9'	5-8
9' - 15'	8-10
15' - 30'	10-20
>30'	20

Notes

Sample Checklist

☒ Picture of Sample Location ☐ GPS'd

Location of photos: ~~PPL~~ NP

FLOW FORM

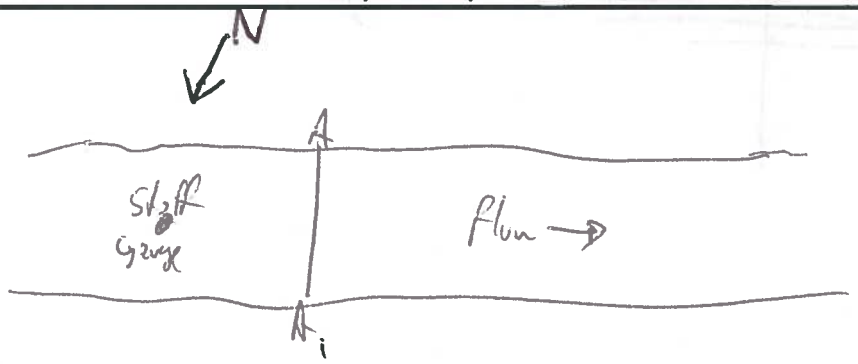
Date and Time: ~~Mon~~ 4/8/22 1250 Client: MPCA

Sample Location ID: North channel #2 Field Staff: ML/MD

Project Number: 60663338 Weather: 40's clear

Corresponding Staff Gauge Msmt (ft): 1.60

Creek/Channel/Stream Sketch



Stream Segment Total Width = 18 ft

Msmt No.	Dist to Initial Point	Depth	Velocity (measure from 1/3 of depth ***from*** the bottom)	Area	Discharge
	feet	feet	ft/s	ft^2	ft^3/s
1	1	0.36	0.0		
2	2	0.80	0.0		
3	3	1.24	0.4		
4	4	1.48	0.4		
5	5	1.66	0.4		
6	6	1.72	0.6		
7	7	1.78	0.6		
8	8	1.82	0.8		
9	9	1.72	0.8		
10	10	1.76	~~0.4~~ 0.8		
11	11	1.78	0.7		
12	12	1.72	0.6		
13	13	1.70	0.3		

Measurement Guide

Stream Width	Number of Vertical Measurements
0' - 3'	3-5
3' - 9'	5-8
9' - 15'	8-10
15' - 30'	10-20
>30'	20

Notes

Sample Checklist

☒ Picture of Sample Location ☐ GPS'd

Location of photos: ML

See back

Measure #	Dist.	Depth	Flow
14	~~15~~ 14	1.52	0.5
15	15	1.02	0.4
16	16	0.60	0.0
17	17	0.30	0.0
~~18~~	~~18~~		

FLOW FORM

Date and Time: 4/8/22 1200
Client: MPCA
Sample Location ID: DG Horseshoe #2
Field Staff: ML / NP
Project Number: 60663338
Weather: 40 + clear
Corresponding Staff Gauge Msmt (ft): 2.59

Creek/Channel/Stream Sketch

*very flooded water up to edge of cattails

Stream Segment Total Width = 28 ft

Msmt No.	Dist to Initial Point	Depth	Velocity (measure from 1/3 of depth ***from*** the bottom)	Area	Discharge
	feet	feet	ft/s	ft^2	ft^3/s
1	1.5	0.36	0.0		
2	3	0.82	0.0		
3	4.5	1.30	0.0		
4	6	1.86	0.0		
5	7.5	2.52	0.4		
6	9	2.80	0.0		
7	10.5	2.28	0.0		
8	12	2.32	0.0		
9	13.5	2.38	0.4		
10	15	2.66	0.2		
11	16.5	2.64	0.5		
12	18	2.64	0.7		
13	19.5	2.66	0.5		

A
A'

Measurement Guide

Stream Width	Number of Vertical Measurements
0' - 3'	3-5
3' - 9'	5-8
9' - 15'	8-10
15' - 30'	10-20
>30'	20

Notes

Sample Checklist

☒ Picture of Sample Location ☐ GPS'd
Location of photos: ML

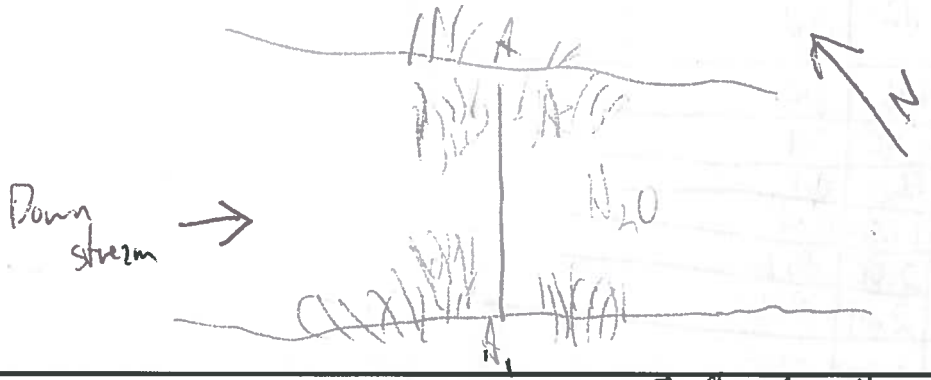
see back →

Reading	Distance	Depth	Flow
14	21	1.86	0.0
15	22.5	1.94	0.0
16	24	1.54	0.0
17	25.5	1.0	0.0
18	27.0	0.44	0.0
~~14~~			

FLOW FORM

Date and Time: 4/8/22 1145
Client: MPCA
Sample Location ID: DG Horseshoe #1
Field Staff: ML/NP
Project Number: 60663338
Weather: 40+ Sunny
Corresponding Staff Gauge Msmt (ft): 3.80

Creek/Channel/Stream Sketch



Stream Segment Total Width = 30ft. A–A'

Msmt No.	Dist to Initial Point	Depth	Velocity (measure from 1/3 of depth *from* the bottom)	Area	Discharge
	feet	feet	ft/s	ft^2	ft^3/s
1					
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					

See back

Measurement Guide

Stream Width	Number of Vertical Measurements
0' - 3'	3-5
3' - 9'	5-8
9' - 15'	8-10
15' - 30'	10-20
>30'	20

Notes

Sample Checklist

☐ Picture of Sample Location ☐ GPS'd

Location of photos:

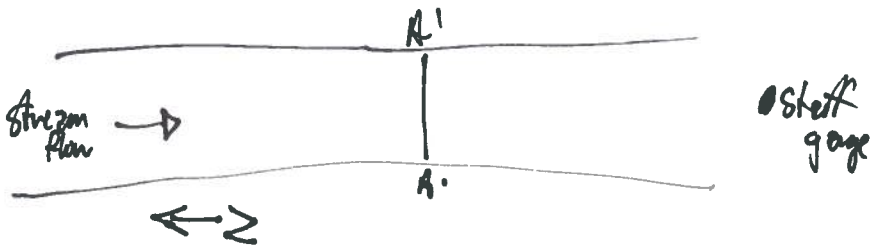
measurement	Depth	Plan
1	0.62	0.0
2	0.80	0.0
3	1.12	0.0
4	1.16	0.0
5	1.40	0.1
6	1.50	0.1
7	1.68	0.0
8	2.06	0.12
9	2.64	0.0
10	2.68	0.0
11	2.70	0.0
12	2.76	0.1
13	2.64	0.1
14	2.96	0.3
15	2.82	1.0
16	2.90	0.5
17	3.06	1.0
18	3.00	0.6
19	2.98	0.0
20	2.96	0.0
21	2.90	0.0
22	2.84	0.0
23	1.68	0.0
24	1.64	0.0
25	1.68	0.0
26	1.42	0.00
27	1.08	0.00
28	1.01	0.00
29	0.62	0.0
30	.19	0.0

★ VCR / Plot 60, up to edge of cattails

FLOW FORM

Date and Time: 4/6/22
Client: MPCA
Sample Location ID: RC Complex 2
Field Staff: ML/NP
Project Number: 60663338
Weather: 35 + clear
Corresponding Staff Gauge Msmt (ft): 1.56

Creek/Channel/Stream Sketch



Flooded, much vegetation/grass covering banks is under water.

Stream Segment Total Width = 9 ft

Msmt No.	Dist to Initial Point	Depth	Velocity (measure from 1/3 of depth *from* the bottom)	Area	Discharge
	feet	feet	ft/s	ft^2	ft^3/s
1	One 1	0.94	0.0		
2	2	1.34	0.0		
3	3	1.72	0.0		
4	4	1.92	0.1		
5	5	1.80	0.0		
6	6	1.40	0.0		
7	7	1.28	0.0		
8	8	1.16	0.0		
9					
10					
11					
12					
13					

A — A'

Measurement Guide

Stream Width	Number of Vertical Measurements
0' - 3'	3-5
3' - 9'	5-8
9' - 15'	8-10
15' - 30'	10-20
>30'	20

Notes

Sample Checklist

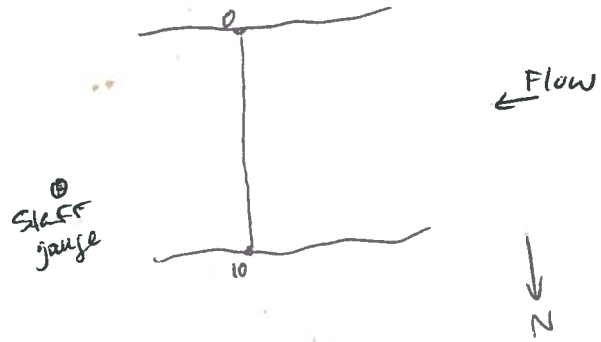
☒ Picture of Sample Location ☐ GPS'd

Location of photos: M1

FLOW FORM

Date and Time: 4/8/22 0845
Client: MPCA
Sample Location ID: RL Post RR1
Field Staff: ML/NP
Project Number: 60663338
Weather: 32 + Clear
Corresponding Staff Gauge Msmt (ft):

Creek/Channel/Stream Sketch



Stream Segment Total Width =

Msmt No.	Dist to Initial Point	Depth	Velocity (measure from 1/3 of depth *from* the bottom)	Area	Discharge
	feet	feet	ft/s	ft^2	ft^3/s
1	1	0.28	0		
2	2	0.56	0		
3	3	0.57	0		
4	4	0.68	0		
5	5	0.91	0.4		
6	6	1.04	0.2		
7	7	1.12	0.47		
8	8	1.12	0.2		
9	9	1.14	0.1		
10	10	0.89	0.1		
11					
12					
13					

Measurement Guide

Stream Width	Number of Vertical Measurements
0' - 3'	3-5
3' - 9'	5-8
9' - 15'	8-10
15' - 30'	10-20
>30'	20

Notes

Staff Gauge: 1.44

Sample Checklist

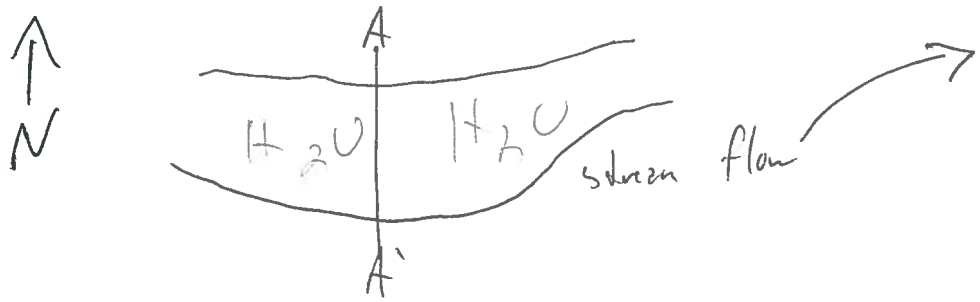
☐ Picture of Sample Location ☐ GPS'd

Location of photos:

FLOW FORM

Date and Time: 4/4/22 0933
Client: MPCA
Sample Location ID: Pond system #2
Field Staff: ML/MP
Project Number: 60663338
Weather: 33 + clear
Corresponding Staff Gauge Msmt (ft): 1.0

Creek/Channel/Stream Sketch



Stream Segment Total Width = 8ft

Msmt No.	Dist to Initial Point	Depth	Velocity (measure from 1/3 of depth *from* the bottom)	Area	Discharge
	feet	feet	ft/s	ft^2	ft^3/s
A 1	1	0.46	0.4		
2	2	0.58	0.8		
3	3	0.60	1.6		
4	4	0.56	0.4		
5	5	0.58	0.6		
6	6	0.66	0.3		
A' 7	7	0.66	0.0		
8	8	0.36	0.0		
9					
10					
11					
12					
13					

Measurement Guide

Stream Width	Number of Vertical Measurements
0' - 3'	3-5
3' - 9'	5-8
9' - 15'	8-10
15' - 30'	10-20
>30'	20

Notes

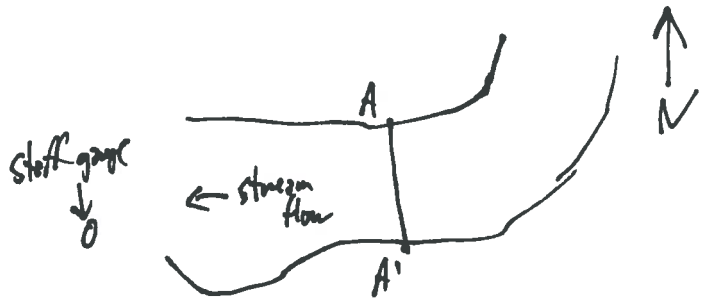
Sample Checklist

☒ Picture of Sample Location ☐ GPS'd
Location of photos: ML

FLOW FORM

Date and Time: 4/8/22 0944
Client: MPCA
Sample Location ID: RC Intermit-3
Field Staff: ML/NP
Project Number: 60663338
Weather: 33 + clear
Corresponding Staff Gauge Msmt (ft): 0.66

Creek/Channel/Stream Sketch



Stream Segment Total Width = 9 ft

Msmt No.	Dist to Initial Point	Depth	Velocity (measure from 1/3 of depth *from* the bottom)	Area	Discharge
	feet	feet	ft/s	ft^2	ft^3/s
1	1	0.34	0.0		
2	2	0.68	0.0		
3	3	0.83	0.2		
4	4	0.89	0.4		
5	5	0.98	0.6		
6	6	1.08	0.4		
7	7	1.06	0.0		
8	8	0.64	0.0		
9	9	0.10	0.0		
10					
11					
12					
13					

A
A'

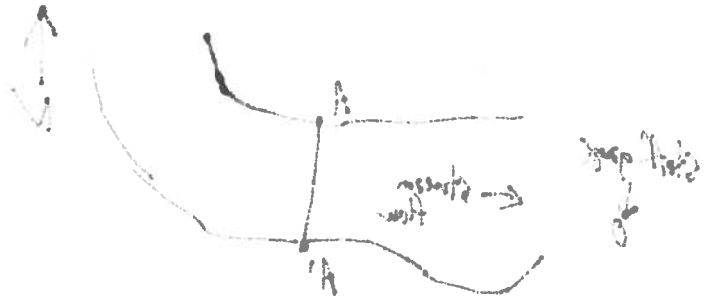
Measurement Guide

Stream Width	Number of Vertical Measurements
0' - 3'	3-5
3' - 9'	5-8
9' - 15'	8-10
15' - 30'	10-20
>30'	20

Notes

Sample Checklist

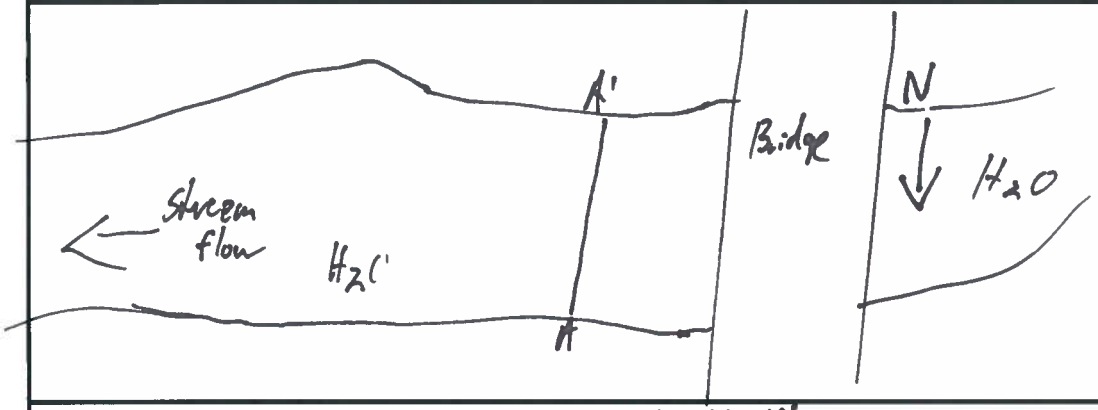
☑ Picture of Sample Location ☐ GPS'd
Location of photos: ML



FLOW FORM

Date and Time: 4/8/22
Client: MPCA
Sample Location ID: RC Intermittent 1
Field Staff: ML/NP
Project Number: 60663338
Weather: 34 + clear
Corresponding Staff Gauge Msmt (ft): 1.0

Creek/Channel/Stream Sketch



Stream Segment Total Width = 14

Msmt No.	Dist to Initial Point	Depth	Velocity (measure from 1/3 of depth *from* the bottom)	Area	Discharge
	feet	feet	ft/s	ft^2	ft^3/s
A					
1	1	0.62	0.0		
2	2	0.72	0.0		
3	3	0.90	0.0		
4	4	0.86	0.2		
5	5	0.94	0.4		
6	6	1.18	0.2		
7	7	1.06	0.2		
8	8	1.16	0.1		
A' 9	9	1.28	0.0		
10	10	1.28	0.0		
11	11	1.38	0.0		
12	12	1.14	0.0		
13	13	0.85	0.0		

Measurement Guide

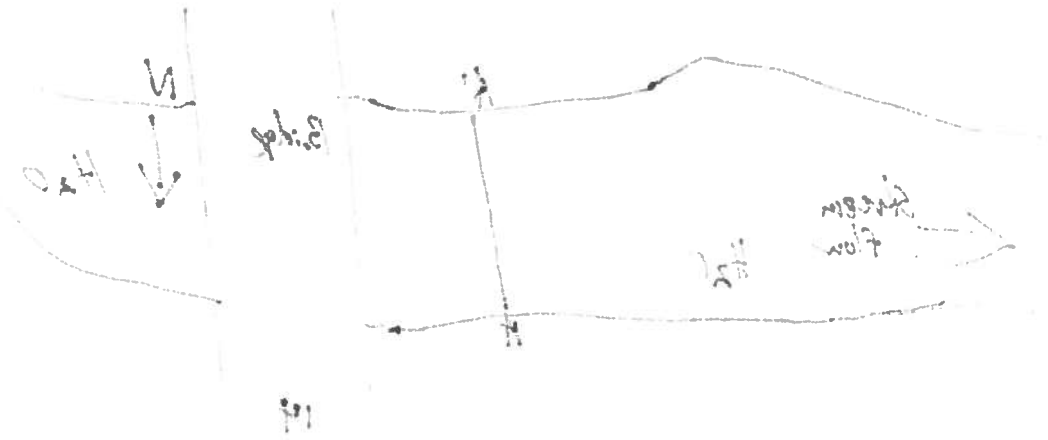
Stream Width	Number of Vertical Measurements
0' - 3'	3-5
3' - 9'	5-8
9' - 15'	8-10
15' - 30'	10-20
>30'	20

Notes

Sample Checklist

☒ Picture of Sample Location ☐ GPS'd

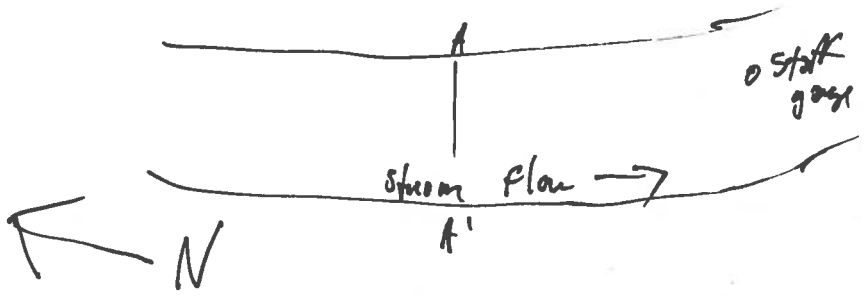
Location of photos:



FLOW FORM

Date and Time: 4/8/21
Client: MPCA
Sample Location ID: RC confluence 1
Field Staff: ML/NP
Project Number: 60663338
Weather: 34+ Clear
Corresponding Staff Gauge Msmt (ft): 1.09

Creek/Channel/Stream Sketch



Stream Segment Total Width = 10 ft

Msmt No.	Dist to Initial Point	Depth	Velocity (measure from 1/3 of depth ***from*** the bottom)	Area	Discharge
	feet	feet	ft/s	ft^2	ft^3/s
1	1	0.11	0.0		
2	2	0.34	0.6		
3	3	0.36	0.5		
4	4	0.36	0.5		
5	5	0.36	1.0		
6	6	0.34	0.8		
7	7	0.48	0.9		
8	8	0.48	0.7		
9	9	0.56	1.2		
10	10	0.28	1.0		
11					
12					
13					

A
A'

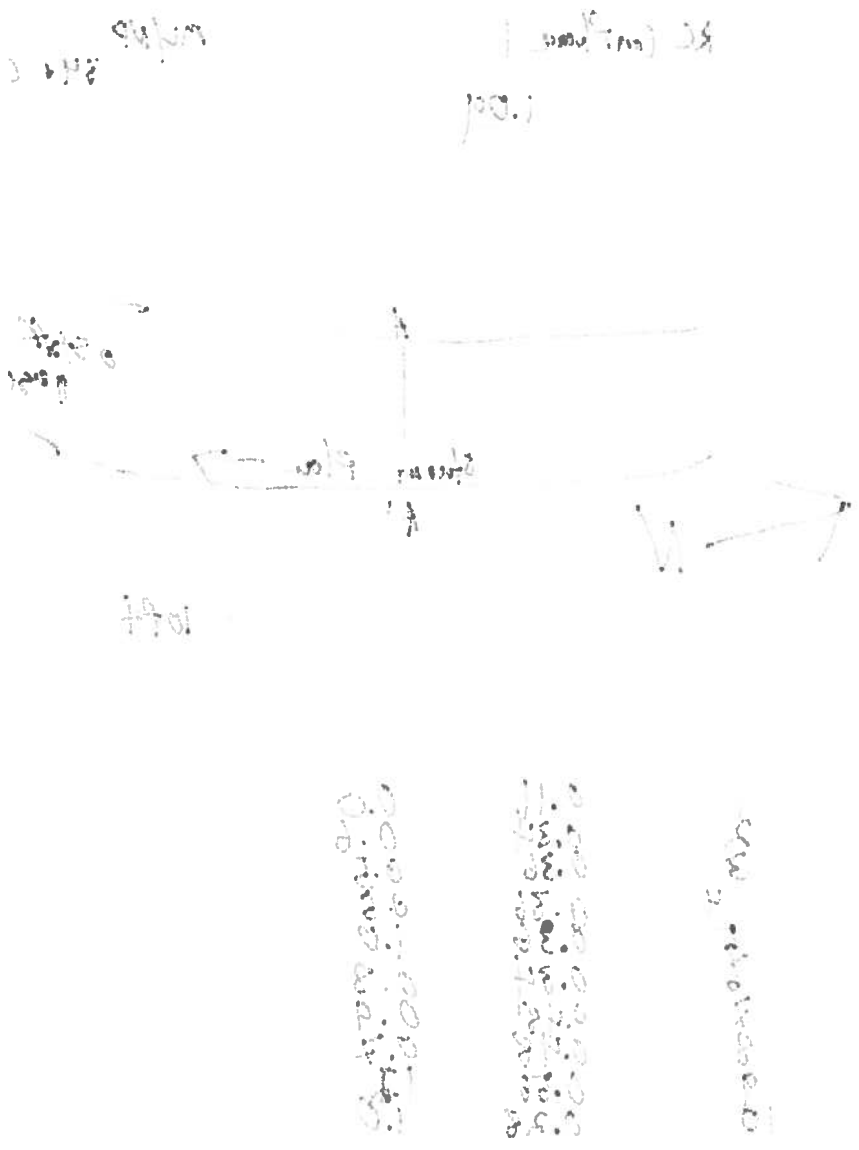
Measurement Guide

Stream Width	Number of Vertical Measurements
0' - 3'	3-5
3' - 9'	5-8
9' - 15'	8-10
15' - 30'	10-20
>30'	20

Notes

Sample Checklist

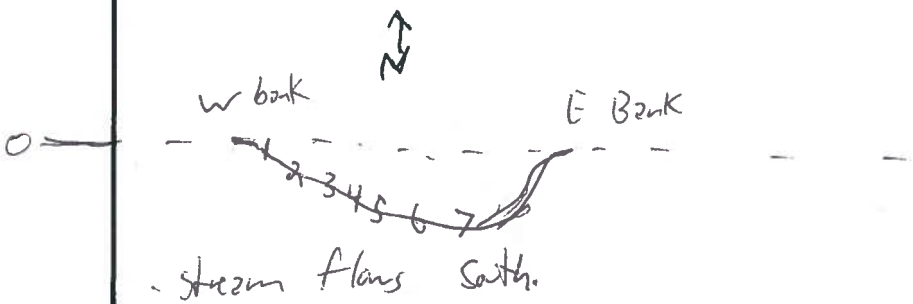
☒ Picture of Sample Location ☐ GPS'd
Location of photos: ML



FLOW FORM

Date and Time: 4/8/22 0915
Client: MPCA
Sample Location ID: Pond System #1
Field Staff: ML/NP
Project Number: 60663338
Weather: 33 & Clear
Corresponding Staff Gauge Msmt (ft): 1.16

Creek/Channel/Stream Sketch



Stream Segment Total Width = 7

Msmt No.	Dist to Initial Point	Depth	Velocity (measure from 1/3 of depth *from* the bottom)	Area	Discharge
	feet	feet	ft/s	ft^2	ft^3/s
1	1	0.38	0		
2	2	0.56	0		
3	3	0.68	0		
4	4	0.87	0.5		
5	5	1.09	0.7		
6	6	1.24	1.1		
7	7	1.08	0		
8					
9					
10					
11					
12					
13					

Measurement Guide

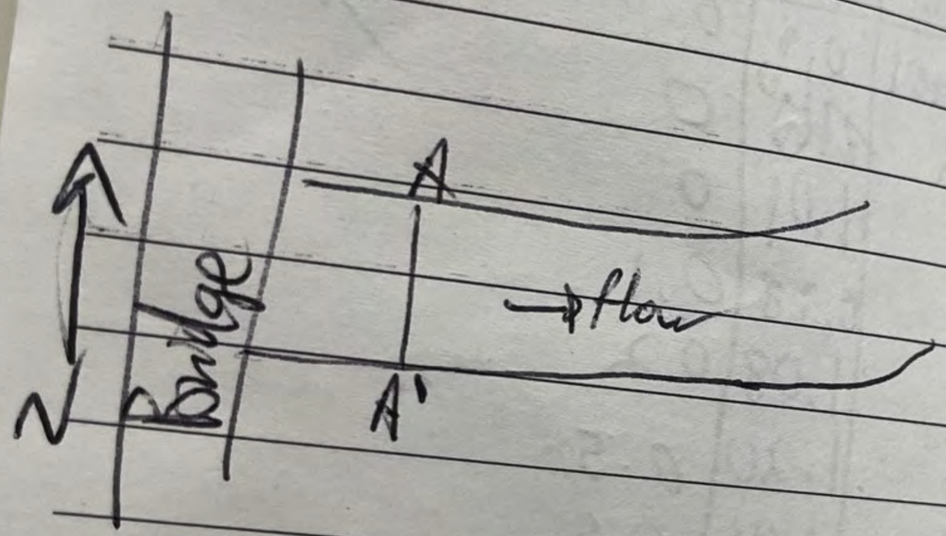
Stream Width	Number of Vertical Measurements
0' - 3'	3-5
3' - 9'	5-8
9' - 15'	8-10
15' - 30'	10-20
>30'	20

Notes

Sample Checklist

☑ Picture of Sample Location ☐ GPS'd

Location of photos: ML



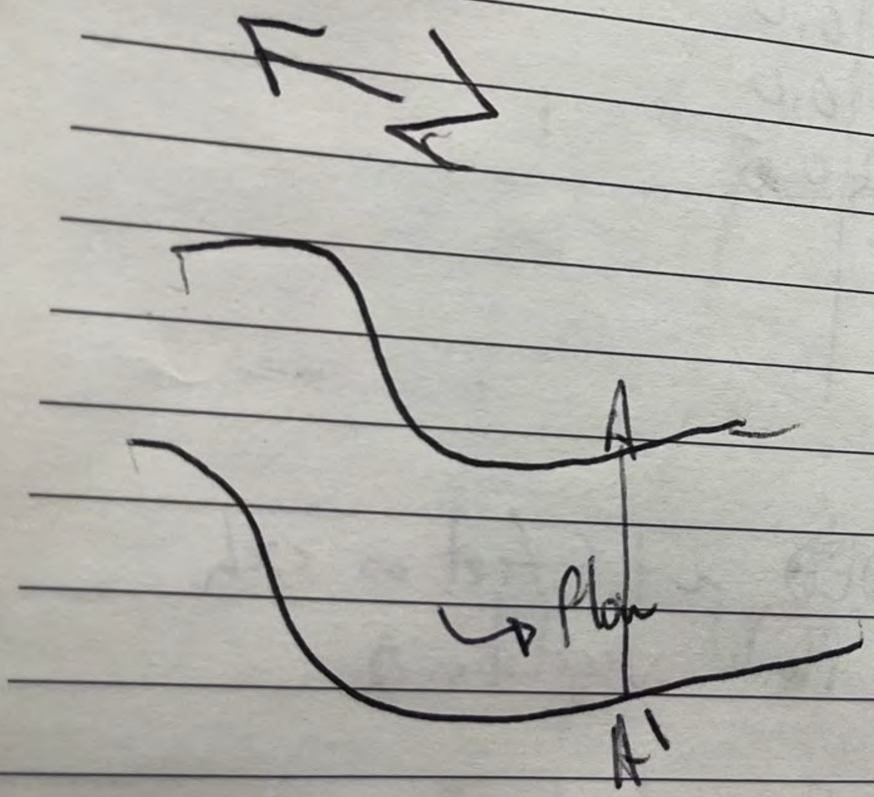
RC Puter #1 : total width: 14ft
staff gauge: 1.0

5/3/22 @ 0105

Reading #	Distance	Depth	Flow
1	1	0.34	0.1
2	2	0.68	0.2
3	3	0.42	0.1
4	4	0.86	0.2
5	5	0.92	0.4
6	6	1.04	0.1
7	7	1.04	0.0
8	8	1.18	0.1
9	9	1.28	0.2
10	10	1.36	0.4
11	11	1.30	0.2
12	12	1.14	0.0
13	13	0.70	0.0
14	14	0.40	0.0

15 — ON LAND

PIC's on M2 phone



RC Intermittent #3 | total width: 9
staff gage: 0.69
5/3/22 @ 0830
with: MP, ML

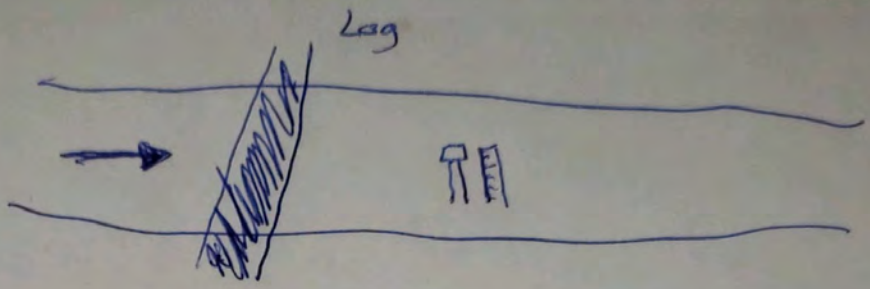
Reading #	Distance	Depth	Flow
1	~~0.50~~ 1	0.9	0
2	2	~~1.50~~	0
3	3	1.01	0
4	4	0.98	0.1
5	5	1.08	0.2
6	6	1.20	0.5
7	7	1.06	0.5
8	8	0.80	0.6
9	9	0.15	0

PIC on ML phone

FLOW FORM

Date and Time: 5/12/22 1552
Client: MPCA
Sample Location ID: Pond System #1
Field Staff: GG, NF
Project Number: 60663338
Weather: Sunny 81°
Corresponding Staff Gauge Msmt (ft): 1.66 *

Creek/Channel/Stream Sketch



Stream Segment Total Width = 8.0

Msmt No.	Dist to Initial Point	Depth	Velocity (measure from 1/3 of depth *from* the bottom)	Area	Discharge
	feet	feet	ft/s	ft^2	ft^3/s
1	1.0	1.68	2.0		
2	2.0	1.60	2.1		
3	3.0	1.58	1.9		
4	4.0	1.52	2.0		
5	5.0	1.34	0.9		
6	6.0	0.26	0.2		
7	7.0	0.56	0.0		
8	8.0	0.15	0.0		
9					
10					
11					
12					
13					

Measurement Guide

Stream Width	Number of Vertical Measurements
0' - 3'	3-5
3' - 9'	5-8
9' - 15'	8-10
15' - 30'	10-20
>30'	20

Notes

* Large debris flow pushed staff gauge forward. Will need to be resurveyed

Sample Checklist

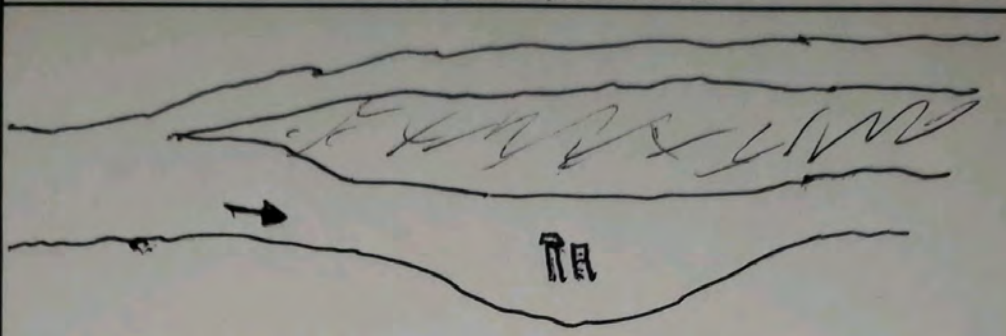
☒ Picture of Sample Location ☐ GPS'd

Location of photos: GG

FLOW FORM

Date and Time: 5/12/22 1526
Client: MPCA
Sample Location ID: RC Wetlands 1
Field Staff: GG, NP
Project Number: 60663338
Weather: Sunny 81°
Corresponding Staff Gauge Msmt (ft): 1.70

Creek/Channel/Stream Sketch



Stream Segment Total Width = 7.0

Msmt No.	Dist to Initial Point	Depth	Velocity (measure from 1/3 of depth *from* the bottom)	Area	Discharge
	feet	feet	ft/s	ft^2	ft^3/s
1	1.0	0.96	0.3		
2	2.0	1.84	1.2		
3	3.0	2.22	1.7		
4	4.0	0.84	1.2		
5	5.0	0.68	0.8		
6	6.0	0.62	0.0		
7	7.0	0.28	0.0		
8					
9					
10					
11					
12					
13					

Measurement Guide

Stream Width	Number of Vertical Measurements
0' - 3'	3-5
3' - 9'	5-8
9' - 15'	8-10
15' - 30'	10-20
>30'	20

Notes

Sample Checklist

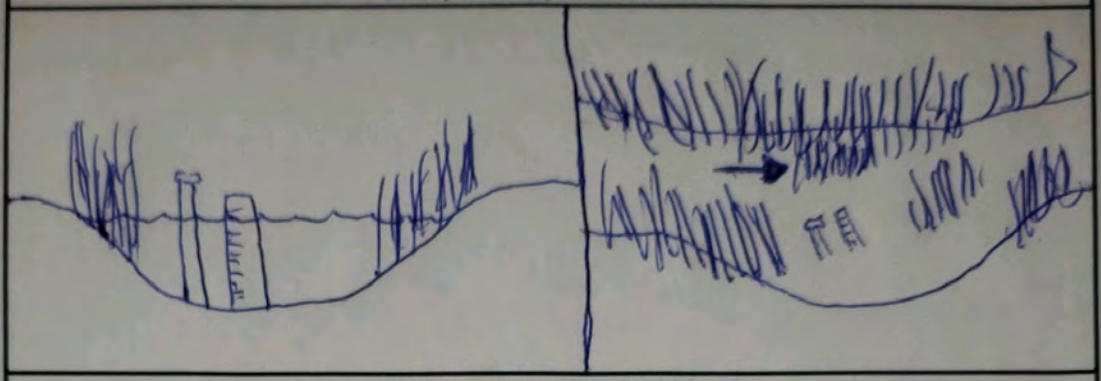
☒ Picture of Sample Location ☐ GPS'd

Location of photos: GG

FLOW FORM

Date and Time: 5/12/22 1442
Client: MPCA
Sample Location ID: DG Horseshoe #2
Field Staff: GG, NP
Project Number: 60663338
Weather: Sunny 80°
Corresponding Staff Gauge Msmt (ft): 2.62

Creek/Channel/Stream Sketch



Stream Segment Total Width = 30.0

Msmt No.	Dist to Initial Point	Depth	Velocity (measure from 1/3 of depth *from* the bottom)	Area	Discharge
	feet	feet	ft/s	ft^2	ft^3/s
1	3.0	0.76	0.0		
2	6.0	1.86	0.0		
3	9.0	2.28	0.0		
4	12.0	2.28	0.0		
5	15.0	2.28	0.5		
6	18.0	2.80	1.1		
7	21.0	2.62	0.4		
8	24.0	1.98	0.3		
9	27.0	1.58	0.0		
10	30.0	0.60	0.0		
11					
12					
13					

Measurement Guide

Stream Width	Number of Vertical Measurements
0' - 3'	3-5
3' - 9'	5-8
9' - 15'	8-10
15' - 30'	10-20
>30'	20

Notes

DTW: 1.79 DTB: 6.43

Sample Checklist

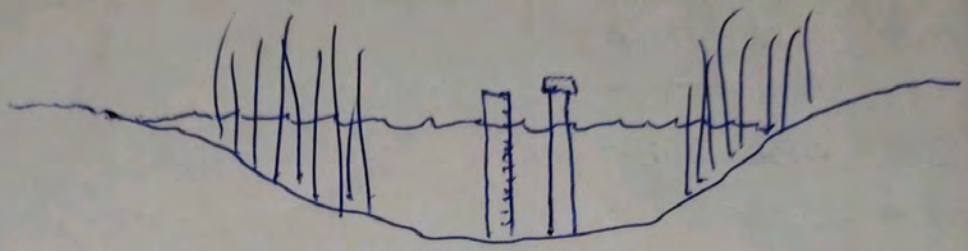
☒ Picture of Sample Location ☐ GPS'd

Location of photos: GG

FLOW FORM

Date and Time: 5/12/22 1430
Client: MPCA
Sample Location ID: DG Horseshoe #1
Field Staff: GG, NP
Project Number: 60663338
Weather: Mostly sunny, windy 74°
Corresponding Staff Gauge Msmt (ft): 2.90

Creek/Channel/Stream Sketch



Stream Segment Total Width = 30.0

Msmt No.	Dist to Initial Point	Depth	Velocity (measure from 1/3 of depth *from* the bottom)	Area	Discharge
	feet	feet	ft/s	ft^2	ft^3/s
1	1.5	0.32	0.0		
2	3.0	1.06	0.0		
3	4.5	1.38	0.0		
4	6.0	1.58	0.0		
5	7.5	1.62	0.1		
6	9.0	2.70	0.0		
7	10.5	2.56	0.0		
8	12.0	2.92	0.1		
9	13.5	3.18	0.3		
10	15.0	3.14	0.8		
11	16.5	3.08	1.1		
12	18.0	3.18	0.5		
13	19.5	2.86	0.0		

* SEE BACK

Measurement Guide

Stream Width	Number of Vertical Measurements
0' - 3'	3-5
3' - 9'	5-8
9' - 15'	8-10
15' - 30'	10-20
>30'	20

Notes

DTW: 1.36 DTB: 6.57

Sample Checklist

☒ Picture of Sample Location ☐ GPS'd

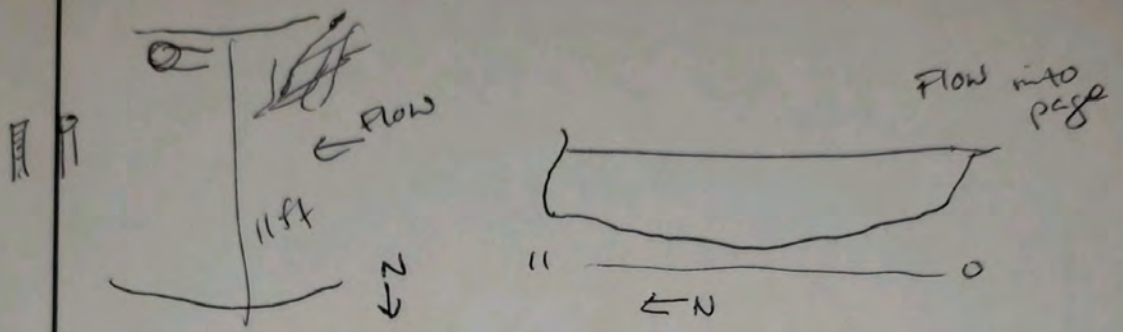
Location of photos: GG

21.0	3.02	0.1
22.5	2.96	0.0
24.0	1.76	0.0
25.5	1.68	0.0
27.0	1.10	0.0
28.5	0.60	0.0
30.0	0.08	0.0

FLOW FORM

Date and Time: 5/13/22 11:25
Client: MPCA
Sample Location ID: RC Post RR #1
Field Staff: NP, GG
Project Number: 60663338
Weather: Sunny, 76°F
Corresponding Staff Gauge Msmt (ft): 1.98

Creek/Channel/Stream Sketch



Stream Segment Total Width = 11 ft.

Msmt No.	Dist to Initial Point	Depth	Velocity (measure from 1/3 of depth ***from*** the bottom)	Area	Discharge
	feet	feet	ft/s	ft^2	ft^3/s
1	1	0.42	0.0		
2	2	0.73	0.0		
3	3	1.0	0.0		
4	4	1.12	0.0		
5	5	1.28	~~0.2~~ 0.1		
6	6	1.16	~~0.7~~ 0.6		
7	7	1.22	0.8		
8	8	1.20	0.8		
9	9	1.28	0.9		
10	10	1.54	0.6		
11	11	1.23	0.6		
12					
13					

Measurement Guide

Stream Width	Number of Vertical Measurements
0' - 3'	3-5
3' - 9'	5-8
9' - 15'	8-10
15' - 30'	10-20
>30'	20

Notes

- ~~Staff~~ Gauge and transducer housing knocked over by tree, staff gauge reset, transducer housing removed, will need to resurvey staff gauge & housing

Sample Checklist

☑ Picture of Sample Location ☐ GPS'd

Location of photos: NP

FLOW FORM

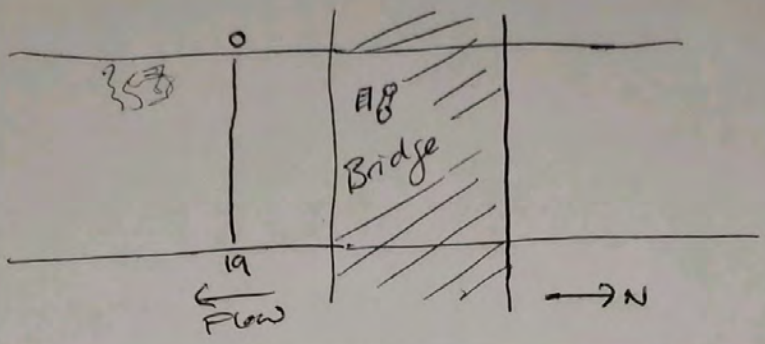
Date and Time: 5/13/22 1451 Client: MPCA

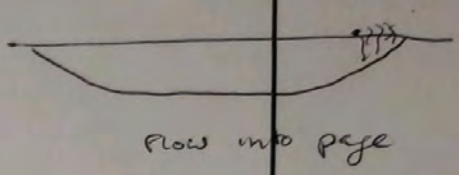
Sample Location ID: North Channel 2 Field Staff: NP, GG

Project Number: 60663338 Weather: 76°F Sunny

Corresponding Staff Gauge Msmt (ft): 1.42'

Creek/Channel/Stream Sketch





Stream Segment Total Width = 19.0'

Msmt No.	Dist to Initial Point	Depth	Velocity (measure from 1/3 of depth *from* the bottom)	Area	Discharge
	feet	feet	ft/s	ft^2	ft^3/s
1	1.5	0.54	0		
2	3	0.98	0.2		
3	4.5	1.50	0.5		
4	6	1.62	0.5		
5	7.5	1.72	1.0		
6	9	1.75	1.1		
7	10.5	1.70	1.1		
8	12	1.74	0.9		
9	13.5	1.65	0.9		
10	15	1.34	0.8		
11	16.5	0.68	0.5		
12	18	0.20	0.0		
13					

Measurement Guide

Stream Width	Number of Vertical Measurements
0' - 3'	3-5
3' - 9'	5-8
9' - 15'	8-10
15' - 30'	10-20
>30'	20

Notes

Sample Checklist

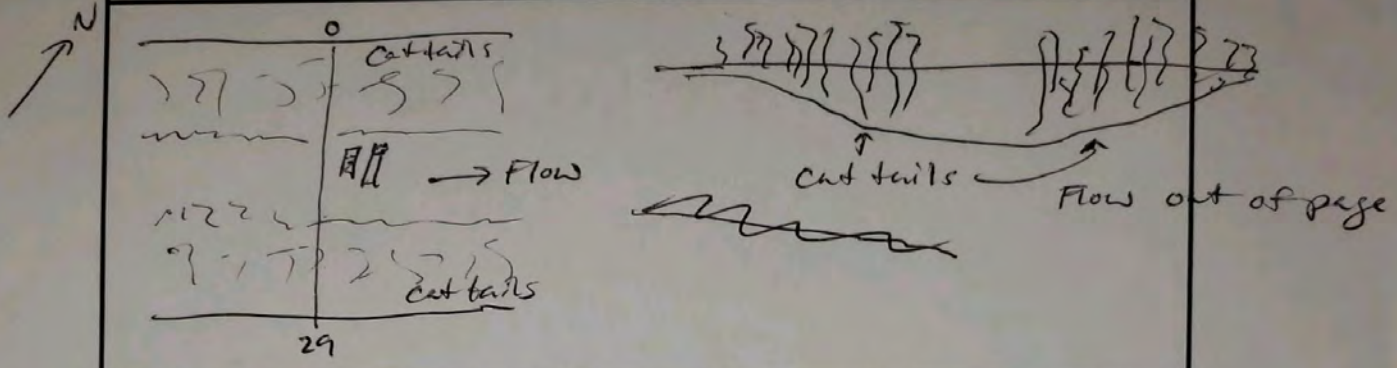
☑ Picture of Sample Location ☐ GPS'd

Location of photos: NP Phone

FLOW FORM

Date and Time: 5/13/22 13:45
Client: MPCA
Sample Location ID: Horseshoe #1
Field Staff: NP, GG
Project Number: 60663338
Weather: 76°F, Sunny
Corresponding Staff Gauge Msmt (ft): 2.64'

Creek/Channel/Stream Sketch



Distance | Depth | V.
28 | 0.51 | 0.0

Stream Segment Total Width = 29'

Msmt No.	Dist to Initial Point	Depth	Velocity (measure from 1/3 of depth *from* the bottom)	Area	Discharge
	feet	feet	ft/s	ft^2	ft^3/s
1	2	0.72	0.0		
2	4	1.10	0.0		
3	6	1.26	0.0		
4	8	1.82	0.0		
5	10	2.48	0.0		
6	12	2.58	0.0		
7	14	2.95	0.3		
8	16	2.73	0.7		
9	18	2.85	0.5		
10	20	2.66	0.1		
11	22	2.76	0.0		
12	24	1.52	0.0		
13	26	1.26	0.0		

Measurement Guide

Stream Width	Number of Vertical Measurements
0' - 3'	3-5
3' - 9'	5-8
9' - 15'	8-10
15' - 30'	10-20
>30'	20

Notes

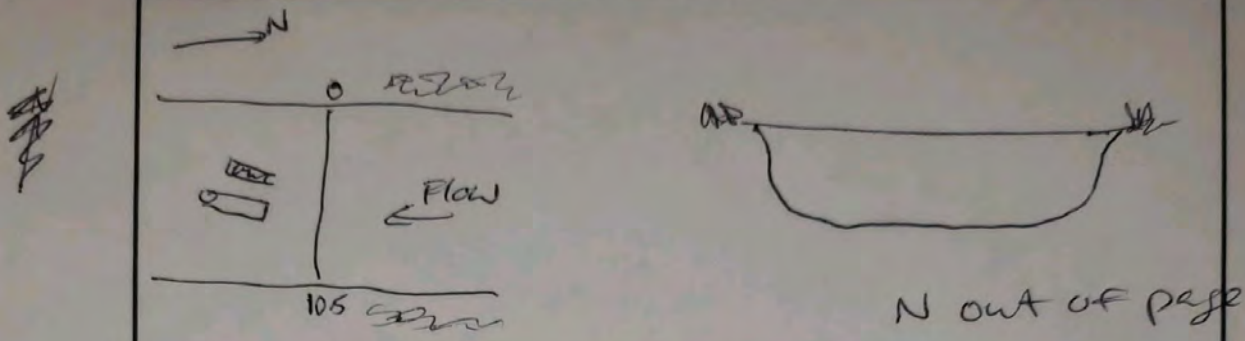
Sample Checklist

☑ Picture of Sample Location ☐ GPS'd
Location of photos: NP phone

FLOW FORM

Date and Time: 5/13/22 12:53
Client: MPCA
Sample Location ID: RC Confluence FT2
Field Staff: NP, GG
Project Number: 60663338
Weather: 76°F Sunny
Corresponding Staff Gauge Msmt (ft): 1.62

Creek/Channel/Stream Sketch



Stream Segment Total Width = 10.5

Msmt No.	Dist to Initial Point	Depth	Velocity (measure from 1/3 of depth *from* the bottom)	Area	Discharge
	feet	feet	ft/s	ft^2	ft^3/s
1	1	0.86	0.2		
2	2	1.35	0.8		
3	3	1.48	0.8		
4	4	1.63	1.3		
5	5	1.70	1.1		
6	6	1.72	1.1		
7	7	1.74	1.5		
8	8	1.78	0.9		
9	9	1.72	0.1		
10	10	0.38	0.0		
11					
12					
13					

Measurement Guide

Stream Width	Number of Vertical Measurements
0' - 3'	3-5
3' - 9'	5-8
9' - 15'	8-10
15' - 30'	10-20
>30'	20

Notes

- Staff Gauge + transducer housing knocked over
We will need to resurvey Lot 2

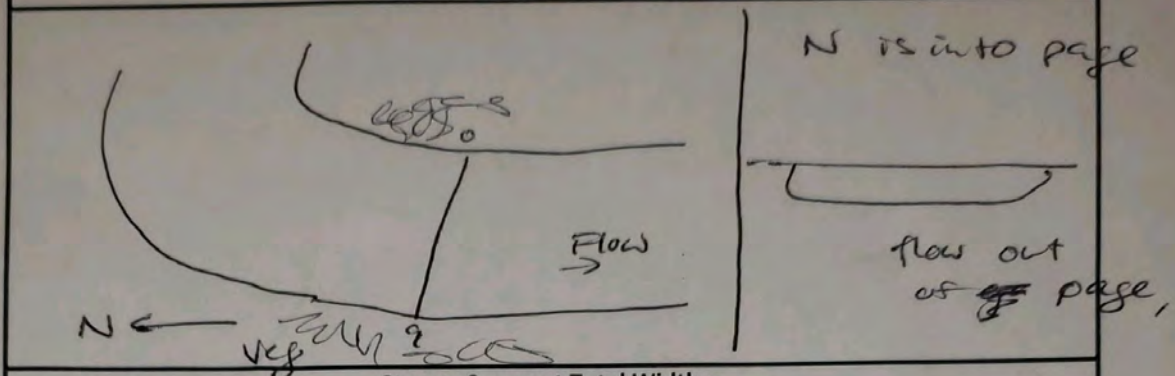
Sample Checklist

☑ Picture of Sample Location ☐ GPS'd
Location of photos: NP Phone

FLOW FORM

Date and Time: 5/13/22 12:20
Client: MPCA
Sample Location ID: RC Int #3
Field Staff: NP, GG
Project Number: 60663338
Weather: 76°F Sunny
Corresponding Staff Gauge Msmt (ft): 0.69'

Creek/Channel/Stream Sketch



Stream Segment Total Width =

Msmt No.	Dist to Initial Point	Depth	Velocity (measure from 1/3 of depth *from* the bottom)	Area	Discharge
	feet	feet	ft/s	ft^2	ft^3/s
1	1	0.43	0.8		
2	2	0.64	1.2		
3	3	0.74	1.7		
4	4	0.78	1.6		
5	5	0.70	1.4		
6	6	0.69	1.1		
7	7	0.87	1.0		
8	8	0.94	0.2		
9	9	0.65	0.0		
10					
11					
12					
13					

Measurement Guide

Stream Width:	Number of Vertical Measurements
0' - 3'	3-5
3' - 9'	5-8
9' - 15'	8-10
15' - 30'	10-20
>30'	20

Notes

- Staff gauge knocked down during storm, reset, will need to ~~begin~~ resurvey

Sample Checklist

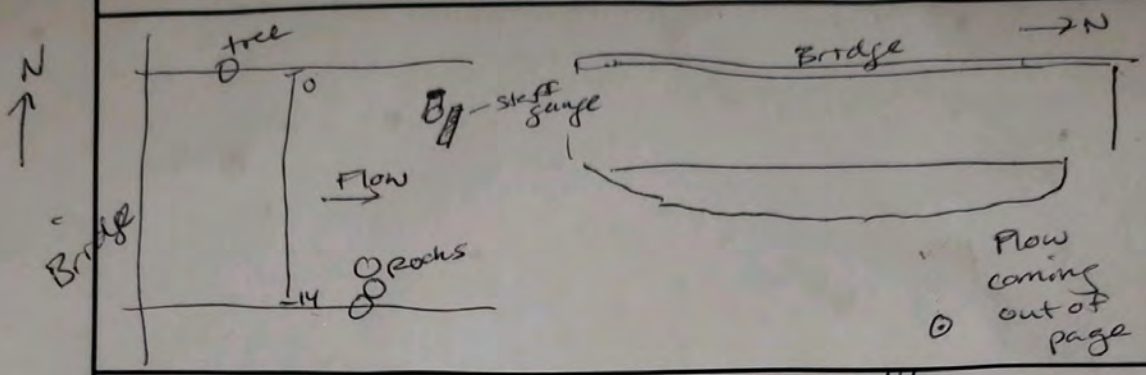
☑ Picture of Sample Location ☐ GPS'd

Location of photos:

FLOW FORM

Date and Time: 5/13/22 1053
Client: MPCA
Sample Location ID: RC Int. #1
Field Staff: NP, GG
Project Number: 60663338
Weather: 74°, Sunny
Corresponding Staff Gauge Msmt (ft): 1.75

Creek/Channel/Stream Sketch



Stream Segment Total Width = 14

Msmt No.	Dist to Initial Point	Depth	Velocity (measure from 1/3 of depth *from* the bottom)	Area	Discharge
	feet	feet	ft/s	ft^2	ft^3/s
1	1	0.78	0.3		
2	2	0.77	0.6		
3	3	0.82	0.8		
4	4	0.90	0.7		
5	5	0.93	0.9		
6	6	0.8	1.1		
7	7	0.64	1.0		
8	8	0.74	0.9		
9	9	0.82	0.8		
10	10	0.89	0.8		
11	11	0.82	0.5		
12	12	0.99	0.3		
13	13	0.68	0.0		
14	14	-.05	Measurement Guide 0.0		

Stream Width	Number of Vertical Measurements
0' - 3'	3-5
3' - 9'	5-8
9' - 15'	8-10
15' - 30'	10-20
>30'	20

Notes

- Staff Gauge hit by a tree, & moved slightly, may require resurvey of Staff Gauge (Staff Gauge Bent)

Sample Checklist

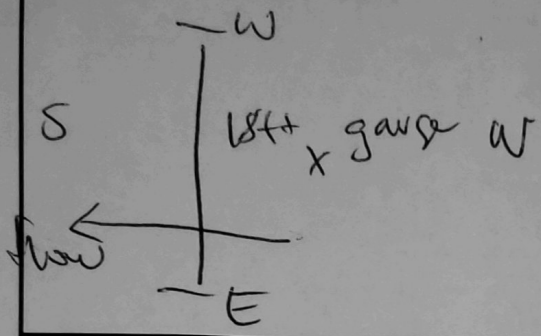
☑ Picture of Sample Location ☐ GPS'd

Location of photos: NP

FLOW FORM

Date and Time: 5/18/22
Sample Location ID: N. Channel #2
Project Number: 60663338
Corresponding Staff Gauge Msmt (ft): 1.49
Client: MPCA
Field Staff: AC / MC
Weather:

Creek/Channel/Stream Sketch



Stream Segment Total Width =

Msmt No.	Dist to Initial Point	Depth	Velocity (measure from 1/3 of depth *from* the bottom)	Area	Discharge
	feet	feet	ft/s	ft^2	ft^3/s
1	1.5	0.15	0.0		
2	3	0.78	0.6		
3	4.5	1.35	0.8		
4	6	1.49	0.8		
5	7.5	1.60	0.9		
6	9	1.66	0.9		
7	10.5	1.58	1.1		
8	12	1.64	0.8		
9	13.5	1.57	0.7		
10	15	1.35	0.5		
11	16.5	0.74	0.2		
12	18	0.1	0.0		
13					

Measurement Guide

Stream Width	Number of Vertical Measurements
0' - 3'	3-5
3' - 9'	5-8
9' - 15'	8-10
15' - 30'	10-20
>30'	20

Notes

Sample Checklist

☑ Picture of Sample Location ☐ GPS'd

Location of photos:

5/18/22 1350, sunny

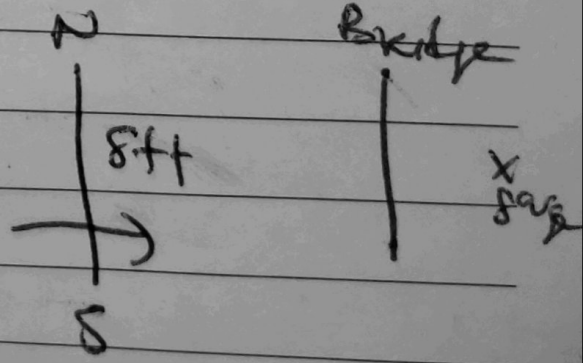
Dist.	Depth	Flow
1	0.44	0.0
2	0.60	0.1
3	0.54	0.3
4	0.44	0.2
5	0.49	0.2
6	0.60	0.5
7	0.55	0.0
8	0.30	0.0

Transducer elev
3.67
1401 5/18/22
Gauge:
0.57

Resurvey: only gauge

BM	Gauge	Trans
0.89	8.89	8.10

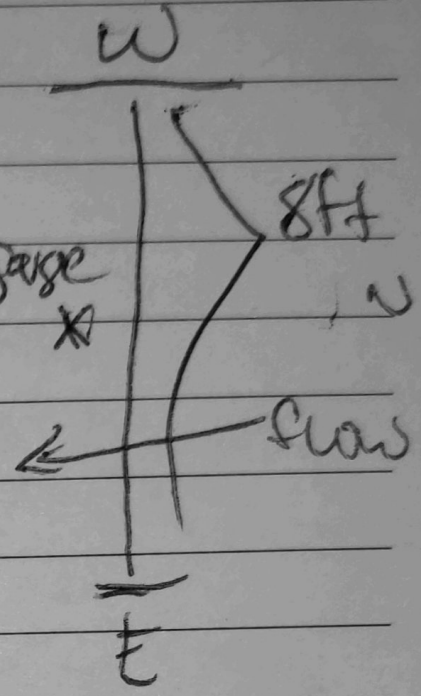
Rc Ins. #1



~100 ft west of gauge

RC Cont'l. #2 5/18/22

Dist	Depth	Flow
1	1.54	0.0
2	1.38	0.7
3	1.47	0.0
4	1.23	0.0
5	1.13	0.0
6	1.08	0.0
7	0.82	0.0
8	0.40	0.0



Trans Hous WL
14:56 5/18/22
2.09

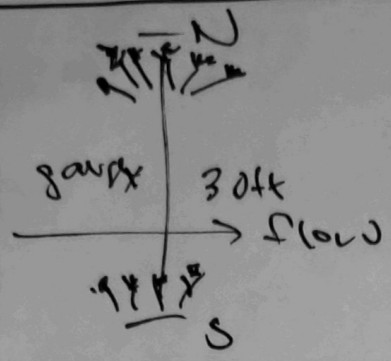
BM	Gage	Trans
3.655	3.43	3.26

gauge: 1.48
pics: Ann
phone

FLOW FORM

Date and Time: 5/18/22 1015
Client: MPCA
Sample Location ID: UGHORSE #2
Field Staff: AJ MA
Project Number: 60663338
Weather: Sunny
Corresponding Staff Gauge Msmt (ft): 2.48 1015

Creek/Channel/Stream Sketch



Y=0.2

Stream Segment Total Width =

Msmt No.	Dist to Initial Point	Depth	Velocity (measure from 1/3 of depth *from* the bottom)	Area	Discharge
	feet	feet	ft/s	ft^2	ft^3/s
1	2	0.25	0.0		
2	4	1.04	0.0		
3	6	1.63	0.0		
4	8	1.81	0.0		
5	10	2.08	0.0		
6	12	2.13	0.0		
7	14	2.12	0.2		
8	16	2.44	0.5		
9	18	2.60	1.0		
10	20	2.31	0.1		
11	22	2.05	0.0		
12	24	1.50	0.1		
13	26	1.22	0.0		
	28	0.98	Measurement Guide 0.0		

Stream Width 30 0.15 0.0

Stream Width	Number of Vertical Measurements
0' - 3'	3-5
3' - 9'	5-8
9' - 15'	8-10
15' - 30'	10-20
>30'	20

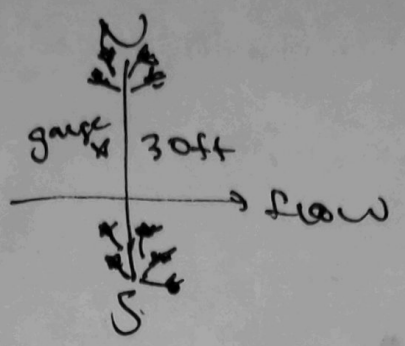
Notes

Sample Checklist
☑ Picture of Sample Location AL ☐ GPS'd
Location of photos:

FLOW FORM

Date and Time: 5/18/22 1030
Client: MPCA
Sample Location ID: DG Horse #1
Field Staff: Sunny
Project Number: 60663338
Weather: MUAC
Corresponding Staff Gauge Msmt (ft): 2.64

Creek/Channel/Stream Sketch



- culverts over flowing

T = cattails

1.58

Stream Segment Total Width =

Msmt No.	Dist to Initial Point	Depth	Velocity (measure from 1/3 of depth *from* the bottom)	Area	Discharge
	feet	feet	ft/s	ft^2	ft^3/s
1	2	0.39	0.0		
2	4	1.04	0.0		
3	6	1.35	0.0		
4	8	1.77	0.0		
5	10	2.53	0.0		
6	12	2.49	0.0		
7	14	2.80	0.3		
8	16	2.73	0.8		
9	18	2.93	0.7		
10	20	2.72	0.0		
11	22	2.71	0.0		
12	24	1.57	0.0		
13	26	1.33	0.0		
	28	0.64	Measurement Guide 0.0		

Stream Width	Number of Vertical Measurements
30 0.05 0.0	
0' - 3'	3-5
3' - 9'	5-8
9' - 15'	8-10
15' - 30'	10-20
>30'	20

Notes

Sample Checklist

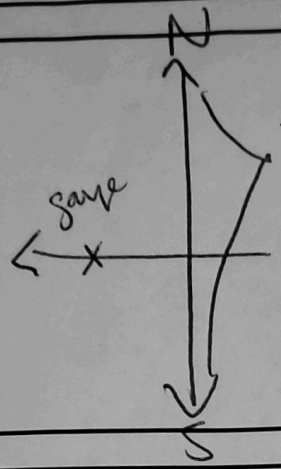
☑ Picture of Sample Location AL ☐ GPS'd

Location of photos:

FLOW FORM

Date and Time: 5/18/22 1140
Client: MPCA
Sample Location ID: Pond system #1
Field Staff: DC/MC
Project Number: 60663338
Weather: Sunny
Corresponding Staff Gauge Msmt (ft): 1.35 (reset)

Creek/Channel/Stream Sketch



Stream Segment Total Width =

Msmt No.	Dist to Initial Point	Depth	Velocity (measure from 1/3 of depth ***from*** the bottom)	Area	Discharge
	feet	feet	ft/s	ft^2	ft^3/s
1	1	0.15	0.0		
2	2	0.42	~~0.0~~ 0.1		
3	3	0.57	0.0		
4	4	0.82	0.0		
5	5	1.01	0.6		
6	6	1.08	0.6		
7	7	0.98	0.0		
8					
9					
10					
11					
12					
13					

Measurement Guide

Stream Width	Number of Vertical Measurements
0' - 3'	3-5
3' - 9'	5-8
9' - 15'	8-10
15' - 30'	10-20
>30'	20

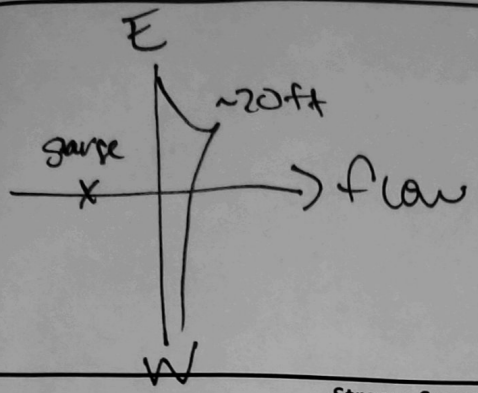
Notes

Sample Checklist
☑ Picture of Sample Location ML ☐ GPS'd
Location of photos:

FLOW FORM

Date and Time: 5/18/22 0915
Client: MPCA
Sample Location ID: N. Channel #1
Field Staff: ML/AL/AL
Project Number: 60663338
Weather: Overcast
Corresponding Staff Gauge Msmt (ft): 1.50

Creek/Channel/Stream Sketch



Stream Segment Total Width =

Msmt No.	Dist to Initial Point	Depth	Velocity (measure from 1/3 of depth ***from*** the bottom)	Area	Discharge
	feet	feet	ft/s	ft^2	ft^3/s
1	1.5	0.42	0.0		
2	3	0.93	0.2		
3	4.5	1.18	0.5		
4	6	1.42	0.7		
5	7.5	1.39	0.8		
6	9	1.67	0.8		
7	10.5	1.83	1.1		
8	12	1.54	0.5		
9	13.5	1.51	0.0		
10	15	1.38	1.0		
11	16.5	1.14	0.9		
12	19	0.25	0.6		
13	19.5	0.15	0.0		

Measurement Guide

Stream Width	Number of Vertical Measurements
0' - 3'	3-5
3' - 9'	5-8
9' - 15'	8-10
15' - 30'	10-20
>30'	20

Notes

Sample Checklist
☑ Picture of Sample Location AL ☐ GPS'd
Location of photos:

FLOW FORM

Date and Time: 6/3/22

Sample Location ID: RC Int #1

Project Number: 60663338

Corresponding Staff Gauge Msmt (ft): 0.0 (Dry)

Client: MPCA

Field Staff: NP, KS

Weather: 72°F Sunny

Creek/Channel/Stream Sketch

Stream Dry

Stream Segment Total Width = 0.0 (Dry)

Msmt No.	Dist to Initial Point	Depth	Velocity (measure from 1/3 of depth ***from*** the bottom)	Area	Discharge
	feet	feet	ft/s	ft^2	ft^3/s
1					
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					

Measurement Guide

Stream Width	Number of Vertical Measurements
0' - 3'	3-5
3' - 9'	5-8
9' - 15'	8-10
15' - 30'	10-20
>30'	20

Notes

Sample Checklist

☐ Picture of Sample Location ☐ GPS'd

Location of photos:

DG ELMO #1 5/2/21 @1100

N PIPE: Full, submerged

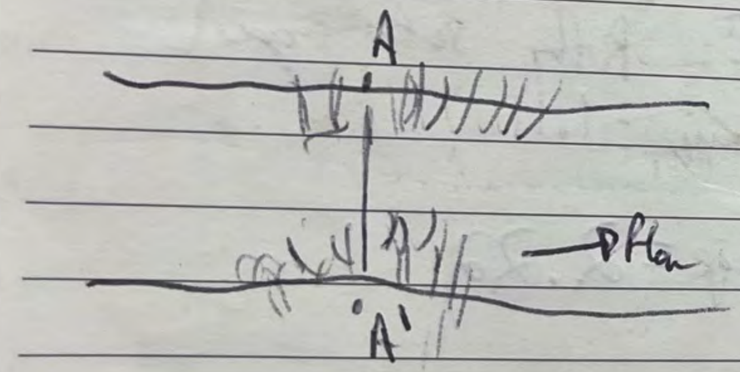
$Flow_{Avg}$ = 0.90

S. PIPE: Fully submerged

$Flow_{Avg}$ = 1.1

Staff Gauge = 2.22

PICs on ML phone



Lots of cattails in flow path

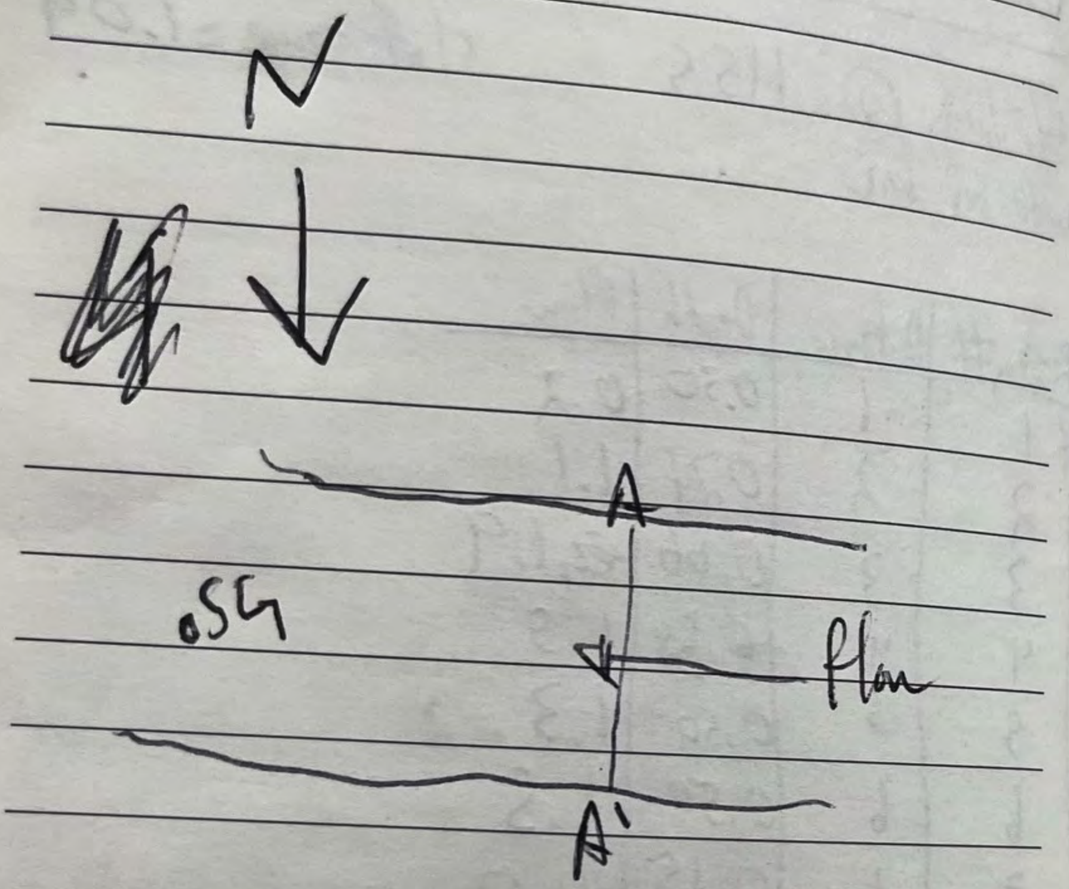
Horse Shoe #1 ☆
5/2/22 @1045
w/NO: ML, WP

total width = 27ft
staff gauge = 2.44

Reading #	Distance	Depth	Flow
1	1.5	0.52	0.0
2	3	0.84	0.0
3	4.5	1.02	0.0
4	6	1.18	0.0
5	7.5	1.70	0.0
6	9	2.30	0.0
7	10.5	2.35	0.0
8	12	2.76	0.0
9	13.5	2.68	0.3
10	15	2.58	0.6
11	16.5	2.70	0.8
12	18	2.48	0.0
13	14.5	2.60	0.0
14	21	2.48	0.0
15	22.5	1.80	0.0
~~16~~	~~23~~	~~1.36~~	~~0.0~~

Reading #	Distance	Depth	Flow
17	24.5		
18			
19			
16	24	1.28	0
17	25.5	0.60	0
18	27	0.1	0

PICs on ML phone



POST RR 1

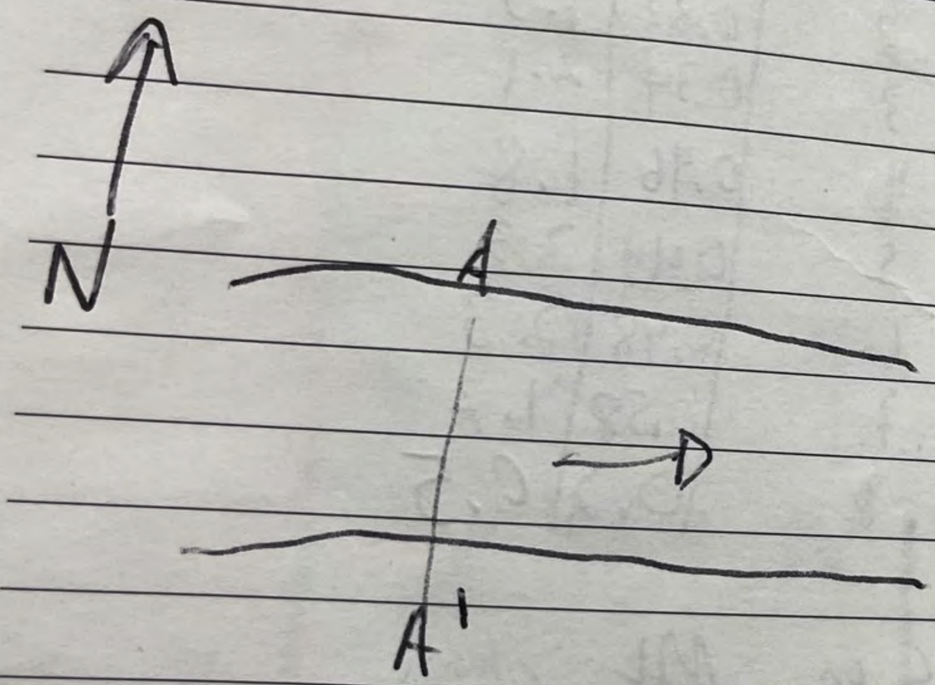
Total width: 11ft

5/2/22. @ 1215 w/NO: ML, NP

Staff gage: 1.52

	Reading #	Distance	Depth	Flow
A	1	1	0.38	0
	3	2	0,64	0
	3	3	0.70	0.1
	4	4	0.78	0,0
	5	5	0.42	0.4
	6	6	1.08	0.7
	7	7	1,12	0,6
A'	8	8	1.16	0.4
	9	9	1.10	0.3
	10	10	1.26	0.2
	11	11	0,88	0.0

PICs on ML phone



RC Culvert #1: ☆

4/3/22 @ 0930
with: ML, MD

total width = 8 ft
Staff Gage = 1.30

Transect	Reading #	Depth	Flow
1	1	0	0
2	2	0.56	0.1
3	3	0.80	0.5
4	4	1.06	0.6
5	5	1.12	1.2
6	6	1.24	1.0
7	7	1.24	0.7
8	8	1.18	0.9
9	9	1.2	1.2
10	10	0.8	1.1
11	11	0.38	0.8
12	12	0	0

Pics on mis phone

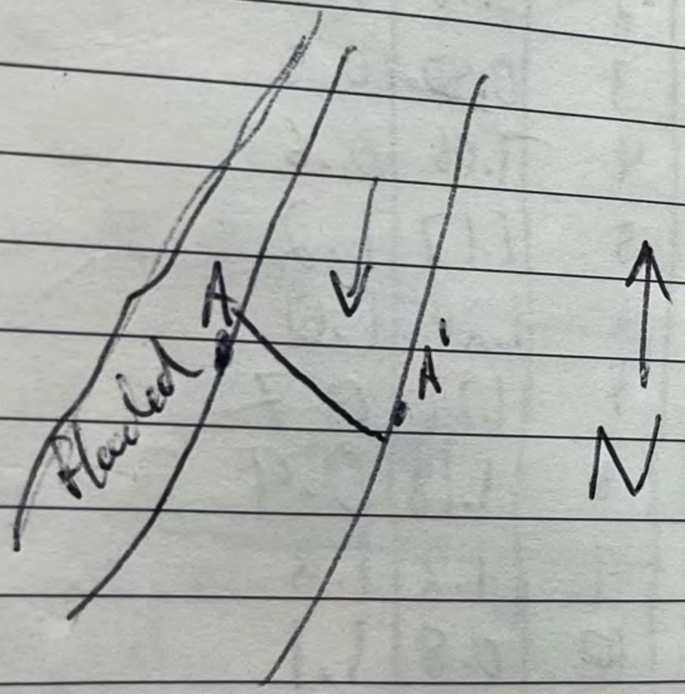
RC Confluence #2: ☆

5/2/22 @ 1035

total width = 10ft

staff gage = 1.96

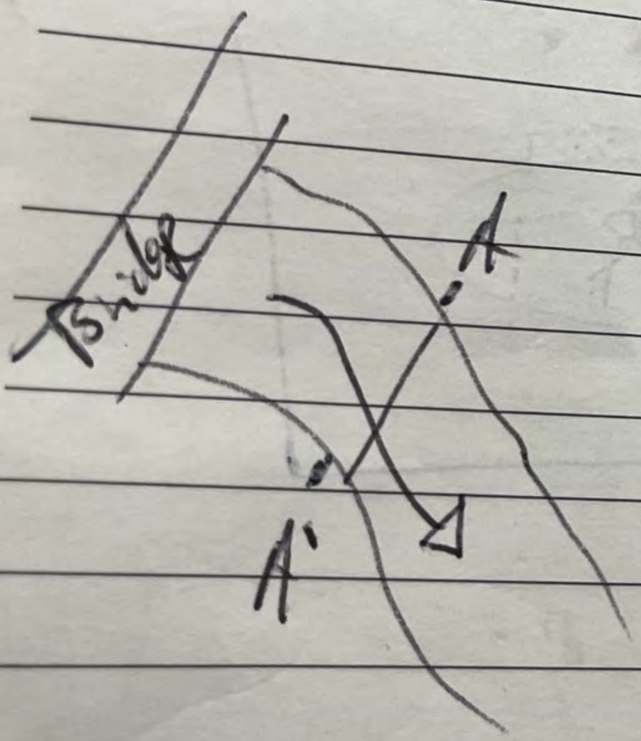
		Depth	Flow
1	1	0.72	0.1
2	2	1.46	0.3
3	3	1.50	0.4
4	4	1.90	0.8
5	5	2.4	0.8
6	6	1.98	0.9
7	7	1.8	0.9
8	8	1.62	0.3
9	9	1.50	0.1
10	10	1.24	0.0



☆ Flooded channel, 10 ft is width of channel at points on either side.

☆RB-SURVEY/☆☆

PH's on ML phone



RC Defoam Test 1: ☆

5/2/22, @ 0830

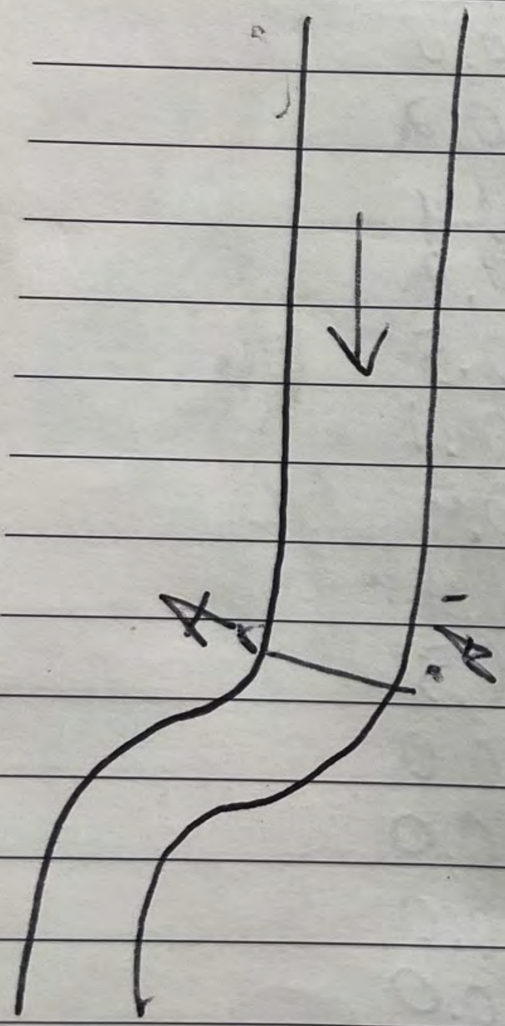
WHO: ML, WP

Total width = 15 ft

Staff Gage = 1.10

	Distance	Reading #	Depth	Flow
A	1	1	0.50	0.0
	2	2	0.78	0.0
	3	3	0.98	0.2
	4	4	1.0	0.4
	5	5	1.0	0.7
	6	6	1.10	0.5
	7	7	1.16	0.1
	8	8	1.26	0.4
	9	9	1.42	0.4
	10	10	1.44	0.3
	11	11	1.38	0.0
	12	12	0.98	0.0
	13	13	0.74	0.0
	14	14	0.36	0.0
A'	15	15	0.1	0.0

PIC's on all Plans



RC Inter #3

S 2/22 @ 0910

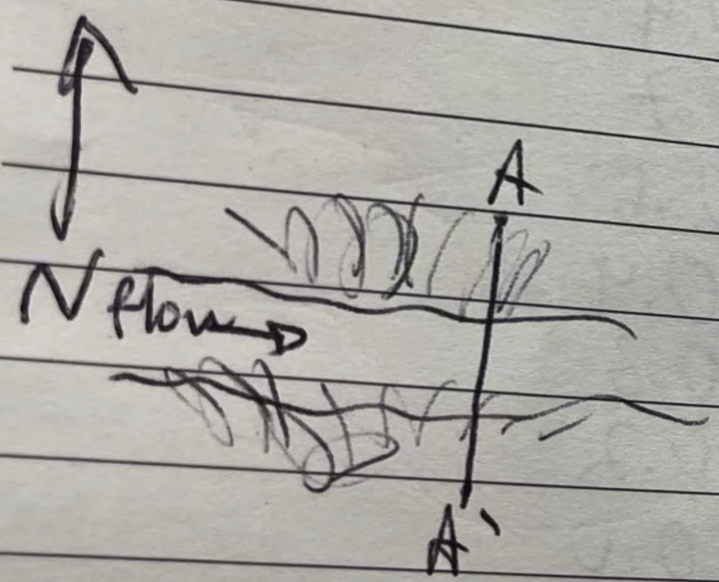
No: ML, PP

total width = 8 ft

Staff Gauge = 0.76

Distance	Reading #	Depth	Flow
A 1	1	0.15	1.0
2	2	0.32	1.3
3	3	0.34	2.1
4	4	0.46	1.8
5	5	0.44	2.3
6	6	0.48	2.3
7	7	0.58	1.7
A' 8	8	0.2	0.5

PICS on ML phone



RC Wet #1 ☆ total width: 7 ft
staff gage: 1.39

5/4/22, @ 1240

#	Dist.	Depth	Flow
1	1	0.12	0
2	2	1.52	0.5
3	3	1.64	1.2
4	4	1.56	0.7
5	5	0.40	0.0
6	6	0.30	0.0
7	7	0.22	0.0

☆ FLOODED ~1.5 feet on each side is flooded vegetation A

Pics on ML phone

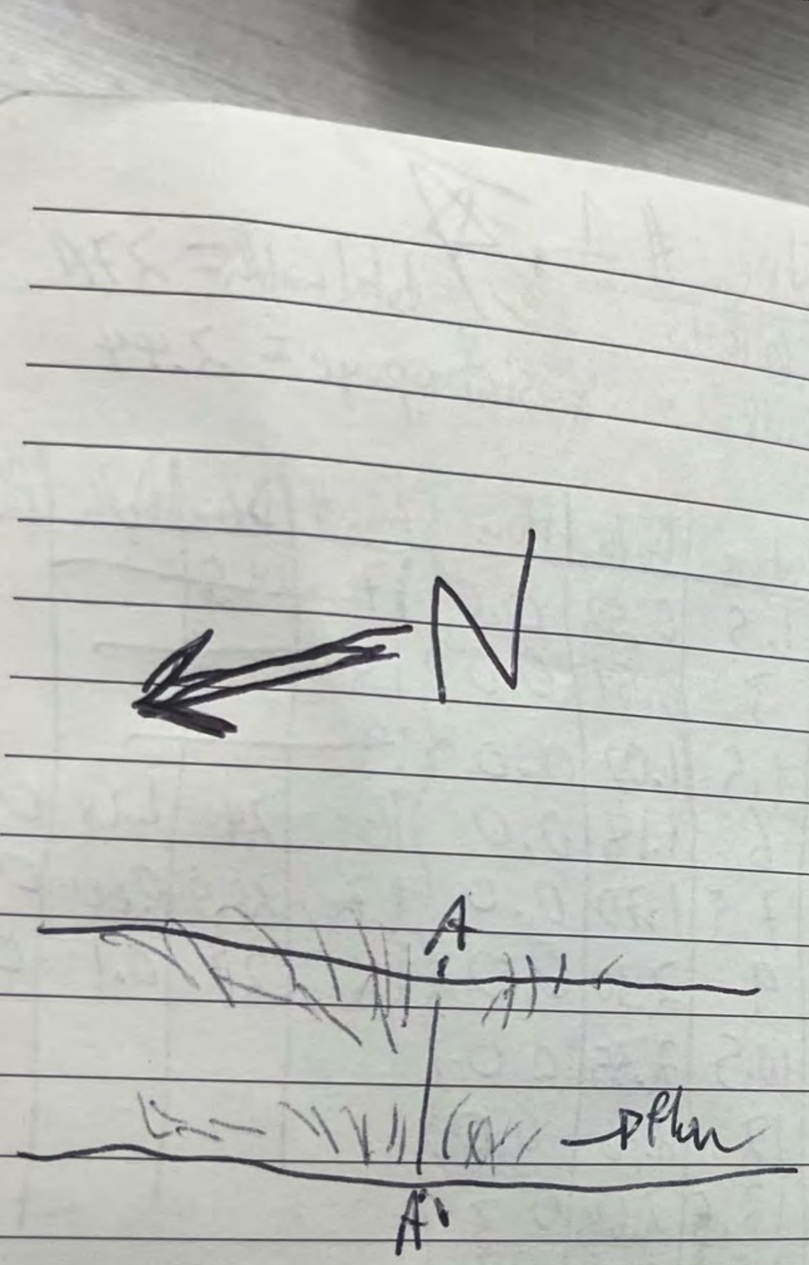
5. Pond Pipe:

5/2/22 @ 1120
W/D: MP, ML

- entirety of pipe under water

Flow AVG = 1.3

PIC on ML phone



Horse #2:

Total width = 36 ft

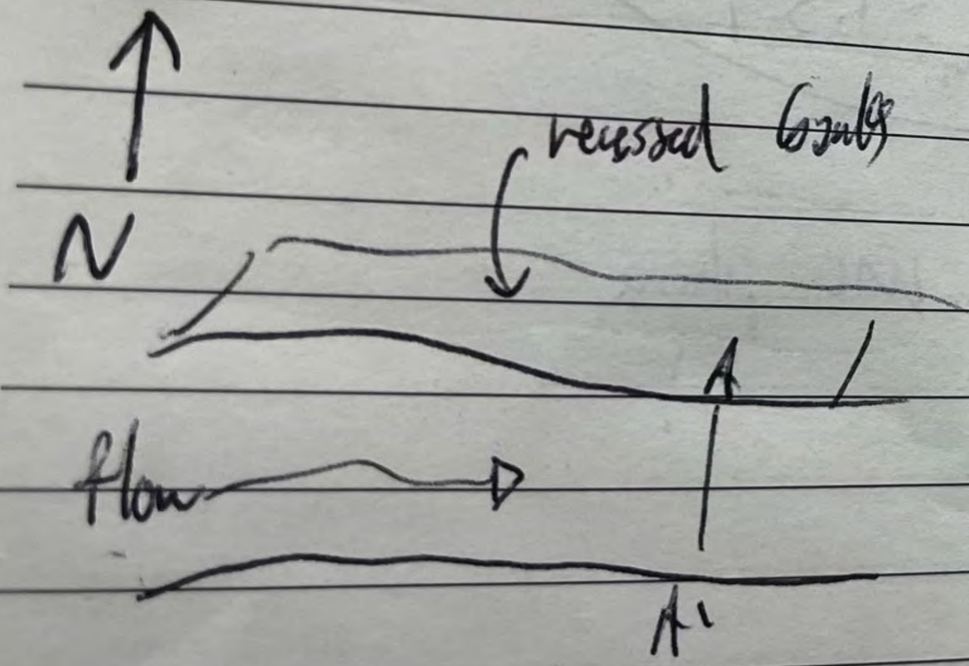
5/2/22, @ 1100

staff gage = 2.32

with: ML, MP

Reading	Distance	Depth	Flow
1	1.5	0.62	0.0
2	3	1.10	0.0
3	4.5	1.60	0.0
4	6	2.10	0.3
5	7.5	2.06	0.2
6	9	2.10	0.0
7	10.5	2.12	0.0
8	12	2.46	0.5
9	13.5	2.36	0.8
10	15	2.42	0.4
11	16.5	2.30	0.5
12	18	2.66	0.5
13	19.5	1.62	0.0
14	21	1.72	0.0
15	22.5	1.30	0.0
16	24	0.70	0.0
17	25.5	0.22	0.0

PH's on ML phone



Pond System #2: ☆

total width = 7 ft

staff gauge = 1.09

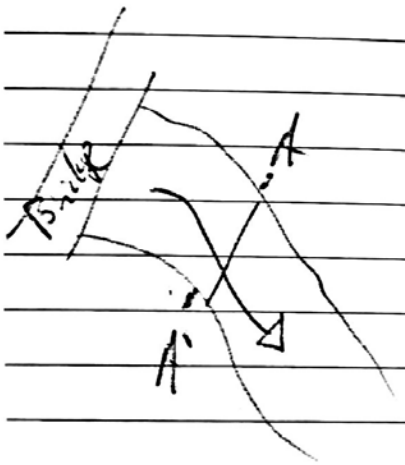
5/2/22 @ 1155

WHO: NP, MZ

Reading #	Distance	Depth	Flow
☆1	1	0.30	0.2
2	2	0.74	1.1
3	3	0.66	1.9
4	4	0.58	1.5
5	5	0.50	1.3
6	6	0.50	1.5
7	7	0.15	0.0

A'

PIC on ML phone



RC Discontinuity 1:

5/2/22, @ 0830

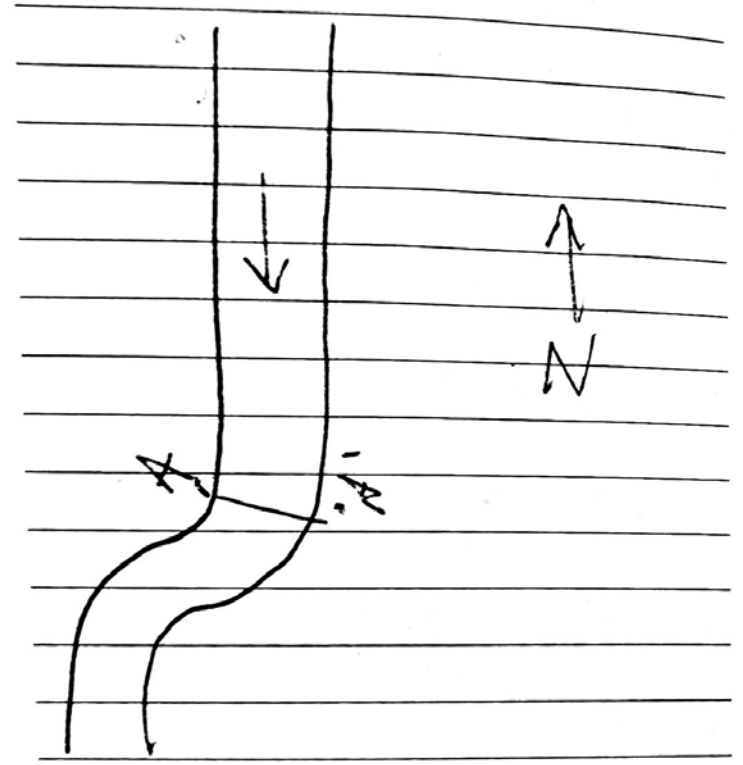
Wtto: ML, WP

Total width = 15 ft

Staff gage = 1.10

	Distance	Reading #	Depth	Flow
A	1	1	0.50	0.0
	2	2	0.78	0.0
	3	3	0.98	0.2
	4	4	1.0	0.4
	5	5	1.0	0.7
	6	6	1.10	0.5
	7	7	1.16	0.1
	8	8	1.26	0.4
	9	9	1.42	0.4
	10	10	1.44	0.3
	11	11	1.38	0.0
	12	12	0.98	0.0
	13	13	0.74	0.0
	14	14	0.36	0.0
A'	15	15	0.1	0.0

PIC's on mill Pond



RC Inter #3

S 2/22 @ 0910

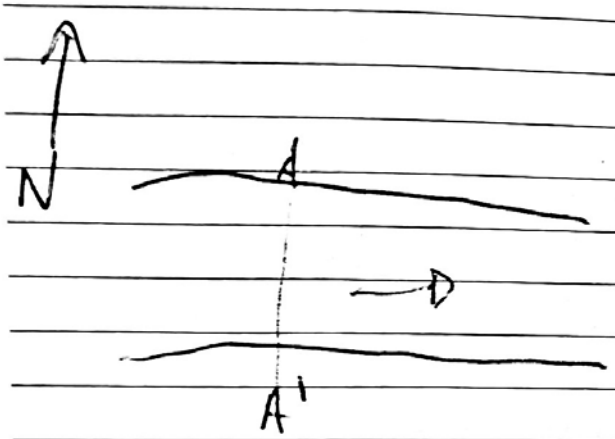
ML, PT

total width = 8 ft

Staff Gauge = 0.76

Distance	Rating #	Depth	Flow
A 1	1	0.15	1.0
2	2	0.32	1.3
3	3	0.34	2.1
4	4	0.76	1.8
5	5	0.44	2.3
6	6	0.48	2.3
7	7	0.58	1.7
A' 8	8	0.2	0.5

PICS on ML phone



RC Culvert #1: ☆

4/3/22 @ 0950
with: ML, ND

total width = 8 ft
staff Gage = 1.30

Position	Reading #	Depth	Flow
1	1	0	0
2	2	0.56	0.1
3	3	0.80	0.5
4	4	1.06	0.6
5	5	1.12	1.2
6	6	1.24	1.0
7	7	1.24	0.7
8	8	1.18	0.9
9	9	1.2	1.2
10	10	0.8	1.1
11	11	0.38	0.8
12	12	0	0

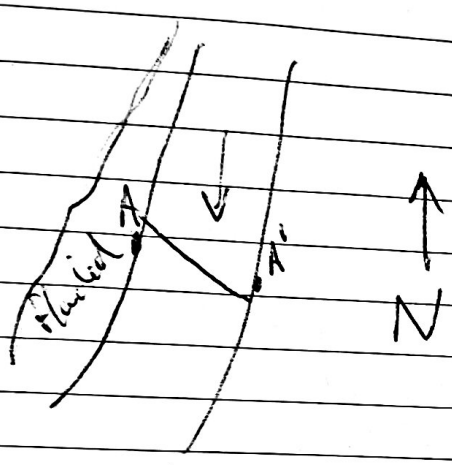
Pics on mic phone

RC (confluence #2): ☆ total width = 10 ft
5/2/22 @ 1035 staff gage = 1.96

		Depth	Flow
1	1	0.72	0.1
2	2	1.46	0.3
3	3	1.50	0.4
4	4	1.90	0.8
5	5	2.4	0.8
6	6	1.98	0.9
7	7	1.8	0.9
8	8	1.62	0.3
9	9	1.50	0.1
10	10	1.24	0.0

☆RC-SURVEY☆

PLL's on mill phone



☆ Fluvial channel, 10 ft is width of channel bt pools on either side

DG ELMO #1 5/2/22 @1100

N PIPE: Full, submerged

$Flow_{Avg} = 0.90$

S PIPE: Full submerged

$Flow_{Avg} = 1.1$

Staff Gauge = 2.22

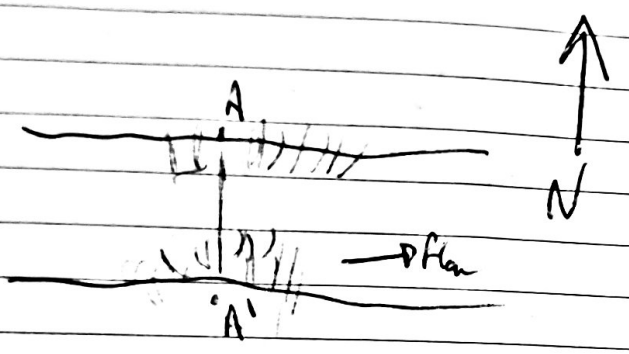
PICs on ML phone

Horse Shoe #1 ☆ total width = 27.1
5/2/22, @1045 staff gauge = 2.44
w/ MC, MP

Reading #	Distance	Depth	Flow
1	1.5	0.52	0.0
2	3	0.81	0.0
3	4.5	1.02	0.0
4	6	1.18	0.0
5	7.5	1.70	0.0
6	9	2.30	0.0
7	10.5	2.35	0.0
8	12	2.76	0.0
9	13.5	2.64	0.3
10	15	2.58	0.6
11	16.5	2.70	0.8
12	18	2.48	0.0
13	14.5	2.60	0.0
14	21	2.48	0.0
15	22.5	1.80	0.0
~~16~~	~~23~~	~~1.30~~	~~0.0~~

Reading #	Distance	Depth	Flow
17	24.5		
18			
19			
16	24	1.28	0
17	25.5	0.60	0
18	27	0.1	0

PICs on MC phone



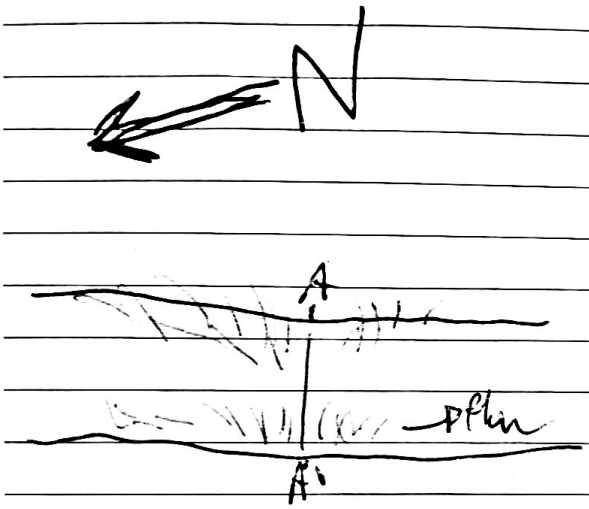
☆ lots of cattails in flow path

Gauge #2:

5/2/22, @ 1100
wdr. mr, mb

Total width = 36
staff gage = 2.32

Reading	Distance	Depth	Flow
1	1.5	0.62	0.0
2	3	1.10	0.0
3	4.5	1.60	0.0
4	6	2.10	0.3
5	7.5	2.06	0.2
6	9	2.10	0.0
7	10.5	2.12	0.0
8	12	2.46	0.5
9	13.5	2.36	0.8
10	15	2.42	0.4
11	16.5	2.30	0.5
12	18	2.66	0.5
13	19.5	1.62	0.0
14	21	1.72	0.0
15	22.5	1.30	0.0
16	24	0.70	0.0
17	25.5	0.22	0.0
			Pic's in ML Phase



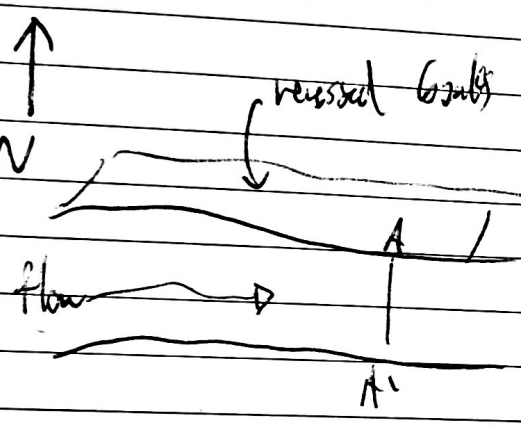
S. Pond Pipe:

5/2/22 @ 1120
w/ D. MP, ML

- entirety of pipe under water

$Flow_{AVG} = 1.3$

PIC on ML phone



Pond System #2: ☆

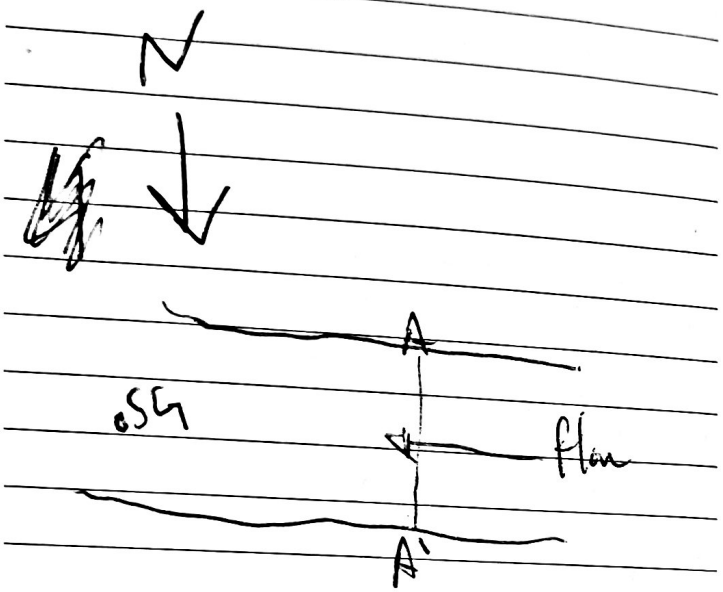
total width = 7 ft

5/2/22, @ 1155 staff gauge = 1.09

WB: WP, ML

Reading #	Distance	Depth	Flow
A 1	1	0.30	0.2
2	2	0.74	1.1
3	3	0.66	1.9
4	4	0.58	1.5
5	5	0.50	1.3
6	6	0.50	1.5
7 A'	7	0.15	0.0

PIC on ML phone



POST RR 1

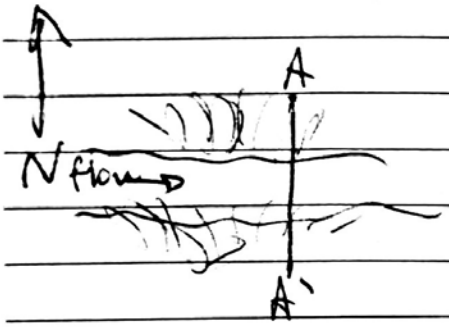
5/24/22 @ 1215 w/ HO: ML, MP

total width: 11 ft

staff gage: 1.53

	Reading #	Distance	Depth	Flow
A	1	1	0.38	0
	2	2	0.64	0
	3	3	0.70	0.1
	4	4	0.78	0.0
	5	5	0.92	0.4
	6	6	1.08	0.7
	7	7	1.12	0.6
A'	8	8	1.16	0.4
	9	9	1.10	0.3
	10	10	1.26	0.2
	11	11	0.88	0.0

PICs on ML phone



RC Wet #1 ☆ total width: 7 ft
staff gage: 1.39
5/4/22 @ 1240

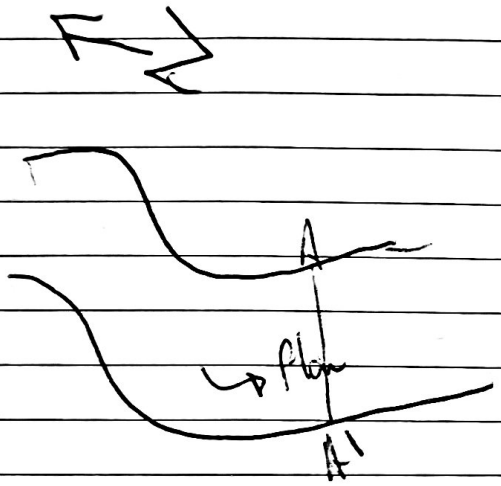
#	D.t.	Depth	Flow
1	1	0.12	0
2	2	1.52	0.5
3	3	1.64	1.2
4	4	1.56	0.7
5	5	0.40	0.0
6	6	0.30	0.0
7	7	0.22	0.0

☆ FLOODED ~1.5 feet on each side is flooded vegetation A

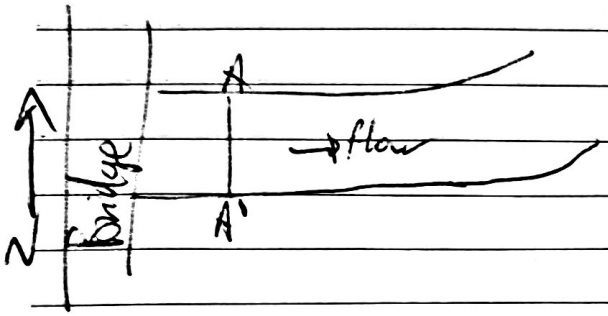
Pics on ML phone

RC Intermittent #3 | total mid th: 9
5/3/22 @ 0830 | staff gage: 0.69
w/to: MP, ML

Reading #	Distance	Depth	Flow
1	~~0.501~~	0.9	0
2	2	~~1.10~~	0
3	3	1.01	0
4	4	0.98	0.1
5	5	1.08	0.2
6	6	1.20	0.5
7	7	1.06	0.5
8	8	0.82	0.6
9	9	0.15	0



PIC on ML change



RC Transect #1 : Total width: 14 ft
5/3/22 @ 0905 Staff gauge: 1.0

Reading #	Distance	Depth	Flow
1	1	0.34	0.1
2	2	0.68	0.2
3	3	0.42	0.1
4	4	0.86	0.2
5	5	0.92	0.4
6	6	1.04	0.1
7	7	1.04	0.0
8	8	1.18	0.1
9	9	1.28	0.2
10	10	1.36	0.4
11	11	1.30	0.2
12	12	1.14	0.0
13	13	0.70	0.0
14	14	0.40	0.0
15	— ON LAND		

PIC's on M2 phone

FLOW FORM

Date and Time: 6/3/22

Sample Location ID: RC Int #1

Project Number: 60663338

Corresponding Staff Gauge Msmt (ft): 0.0 (Dry)

Client: MPCA

Field Staff: NP, KS

Weather: 72°F Sunny

Creek/Channel/Stream Sketch

Stream Dry

Stream Segment Total Width = 0.0 (Dry)

Msmt No.	Dist to Initial Point	Depth	Velocity (measure from 1/3 of depth ***from*** the bottom)	Area	Discharge
	feet	feet	ft/s	ft^2	ft^3/s
1					
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					

Measurement Guide

Stream Width	Number of Vertical Measurements
0' - 3'	3-5
3' - 9'	5-8
9' - 15'	8-10
15' - 30'	10-20
>30'	20

Notes

Sample Checklist

☐ Picture of Sample Location ☐ GPS'd

Location of photos:

FLOW FORM

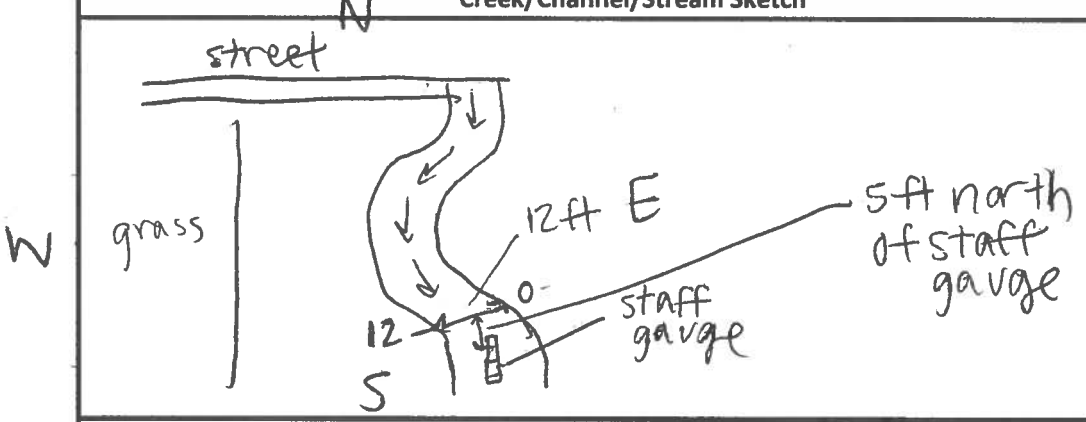
Date and Time: 6/10/22 @ 1440 | Client: MPCA

Sample Location ID: RC Confluence #1 | Field Staff: KS, LL

Project Number: 60663338 | Weather: 75°F, sunny

Corresponding Staff Gauge Msmt (ft): ~~1.80~~ 1.18

Creek/Channel/Stream Sketch



Stream Segment Total Width = 12ft

Msmt No.	Dist to Initial Point	Depth	Velocity (measure from 1/3 of depth *from* the bottom)	Area	Discharge
	feet	feet	ft/s	ft^2	ft^3/s
1	1	0.36	0		
2	2	0.72	0		
3	3	0.68	0		
4	4	0.68	0		
5	5	0.86	0.1		
6	6	0.98	0.2		
7	7	1.40	0.2		
8	8	1.64	0.5		
9	9	1.68	0.5		
10	10	1.06	0.3		
11	11	0.80	0.2		
12	12	0.38	0		
13					

Measurement Guide

Stream Width	Number of Vertical Measurements
0' - 3'	3-5
3' - 9'	5-8
9' - 15'	8-10
15' - 30'	10-20
>30'	20

Notes

Sample Checklist

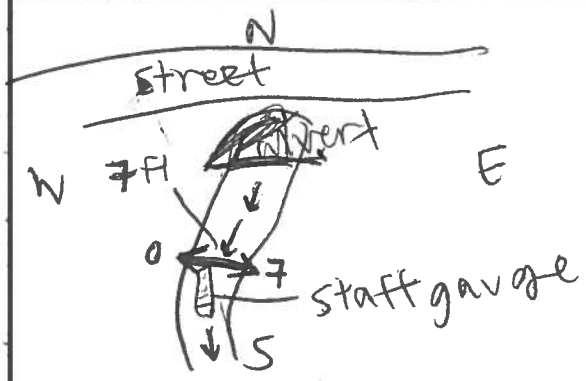
☒ Picture of Sample Location ☐ GPS'd

Location of photos: LL Phone

FLOW FORM

Date and Time: 6/10/22 @ 1415
Client: MPCA
Sample Location ID: Pond System #2
Field Staff: LL, KS
Project Number: 60663338
Weather: 75°F, sunny
Corresponding Staff Gauge Msmt (ft): 1.08

Creek/Channel/Stream Sketch



Stream Segment Total Width = 7ft

Msmt No.	Dist to Initial Point	Depth	Velocity (measure from 1/3 of depth *from* the bottom)	Area	Discharge
	feet	feet	ft/s	ft^2	ft^3/s
1	1	0.51	0		
2	2	0.64	0		
3	3	0.84	0		
4	4	0.85	0		
5	5	0.90	0.3		
6	6	0.86	0.3		
7	7	0.62	0.2		
8					
9					
10					
11					
12					
13					

Measurement Guide

Stream Width	Number of Vertical Measurements
0' - 3'	3-5
3' - 9'	5-8
9' - 15'	8-10
15' - 30'	10-20
>30'	20

Notes

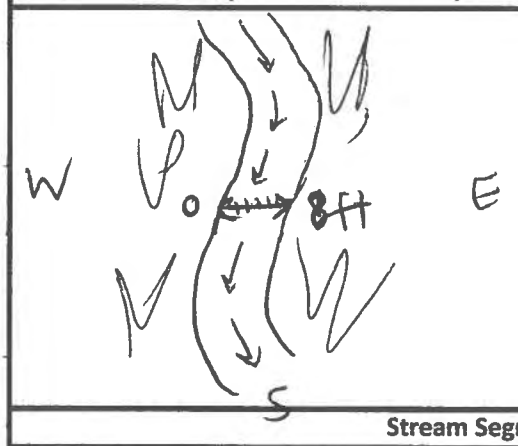
Sample Checklist

☒ Picture of Sample Location ☐ GPS'd
Location of photos: LL Phone

FLOW FORM

Date and Time: 6/10/22 @ 1310
Client: MPCA
Sample Location ID: RC confluence 2
Field Staff: LL, RS, NP
Project Number: 60663338
Weather: 75°F, sunny
Corresponding Staff Gauge Msmt (ft): 1.06

Creek/Channel/Stream Sketch



Stream Segment Total Width = 8ft

Msmt No.	Dist to Initial Point	Depth	Velocity (measure from 1/3 of depth *from* the bottom)	Area	Discharge
	feet	feet	ft/s	ft^2	ft^3/s
1	1	0.46	0.1		
2	2	0.62	0.3		
3	3	0.84	0.7		
4	4	0.85	0.7		
5	5	0.91	1.0		
6	6	0.98	1.1		
7	7	0.97	0.4		
8	8	0.96	0.2		
9					
10					
11					
12					
13					

Measurement Guide

Stream Width	Number of Vertical Measurements
0' - 3'	3-5
3' - 9'	5-8
9' - 15'	8-10
15' - 30'	10-20
>30'	20

Notes

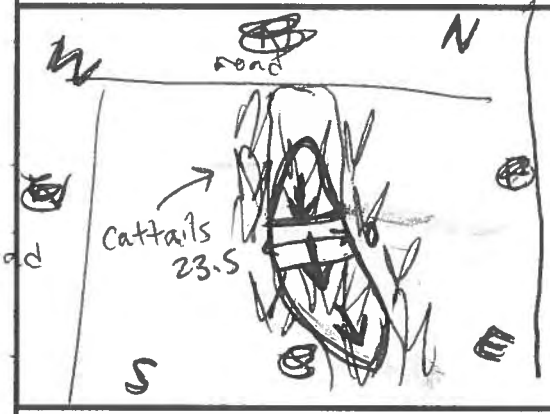
Sample Checklist

☑ Picture of Sample Location ☐ GPS'd
Location of photos: NP Phone

FLOW FORM

Date and Time: 6/10/22 @ 1245
Client: MPCA
Sample Location ID: DG Horseshoe #1
Field Staff: KS, LL, NP
Project Number: 60663338
Weather: 75°F, sunny
Corresponding Staff Gauge Msmt (ft): 2.70

Creek/Channel/Stream Sketch



Stream Segment Total Width = 23.5 ft

Msmt No.	Dist to Initial Point	Depth	Velocity (measure from 1/3 of depth *from* the bottom)	Area	Discharge
	feet	feet	ft/s	ft^2	ft^3/s
1	2	0.2	0		
2	4	0.78	0		
3	6	1.50	0.3		
4	8	1.56	0.3		
5	10	1.86	0.4		
6	12	1.86	0.7		
7	14	1.90	1.0		
8	16	1.71	0.2		
9	18	1.75	0		
10	20	0.64	0		
11	22	0.48	0		
12					
13					

Measurement Guide

Stream Width	Number of Vertical Measurements
0' - 3'	3-5
3' - 9'	5-8
9' - 15'	8-10
15' - 30'	10-20
>30'	20

Notes

Sample Checklist

☒ Picture of Sample Location ☐ GPS'd
Location of photos: NP Photo

FLOW FORM

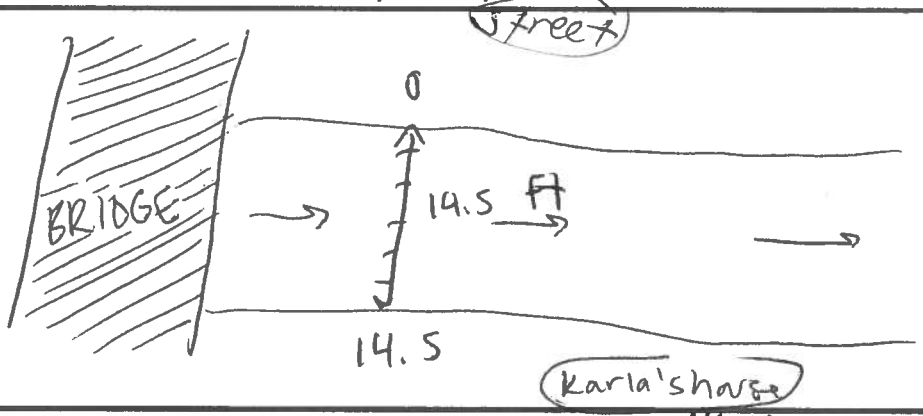
Date and Time: 6/10/22 @ 1220 Client: MPCA

Sample Location ID: Northchannel #2 Field Staff: KS, LL, NP

Project Number: 60663338 Weather:

Corresponding Staff Gauge Msmt (ft): 0.80

Creek/Channel/~~Stream~~ Sketch



Stream Segment Total Width = 14.5

Msmt No.	Dist to Initial Point	Depth	Velocity (measure from 1/3 of depth *from* the bottom)	Area	Discharge
	feet	feet	ft/s	ft^2	ft^3/s
1	1	0.32	0.1		
2	2	0.64	0.7		
3	3	0.84	0.7		
4	4	0.88	0.8		
5	5	0.88	0.9		
6	6	0.95	0.8		
7	7	0.96	0.7		
8	8	0.93	0.8		
9	9	0.95	0.7		
10	10	0.92	0.7		
11	11	0.84	0.1		
12	12	0.72	0		
13	13	0.5	0		
14	14	0.15			

Measurement Guide

Stream Width	Number of Vertical Measurements
0' - 3'	3-5
3' - 9'	5-8
9' - 15'	8-10
15' - 30'	10-20
>30'	20

Notes

Sample Checklist

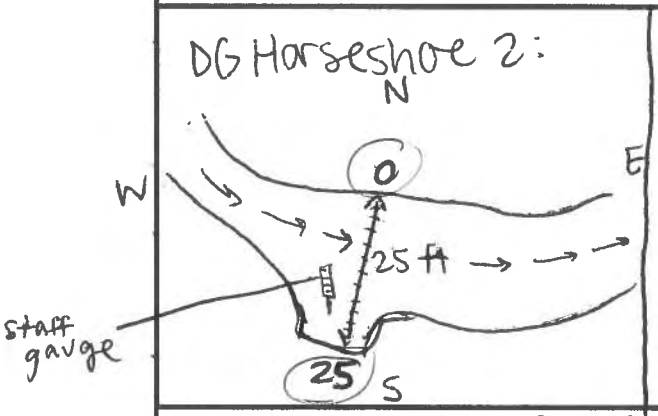
☒ Picture of Sample Location ☐ GPS'd

Location of photos: NP Photo

FLOW FORM

Date and Time: 6/10/22
Client: MPCA
Sample Location ID: DG Horseshoe #2
Field Staff: KS, NP, LL
Project Number: 60663338
Weather:
Corresponding Staff Gauge Msmt (ft): 1.60

Creek/Channel/Stream Sketch



Stream Segment Total Width = 25ft

Msmt No.	Dist to Initial Point	Depth	Velocity (measure from 1/3 of depth *from* the bottom)	Area	Discharge
	feet	feet	ft/s	ft^2	ft^3/s
1	2	0.60	0		
2	4	0.74	0		
3	6	1.20	0.1		
4	8	1.12	0.1		
5	10	1.16	0.1		
6	12	1.40	0.7		
7	14	1.74	0.7		
8	16	1.71	0.3		
9	18	1.41	0.1		
10	20	1.07	0.2		
11	22	0.88	0		
12	24	0.41	0		
13					

Measurement Guide

Stream Width	Number of Vertical Measurements
0' - 3'	3-5
3' - 9'	5-8
9' - 15'	8-10
(15' - 30')	(10-20) measure every 2 ft
>30'	20

Notes

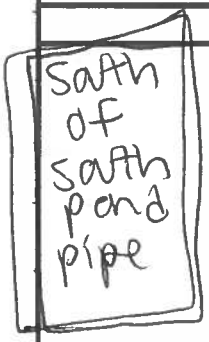
Sample Checklist

☒ Picture of Sample Location ☐ GPS'd
Location of photos: NP Phone

FLOW FORM

Date and Time: 6/10/22 @1125
Client: MPCA
Sample Location ID:
Field Staff: NP, KS, LL
Project Number: 60663338
Weather:
Corresponding Staff Gauge Msmt (ft):

Creek/Channel/Stream Sketch



Flow: 0.3
Fully submerged
~~Depth of water:~~
~~Depth to ww~~
~~Height of water above pipe:~~

Stream Segment Total Width =

Msmt No.	Dist to Initial Point	Depth	Velocity (measure from 1/3 of depth ***from*** the bottom)	Area	Discharge
	feet	feet	ft/s	ft^2	ft^3/s
1					
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					

Measurement Guide

Stream Width	Number of Vertical Measurements
0' - 3'	3-5
3' - 9'	5-8
9' - 15'	8-10
15' - 30'	10-20
>30'	20

Notes

Sample Checklist

□ Picture of Sample Location □ GPS'd

Location of photos:

FLOW FORM

Date and Time: 6/10/22 @ 11:05
Client: MPCA
Sample Location ID: N+S Pipes
Field Staff: NP, KS, CL
Project Number: 60663338
Weather:
Corresponding Staff Gauge Msmt (ft): 1.66 ft

Creek/Channel/Stream Sketch

N pipe:
Flow: 0.6
Fully submerged
Depth of water: 2.38ft
~~Height~~ Height of water above pipe: 0.1ft

S pipe:
Flow: 0.5
Depth of water: 2.56ft
Water to top of pipe distance: 0.34ft

Stream Segment Total Width =

Msmt No.	Dist to Initial Point	Depth	Velocity (measure from 1/3 of depth *from* the bottom)	Area	Discharge
	feet	feet	ft/s	ft^2	ft^3/s
1					
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					

Measurement Guide

Stream Width	Number of Vertical Measurements
0' - 3'	3-5
3' - 9'	5-8
9' - 15'	8-10
15' - 30'	10-20
>30'	20

Notes

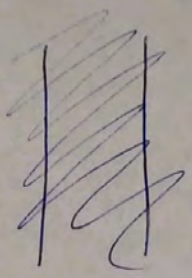
Sample Checklist

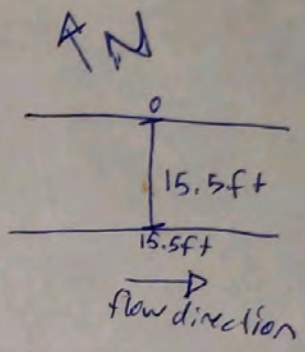
☑ Picture of Sample Location ☐ GPS'd
Location of photos: NP Phone

FLOW FORM

Date and Time: 6/22/22 9:12
Client: MPCA
Sample Location ID: North Channel #1
Field Staff: AL, NP
Project Number: 60663338
Weather: Sunny, Clear, 72°F
Corresponding Staff Gauge Msmt (ft): 0.80

Creek/Channel/Stream Sketch





Stream Segment Total Width = 15.5 ft

Msmt No.	Dist to Initial Point	Depth	Velocity (measure from 1/3 of depth ***from*** the bottom)	Area	Discharge
	feet	feet	ft/s	ft^2	ft^3/s
1	1	0.20	0		
2	2	0.36	0		
3	3	0.52	0		
4	4	0.54	0.2		
5	5	0.56	0.5		
6	6	0.62	0.7		
7	7	0.68	0.7		
8	8	0.70	0.9		
9	9	0.72	0.9		
10	10	0.74	0.7		
11	11	0.68	0.6		
12	12	0.60	0.4		
13	13	0.46	0.2		
14	14	0.42	0		
15	15	0.22	0		

Measurement Guide

Stream Width	Number of Vertical Measurements
0' - 3'	3-5
3' - 9'	5-8
9' - 15'	8-10
15' - 30'	10-20
>30'	20

Notes

Sample Checklist

☐ Picture of Sample Location ☐ GPS'd

Location of photos: NP phone

transducer Housing measured DTW: 4.72'

FLOW FORM

Date and Time: 6/22/22
Client: MPCA
Sample Location ID: Pipes 14510
Field Staff: NP
Project Number: 60663338
Weather:
Corresponding Staff Gauge Msmt (ft): 0.78

Creek/Channel/Stream Sketch

S pipe:
0.76' water below top of pipe
Flow = 0.6

N pipe:
1.28' water Below top of pipe
Flow = 0.2 ft/s

Stream Segment Total Width =

Msmt No.	Dist to Initial Point	Depth	Velocity (measure from 1/3 of depth ***from*** the bottom)	Area	Discharge
	feet	feet	ft/s	ft^2	ft^3/s
1					
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					

Measurement Guide

Stream Width	Number of Vertical Measurements
0' - 3'	3-5
3' - 9'	5-8
9' - 15'	8-10
15' - 30'	10-20
>30'	20

Notes

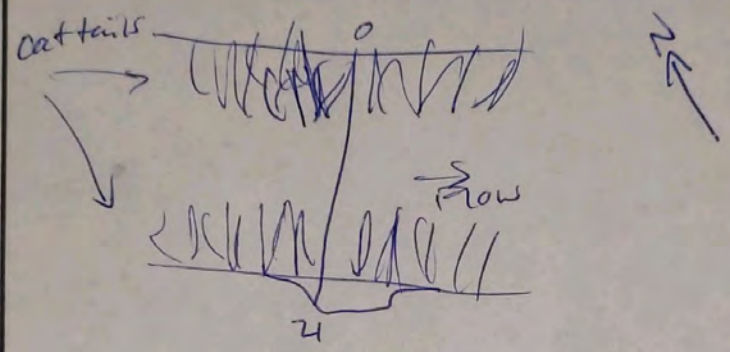
Sample Checklist

☑ Picture of Sample Location ☐ GPS'd
Location of photos: NP Phone

FLOW FORM

Date and Time: 6/24/22 12:53
Client: MPCA
Sample Location ID: DG Horseshoe #2
Field Staff: NP, LL
Project Number: 60663338
Weather: Sunny 90F°
Corresponding Staff Gauge Msmt (ft): 1.36'

Creek/Channel/Stream Sketch



Stream Segment Total Width = 21.0'

Msmt No.	Dist to Initial Point	Depth	Velocity (measure from 1/3 of depth ***from*** the bottom)	Area	Discharge
	feet	feet	ft/s	ft^2	ft^3/s
1	1.5	0.60	0.0		
2	3	0.40	0.0		
3	4.5	0.98	0.0		
4	6	1.10	0.3		
5	7.5	1.16	0.0		
6	9	0.78	0.2		
7	10.5	1.26	0.4		
8	12	1.28	0.3		
9	13.5	1.36	0.2		
10	15	1.36	0.3		
11	16.5	1.24	0.0		
12	18	1.07	~~0.0~~ 0.1		
13	19.5	0.48	0.0		
	21	0.20	Measurement Guide 0.0		

Stream Width	Number of Vertical Measurements
0' - 3'	3-5
3' - 9'	5-8
9' - 15'	8-10
15' - 30'	10-20
>30'	20

Notes

Sample Checklist

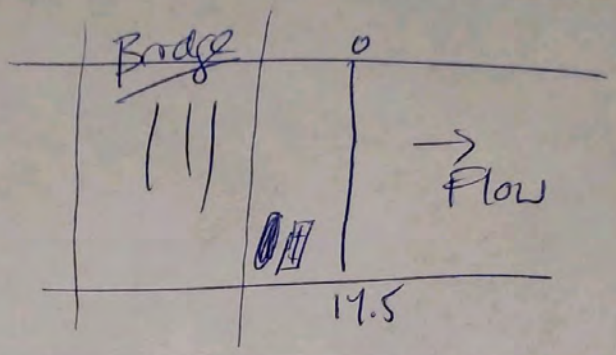
☑ Picture of Sample Location ☐ GPS'd

Location of photos: NP Phone

FLOW FORM

Date and Time: 6/24/22
Client: MPCA
Sample Location ID: Norm Channel #2
Field Staff: NP, LL
Project Number: 60663338
Weather: Sunny 87°F
Corresponding Staff Gauge Msmt (ft): 0.78'

Creek/Channel/Stream Sketch



Stream Segment Total Width = 14.5

Msmt No.	Dist to Initial Point	Depth	Velocity (measure from 1/3 of depth *from* the bottom)	Area	Discharge
	feet	feet	ft/s	ft^2	ft^3/s
1	1	0.28	0.0		
2	2	0.56	0.0		
3	3	0.75	0.0		
4	4	0.86	0.0		
5	5	0.87	0.0		
6	6	0.86	0.0		
7	7	0.84	0.0		
8	8	0.86	0.0		
9	9	0.88	0.0		
10	10	0.92	0.0		
11	11	0.87	0.0		
12	12	0.72	0.0		
13	13	0.48	0.0		
14	14	0.20	Measurement Guide 0.0		

Stream Width	Number of Vertical Measurements
0' - 3'	3-5
3' - 9'	5-8
9' - 15'	8-10
15' - 30'	10-20
>30'	20

Notes

Flow observed but not registered (slow but moving)

Sample Checklist

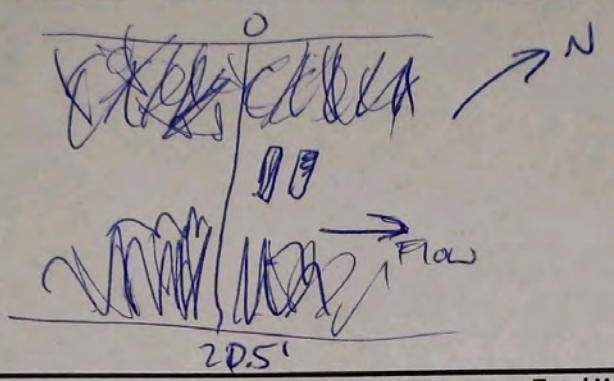
☐ Picture of Sample Location ☐ GPS'd

Location of photos:

FLOW FORM

Date and Time: 6/24/22 12:30
Client: MPCA
Sample Location ID: DG Horseshoe #1
Field Staff: NP, LL
Project Number: 60663338
Weather: Sunny 87°F
Corresponding Staff Gauge Msmt (ft): 1.39'

Creek/Channel/Stream Sketch



Stream Segment Total Width = 20.5'

Msmt No.	Dist to Initial Point	Depth	Velocity (measure from 1/3 of depth ***from*** the bottom)	Area	Discharge
	feet	feet	ft/s	ft^2	ft^3/s
1	1.5	0.12	0.0		
2	3.0	0.72	0.0		
3	4.5	1.68	0.0		
4	6	1.24	0.0		
5	7.5	1.32	0.0		
6	9	1.42	0.3		
7	10.5	1.54	0.3		
8	12	1.60	0.3		
9	13.5	1.52	0.0		
10	15	1.48	0.0		
11	16.5	1.44	0.0		
12	18	0.42	0.0		
13	19.5	0.26	0.0		

Measurement Guide

Stream Width	Number of Vertical Measurements
0' - 3'	3-5
3' - 9'	5-8
9' - 15'	8-10
15' - 30'	10-20
>30'	20

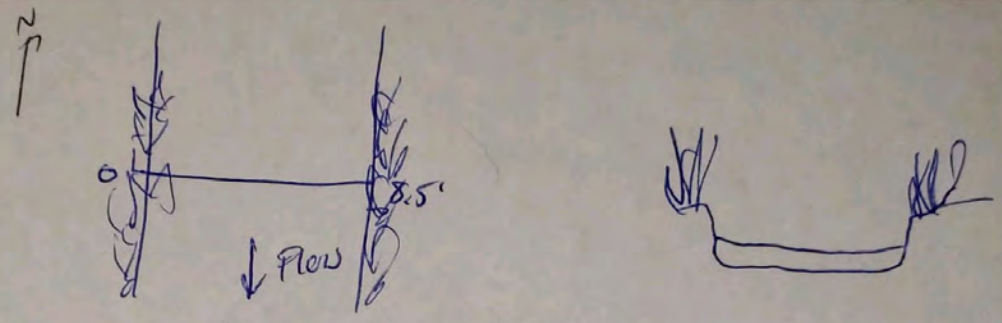
Notes

Sample Checklist
☑ Picture of Sample Location ☐ GPS'd
Location of photos: NP PHONE

FLOW FORM

Date and Time: 6/24/22 11:50
Client: MPCA
Sample Location ID: RC Con. #2
Field Staff: NP, LL
Project Number: 60663338
Weather: SUNNY, 87°F
Corresponding Staff Gauge Msmt (ft): 0.82'

Creek/Channel/Stream Sketch



Stream Segment Total Width = 8.5'

Msmt No.	Dist to Initial Point	Depth	Velocity (measure from 1/3 of depth *from* the bottom)	Area	Discharge
	feet	feet	ft/s	ft^2	ft^3/s
1	1	0.28	0.0		
2	2	0.38	~~0.0~~ 0.7		
3	3	0.40	0.7		
4	4	0.32	0.9		
5	5	0.26	1.0		
6	6	0.32	0.7		
7	7	0.34	0.3		
8	8	0.36	0.0		
9					
10					
11					
12					
13					

Measurement Guide

Stream Width	Number of Vertical Measurements
0' - 3'	3-5
3' - 9'	5-8
9' - 15'	8-10
15' - 30'	10-20
>30'	20

Notes

Sample Checklist

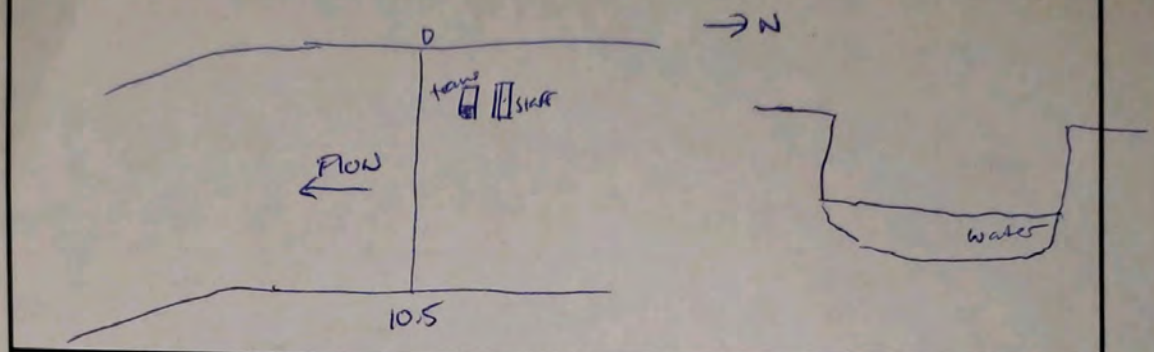
☑ Picture of Sample Location ☐ GPS'd

Location of photos: NP Phone

FLOW FORM

Date and Time: 6/24/22 10:40
Client: MPCA
Sample Location ID: RC Confluence #1
Field Staff: NP, LL
Project Number: 60663338
Weather: Sunny 86°F
Corresponding Staff Gauge Msmt (ft): 1.06'

Creek/Channel/Stream Sketch



Stream Segment Total Width = 10.5'

Msmt No.	Dist to Initial Point	Depth	Velocity (measure from 1/3 of depth ***from*** the bottom)	Area	Discharge
	feet	feet	ft/s	ft^2	ft^3/s
1	1	0.56	0.0		
2	2	0.80	0.0		
3	3	0.88	0.0		
4	4	0.96	0.0		
5	5	1.12	0.0		
6	6	1.10	0.0		
7	7	1.32	0.0		
8	8	1.14	0.3		
9	9	1.22	0.3		
10	10	0.66	0.0		
11					
12					
13					

Measurement Guide

Stream Width	Number of Vertical Measurements
0' - 3'	3-5
3' - 9'	5-8
9' - 15'	8-10
15' - 30'	10-20
>30'	20

Notes

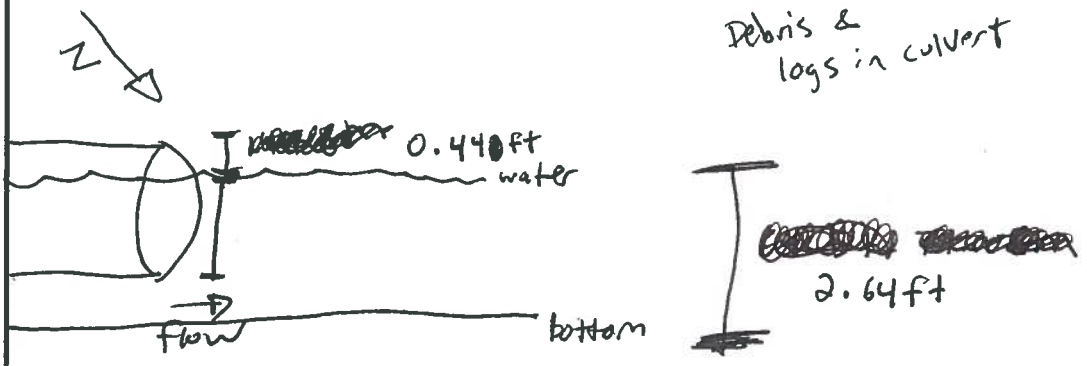
Sample Checklist

☑ Picture of Sample Location ☐ GPS'd
Location of photos: NP PHONE

FLOW FORM

Date and Time: 6/27/22
Client: MPCA
Sample Location ID: South of South Pond
Field Staff: AL, LL
Project Number: 60663338
Weather: Sunny
Corresponding Staff Gauge Msmt (ft): —

Creek/Channel/Stream Sketch



Stream Segment Total Width =

Msmt No.	Dist to Initial Point	Depth	Velocity (measure from 1/3 of depth *from* the bottom)	Area	Discharge
	feet	feet	ft/s	ft^2	ft^3/s
1					
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					

Measurement Guide

Stream Width	Number of Vertical Measurements
0' - 3'	3-5
3' - 9'	5-8
9' - 15'	8-10
15' - 30'	10-20
>30'	20

Notes

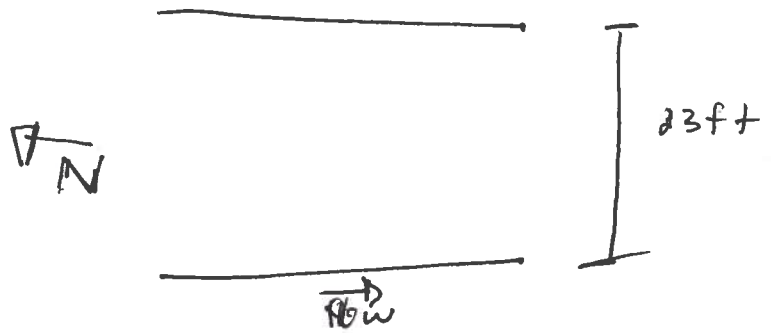
Sample Checklist

☒ Picture of Sample Location ☐ GPS'd
Location of photos: Laura's phone

FLOW FORM

Date and Time: 6/29/22
Client: MPCA
Sample Location ID: DG Horseshoe 2
Field Staff: AL, LL
Project Number: 60663338
Weather: Sunny
Corresponding Staff Gauge Msmt (ft): 1.20

Creek/Channel/Stream Sketch



Stream Segment Total Width =

Msmt No.	Dist to Initial Point	Depth	Velocity (measure from 1/3 of depth *from* the bottom)	Area	Discharge
	feet	feet	ft/s	ft^2	ft^3/s
1	1.5	0.3	0		
2	3	0.3	0		
3	4.5	0.7	0		
4	6	0.78	0		
5	7.5	0.44	0		
6	9	0.68	0		
7	10.5	0.96	0		
8	12	1.16	0		
9	13.5	1.24	0.3		
10	15	1.14	0		
11	16.5	0.98	0		
12	18	0.78	0		
13	19.5	0.62	0		
	21	0.34			

23ft

Measurement Guide

Stream Width	Number of Vertical Measurements
0' - 3'	3-5
3' - 9'	5-8
9' - 15'	8-10
15' - 30'	10-20
>30'	20

Notes

23ft wide

Sample Checklist

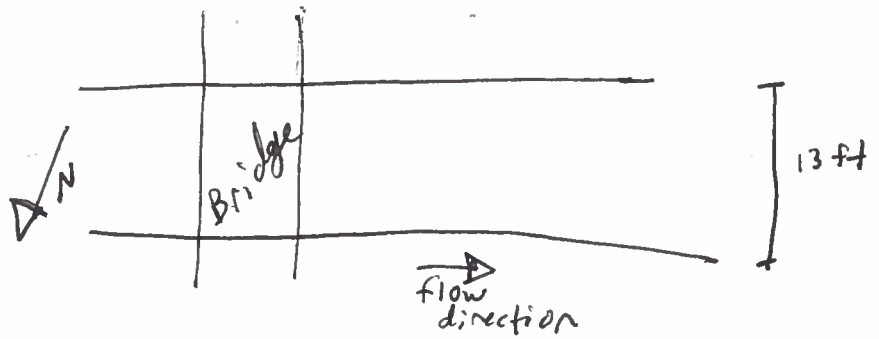
☒ Picture of Sample Location ☐ GPS'd

Location of photos: Laura's phone

FLOW FORM

Date and Time: 6/29/22
Client: MPCA
Sample Location ID: N channel 02
Field Staff: AL, LL
Project Number: 60663338
Weather: Sunny
Corresponding Staff Gauge Msmt (ft):

Creek/Channel/Stream Sketch



Stream Segment Total Width =

Msmt No.	Dist to Initial Point	Depth	Velocity (measure from 1/3 of depth ***from*** the bottom)	Area	Discharge
	feet	feet	ft/s	ft^2	ft^3/s
1	1	0.28	0		
2	2	0.52	0		
3	3	0.66	0.2		
4	4	0.70	0.3		
5	5	0.7	0.3		
6	6	0.72	0.3		
7	7	0.64	0.3		
8	8	0.64	0.3		
9	9	0.62	0.2		
10	10	0.62	0		
11	11	0.50	0		
12	12	0.36	0		
13	13	0.1	0		

Measurement Guide

Stream Width	Number of Vertical Measurements
0' - 3'	3-5
3' - 9'	5-8
9' - 15'	8-10
15' - 30'	10-20
>30'	20

Notes

13 Ft wide

Sample Checklist

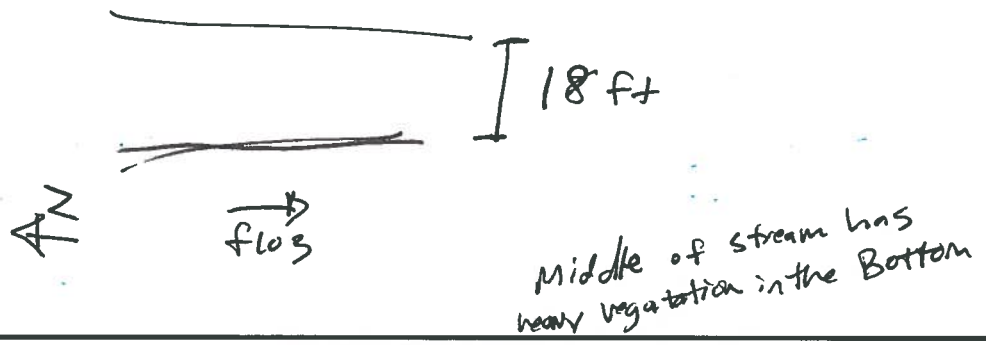
☒ Picture of Sample Location ☐ GPS'd

Location of photos: Laura's phone

FLOW FORM

Date and Time: 6/29/22
Client: MPCA
Sample Location ID: DG Horseshoe 1
Field Staff: AL, LL
Project Number: 60663338
Weather: sunny
Corresponding Staff Gauge Msmt (ft): 1.16

Creek/Channel/Stream Sketch



Stream Segment Total Width = 18ft

Msmt No.	Dist to Initial Point	Depth	Velocity (measure from 1/3 of depth *from* the bottom)	Area	Discharge
	feet	feet	ft/s	ft^2	ft^3/s
1	1.5	0.44	0		
2	3	1.10	0		
3	4.5	1.04	0		
4	6	1.14	0		
5	7.5	1.30	0		
6	9	1.28	0		
7	10.5	1.36	0.7		
8	12	1.30	0		
9	13.5	1.22	0		
10	15	1.20	0		
11	16.5	0.72	0		
12	18	0.2	0		
13					

Measurement Guide

Stream Width	Number of Vertical Measurements
0' - 3'	3-5
3' - 9'	5-8
9' - 15'	8-10
15' - 30'	10-20
>30'	20

Notes

18 ft wide

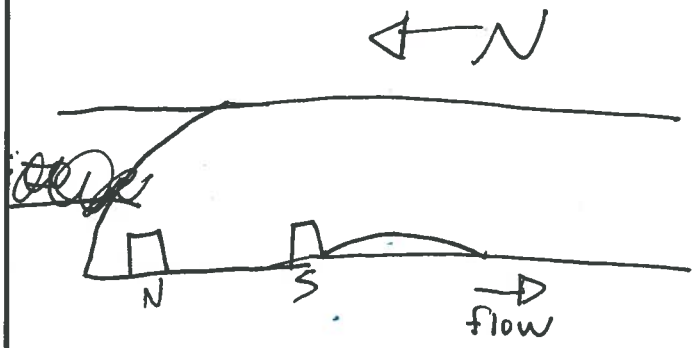
Sample Checklist

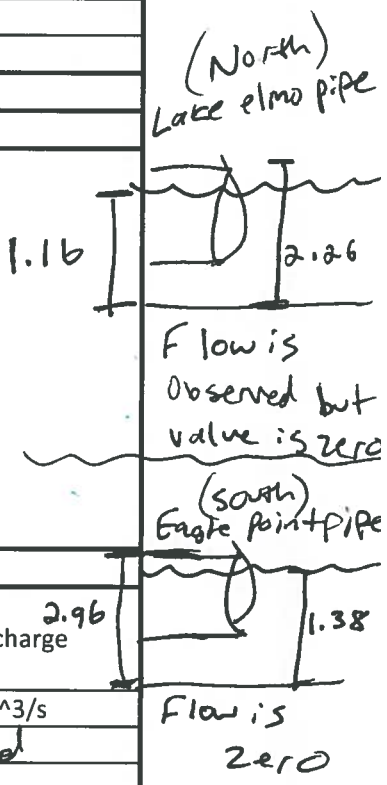
☒ Picture of Sample Location ☐ GPS'd
Location of photos: Laura's phone

FLOW FORM

Date and Time: 6/29/22
Client: MPCA
Sample Location ID: Eagle Point lake pipe & Lake elmo pipe
Field Staff: AL, LL
Project Number: 60663338
Weather: Sunny
Corresponding Staff Gauge Msmt (ft): 0.46

Creek/Channel/Stream Sketch





Stream Segment Total Width =

Msmt No.	Dist to Initial Point	Depth	Velocity (measure from 1/3 of depth *from* the bottom)	Area	Discharge
	feet	feet	ft/s	ft^2	ft^3/s
1	North		0		observed
2	South		0		
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					

Measurement Guide

Stream Width	Number of Vertical Measurements
0' - 3'	3-5
3' - 9'	5-8
9' - 15'	8-10
15' - 30'	10-20
>30'	20

Notes

Flow

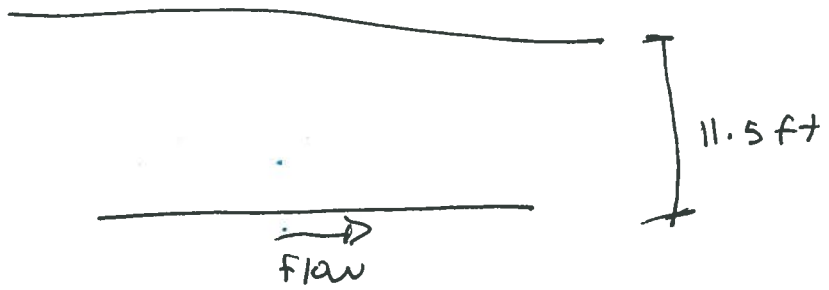
Sample Checklist

☒ Picture of Sample Location ☐ GPS'd
Location of photos: Laura's phone

FLOW FORM

Date and Time: 6/29/22
Client: MPCA
Sample Location ID: RC Confluence 2
Field Staff: AL, LL
Project Number: 60663338
Weather: Sunny
Corresponding Staff Gauge Msmt (ft): 1.07

Creek/Channel/Stream Sketch



Stream Segment Total Width =

Msmt No.	Dist to Initial Point	Depth	Velocity (measure from 1/3 of depth *from* the bottom)	Area	Discharge
	feet	feet	ft/s	ft^2	ft^3/s
1	1	0.44	0		
2	2	0.80	0		
3	3	0.88	0		
4	4	1.10	0		
5	5	1.0	0		
6	6	1.08	0		
7	7	1.30	0		
8	8	1.38	0		
9	9	1.06	0.2		
10	10	0.98	0		
11	11	0.78	0		
12					
13					

observed - Flow ~~observed~~ measured as zero

Measurement Guide

Stream Width	Number of Vertical Measurements
0' - 3'	3-5
3' - 9'	5-8
9' - 15'	8-10
15' - 30'	10-20
>30'	20

Notes

11.5 ft wide

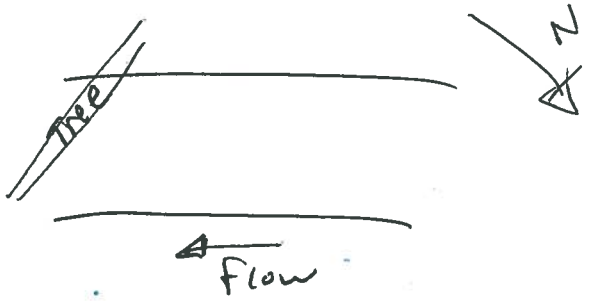
Sample Checklist

☑ Picture of Sample Location ☐ GPS'd
Location of photos: Laura's phone

FLOW FORM

Date and Time: 06/29/23 @ 1325
Client: MPCA
Sample Location ID: post RR #1
Field Staff: AL, LL
Project Number: 60663338
Weather: Sunny
Corresponding Staff Gauge Msmt (ft): 1.06

Creek/Channel/Stream Sketch



Tree & Debris blocking alot of water

Dammed up by staff gauge & Dammed up 30ft up stream

8ft

Stream Segment Total Width =

Msmt No.	Dist to Initial Point	Depth	Velocity (measure from 1/3 of depth *from* the bottom)	Area	Discharge
	feet	feet	ft/s	ft^2	ft^3/s
1	1	0.16	0		
2	2	0.3	0		
3	3	0.38	0		
4	4	0.42	0		
5	5	0.44	0		
6	6	0.38	0		
7	7	0.42	0		
8	8	0.42	0		
9					
10					
11					
12					
13					

Measurement Guide

Stream Width	Number of Vertical Measurements
0' - 3'	3-5
3' - 9'	5-8
9' - 15'	8-10
15' - 30'	10-20
>30'	20

Notes

8ft wide

Sample Checklist

☒ Picture of Sample Location ☐ GPS'd

Location of photos: Laura's phone

FLOW FORM

Date and Time: 6/29/22
Client: MPCA
Sample Location ID: Pond System 1
Field Staff: AL, LL
Project Number: 60663338
Weather: Sunny
Corresponding Staff Gauge Msmt (ft): Dry

Creek/Channel/Stream Sketch

Staff gauge stuck in mud at 0.54 & then water begins 3ft beyond the gauge

Stream Segment Total Width =

Msmt No.	Dist to Initial Point	Depth	Velocity (measure from 1/3 of depth ***from*** the bottom)	Area	Discharge
	feet	feet	ft/s	ft^2	ft^3/s
1					
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					

Measurement Guide

Stream Width	Number of Vertical Measurements
0' - 3'	3-5
3' - 9'	5-8
9' - 15'	8-10
15' - 30'	10-20
>30'	20

Notes

Sample Checklist

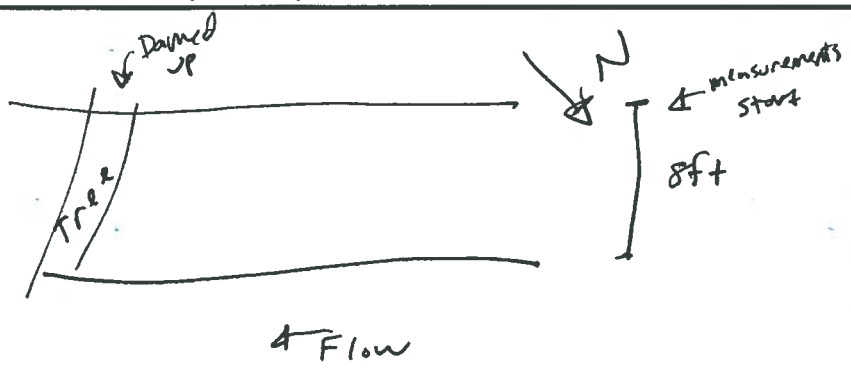
☐ Picture of Sample Location ☐ GPS'd

Location of photos:

FLOW FORM

Date and Time: 7/5/22
Client: MPCA
Sample Location ID: Rc post RR #1
Field Staff: AL, LL
Project Number: 60663338
Weather: Fog
Corresponding Staff Gauge Msmt (ft): 1.12

Creek/Channel/Stream Sketch



Looks stagnet
- Dammed up Downstream
- upstream broken up by sandbars
- Measured left upstream of staff Jauge

Stream Segment Total Width =

Msmt No.	Dist to Initial Point	Depth	Velocity (measure from 1/3 of depth *from* the bottom)	Area	Discharge
	feet	feet	ft/s	ft^2	ft^3/s
1	1	0.24	0		
2	2	0.38	0		
3	3	0.44	0		
4	4	0.46	0		
5	5	0.46	0		
6	6	0.52	0		
7	7	0.50	0		
8	8	0.38	0		
9					
10					
11					
12					
13					

Measurement Guide

Stream Width	Number of Vertical Measurements
0' - 3'	3-5
3' - 9'	5-8
9' - 15'	8-10
15' - 30'	10-20
>30'	20

Notes

8ft wide

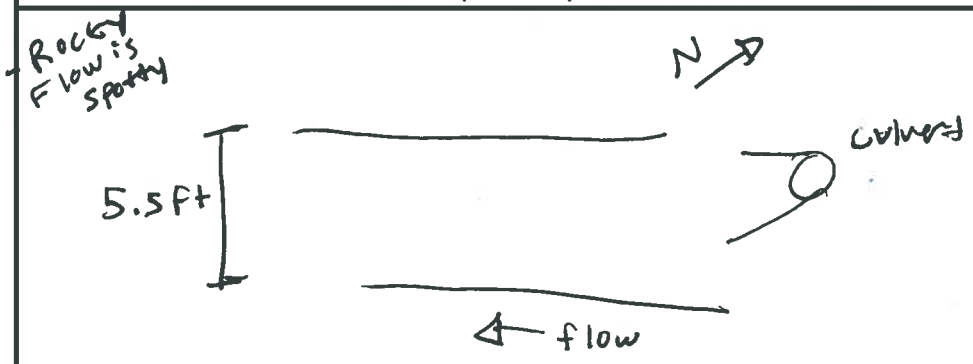
Sample Checklist

☒ Picture of Sample Location ☐ GPS'd
Location of photos: Laura's phone

FLOW FORM

Date and Time: 7/5/22 1024
Client: MPCA
Sample Location ID: Pond system 1
Field Staff: AL, LL
Project Number: 60663338
Weather: Fog
Corresponding Staff Gauge Msmt (ft): 0.94

Creek/Channel/Stream Sketch



- Taken 2ft upstream from staff gauge
- Flow observed 10ft upstream from staff gauge)
width only 3
1 0.1 0ft/s
2 0.2 0.3 ft
3 0.16 0

Stream Segment Total Width =

Msmt No.	Dist to Initial Point	Depth	Velocity (measure from 1/3 of depth *from* the bottom)	Area	Discharge
	feet	feet	ft/s	ft^2	ft^3/s
1	0.5	0.38	0		
2	1.5	0.42	0		
3	2.5	0.62	0		
4	3.5	0.66	0		
5	4.5	0.76	0		
6	5.5	0.60	0		
7					
8					
9					
10					
11					
12					
13					

Measurement Guide

Stream Width	Number of Vertical Measurements
0' - 3'	3-5
3' - 9'	5-8
9' - 15'	8-10
15' - 30'	10-20
>30'	20

Notes

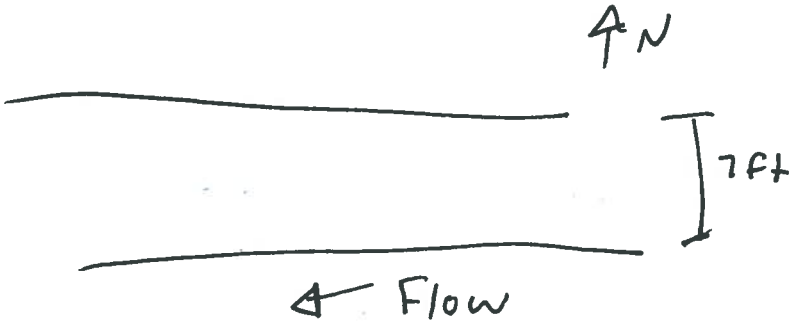
Sample Checklist

☒ Picture of Sample Location ☐ GPS'd
Location of photos: Lauri's phone

FLOW FORM

Date and Time: 7/5/22
Client: MPCA
Sample Location ID: RC confluence 2
Field Staff: AL, LL
Project Number: 60663338
Weather: cloudy
Corresponding Staff Gauge Msmt (ft): 0.58

Creek/Channel/Stream Sketch



- measured 2 ft upstream of gauge

Stream Segment Total Width =

Msmt No.	Dist to Initial Point	Depth	Velocity (measure from 1/3 of depth *from* the bottom)	Area	Discharge
	feet	feet	ft/s	ft^2	ft^3/s
1	1	0.2	0.3		
2	2	0.24	0.4		
3	3	0.2	0.3		
4	4	0.12	0		
5	5	0.2	0		
6	6	0.28	0.2		
7	7	0.28	0		
8					
9					
10					
11					
12					
13					

Measurement Guide

Stream Width	Number of Vertical Measurements
0' - 3'	3-5
3' - 9'	5-8
9' - 15'	8-10
15' - 30'	10-20
>30'	20

Notes

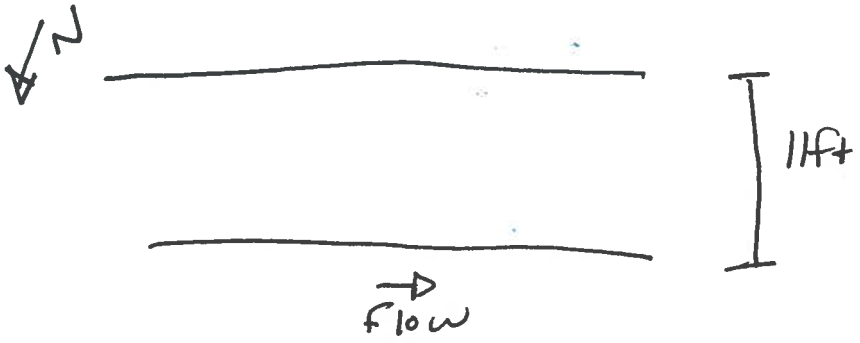
Sample Checklist

☒ Picture of Sample Location ☐ GPS'd
Location of photos: Lacie's phone

FLOW FORM

Date and Time: 7/5/22
Client: MPCA
Sample Location ID: RC confluence 2
Field Staff: AL, LL
Project Number: 60663338
Weather: cloudy
Corresponding Staff Gauge Msmt (ft): 0.98

Creek/Channel/Stream Sketch



Flow observed too little to measure

Stream Segment Total Width =

Msmt No.	Dist to Initial Point	Depth	Velocity (measure from 1/3 of depth *from* the bottom)	Area	Discharge
	feet	feet	ft/s	ft^2	ft^3/s
1	1	0.8	0		
2	2	1.08	0		
3	3	1.26	0		
4	4	1.12	0		
5	5	1.24	0		
6	6	1.18	0		
7	7	1.06	0		
8	8	0.9	0		
9	9	0.72	0		
10	10	0.42	0		
11	11	0.2	0		
12					
13					

Measurement Guide

Stream Width	Number of Vertical Measurements
0' - 3'	3-5
3' - 9'	5-8
9' - 15'	8-10
15' - 30'	10-20
>30'	20

Notes

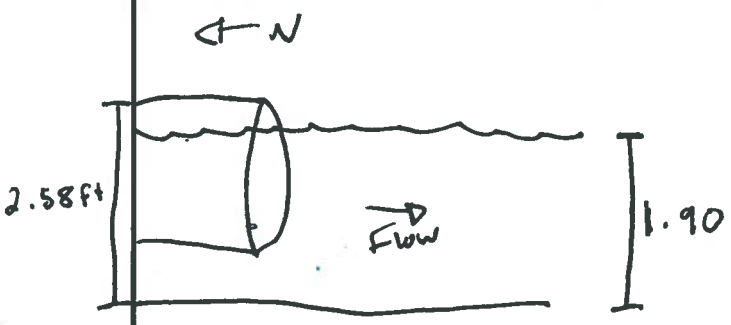
Sample Checklist

☒ Picture of Sample Location ☐ GPS'd
Location of photos: Laura's phone

FLOW FORM

Date and Time: 7/5/22
Client: MPCA
Sample Location ID: South of South pond
Field Staff: AL, LL
Project Number: 60663338
Weather: Sunny
Corresponding Staff Gauge Msmt (ft): — N/A

Creek/Channel/Stream Sketch



Stream Segment Total Width =

Msmt No.	Dist to Initial Point	Depth	Velocity (measure from 1/3 of depth *from* the bottom)	Area	Discharge
	feet	feet	ft/s	ft^2	ft^3/s
1					
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					

Measurement Guide

Stream Width	Number of Vertical Measurements
0' - 3'	3-5
3' - 9'	5-8
9' - 15'	8-10
15' - 30'	10-20
>30'	20

Notes

Sample Checklist

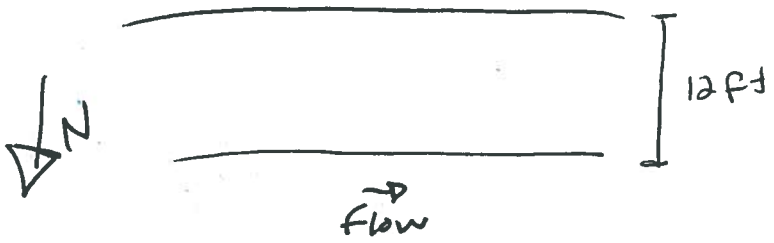
☐ Picture of Sample Location ☐ GPS'd

Location of photos: —

FLOW FORM

Date and Time: 7/5/22
Client: MPCA
Sample Location ID: North channel 2
Field Staff: AL, LL
Project Number: 60663338
Weather: Sunny
Corresponding Staff Gauge Msmt (ft): 0.38

Creek/Channel/Stream Sketch



, measured a foot downstream away from gauge

Stream Segment Total Width =

Msmt No.	Dist to Initial Point	Depth	Velocity (measure from 1/3 of depth *from* the bottom)	Area	Discharge
	feet	feet	ft/s	ft^2	ft^3/s
1	1	0.26	0		
2	2	0.4	0.3		
3	3	0.50	0.4		
4	4	0.48	0.5		
5	5	0.50	0.5		
6	6	0.52	0.3		
7	7	0.48	0.3		
8	8	0.54	0.3		
9	9	0.5	0		
10	10	0.44	0		
11	11	0.32	0		
12	12	0.20	0		
13					

Measurement Guide

Stream Width	Number of Vertical Measurements
0' - 3'	3-5
3' - 9'	5-8
9' - 15'	8-10
15' - 30'	10-20
>30'	20

Notes

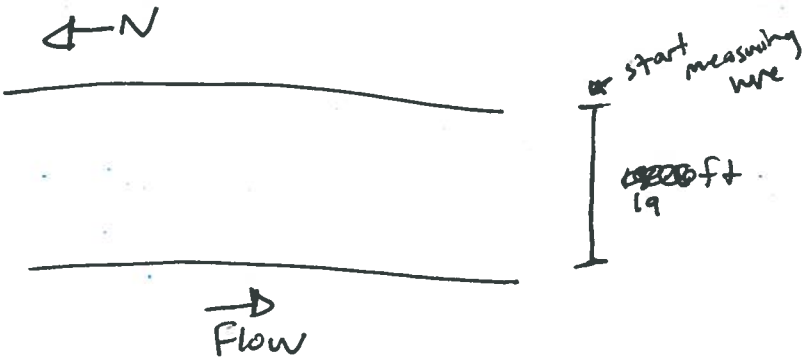
Sample Checklist

☒ Picture of Sample Location ☐ GPS'd
Location of photos: Lara's phone

FLOW FORM

Date and Time: 7/5/22
Client: MPCA
Sample Location ID: DG Horseshoe 2
Field Staff: AL, LL
Project Number: 60663338
Weather: Sunny
Corresponding Staff Gauge Msmt (ft): 1.16

Creek/Channel/Stream Sketch



Stream Segment Total Width = 19

Msmt No.	Dist to Initial Point	Depth	Velocity (measure from 1/3 of depth *from* the bottom)	Area	Discharge
	feet	feet	ft/s	ft^2	ft^3/s
1	1.5	0.62	0		
2	3	0.72	0		
3	4.5	0.66	0		
4	6	0.64	0		
5	7	0.84	0		
6	9	1.14	0.3		
7	10.5	1.30	0		
8	12	1.2	0.3		
9	13.5	1.02	0		
10	15	0.78	0		
11	16.5	0.8	0		
12	18	0.5	0		
13					

- vegetation on bottom @ interfers with flow

Measurement Guide

Stream Width	Number of Vertical Measurements
0' - 3'	3-5
3' - 9'	5-8
9' - 15'	8-10
15' - 30'	10-20
>30'	20

Notes

Sample Checklist

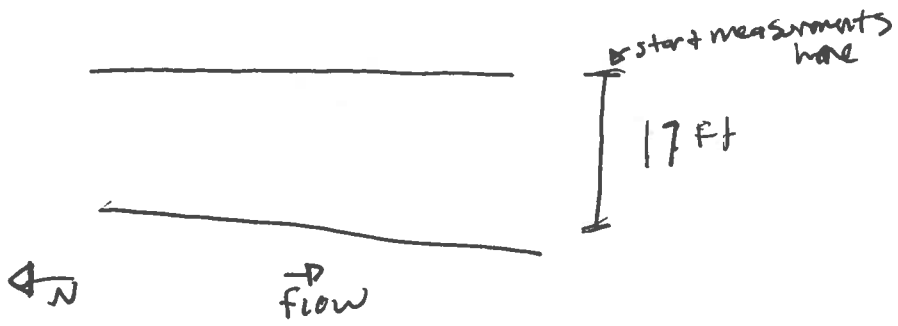
☒ Picture of Sample Location ☐ GPS'd

Location of photos: Laura's phone

FLOW FORM

Date and Time: 7/5/22
Client: MPCA
Sample Location ID: DG Horseshoe #2
Field Staff: AC, LL
Project Number: 60663338
Weather: Sunny
Corresponding Staff Gauge Msmt (ft): 1.06

Creek/Channel/Stream Sketch



Stream Segment Total Width = 17 ft

Msmt No.	Dist to Initial Point	Depth	Velocity (measure from 1/3 of depth *from* the bottom)	Area	Discharge
	feet	feet	ft/s	ft^2	ft^3/s
1	1.5	0.38	0		
2	3	0.86	0		
3	4.5	1	0		
4	6	1.40	0.2		
5	7.5	1.24	0.2		
6	9	1.26	0.3		
7	10.5	1.28	0.9		
8	12	1.18	0		
9	13.5	1.14	0		
10	15	1.14	0		
11	16.5	0.52	0		
12					
13					

Measurement Guide

Stream Width	Number of Vertical Measurements
0' - 3'	3-5
3' - 9'	5-8
9' - 15'	8-10
15' - 30'	10-20
>30'	20

Notes

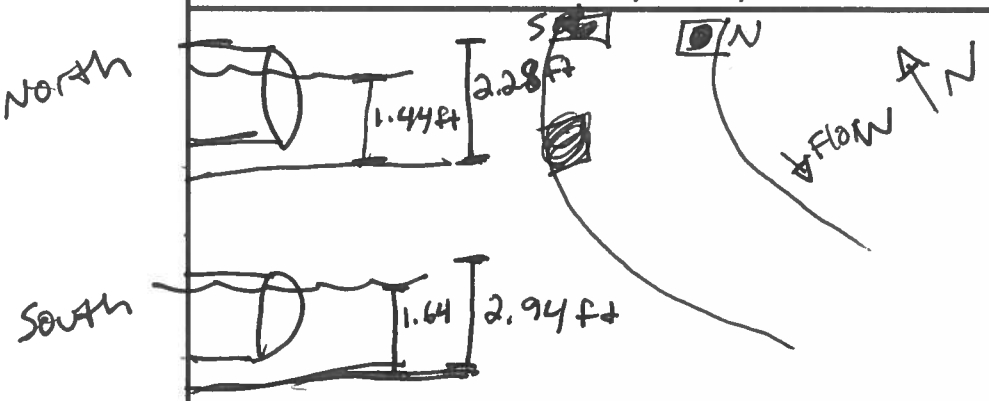
Sample Checklist

☒ Picture of Sample Location ☐ GPS'd
Location of photos: Lawrai's phone

FLOW FORM

Date and Time: 7/5/22
Client: MPCA
Sample Location ID: Lake Elmo pipe & Eagle Point Lake pipe
Field Staff: AL, CL
Project Number: 60663338
Weather: Sunny
Corresponding Staff Gauge Msmt (ft): 0.68

Creek/Channel/Stream Sketch



Stream Segment Total Width =

Msmt No.	Dist to Initial Point	Depth	Velocity (measure from 1/3 of depth *from* the bottom)	Area	Discharge
	feet	feet	ft/s	ft^2	ft^3/s
1					
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					

Measurement Guide

Stream Width	Number of Vertical Measurements
0' - 3'	3-5
3' - 9'	5-8
9' - 15'	8-10
15' - 30'	10-20
>30'	20

Notes

North Lake Elmo pipe Flow: 0.5 ft/s
South Eagle Point Lake pipe: 0 ft/s

Sample Checklist

☐ Picture of Sample Location ☐ GPS'd

Location of photos:

FLOW FORM

Date and Time: 7/1/22

Client: MPCA

Sample Location ID: South of south pond

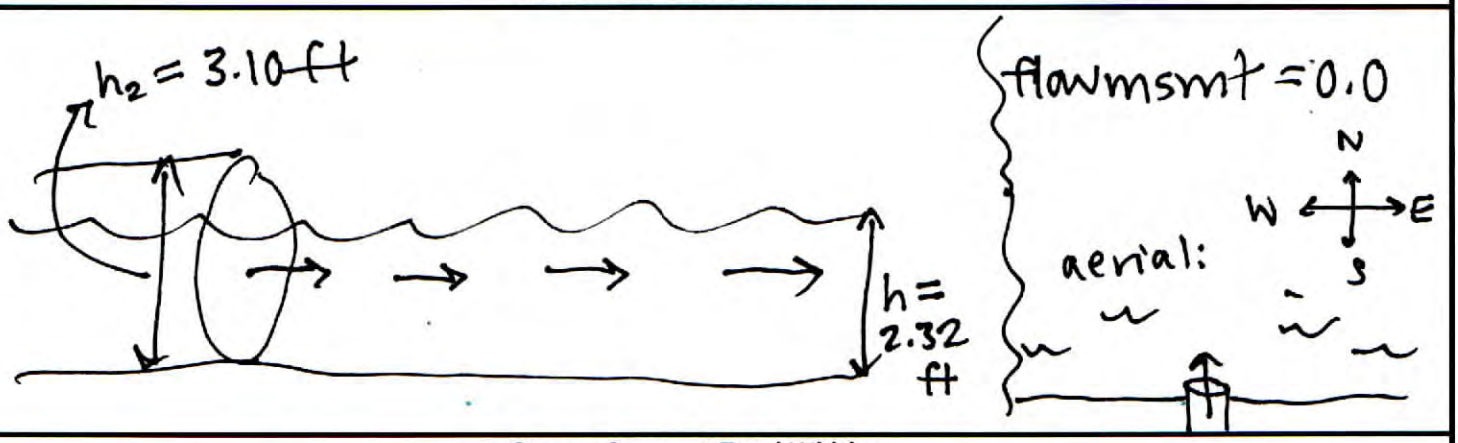
Field Staff: LL, KS, BG

Project Number: 60663338

Weather:

Corresponding Staff Gauge Msmt (ft): N/A

Creek/Channel/Stream Sketch



Stream Segment Total Width =

Msmt No.	Dist to Initial Point	Depth	Velocity (measure from 1/3 of depth *from* the bottom)	Area	Discharge
	feet	feet	ft/s	ft^2	ft^3/s
1					
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					

Measurement Guide

Stream Width	Number of Vertical Measurements
0' - 3'	3-5
3' - 9'	5-8
9' - 15'	8-10
15' - 30'	10-20
>30'	20

Notes

lots of debris at bottom of pipe

Sample Checklist

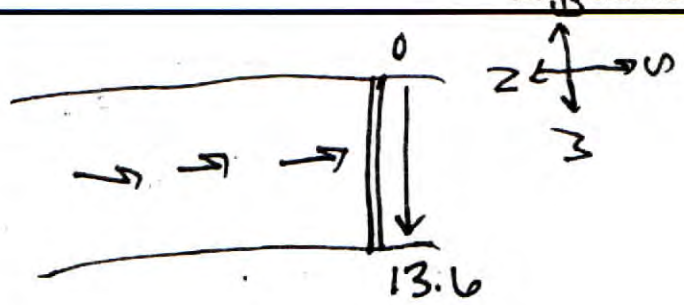
☒ Picture of Sample Location ☐ GPS'd

Location of photos: LL Phone

FLOW FORM

Date and Time: 7/11/22
Client: MPCA
Sample Location ID: NorthChannel #1 (one)
Field Staff: LL, KS, BG
Project Number: 60663338
Weather:
Corresponding Staff Gauge Msmt (ft): 0.50

Creek/Channel/Stream Sketch



*msmts taken abat 5ft sath (dawnstream) of staff gavge

Stream Segment Total Width =

Msmt No.	Dist to Initial Point	Depth	Velocity (measure from 1/3 of depth ***from*** the bottom)	Area	Discharge
	feet	feet	ft/s	ft^2	ft^3/s
1	1	0.20	0.0		
2	2	0.32	0.0		
3	3	0.42	0.2		
4	4	0.44	0.2		
5	5	0.52	0.3		
6	6	0.52	0.4		
7	7	0.64	0.3		
8	8	0.46	0.2		
9	9	0.42	0.1		
10	10	0.36	0.0		
11	11	0.32	0.0		
12	12	0.28	0.0		
13	13	0.60	0.0		

Measurement Guide

Stream Width	Number of Vertical Measurements
0' - 3'	3-5
3' - 9'	5-8
9' - 15' 13.6 ft	8-10
15' - 30'	10-20
>30'	20

Notes

Sample Checklist

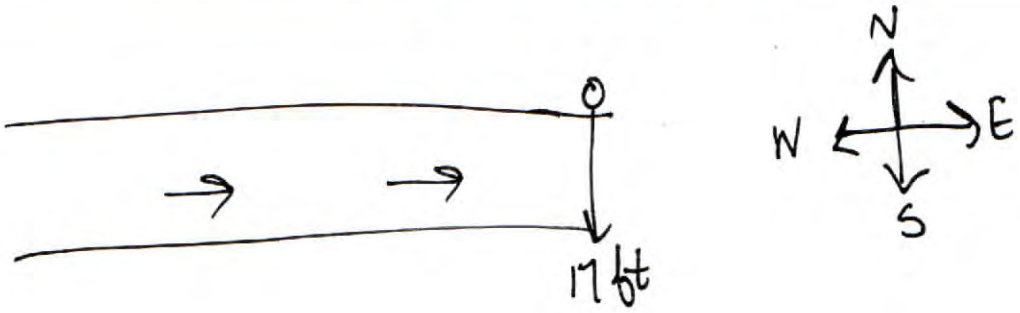
☐ Picture of Sample Location ☐ GPS'd

Location of photos:

FLOW FORM

Date and Time: 1145 7/11/22
Client: MPCA
Sample Location ID: D6 Horseshoe #1
Field Staff: SG
Project Number: 60663338
Weather: Partly sunny, muggy
Corresponding Staff Gauge Msmt (ft):

Creek/Channel/Stream Sketch



Stream Segment Total Width =

Msmt No.	Dist to Initial Point	Depth	Velocity (measure from 1/3 of depth *from* the bottom)	Area	Discharge
	feet	feet	ft/s	ft^2	ft^3/s
1	1.5	0.64	0.0		
2	3.0	0.94	0.0		
3	4.5	0.94	0.0		
4	6.0	0.98	0.1		
5	7.5	1.11	0.1		
6	9.0	1.4	0.0		
7	10.5	1.8	0.9		
8	12.0	1.10	0.2		
9	13.5	1.08	0.0		
10	15.0	1.10	0.0		
11	16.5	1.06	0.0		
12	17	0.38	0		
13					

Measurement Guide

Stream Width	Number of Vertical Measurements
0' - 3'	3-5
3' - 9'	5-8
9' - 15'	8-10
15' - 30' 17'	10-20
>30'	20

Notes

Sampled upstream of gauge about 1 ft
Heavy vegetation.

Sample Checklist

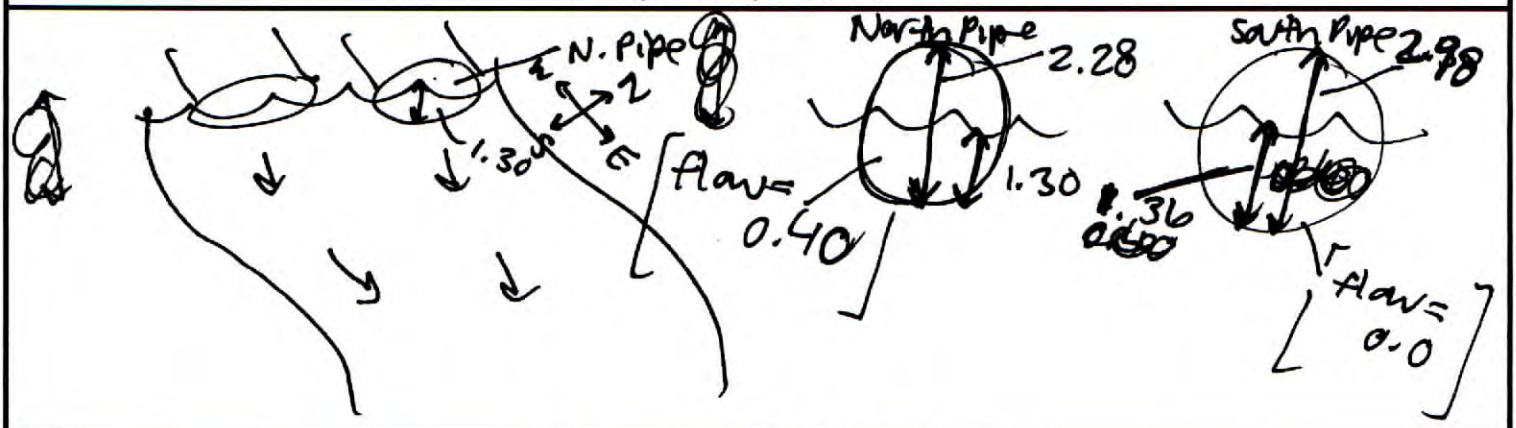
☐ Picture of Sample Location ☐ GPS'd

Location of photos:

FLOW FORM

Date and Time: 7/11/22
Client: MPCA
Sample Location ID: North & South Pipe
Field Staff: CL, KS, BG
Project Number: 60663338
Weather:
Corresponding Staff Gauge Msmt (ft): 0.64

Creek/Channel/Stream Sketch



Stream Segment Total Width =

Msmt No.	Dist to Initial Point	Depth	Velocity (measure from 1/3 of depth *from* the bottom)	Area	Discharge
	feet	feet	ft/s	ft^2	ft^3/s
1					
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					

Measurement Guide

Stream Width	Number of Vertical Measurements
0' - 3'	3-5
3' - 9'	5-8
9' - 15'	8-10
15' - 30'	10-20
>30'	20

Notes

Sample Checklist

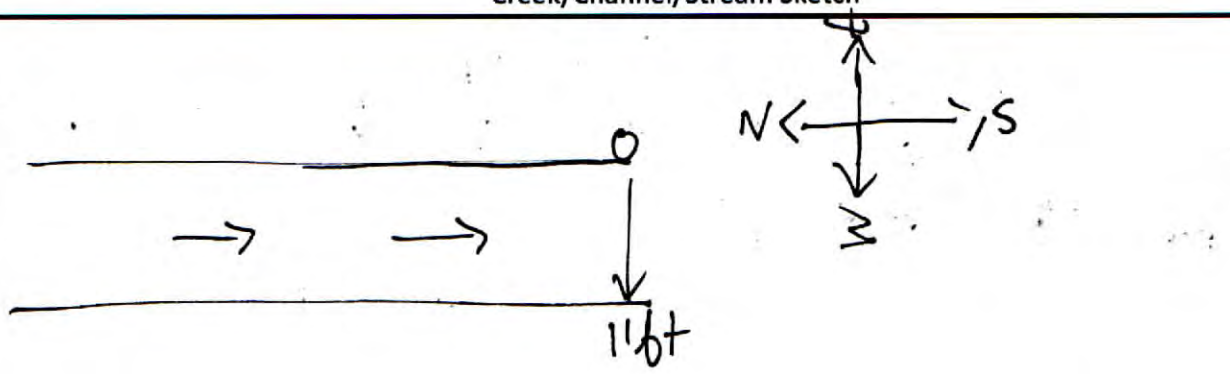
☒ Picture of Sample Location ☐ GPS'd

Location of photos: CL Phone

FLOW FORM

Date and Time: 1600
Client: MPCA
Sample Location ID: RC confluence #1
Field Staff:
Project Number: 60663338
Weather:
Corresponding Staff Gauge Msmt (ft): 0.98

Creek/Channel/Stream Sketch



Stream Segment Total Width =

Msmt No.	Dist to Initial Point	Depth	Velocity (measure from 1/3 of depth *from* the bottom)	Area	Discharge
	feet	feet	ft/s	ft^2	ft^3/s
1	1	0.48	0.2		
2	2	0.58	0.2		
3	3	0.70	0.2		
4	4	0.70	0.3		
5	5	0.84	0.5		
6	6	0.96	0.4		
7	7	1.21	0.3		
8	8	1.28	0.2		
9	9	0.84	0.1		
10	10	0.90	0.1		
11	11	0.62	0.0		
12					
13					

Measurement Guide

Stream Width	Number of Vertical Measurements
0' - 3'	3-5
3' - 9'	5-8
9' - 15' 11ft	8-10
15' - 30'	10-20
>30'	20

Notes

Sample Checklist

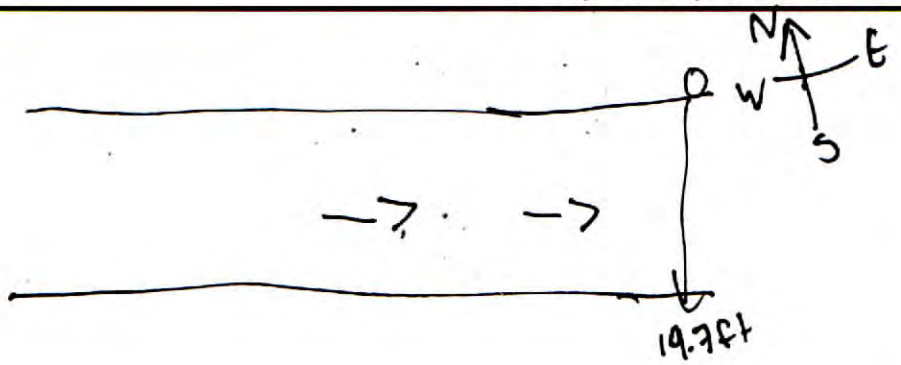
□ Picture of Sample Location □ GPS'd

Location of photos:

FLOW FORM

Date and Time: 7/1/22
Client: MPCA
Sample Location ID: DG Horseshoe #2
Field Staff: LL, KS, BG
Project Number: 60663338
Weather: Muggy
Corresponding Staff Gauge Msmt (ft): 3.10

Creek/Channel/Stream Sketch



width = 19.7ft
*msmts taken ~1ft downstream of staff gauge

Stream Segment Total Width =

Msmt No.	Dist to Initial Point	Depth	Velocity (measure from 1/3 of depth *from* the bottom)	Area	Discharge
	feet	feet	ft/s	ft^2	ft^3/s
1	1	0.32	0.0		
2	2	0.83	0.1		
3	3	0.90	0.1		
4	4	0.70	0.0		
5	5	0.70	0.0		
6	6	0.58	0.0		
7	7	0.82	0.3		
8	8	0.92	0.3		
9	9	1.16	0.3		
10	10	1.4	0.2		
11	11	1.24	0.2		
12	12	1.18	0.2		
13	13	1.04	0.2		

Measurement Guide

Stream Width	Number of Vertical Measurements
0' - 3'	3-5
3' - 9'	5-8
9' - 15'	8-10
15' - 30' 19.7ft	10-20
>30'	20

Notes

Heavy vegetation on creek bed

Sample Checklist

□ Picture of Sample Location □ GPS'd

Location of photos:

FLOW FORM

Date and Time:

Client: MPCA

Sample Location ID: DG Horseshoe #2

Field Staff:

Project Number: 60663338

Weather:

rresponding Staff Gauge Msmt (ft):

Creek/Channel/Stream Sketch

Stream Segment Total Width =

Msmt No.	Dist to Initial Point	Depth	Velocity (measure from 1/3 of depth ***from*** the bottom)	Area	Discharge
	feet	feet	ft/s	ft^2	ft^3/s
1	14	0.96	0.1		
2	15	0.82	0.0		
3	16	0.71	0.0		
4	17	0.52	0.0		
5	18	0.40	0.0		
6	~~18~~				
7					
8					
9					
10					
11					
12					
13					

Measurement Guide

Stream Width	Number of Vertical Measurements
0' - 3'	3-5
3' - 9'	5-8
9' - 15'	8-10
15' - 30'	10-20
>30'	20

Notes

mple Checklist

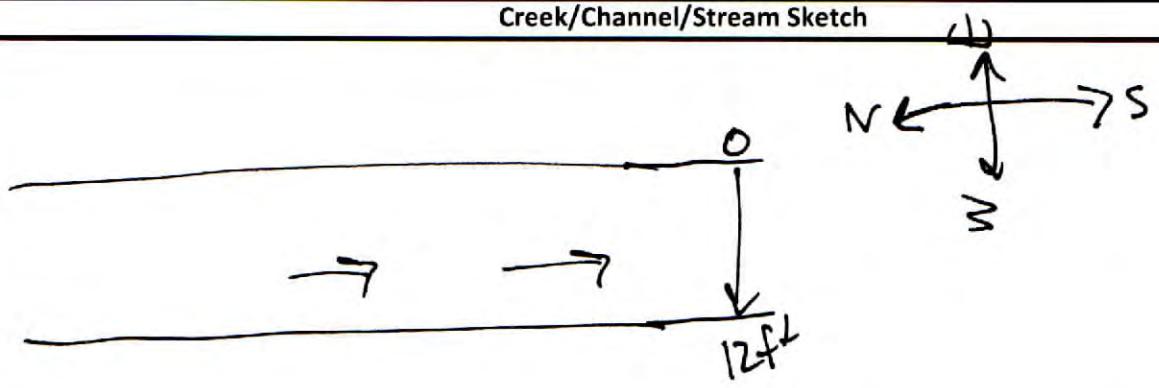
☐ Picture of Sample Location ☐ GPS'd

Location of photos:

FLOW FORM

Date and Time: 1130
Client: MPCA
Sample Location ID: Northcharmel #2
Field Staff: LL, KS, BG
Project Number: 60663338
Weather: Mostly Cloudy Muggy
Corresponding Staff Gauge Msmt (ft): 0.36

Creek/Channel/Stream Sketch



Stream Segment Total Width =

Msmt No.	Dist to Initial Point	Depth	Velocity (measure from 1/3 of depth *from* the bottom)	Area	Discharge
	feet	feet	ft/s	ft^2	ft^3/s
1	1	0.20	0.20		
2	2	0.40	0.2		
3	3	0.48	0.20		
4	4	0.48	0.30		
5	5	0.46	0.30		
6	6	0.46	0.30		
7	7	0.50	0.30		
8	8	0.52	0.30		
9	9	0.46	0.20		
10	10	0.40	0.10		
11	11	0.30	0.0		
12	12	0.20	0.0		
13					

Measurement Guide

Stream Width	Number of Vertical Measurements
0' - 3'	3-5
3' - 9'	5-8
9' - 15'	8-10
15' - 30'	10-20
>30'	20

Notes

Sample 2 ft downstream of staff gauge.

Sample Checklist

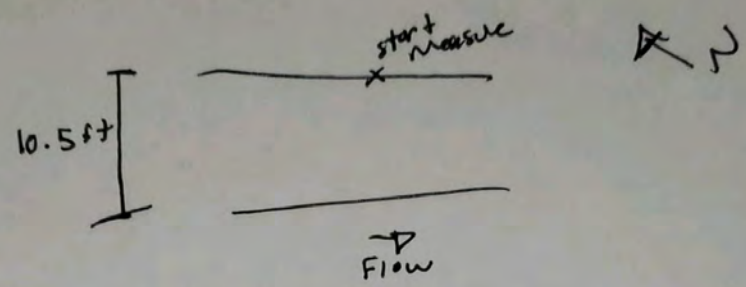
☒ Picture of Sample Location ☐ GPS'd

Location of photos: LL Photo

FLOW FORM

Date and Time: 08/08/22 @ 1330
Client: MPCA
Sample Location ID: RL confluence #1
Field Staff: AL, GG
Project Number: 60663338
Weather: sunny
Corresponding Staff Gauge Msmt (ft): 1.06

Creek/Channel/Stream Sketch



-2ft downstream of staff gauge

Stream Segment Total Width = 10.5 ft

Msmt No.	Dist to Initial Point	Depth	Velocity (measure from 1/3 of depth *from* the bottom)	Area	Discharge
	feet	feet	ft/s	ft^2	ft^3/s
1	1	0.54	0		
2	2	0.80	0		
3	3	1.00	0		
4	4	1.14	0		
5	5	1.26	0		
6	6	1.30	0		
7	7	1.21	0		
8	8	1.30	0		
9	9	1.19	0		
10	10	0.88	0		
11					
12					
13					

-slow flow observed But flow meter did not measure it

Measurement Guide

Stream Width	Number of Vertical Measurements
0' - 3'	3-5
3' - 9'	5-8
(9' - 15')	8-10
15' - 30'	10-20
>30'	20

Notes

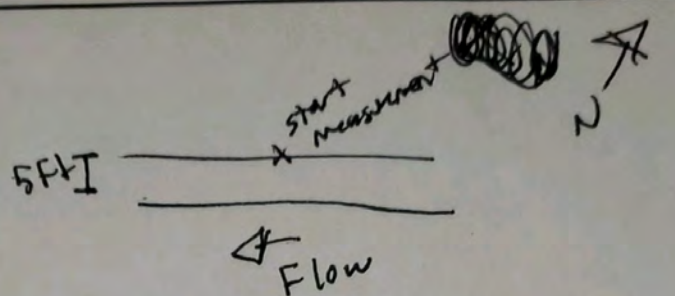
Sample Checklist

☒ Picture of Sample Location ☐ GPS'd
Location of photos: Alex's phone

FLOW FORM

Date and Time: 08/08/22 @ 1330
Client: MPCA
Sample Location ID: BC confluence #2
Field Staff: AL, GG
Project Number: 60663338
Weather: Sunny
Corresponding Staff Gauge Msmt (ft): 0.84

Creek/Channel/Stream Sketch



- 1 foot upstream of staff gauge

Stream Segment Total Width = 5ft

Msmt No.	Dist to Initial Point	Depth	Velocity (measure from 1/3 of depth ***from*** the bottom)	Area	Discharge
	feet	feet	ft/s	ft^2	ft^3/s
1	1	0.34	0.7		
2	2	0.34	0.7		
3	3	0.34	0.8		
4	4	0.38	0.3		
5	5	0.32	0.0		
6					
7					
8					
9					
10					
11					
12					
13					

Measurement Guide

Stream Width	Number of Vertical Measurements
0' - 3'	3-5
3' - 9'	5-8
9' - 15'	8-10
15' - 30'	10-20
>30'	20

Notes

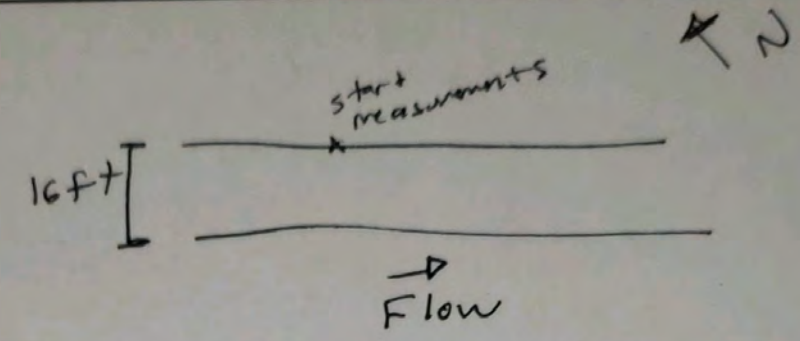
Sample Checklist

☒ Picture of Sample Location ☐ GPS'd
Location of photos: Alex Phone

FLOW FORM

Date and Time: 08/08/22 1420
Client: MPCA
Sample Location ID: DG Horseshoe #1
Field Staff: AL, GG
Project Number: 60663338
Weather: Sunny
Corresponding Staff Gauge Msmt (ft): 1.04

Creek/Channel/Stream Sketch



A inch upstream of staff gauge

Stream Segment Total Width = 16 ft

Msmt No.	Dist to Initial Point	Depth	Velocity (measure from 1/3 of depth *from* the bottom)	Area	Discharge
	feet	feet	ft/s	ft^2	ft^3/s
1	1	0.50	0		
2	2	0.84	0		
3	3	0.94	0		
4	4	0.87	0		
5	5	1.28	0		
6	6	1.27	0		
7	7	1.18	0		
8	8	1.13	0.3		
9	9	1.20	0.9		
10	10	1.16	0.2		
11	11	1.10	0		
12	12	1.14	0		
13	13	1.06	0		
12	14	1.09	0		
13	15	0.74	0		
	16	0.38	0		

Measurement Guide

Stream Width	Number of Vertical Measurements
0' - 3'	3-5
3' - 9'	5-8
9' - 15'	8-10
15' - 30'	10-20
>30'	20

Notes

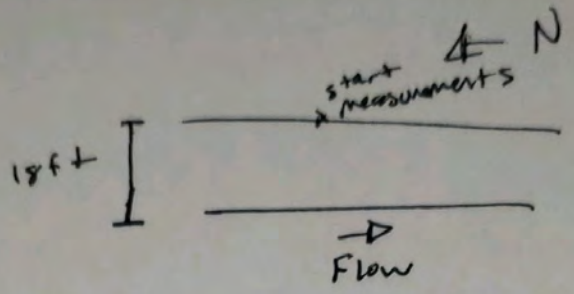
Sample Checklist

☒ Picture of Sample Location ☐ GPS'd
Location of photos: Alex's phone

FLOW FORM

Date and Time: 08/08/22 1435
Client: MPCA
Sample Location ID: DG Horseshoe #2
Field Staff: AL, GG
Project Number: 60663338
Weather: sunny
Corresponding Staff Gauge Msmt (ft): 1.18

Creek/Channel/Stream Sketch



-A foot downstream from staff gauge

Stream Segment Total Width =

Msmt No.	Dist to Initial Point	Depth	Velocity (measure from 1/3 of depth *from* the bottom)	Area	Discharge
	feet	feet	ft/s	ft^2	ft^3/s
1	1	0.35	0		
2	2	0.57	0		
3	3	0.80	0.3		
4	4	0.92	0.2		
5	5	0.60	0.0		
6	6	0.58	0		
7	7	0.80	0		
8	8	0.90	0		
9	9	1.04	0		
10	10	1.12	0		
11	11	1.20	0.4 0.1		
12	12 13	1.10 1.12	0 0		
13	14 15	1.02 0.91	0 0		
	16 17	0.81 0.41	0 0		
	18	0.18	0		

Measurement Guide

Stream Width	Number of Vertical Measurements
0' - 3'	3-5
3' - 9'	5-8
9' - 15'	8-10
~~15' - 30'~~	10-20
>30'	20

Notes

Sample Checklist

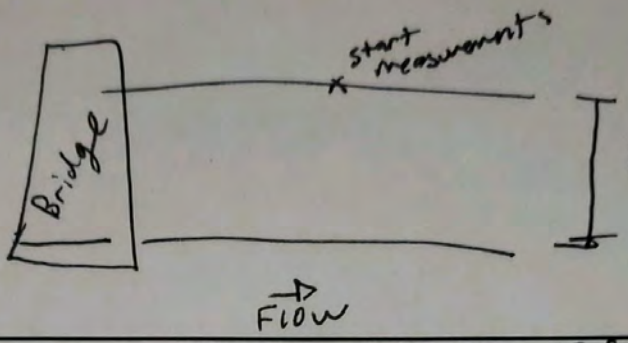
X Picture of Sample Location ☐ GPS'd

Location of photos: Alex phone

FLOW FORM

Date and Time: 08/08/22 @ 1240
Client: MPCA
Sample Location ID: RC intermittent #1
Field Staff: AL, GG
Project Number: 60638005
Weather: sunny
Corresponding Staff Gauge Msmt (ft): 0.63

Creek/Channel/Stream Sketch



- A yard downstream from Tranducer house

Stream Segment Total Width = 15ft

Msmt No.	Dist to Initial Point	Depth	Velocity (measure from 1/3 of depth *from* the bottom)	Area	Discharge
	feet	feet	ft/s	ft^2	ft^3/s
1	1	0.44	0		
2	2	0.27	0		
3	3	0.22	0		
4	4	0.45	0.1		
5	5	0.59	0		
6	6	0.69	0		
7	7	0.84	0.1		
8	8	0.87	0		
9	9	0.79	0		
10	10	0.94	0		
11	11	0.86	0		
12	12	0.88	0		
13	13	0.64	0		
	14	0.44	0		
	15	0.18	0		

- Slow flow observed Not picked up by flow meter

Measurement Guide

Stream Width	Number of Vertical Measurements
0' - 3'	3-5
3' - 9'	5-8
9' - 15'	8-10
15' - 30'	10-20
>30'	20

Notes

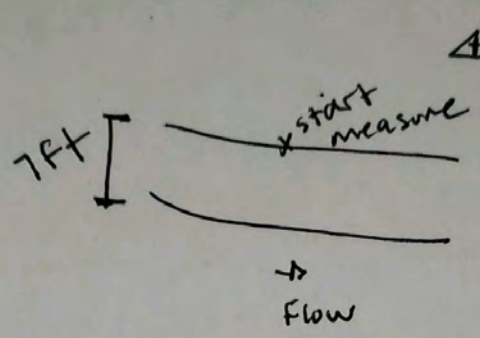
Sample Checklist

☒ Picture of Sample Location ☐ GPS'd
Location of photos: Alex's phone

FLOW FORM

Date and Time: 08/08/22 @ 1255
Client: MPCA
Sample Location ID: R C intermittent #3
Field Staff: AL, GB
Project Number: 60638005
Weather: Sunny
Corresponding Staff Gauge Msmt (ft): 0.38

Creek/Channel/Stream Sketch



- 2 yards downstream from staff gauge

Stream Segment Total Width = 7 ft

Msmt No.	Dist to Initial Point	Depth	Velocity (measure from 1/3 of depth *from* the bottom)	Area	Discharge
	feet	feet	ft/s	ft^2	ft^3/s
1	1	0.20	0.2		
2	2	0.34	0.3		
3	3	0.44	0.3		
4	4	0.55	0.3		
5	5	0.68	0.3		
6	6	0.71	0.1		
7	7	0.70	0.0		
8					
9					
10					
11					
12					
13					

Measurement Guide

Stream Width	Number of Vertical Measurements
0' - 3'	3-5
3' - 9'	5-8
9' - 15'	8-10
15' - 30'	10-20
>30'	20

Notes

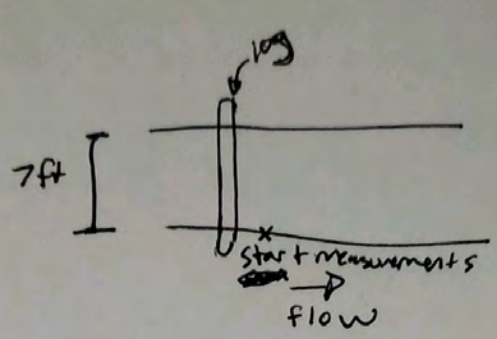
Sample Checklist

☒ Picture of Sample Location ☐ GPS'd
Location of photos: Alex's phone

FLOW FORM

Date and Time: 08/08/22 @ 1205 | Client: MPCA
Sample Location ID: Pond System #1 | Field Staff: AL, GG
Project Number: 60663338 | Weather: Sunny
Corresponding Staff Gauge Msmt (ft): 1.46

Creek/Channel/Stream Sketch



- [redacted]
- A foot downstream of fallen log

Stream Segment Total Width = 7ft

Msmt No.	Dist to Initial Point	Depth	Velocity (measure from 1/3 of depth ***from*** the bottom)	Area	Discharge
	feet	feet	ft/s	ft^2	ft^3/s
1	1	0.40	0.0		
2	2	0.46	0.0		
3	3	0.55	0.0		
4	4	0.73	0.4		
5	5	0.88	1.0		
6	6	1.04	1.2		
7	7	0.90	0.3		
8					
9					
10					
11					
12					
13					

Measurement Guide

Stream Width	Number of Vertical Measurements
0' - 3'	3-5
3' - 9'	5-8
9' - 15'	8-10
15' - 30'	10-20
>30'	20

Notes

Sample Checklist

☒ Picture of Sample Location ☐ GPS'd
Location of photos: Alex's phone

FLOW FORM

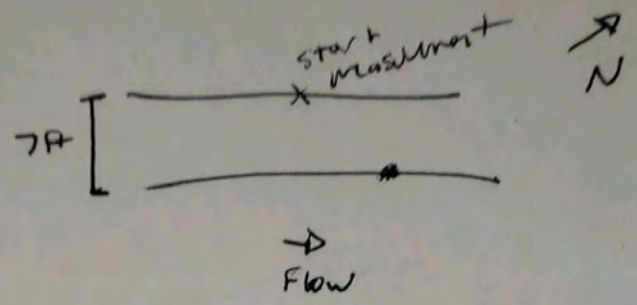
Date and Time: 08/08/22 @ 1215 Client: MPCA

Sample Location ID: pond system #2 Field Staff: AL, GG

Project Number: 60638005 Weather: sunny

Corresponding Staff Gauge Msmt (ft): 0.88

Creek/Channel/Stream Sketch



Stream Segment Total Width = ~~7ft~~

Msmt No.	Dist to Initial Point	Depth	Velocity (measure from 1/3 of depth ***from*** the bottom)	Area	Discharge
	feet	feet	ft/s	ft^2	ft^3/s
1	1	0.10	0.3		
2	2	0.20	0.6		
3	3	0.26	0.5		
4	4	0.34	1.4		
5	5	0.48	0.6		
6	6	0.31	0.1		
7	7	0.05	0		
8					
9					
10					
11					
12					
13					

Measurement Guide

Stream Width	Number of Vertical Measurements
0' - 3'	3-5
3' - 9'	5-8
9' - 15'	8-10
15' - 30'	10-20
>30'	20

Notes

Sample Checklist

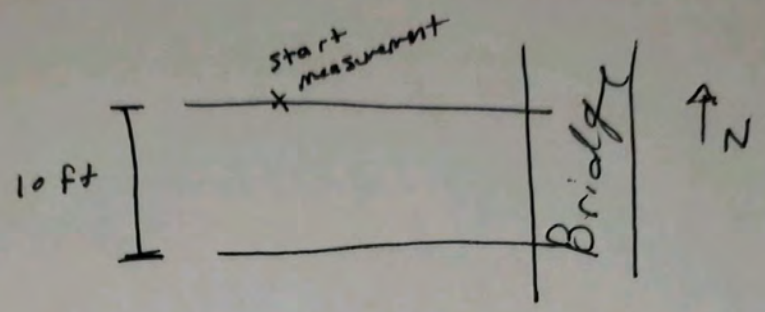
☒ Picture of Sample Location ☐ GPS'd

Location of photos: Alex's phone

FLOW FORM

Date and Time: 08/08/22 1515
Client: MPCA
Sample Location ID: North channel #2
Field Staff: AL, GG
Project Number: 60663338
Weather: sunny
Corresponding Staff Gauge Msmt (ft): 0.16

Creek/Channel/Stream Sketch



~2 yards downstream from staff gauge

Stream Segment Total Width = 10

Msmt No.	Dist to Initial Point	Depth	Velocity (measure from 1/3 of depth *from* the bottom)	Area	Discharge
	feet	feet	ft/s	ft^2	ft^3/s
1	1	0.15	0		
2	2	0.19	0.1		
3	3	0.24	0.2		
4	4	0.25	0.3		
5	5	0.26	0.1		
6	6	0.26	0.1		
7	7	0.30	0		
8	8	0.30	0		
9	9	1.18	0		
10	10	0.14	0		
11					
12					
13					

~slow flow observed

Measurement Guide

Stream Width	Number of Vertical Measurements
0' - 3'	3-5
3' - 9'	5-8
9' - 15'	8-10
15' - 30'	10-20
>30'	20

Notes

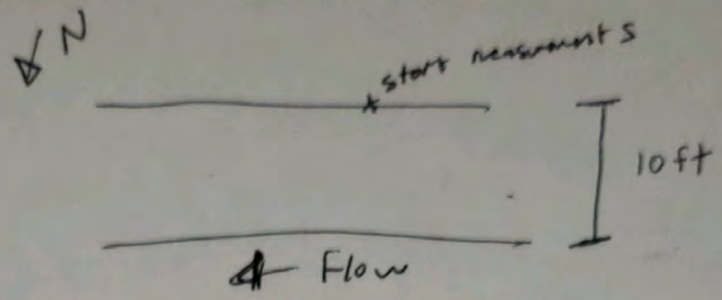
Sample Checklist

☒ Picture of Sample Location ☐ GPS'd
Location of photos: Alex's phone

FLOW FORM

Date and Time: 08/08/2022 @ 1140
Client: MPCA
Sample Location ID: RC Post RR #1
Field Staff: AL, GG
Project Number: 60638005
Weather: Sunny
Corresponding Staff Gauge Msmt (ft): 1.68

Creek/Channel/Stream Sketch



- Yard upstream of Transducer Housing

Stream Segment Total Width = 10 ft

Msmt No.	Dist to Initial Point	Depth	Velocity (measure from 1/3 of depth *from* the bottom)	Area	Discharge
	feet	feet	ft/s	ft^2	ft^3/s
1	1	0.34	0		
2	2	0.57	0		
3	3	0.79	0		
4	4	0.89	0		
5	5	0.92	0.2		
6	6	0.88	0.4		
7	7	0.91	0.5		
8	8	1.00	0.4		
9	9	1.05	0.4		
10	10	0.90	0.3		
11					
12					
13					

Measurement Guide

Stream Width	Number of Vertical Measurements
0' - 3'	3-5
3' - 9'	5-8
9' - 15'	8-10
15' - 30'	10-20
>30'	20

Notes

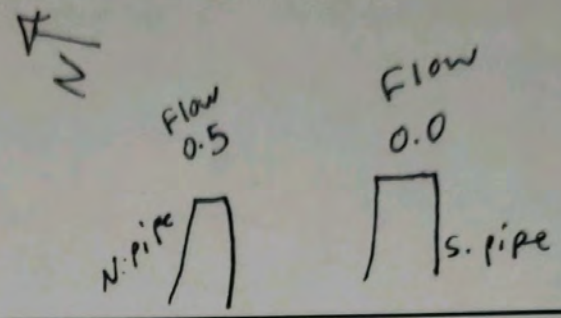
Sample Checklist

☒ Picture of Sample Location ☐ GPS'd
Location of photos: Alex's phone

FLOW FORM

Date and Time: 08/08/22 @ 1350
Client: MPCA
Sample Location ID: N + S Pipes
Field Staff: AL, GG
Project Number: 60663338
Weather: Sunny
Corresponding Staff Gauge Msmt (ft): 0.79

Creek/Channel/Stream Sketch



Stream Segment Total Width =

Msmt No.	Dist to Initial Point	Depth	Velocity (measure from 1/3 of depth *from* the bottom)	Area	Discharge
	feet	feet	ft/s	ft^2	ft^3/s
1					
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					

Measurement Guide

Stream Width	Number of Vertical Measurements
0' - 3'	3-5
3' - 9'	5-8
9' - 15'	8-10
15' - 30'	10-20
>30'	20

Notes

Sample Checklist

☒ Picture of Sample Location ☐ GPS'd
Location of photos: Alex's phone

FLOW FORM

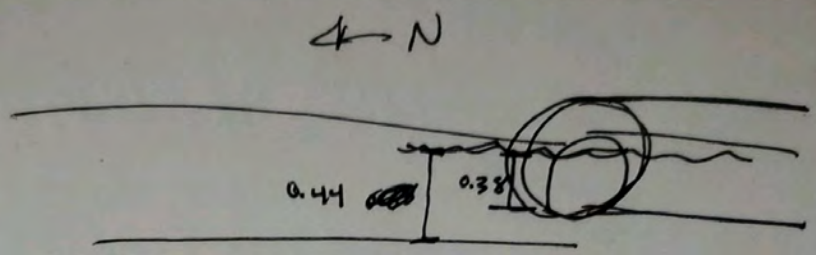
Date and Time: 08/08/22 1505 | Client: MPCA

Sample Location ID: South pond outlet | Field Staff: AL, GG

Project Number: 60638005 | Weather: Sunny

Corresponding Staff Gauge Msmt (ft): —

Creek/Channel/Stream Sketch



0.0 Flow

Bottom of pipe to water = 0.38ft

Top of pipe to water = 2.72 ft

Ground to water = 0.44

Stream Segment Total Width =

Msmt No.	Dist to Initial Point	Depth	Velocity (measure from 1/3 of depth ***from*** the bottom)	Area	Discharge
	feet	feet	ft/s	ft^2	ft^3/s
1					
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					

Measurement Guide

Stream Width	Number of Vertical Measurements
0' - 3'	3-5
3' - 9'	5-8
9' - 15'	8-10
15' - 30'	10-20
>30'	20

Notes

Sample Checklist

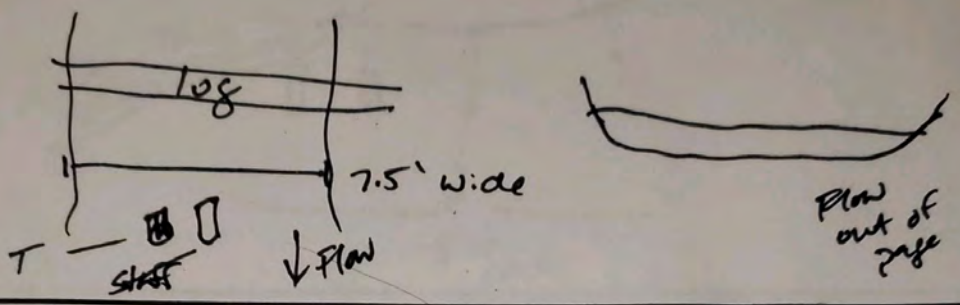
□ Picture of Sample Location □ GPS'd

Location of photos:

FLOW FORM

Date and Time: 8/16/22 10:40
Client: MPCA
Sample Location ID: Pond System #1
Field Staff: NP, BK
Project Number: 60663338
Weather: Sunny 72°F
Corresponding Staff Gauge Msmt (ft): 0.86

Creek/Channel/Stream Sketch



Stream Segment Total Width = 7.5'

Msmt No.	Dist to Initial Point	Depth	Velocity (measure from 1/3 of depth *from* the bottom)	Area	Discharge
	feet	feet	ft/s	ft^2	ft^3/s
1	1	0.20	0.0		
2	2	0.41	0.0		
3	3	0.60	0.0		
4	4	0.74	0.0		
5	5	0.74	0.0		
6	6	0.66	0.0		
7	7	0.42	0.0		
8					
9					
10					
11					
12					
13					

Measurement Guide

Stream Width	Number of Vertical Measurements
0' - 3'	3-5
3' - 9'	5-8
9' - 15'	8-10
15' - 30'	10-20
>30'	20

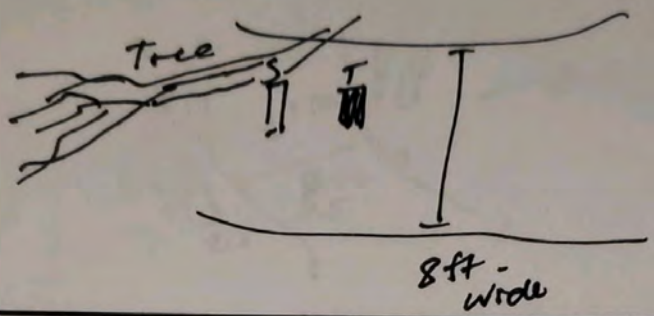
Notes

Sample Checklist
☑ Picture of Sample Location ☐ GPS'd
Location of photos: NP Phone

FLOW FORM

Date and Time: 8/16/22 11:20
Client: MPCA
Sample Location ID: RC post RP #1
Field Staff: BK, NP
Project Number: 60663338
Weather: Sunny 78°F
Corresponding Staff Gauge Msmt (ft): 1.03

Creek/Channel/Stream Sketch



Stream Segment Total Width = 8'

Msmt No.	Dist to Initial Point	Depth	Velocity (measure from 1/3 of depth *from* the bottom)	Area	Discharge
	feet	feet	ft/s	ft^2	ft^3/s
1	1	0.1	0.0		
2	2	0.3	0.0		
3	3	0.35	0.0		
4	4	0.4	0.0		
5	5	0.42	0.0		
6	6	0.42	0.0		
7	7	0.44	0.0		
8					
9					
10					
11					
12					
13					

Measurement Guide

Stream Width	Number of Vertical Measurements
0' - 3'	3-5
3' - 9'	5-8
9' - 15'	8-10
15' - 30'	10-20
>30'	20

Notes

Sample Checklist
☑ Picture of Sample Location ☐ GPS'd
Location of photos: NP PHONE

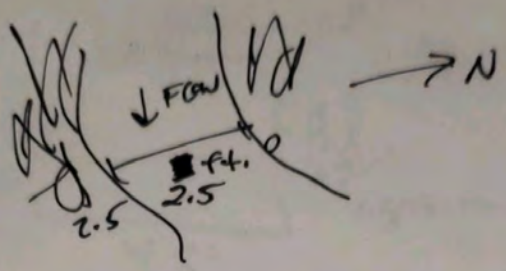
3.80'
transducer to ring
(top of transducer)

Transducer installed
SN: 2135762

FLOW FORM

Date and Time: 8/16/22 12:43
Client: MPCA
Sample Location ID: RC Wetlands #1
Field Staff: NP, BK
Project Number: 60663338
Weather: 72°F
Corresponding Staff Gauge Msmt (ft): 0.18

Creek/Channel/Stream Sketch



Stream Segment Total Width = 2.5'

Msmt No.	Dist to Initial Point	Depth	Velocity (measure from 1/3 of depth *from* the bottom)	Area	Discharge
	feet	feet	ft/s	ft^2	ft^3/s
1	0.5	0.1	0.0		
2	1.0	0.2	0.0		
3	1.5	0.3	0.0		
4	2.0	0.38	0.0		
5	2.5	0.34	0.0		
6					
7					
8					
9					
10					
11					
12					
13					

Measurement Guide

Stream Width	Number of Vertical Measurements
0' - 3'	3-5
3' - 9'	5-8
9' - 15'	8-10
15' - 30'	10-20
>30'	20

Notes

Sample Checklist
☑ Picture of Sample Location ☐ GPS'd
Location of photos: NP Phone

FLOW FORM

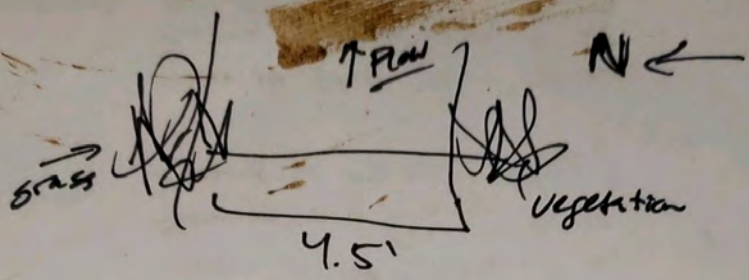
Date and Time: 8/16/22 1200 Client: MPCA

Sample Location ID: RC wetlands #2 Field Staff: NP, BK

Project Number: 60663338 Weather: 72°F Sunny

Corresponding Staff Gauge Msmt (ft): 0.34

Creek/Channel/Stream Sketch



Stream Segment Total Width = 4.5'

Msmt No.	Dist to Initial Point	Depth	Velocity (measure from 1/3 of depth *from* the bottom)	Area	Discharge
	feet	feet	ft/s	ft^2	ft^3/s
1	1	0.20	0.0		
2	2	0.2	0.0		
3	3	0.1	0.0		
4	4	0.1	0.0		
5					
6					
7					
8					
9					
10					
11					
12					
13					

Measurement Guide

Stream Width	Number of Vertical Measurements
0' - 3'	3-5
3' - 9'	5-8
9' - 15'	8-10
15' - 30'	10-20
>30'	20

Notes

Sample Checklist

☐ Picture of Sample Location ☐ GPS'd

Location of photos: MP NP Phone

RC wetlands #2
transducer
gauge 11:27 @
11:49 ✓ reset

FLOW FORM

Date and Time: 8/16/22
Client: MPCA
Sample Location ID: [redacted] Pipes
Field Staff: NP, BK
Project Number: 60663338
Weather: Sunny 72°F
Corresponding Staff Gauge Msmt (ft): 0.66'

Creek/Channel/Stream Sketch

N pipe: ground to water (water thickness : 1.3'
ground to pipe top : 2.24'
water to top of pipe : 0.94'

Flow observed but None detected with Flow meter; maybe 0.1

S pipe: ground to water = 1.52'
ground to top of pipe = 2.96'
water to top of pipe = 1.44'

Flow = 0.0

Stream Segment Total Width =

Msmt No.	Dist to Initial Point	Depth	Velocity (measure from 1/3 of depth *from* the bottom)	Area	Discharge
	feet	feet	ft/s	ft^2	ft^3/s
1					
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					

Measurement Guide

Stream Width	Number of Vertical Measurements
0' - 3'	3-5
3' - 9'	5-8
9' - 15'	8-10
15' - 30'	10-20
>30'	20

Notes

Sample Checklist

☑ Picture of Sample Location ☐ GPS'd

Location of photos: NP PHONE

FLOW FORM

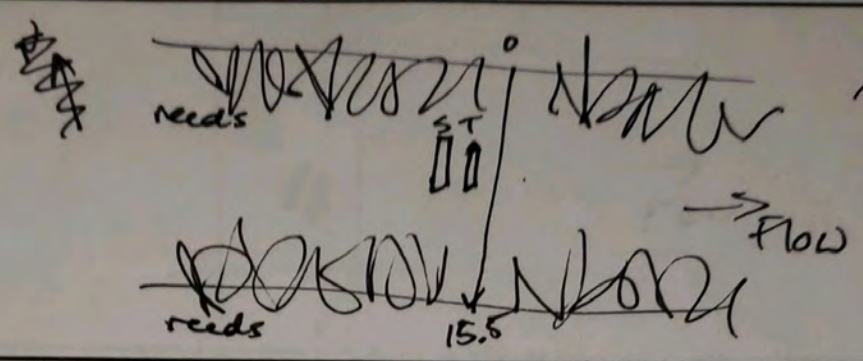
Date and Time: 8/16/22 14:15 Client: MPCA

Sample Location ID: DG Horseshoe #1 Field Staff: NP, BK

Project Number: 60663338 Weather: 72°F, Sunny

Corresponding Staff Gauge Msmt (ft): ~~0.80~~ 0.98

Creek/Channel/Stream Sketch



Stream Segment Total Width = 15.5'

Msmt No.	Dist to Initial Point	Depth	Velocity (measure from 1/3 of depth *from* the bottom)	Area	Discharge
	feet	feet	ft/s	ft^2	ft^3/s
1	1	0.10	0.0		
2	2	0.74	0.0		
3	3	0.84	0.0		
4	4	0.90	0.0		
5	5	1.00	0.0		
6	6	1.02	0.0		
7	7	1.18	0.0		
8	8	1.06	0.0		
9	9	1.10	0.0		
10	10	1.24	0.0		
11	11	1.17	0.0		
12	12	1.19	0.0		
13	13	1.07	0.0		

ft. | Depth | Flow
14 | 1.0 | 0.0
15 | 0.98 | 0.0

→ Flow observed, Not detected

Measurement Guide

Stream Width	Number of Vertical Measurements
0' - 3'	3-5
3' - 9'	5-8
9' - 15'	8-10
15' - 30'	10-20
>30'	20

Notes

Sample Checklist

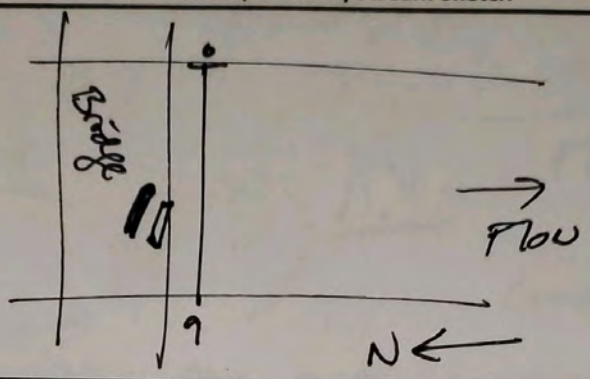
☑ Picture of Sample Location ☐ GPS'd

Location of photos: NP Phone

FLOW FORM

Date and Time: 8/16/22 15:32
Client: MPCA
Sample Location ID: North Channel #2
Field Staff: NP, BK
Project Number: 60663338
Weather: 72°F Sunny
Corresponding Staff Gauge Msmt (ft): 0.18

Creek/Channel/Stream Sketch



Stream Segment Total Width = 9'

Msmt No.	Dist to Initial Point	Depth	Velocity (measure from 1/3 of depth *from* the bottom)	Area	Discharge
	feet	feet	ft/s	ft^2	ft^3/s
1	0.10	0.0			
2	0.20	0.0			
3	0.30	0.0			
4	0.30	0.0			
5	0.30	0.0			
6	0.30	0.0			
7	0.32	0.0			
8	0.20	0.0			
9	0.10	0.0			
10					
11					
12					
13					

Measurement Guide

Stream Width	Number of Vertical Measurements
0' - 3'	3-5
3' - 9'	5-8
9' - 15'	8-10
15' - 30'	10-20
>30'	20

Notes

* Flow was observed in most of the creek but was not detected with flow meter.

Sample Checklist

☑ Picture of Sample Location ☐ GPS'd

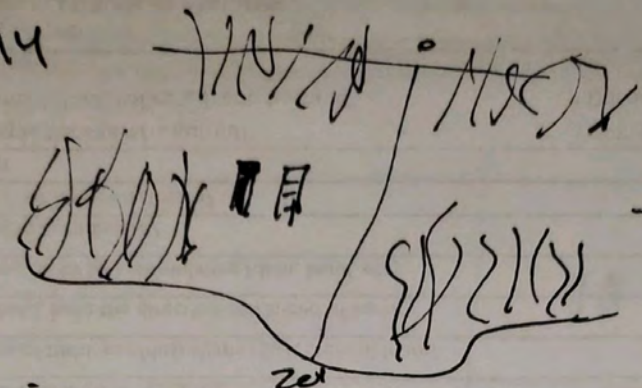
Location of photos: NP Phone

Flow Form

DG Horseshoe #2
8/16/22 16:20

Sunny 72°F
NP Bk

Staff: 1.14



Creek width = 20'

reading	Distance	Depth	Flow	
1	[illegible]			
2	2.0'	0.30	0.0	
3	4.0	0.80	0.0	
4	6.0	0.70	0.0	
5	8.0	0.86	0.0	*
6	10.0	1.12	0.0	*
7	12.0	1.24	0.0	*
8	14.0	1.06	0.0	*
9	16.0	0.90	0.0	
10	18.0	0.66	0.0	
11	20.0	0.10	0.0	
12				
13				
14				
15				
16				
17				

Notes

* = Visible flow but not detected by Flow meter

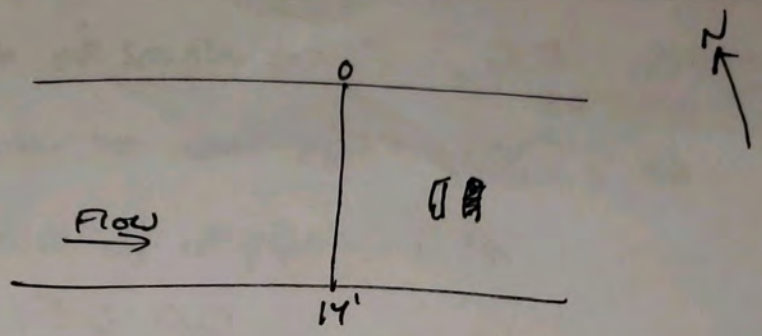
photos taken ✓

Location:

FLOW FORM

Date and Time: 8/17/22
Client: MPCA
Sample Location ID: North Channel #1
Field Staff: NR, BK, GG
Project Number: 60663338
Weather: 68°F Sunny
Corresponding Staff Gauge Msmt (ft): 0.52

Creek/Channel/Stream Sketch



Stream Segment Total Width = 14.0

Msmt No.	Dist to Initial Point	Depth	Velocity (measure from 1/3 of depth *from* the bottom)	Area	Discharge
	feet	feet	ft/s	ft^2	ft^3/s
1	1	0.1	0.0		
2	2	0.2	0.0		
3	3	0.2	0.0		
4	4	0.3	0.0		
5	5	0.34	0.0		
6	6	0.38	0.0		
7	7	0.41	0.0		
8	8	0.44	0.0		
9	9	0.42	0.0		
10	10	0.40	0.0		
11	11	0.30	0.0		
12	12	0.20	0.0		
13	13	0.20	0.0		

* = Visible flow but flow not detected with flow meter

— Fastest

Measurement Guide

Stream Width	Number of Vertical Measurements
0' - 3'	3-5
3' - 9'	5-8
9' - 15'	8-10
15' - 30'	10-20
>30'	20

Notes

Sample Checklist

☑ Picture of Sample Location ☐ GPS'd

Location of photos: NP Phone

FLOW FORM

Date and Time: 8/16/22 15:56
Client: MPCA
Sample Location ID: South of southpond pipe
Field Staff: NP, BK
Project Number: 60663338
Weather: Sunny 72°F
Corresponding Staff Gauge Msmt (ft):

Creek/Channel/Stream Sketch

South of South pond: 0.3' depth of water

water to top of pipe: ~~2.96'~~ 2.96'

ground to top of pipe: 3.26'

Flow: 0.0

Stream Segment Total Width =

Msmt No.	Dist to Initial Point	Depth	Velocity (measure from 1/3 of depth *from* the bottom)	Area	Discharge
	feet	feet	ft/s	ft^2	ft^3/s
1					
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					

Measurement Guide

Stream Width	Number of Vertical Measurements
0' - 3'	3-5
3' - 9'	5-8
9' - 15'	8-10
15' - 30'	10-20
>30'	20

Notes

Super low!

Sample Checklist ✓

☐ Picture of Sample Location ☐ GPS'd

Location of photos: NC

FLOW FORM

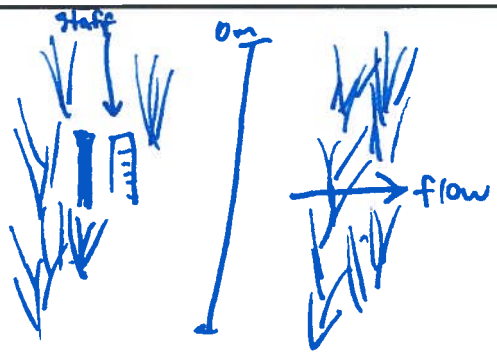
Date and Time: 8/25/22 14:00 | Client: MPCA

Sample Location ID: DG Horseshoe #1 | Field Staff:

Project Number: 60663338 | Weather:

Corresponding Staff Gauge Msmt (ft): 1.22 ft

Creek/Channel/Stream Sketch



Stream Segment Total Width = 64m / 21 ft

Msmt No.	Dist to Initial Point	Depth	Velocity (measure from 1/3 of depth *from* the bottom)	Area	Discharge
	feet	feet	ft/s	ft^2	ft^3/s
1	0.6	0.40	0		
2	1.2	0.88	0		
3	1.8	0.40	0		
4	2.4	1.04	0		
5	3.0	1.36	0 (visible flow)		
6	3.6	1.38	0		
7	4.2	1.08	0		
8	4.8	0.80	0		
9	5.4	0.42	0		
10	6.0	0.50	0		
11	6.6	0.10	0		
12					
13					

Measurement Guide

Stream Width	Number of Vertical Measurements
0' - 3'	3-5
3' - 9'	5-8
9' - 15'	8-10
15' - 30'	10-20
>30'	20

Notes

flow visible but no reading

Sample Checklist

☐ Picture of Sample Location ☐ GPS'd

Location of photos:

FLOW FORM

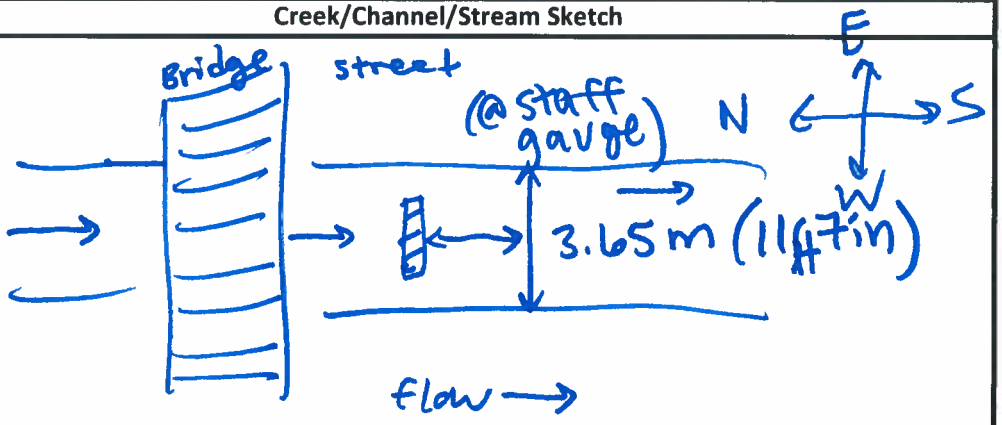
Date and Time: 8/25/22 1325 Client: MPCA

Sample Location ID: NorthChannel2 Field Staff: LL, BK

Project Number: 60663338 Weather:

Corresponding Staff Gauge Msmt (ft): 0.32

Creek/Channel/Stream Sketch



Stream Segment Total Width =

Msmt No.	Dist to Initial Point	Depth	Velocity (measure from 1/3 of depth *from* the bottom)	Area	Discharge
	feet	feet	ft/s	ft^2	ft^3/s
1	1	0.1	0		
2	2	0.36	0	(flow is visible)	
3	3	0.42	0		
4	4	0.42	0		
5	5	0.44	0		
6	6	0.44	0		
7	7	0.50	0		
8	8	0.46	0		
9	9	0.42	0		
10	10	0.36	0		
11	11	0.20	0		
12	12	0.10	0		
13					

Measurement Guide

Stream Width	Number of Vertical Measurements
0' - 3'	3-5
3' - 9'	5-8
9' - 15'	8-10
15' - 30'	10-20
>30'	20

Notes

Sample Checklist

☑ Picture of Sample Location ☐ GPS'd

Location of photos: LL

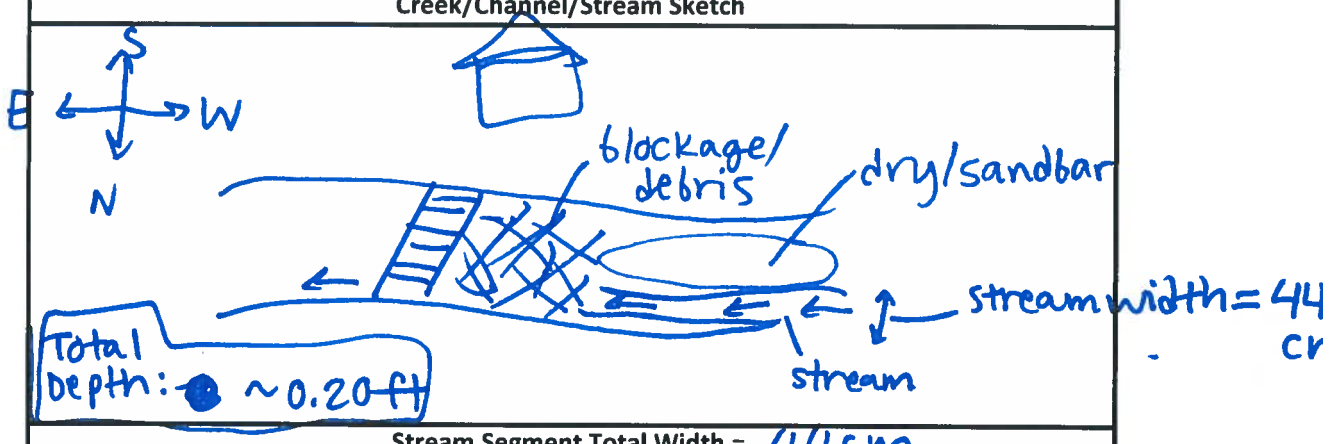
* pockets of stagnant water, small patches of flowing water

* msmt taken ~20ft upstream of staff gauge

FLOW FORM

Date and Time: 8/25/22 @ 1010
Client: MPCA
Sample Location ID: Post RR 1
Field Staff: U, BK
Project Number: 60663338
Weather: overcast
Corresponding Staff Gauge Msmt (ft): 1.00

Creek/Channel/Stream Sketch



Stream Segment Total Width = 44 cm

Msmt No.	Dist to Initial Point	Depth	Velocity (measure from 1/3 of depth *from* the bottom)	Area	Discharge
	~~feet~~ cm	feet	ft/s	ft^2	ft^3/s
1	22cm	0.20	0.4		
2	22cm	0.20	0.7		
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					

AECOM's flowprobe

FEI's flowprobe

Measurement Guide

Stream Width	Number of Vertical Measurements
0' - 3'	3-5
3' - 9'	5-8
9' - 15'	8-10
15' - 30'	10-20
>30'	20

Notes

Sample Checklist

☒ Picture of Sample Location ☐ GPS'd

Location of photos: U

FLOW FORM

Date and Time: 8/25/22
Client: MPCA
Sample Location ID: Pond System 2
Field Staff: LL, BK
Project Number: 60663338
Weather:
Corresponding Staff Gauge Msmt (ft): DRY

Creek/Channel/Stream Sketch

Stream Segment Total Width =

Msmt No.	Dist to Initial Point	Depth	Velocity (measure from 1/3 of depth ***from*** the bottom)	Area	Discharge
	feet	feet	ft/s	ft^2	ft^3/s
1					
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					

Measurement Guide

Stream Width	Number of Vertical Measurements
0' - 3'	3-5
3' - 9'	5-8
9' - 15'	8-10
15' - 30'	10-20
>30'	20

Notes

Sample Checklist

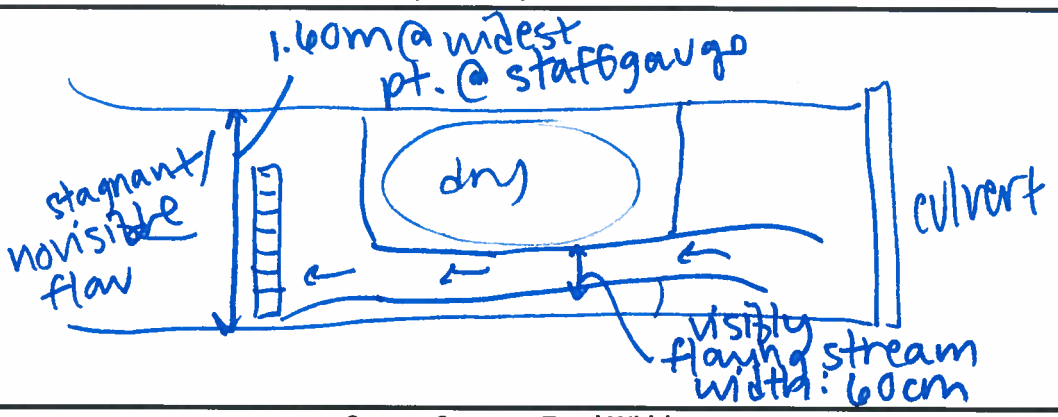
☐ Picture of Sample Location ☐ GPS'd

Location of photos:

FLOW FORM

Date and Time: 8/25/22
Sample Location ID: Pond System 1
Client: MPCA
Field Staff: LL, BK
Project Number: 60663338
Weather:
Corresponding Staff Gauge Msmt (ft): 0.82

Creek/Channel/Stream Sketch



Stream Segment Total Width =

Msmt No.	Dist to Initial Point	Depth	Velocity (measure from 1/3 of depth *from* the bottom)	Area	Discharge
	~~feet~~ cm	feet	ft/s	ft^2	ft^3/s
1	60 cm	0.1	0		
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					

Measurement Guide

Stream Width	Number of Vertical Measurements
0' - 3'	3-5
3' - 9'	5-8
9' - 15'	8-10
15' - 30'	10-20
>30'	20

Notes

Sample Checklist

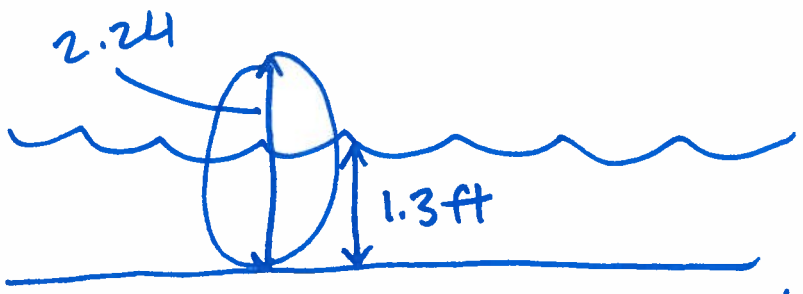
☒ Picture of Sample Location ☐ GPS'd
Location of photos: LL

(using FEI probe)

FLOW FORM

Date and Time: 8/25/22
Client: MPCA
Sample Location ID: North Pipe
Field Staff: BK, LL
Project Number: 60663338
Weather:
Corresponding Staff Gauge Msmt (ft): 0.64

Creek/Channel/Stream Sketch



(sediment in culvert)

Stream Segment Total Width =

Msmt No.	Dist to Initial Point	Depth	Velocity (measure from 1/3 of depth *from* the bottom)	Area	Discharge
	feet	feet	ft/s	ft^2	ft^3/s
1	—	1.3ft	0.7		
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					

Measurement Guide

Stream Width	Number of Vertical Measurements
0' - 3'	3-5
3' - 9'	5-8
9' - 15'	8-10
15' - 30'	10-20
>30'	20

Notes

Sample Checklist

□ Picture of Sample Location □ GPS'd

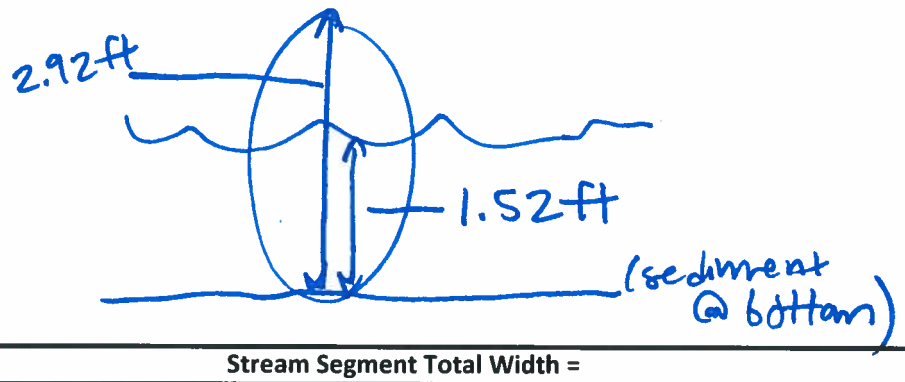
Location of photos:

(using FEI pipe)

FLOW FORM

Date and Time: 8/25/22
Client: MPCA
Sample Location ID: SathPipe
Field Staff: LL, BK
Project Number: 60663338
Weather:
Corresponding Staff Gauge Msmt (ft): 0.64

Creek/Channel/Stream Sketch



Stream Segment Total Width =

Msmt No.	Dist to Initial Point	Depth	Velocity (measure from 1/3 of depth ***from*** the bottom)	Area	Discharge
	feet	feet	ft/s	ft^2	ft^3/s
1	—	1.52	0.0		
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					

Measurement Guide

Stream Width	Number of Vertical Measurements
0' - 3'	3-5
3' - 9'	5-8
9' - 15'	8-10
15' - 30'	10-20
>30'	20

Notes

Sample Checklist

☐ Picture of Sample Location ☐ GPS'd

Location of photos:

FLOW FORM

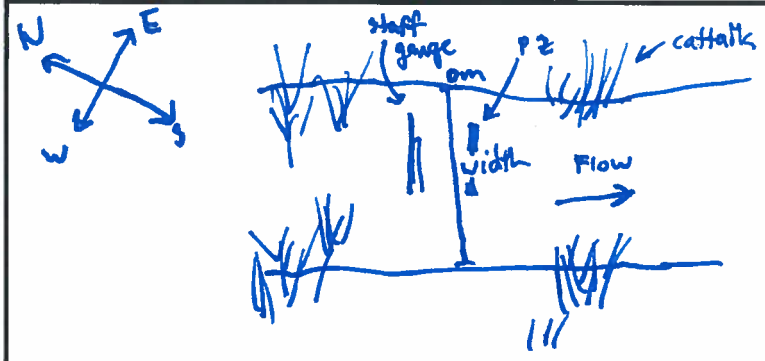
Date and Time: 8/25/23 13:15 Client: MPCA

Sample Location ID: DG Horseshoe #2 Field Staff:

Project Number: 60663338 Weather:

Corresponding Staff Gauge Msmt (ft): 0.98 ft

Creek/Channel/Stream Sketch



Stream Segment Total Width = 4.75 m 15 ft 7 in

Msmt No.	Dist to Initial Point	Depth	Velocity (measure from 1/3 of depth *from* the bottom)	Area	Discharge
	~~feet~~ m	feet	ft/s	ft^2	ft^3/s
1	.3	0.26	0		
2	.6	0.62	0		
3	.9	0.88	0		
4	1.2	0.92	0		
5	1.5	0.88	0		
6	1.8	0.98	0		
7	2.1	1.12	0		
8	2.4	1.14	0		
9	2.7	1.20	0		
10	3.0	1.24	0 (visible flow)		
11	3.3	1.18	0		
12	3.6	1.32	0		
13	3.9	1.08	0		

Measurement Guide

Stream Width	Number of Vertical Measurements
0' - 3'	3-5
3' - 9'	5-8
9' - 15'	8-10
15' - 30'	10-20
>30'	20

Notes

flow very obvious in channel center but no reading

Sample Checklist

☐ Picture of Sample Location ☐ GPS'd

Location of photos:

FLOW FORM

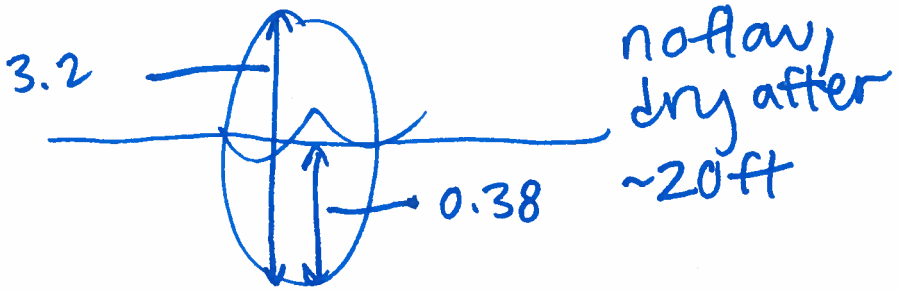
Date and Time: 8/25/22 | Client: MPCA

Sample Location ID: South of South Pond | Field Staff:

Project Number: 60663338 | Weather:

Corresponding Staff Gauge Msmt (ft): N/A

Creek/Channel/Stream Sketch



Stream Segment Total Width =

Msmt No.	Dist to Initial Point	Depth	Velocity (measure from 1/3 of depth ***from*** the bottom)	Area	Discharge
	feet	feet	ft/s	ft^2	ft^3/s
1					
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					

Measurement Guide

Stream Width	Number of Vertical Measurements
0' - 3'	3-5
3' - 9'	5-8
9' - 15'	8-10
15' - 30'	10-20
>30'	20

Notes

Sample Checklist

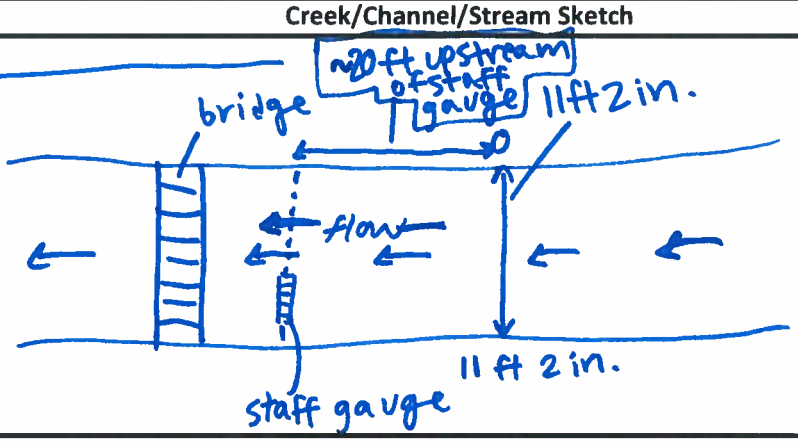
☐ Picture of Sample Location ☐ GPS'd

Location of photos:

FLOW FORM

Date and Time: 8/29/22 @0955
Client: MPCA
Sample Location ID: PostRR#1
Field Staff: LL, BK
Project Number: ~~60663338~~ 60687318
Weather: sunny
Corresponding Staff Gauge Msmt (ft): 2.02

Creek/Channel/Stream Sketch



Stream Segment Total Width =

Msmt No.	Dist to Initial Point	Depth	Velocity (measure from 1/3 of depth *from* the bottom)	Area	Discharge
	feet	feet	ft/s	ft^2	ft^3/s
1	1	0.44	0		
2	2	0.65	0		
3	3	0.82	0		
4	4	0.89	0.8		
5	5	0.86	0.7		
6	6	0.79	0.5		
7	7	0.82	0.7		
8	8	0.92	0.9		
9	9	0.99	1.0		
10	10	1.08	0.5		
11	11	0.9	0.3		
12					
13					

Measurement Guide

Stream Width	Number of Vertical Measurements
0' - 3'	3-5
3' - 9'	5-8
9' - 15'	8-10
15' - 30'	10-20
>30'	20

Notes

foam accumulating in piles (~1-2 in. thick) @ staff gauge in front of debris

Sample Checklist

☑ Picture of Sample Location ☐ GPS'd
Location of photos: Laura's phone

debris in the way in various spots closer to staff gauge

*note: @ test spot @ same depth w/ same orientation FEI probe registered flow twice as high as AECOM's, so using FEI probe all day

FLOW FORM

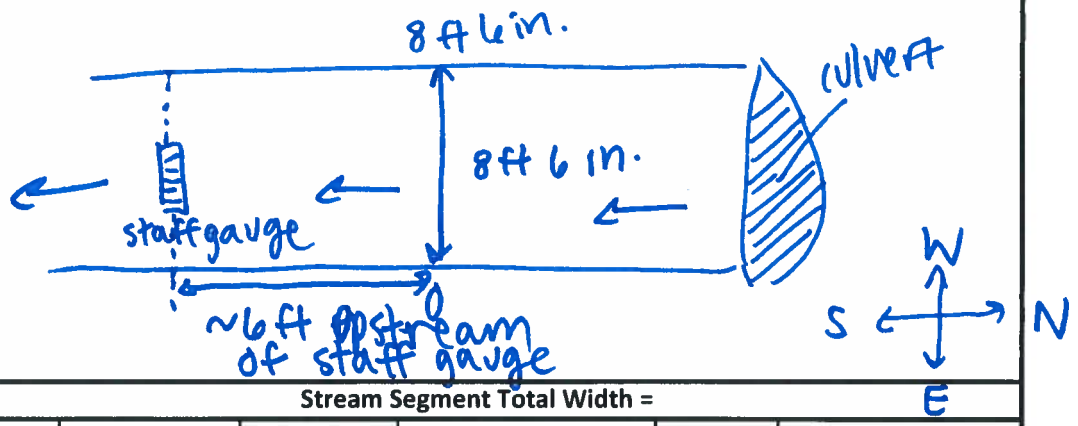
Date and Time: 8/29/22 @1015 | Client: MPCA

Sample Location ID: Pond System #1 | Field Staff: BK, LL

Project Number: ~~60603338~~ 60687318 | Weather: sunny

Corresponding Staff Gauge Msmt (ft): 1.62

Creek/Channel/Stream Sketch



Stream Segment Total Width =

Msmt No.	Dist to Initial Point	Depth	Velocity (measure from 1/3 of depth *from* the bottom)	Area	Discharge
	feet	feet	ft/s	ft^2	ft^3/s
1	1	0.72	1.2		
2	2	0.90	2.0		
3	3	0.80	2.1		
4	4	0.75	1.8		
5	5	0.70	1.5		
6	6	0.50	1.5		
7	7	0.50	1.1		
8	8	0.20	0.0		
9					
10					
11					
12					
13					

Measurement Guide

Stream Width	Number of Vertical Measurements
0' - 3'	3-5
3' - 9'	5-8
9' - 15'	8-10
15' - 30'	10-20
>30'	20

Notes

Flow not observed

Sample Checklist

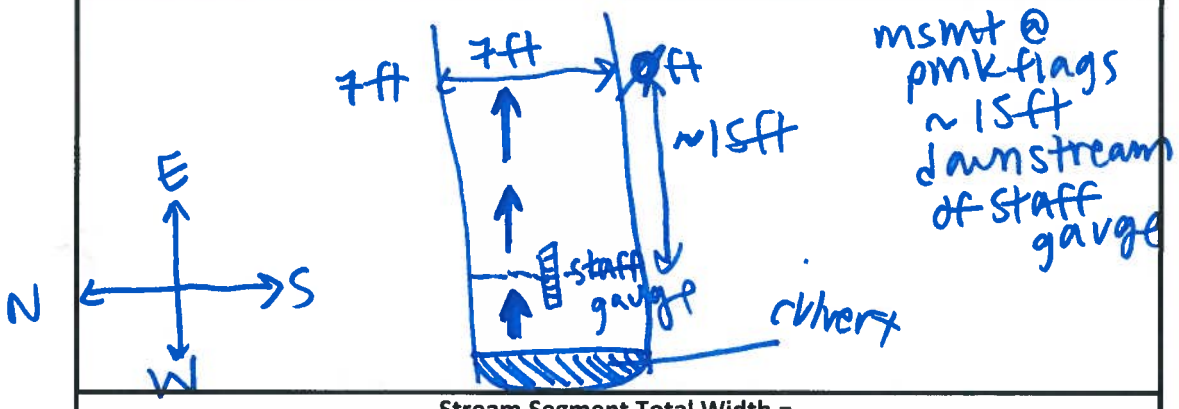
☒ Picture of Sample Location ☐ GPS'd

Location of photos: Laura's phone

FLOW FORM

Date and Time: 8/29/22
Client: MPCA
Sample Location ID: pond system #2
Field Staff: BR, LL
Project Number: ~~60663338~~ 60687318
Weather: sunny
Corresponding Staff Gauge Msmt (ft): 1.16

Creek/Channel/Stream Sketch



Stream Segment Total Width =

Msmt No.	Dist to Initial Point	Depth	Velocity (measure from 1/3 of depth ***from*** the bottom)	Area	Discharge
	feet	feet	ft/s	ft^2	ft^3/s
1	0.36	0.9			
2	0.50	1.6			
3	0.50	2.8			
4	0.60	2.3			
5	0.65	2.6			
6	0.70	2.1			
7	0.20	0			
8					
9					
10					
11					
12					
13					

Measurement Guide

Stream Width	Number of Vertical Measurements
0' - 3'	3-5
3' - 9'	5-8
9' - 15'	8-10
15' - 30'	10-20
>30'	20

Notes

foam observed ~10ft upstream of staff gauge & debris piled, ~3in., see picture)

Sample Checklist

☑ Picture of Sample Location ☐ GPS'd
Location of photos: Laura's phone

FLOW FORM

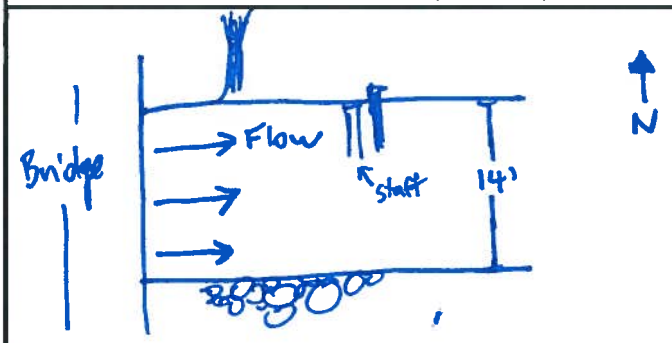
Date and Time: 8/29/22 @ | Client: MPCA

Sample Location ID: RC Intermittent #1 | Field Staff: LL, BK

Project Number: ~~60663338~~ 60687318 | Weather: sunny

Corresponding Staff Gauge Msmt (ft): 1.88'

Creek/Channel/Stream Sketch



Stream Segment Total Width = 14'

Msmt No.	Dist to Initial Point	Depth	Velocity (measure from 1/3 of depth ***from*** the bottom)	Area	Discharge
	feet	feet	ft/s	ft^2	ft^3/s
1	2.5'	0.66'	0		
2	3.0'	0.88	0.4		
3	4.5'	0.76	0.8		
4	6.0'	0.64	0.9		
5	7.5'	0.62	1.0		
6	9.0'	0.84	0.8		
7	10.5'	0.92	0.5		
8	12.0'	0.88	0.5		
9	13.5'	0.62	0.2		
10					
11					
12					
13					

Measurement Guide

Stream Width	Number of Vertical Measurements
0' - 3'	3-5
3' - 9'	5-8
9' - 15'	8-10
15' - 30'	10-20
>30'	20

Notes

Sample Checklist

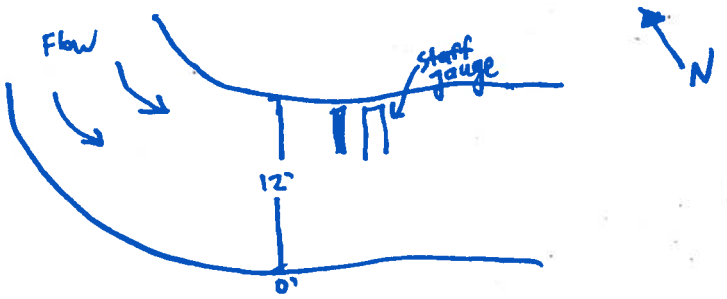
☐ Picture of Sample Location ☐ GPS'd

Location of photos:

FLOW FORM

Date and Time: 8/29/22
Client: MPCA
Sample Location ID: RC confluence #1
Field Staff: LL, BK
Project Number: ~~60663358~~ 60687318
Weather: Sunny
Corresponding Staff Gauge Msmt (ft): 1.28'

Creek/Channel/Stream Sketch



Stream Segment Total Width = 12'

Msmt No.	Dist to Initial Point	Depth	Velocity (measure from 1/3 of depth *from* the bottom)	Area	Discharge
	feet	feet	ft/s	ft^2	ft^3/s
1	1.5	1.08	0.9		
2	3.0	1.60	0.9		
3	4.5	1.56	0.5		
4	6.0	1.14	0.6		
5	7.5	0.90	0.5		
6	9.0	0.82	0.2		
7	10.5	0.80	0		
8	12.0	0.80	0		
9					
10					
11					
12					
13					

Measurement Guide

Stream Width	Number of Vertical Measurements
0' - 3'	3-5
3' - 9'	5-8
9' - 15'	8-10
15' - 30'	10-20
>30'	20

Notes

Sample Checklist

☐ Picture of Sample Location ☐ GPS'd

Location of photos:

FLOW FORM

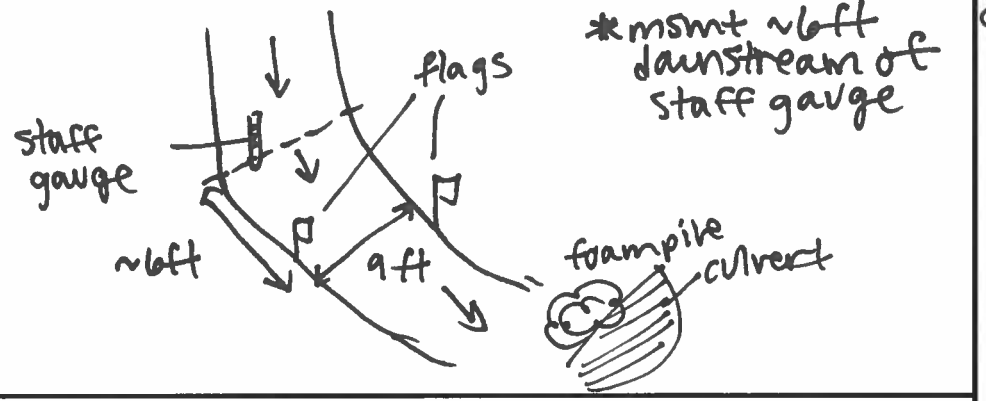
Date and Time: 8/29/22 @ 1245 Client: MPCA

Sample Location ID: RC Intermittent #3 Field Staff: LL, BK

Project Number: ~~60663338~~ 60687318 Weather: sunny

Corresponding Staff Gauge Msmt (ft): staff gauge knocked over

Creek/Channel/Stream Sketch



Stream Segment Total Width =

Msmt No.	Dist to Initial Point	Depth	Velocity (measure from 1/3 of depth *from* the bottom)	Area	Discharge
	feet	feet	ft/s	ft^2	ft^3/s
1	1	0.96	0.2		
2	2	1.02	0.7		
3	3	0.98	1.0		
4	4	0.84	1.2		
5	5	0.72	1.1		
6	6	0.60	0.8		
7	7	0.56	0.6		
8	8	0.50	0		
9	9	(too shallow)			
10					
11					
12					
13					

Measurement Guide

Stream Width	Number of Vertical Measurements
0' - 3'	3-5
3' - 9'	5-8
9' - 15'	8-10
15' - 30'	10-20
>30'	20

Notes

foam observed piled (~ in. width, ~ in. tall, ~ in. length patches of foam/bubbles (~0.5-3.0 in. diameter) floating downstre

Sample Checklist

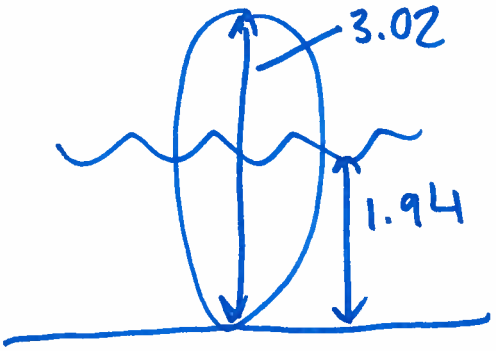
☒ Picture of Sample Location ☐ GPS'd

Location of photos: Laura's phone

FLOW FORM

Date and Time: 8/29/22 @ 1435
Client: MPCA
Sample Location ID: SAMPIPE
Field Staff: LL, BK
Project Number: ~~60663358~~ 60687318
Weather: sunny
Corresponding Staff Gauge Msmt (ft): 1.04

Creek/Channel/Stream Sketch



*note: sediment collected @ bottom of pipe

flow: 0.0 none

Stream Segment Total Width =

Msmt No.	Dist to Initial Point	Depth	Velocity (measure from 1/3 of depth ***from*** the bottom)	Area	Discharge
	feet	feet	ft/s	ft^2	ft^3/s
1					
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					

Measurement Guide

Stream Width	Number of Vertical Measurements
0' - 3'	3-5
3' - 9'	5-8
9' - 15'	8-10
15' - 30'	10-20
>30'	20

Notes

Sample Checklist

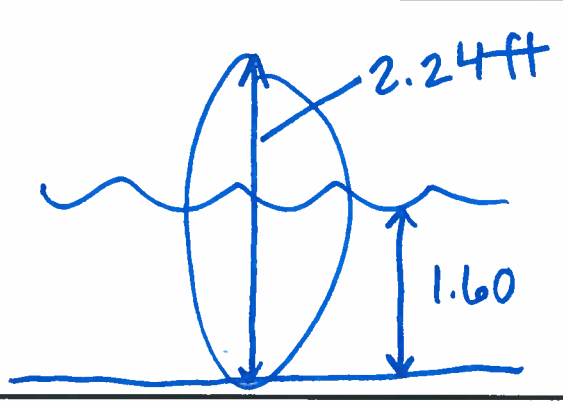
☒ Picture of Sample Location ☐ GPS'd

Location of photos: U

FLOW FORM

Date and Time: 8/29/22 @ 1435
Client: MPCA
Sample Location ID: North Pipe
Field Staff: LL, BK
Project Number: ~~60663338~~ 60687318
Weather: Sunny
Corresponding Staff Gauge Msmt (ft): 1.04

Creek/Channel/Stream Sketch



* note: sediment collected @ bottom of pipe

flow: 0.8 ft/s

Stream Segment Total Width =

Msmt No.	Dist to Initial Point	Depth	Velocity (measure from 1/3 of depth ***from*** the bottom)	Area	Discharge
	feet	feet	ft/s	ft^2	ft^3/s
1					
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					

Measurement Guide

Stream Width	Number of Vertical Measurements
0' - 3'	3-5
3' - 9'	5-8
9' - 15'	8-10
15' - 30'	10-20
>30'	20

Notes

Sample Checklist

☒ Picture of Sample Location ☐ GPS'd

Location of photos: LL

FLOW FORM

Date and Time: 8/29/22 @

Client: MPCA

Sample Location ID: RC Confluence #2

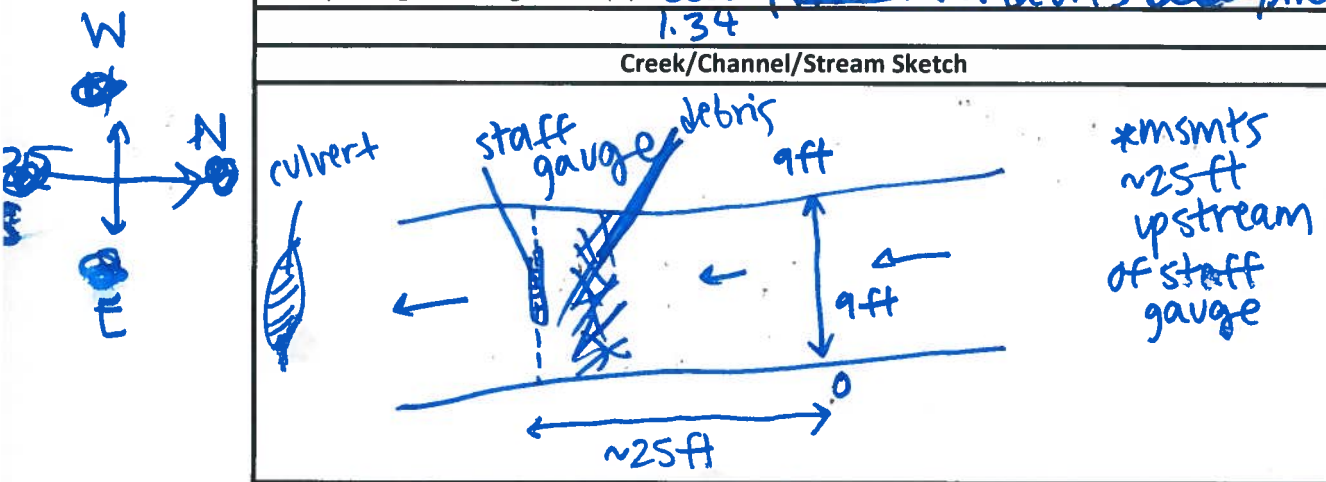
Field Staff: LL, BK

Project Number: ~~60663338~~ 60687318

Weather: sunny

Corresponding Staff Gauge Msmt (ft): ~~0.20~~ 1.34 (~~that's the bits under water~~)

Creek/Channel/Stream Sketch



Stream Segment Total Width =

Msmt No.	Dist to Initial Point	Depth	Velocity (measure from 1/3 of depth *from* the bottom)	Area	Discharge
	feet	feet	ft/s	ft^2	ft^3/s
1	1	0.92	0		
2	2	0.90	0		
3	3	1.00	1.4		
4	4	0.80	1.1		
5	5	0.94	1.4		
6	6	0.99	0.3		
7	7	0.92	(vegetation too thick for flow)		
8	8	[vegetation too thick for depth/flow, but water present up to ~9ft]			
9	9				
10					
11					
12					
13					

Measurement Guide

Stream Width	Number of Vertical Measurements
0' - 3'	3-5
3' - 9'	5-8
9' - 15'	8-10
15' - 30'	10-20
>30'	20

Notes

no foam

Sample Checklist

☒ Picture of Sample Location ☐ GPS'd

Location of photos: Laura's phone

FLOW FORM

Date and Time: 8/29/22

Client: MPCA

Sample Location ID: SW of South Pond Outlet

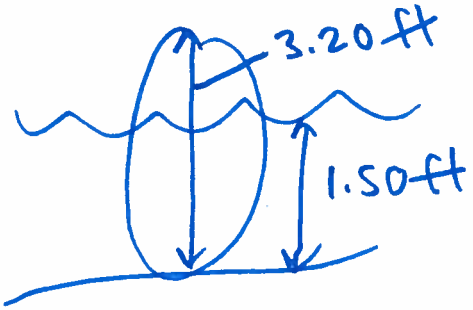
Field Staff: LL, BK

Project Number: ~~60663338~~ 60687318

Weather: sunny

Corresponding Staff Gauge Msmt (ft): N/A

Creek/Channel/Stream Sketch



flow: 0.0 (very slow flow is visible)

Stream Segment Total Width =

Msmt No.	Dist to Initial Point	Depth	Velocity (measure from 1/3 of depth *from* the bottom)	Area	Discharge
	feet	feet	ft/s	ft^2	ft^3/s
1					
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					

Measurement Guide

Stream Width	Number of Vertical Measurements
0' - 3'	3-5
3' - 9'	5-8
9' - 15'	8-10
15' - 30'	10-20
>30'	20

Notes

Sample Checklist

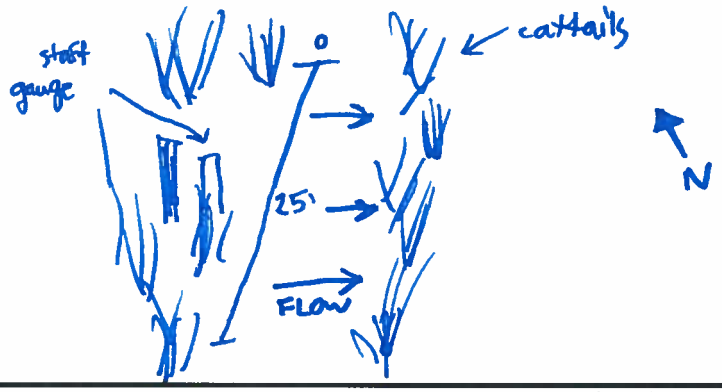
☒ Picture of Sample Location ☐ GPS'd

Location of photos: LL

FLOW FORM

Date and Time: 08/29/22
Client: MPCA
Sample Location ID: DG Horseshoe #2
Field Staff: LL, BK
Project Number: 60663338 60687318
Weather: sunny
Corresponding Staff Gauge Msmt (ft): 1.54

Creek/Channel/Stream Sketch



Stream Segment Total Width = 25'

Msmt No.	Dist to Initial Point	Depth	Velocity (measure from 1/3 of depth *from* the bottom)	Area	Discharge
	feet	feet	ft/s	ft^2	ft^3/s
1	2	0.44	0		
2	4	0.66	0		
3	6	1.16	0		
4	8	1.28	0		
5	10	1.18	0		
6	12	1.42	0.2		
7	14	1.42	0		
8	16	1.58	0.1		
9	18	1.38	0		
10	20	0.84	0		
11	22	0.90	0		
12	24	0.52	0		
13					

heavily vegetated

slow visible flow

Measurement Guide

Stream Width	Number of Vertical Measurements
0' - 3'	3-5
3' - 9'	5-8
9' - 15'	8-10
15' - 30'	10-20
>30'	20

Notes

small amount of foam accumulation on debris, 2"-2" bubbles

Sample Checklist

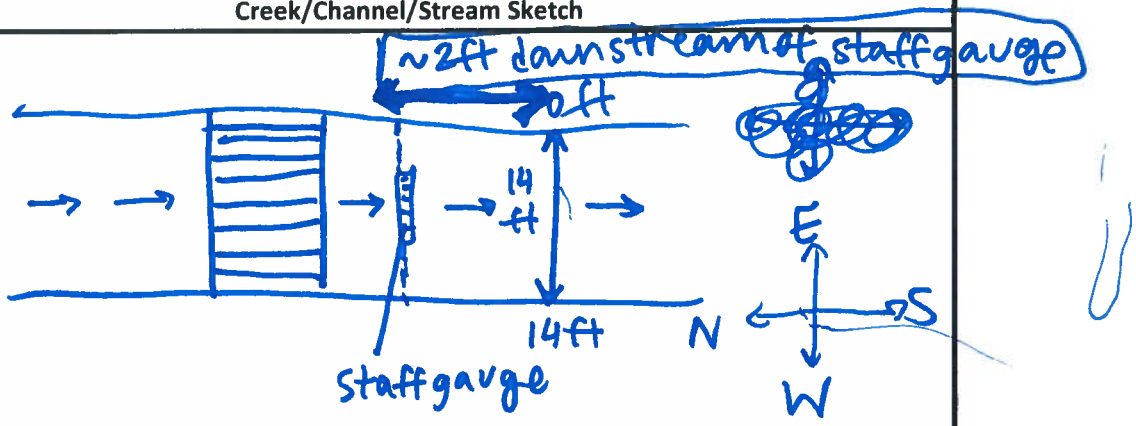
□ Picture of Sample Location □ GPS'd

Location of photos:

FLOW FORM

Date and Time: 8/29/22 @ 1530
Client: MPCA
Sample Location ID: Northchannel #2
Field Staff: LL, BK
Project Number: ~~60663338~~ 60687318
Weather: Sunny
Corresponding Staff Gauge Msmt (ft): 0.76

Creek/Channel/Stream Sketch



Stream Segment Total Width =

Msmt No.	Dist to Initial Point	Depth	Velocity (measure from 1/3 of depth *from* the bottom)	Area	Discharge
	feet	feet	ft/s	ft^2	ft^3/s
1	1	0.3	0 same		
2	2	0.62	0 (visible flow)		
3	3	0.76	0.3		
4	4	0.84	0.4		
5	5	0.86	0.5		
6	6	0.76	0.5		
7	7	0.86	0.4		
8	8	0.88	0.5		
9	9	0.89	0.5		
10	10	0.90	0.3		
11	11	0.80	0		
12	12	0.64	0		
13	13	0.38	0		
14	14	(too shallow)			

Measurement Guide

Stream Width	Number of Vertical Measurements
0' - 3'	3-5
3' - 9'	5-8
9' - 15'	8-10
15' - 30'	10-20
>30'	20

Notes

Sample Checklist

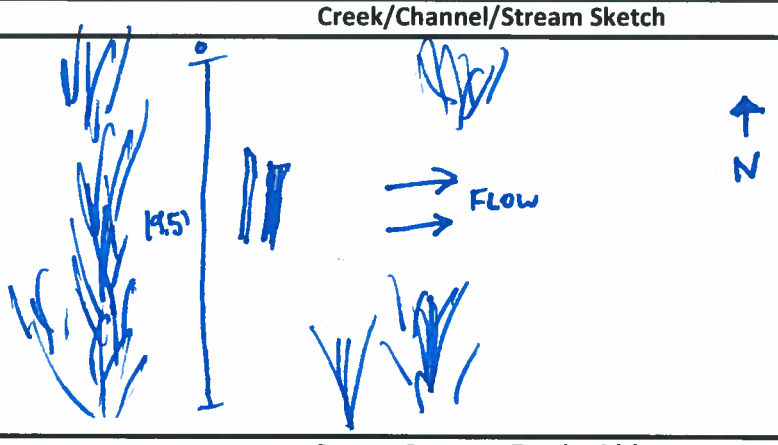
☑ Picture of Sample Location ☐ GPS'd

Location of photos: LL

FLOW FORM

Date and Time: 08/29/22
Client: MPCA
Sample Location ID: DG Horseshoe #1
Field Staff: LL, BK
Project Number: ~~60083338~~ 60687318
Weather: sunny
Corresponding Staff Gauge Msmt (ft): 1,24'

Creek/Channel/Stream Sketch



Stream Segment Total Width = 19.5'

Msmt No.	Dist to Initial Point	Depth	Velocity (measure from 1/3 of depth *from* the bottom)	Area	Discharge
	feet	feet	ft/s	ft^2	ft^3/s
1	1.5	0.36	0		
2	3.0	1.0	0		
3	4.5	1.1	0		
4	6.0	1.12	0		
5	7.5	1.48	0		
6	9.0	1.48	0.1		
7	10.5	1.42	0.7		
8	12	1.48	0.5		
9	13.5	1.24	0		
10	15.0	1.32	0		
11	16.5	1.18	0		
12	18	0.46	0		
13	19.5	0.10	0		

slow flow

Measurement Guide

Stream Width	Number of Vertical Measurements
0' - 3'	3-5
3' - 9'	5-8
9' - 15'	8-10
15' - 30'	10-20
>30'	20

Notes

no visible foam

Sample Checklist

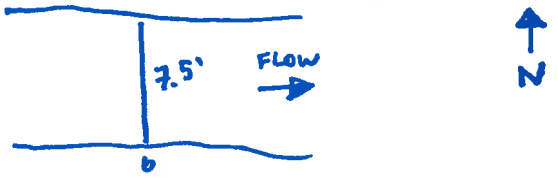
☐ Picture of Sample Location ☐ GPS'd

Location of photos:

FLOW FORM

Date and Time: 08/29/22 1610
Client: MPCA
Sample Location ID: RC 13
Field Staff: LL, BK
Project Number: 60663338
Weather: sunny
Corresponding Staff Gauge Msmt (ft): N/A

Creek/Channel/Stream Sketch



Stream Segment Total Width = 7.5'

Msmt No.	Dist to Initial Point	Depth	Velocity (measure from 1/3 of depth *from* the bottom)	Area	Discharge	
	feet	feet	ft/s	ft^2	ft^3/s	
1	1.0	0.42	0			
2	2.0	0.88	0			visible flow
3	3.0	0.92	0			
4	4.0	0.80	~~0.5~~ 0.5			
5	5.0	0.86	0.4			
6	6.0	0.84	0.4			
7	7.0	0.36	0			
8						
9						
10						
11						
12						
13						

Measurement Guide

Stream Width	Number of Vertical Measurements
0' - 3'	3-5
3' - 9'	5-8
9' - 15'	8-10
15' - 30'	10-20
>30'	20

Notes

windy - may have impacted some measurements

Sample Checklist

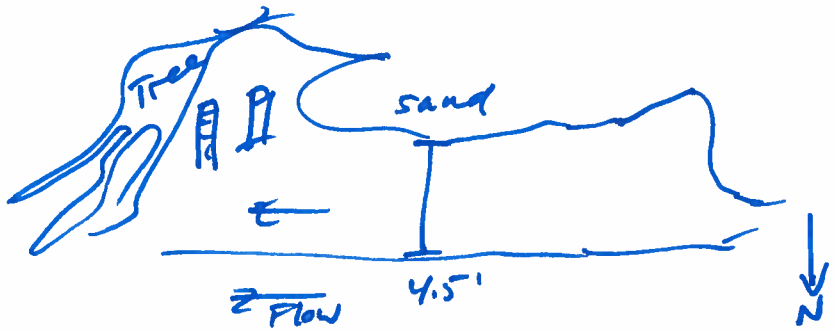
☐ Picture of Sample Location ☐ GPS'd

Location of photos:

FLOW FORM

Date and Time: 9/6/22 9:30
Client: MPCA
Sample Location ID: RC Post RR M1
Field Staff: NP, LL
Project Number: 60663338
Weather: Sunny
Corresponding Staff Gauge Msmt (ft): 1.10'

Creek/Channel/Stream Sketch



Stream Segment Total Width = 4.5'

Msmt No.	Dist to Initial Point	Depth	Velocity (measure from 1/3 of depth *from* the bottom)	Dist	Depth	Velocity ft/sec
	feet	feet	ft/s	ft	ft	
1	0.5	0.0	0.0	0.5	same	0.0
2	1	0.2	0.0	1		0.3
3	1.5	0.38	0.0	1.5		0.0
4	2	0.48	0.0	2		0.0
5	2.5	0.52	0.0	2.5		0.0
6	3	0.52	0.0	3		0.0
7	3.5	0.46	0.0	3.5		0.0
8	4	0.38	0.0	4.0		0.0
9	4.5	0.26	0.0	4.5		0.0
10						
11						
12						
13						

Measurement Guide

Stream Width	Number of Vertical Measurements
0' - 3'	3-5
3' - 9'	5-8
9' - 15'	8-10
15' - 30'	10-20
>30'	20

Notes

Sample Checklist

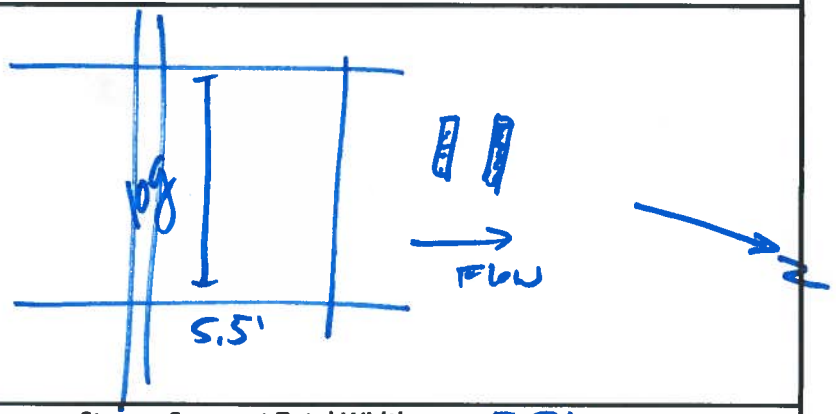
☑ Picture of Sample Location ☐ GPS'd

Location of photos: NP Phone

FLOW FORM

Date and Time: 9/16/22 9:20
Client: MPCA
Sample Location ID: Pond System #1
Field Staff: NP, LL
Project Number: 60663338
Weather: Sunny
Corresponding Staff Gauge Msmt (ft): 0.92'

Creek/Channel/Stream Sketch



AECOM Probe
Stream Segment Total Width = 5.5'

FEI Probe

Msmt No.	Dist to Initial Point	Depth	Velocity (measure from 1/3 of depth *from* the bottom)	~~Area~~ Distance	~~Discharge~~ Depth
	feet	feet	ft/s	ft	ft
1	1	0.1	0.0	1	same
2	2	0.28	0.0	2	
3	3	0.46	0.0	3	
4	4	0.52	0.0	4	
5	5	0.52	0.0	5	
6					
7					
8					
9					
10					
11					
12					
13					

Velocity ft/sec
0.0
0.0
0.0
0.0
0.0

Measurement Guide

Stream Width	Number of Vertical Measurements
0' - 3'	3-5
3' - 9'	5-8
9' - 15'	8-10
15' - 30'	10-20
>30'	20

Notes

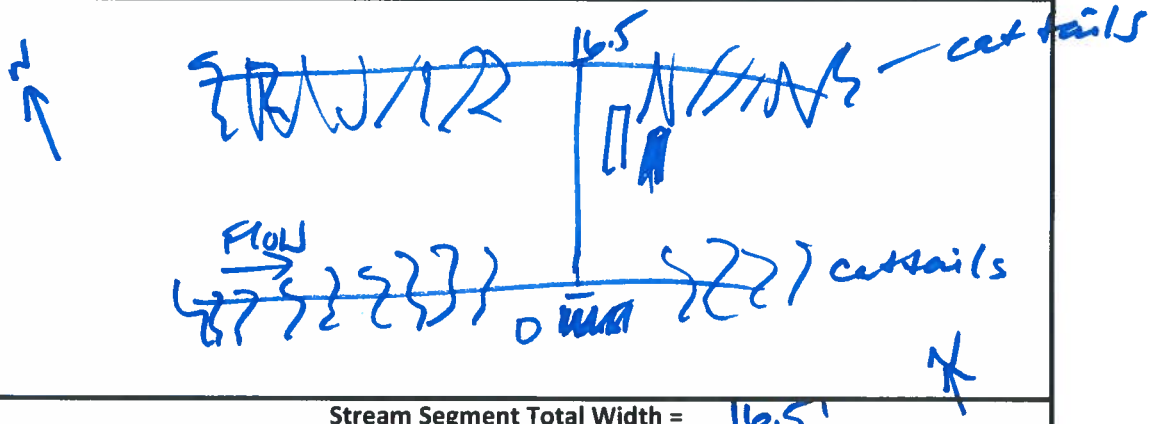
- Collected Flow with Both probes to determine the error of the owned probe.

Sample Checklist
☑ Picture of Sample Location ☐ GPS'd
Location of photos: LL Phone

FLOW FORM

Date and Time: 9/6/22 11:05
Client: MPCA
Sample Location ID: DG Horseshoe #1
Field Staff: NP, LL
Project Number: 60663338
Weather: Sunny, 74°F
Corresponding Staff Gauge Msmt (ft): 0.88'

Creek/Channel/Stream Sketch



Stream Segment Total Width = 16.5'

Msmt No.	Accum Dist to Initial Point	Probe Depth	Velocity (measure from 1/3 of depth *from* the bottom)	~~Area~~ Dist	FEF Probe ~~Discharge~~ Depth	Velocity
	feet	feet	ft/s	ft^2	ft^3/s	ft/sec
1	1.5	0.66	0.0	1.5	same	0.0
2	3	0.98	0.0	3		0.0
3	4.5	0.98	0.0	4.5		0.0
4	6	1.08	0.0	6		0.0
5	7.5	1.06	0.3	7.5		0.6
6	9	1.02	0.0	9		0.0
7	10.5	1.12	0.0	10.5		0.0
8	12	1.0	0.0	12		0.0
9	13.5	0.82	0.0	13.5		0.0
10	15	0.64	0.0	15		0.0
11	16.5	0.10	0.0	16.5		0.0
12						
13						

Measurement Guide

Stream Width	Number of Vertical Measurements
0' - 3'	3-5
3' - 9'	5-8
9' - 15'	8-10
15' - 30'	10-20
>30'	20

Notes

Sample Checklist

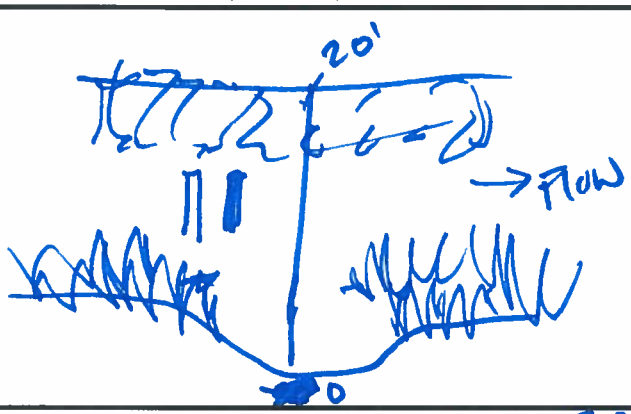
☑ Picture of Sample Location ☐ GPS'd

Location of photos: LL Phone

FLOW FORM

Date and Time: 9/6/22 11:20
Client: MPCA
Sample Location ID: DG Horseshoe #2
Field Staff: NP, LL
Project Number: 60663338
Weather: Sunny 74°F
Corresponding Staff Gauge Msmt (ft): 1.20'

Creek/Channel/Stream Sketch



Stream Segment Total Width = 20'

Msmt No.	~~Dist to Initial~~ Point (Stream probe)	Depth (Stream probe)	Velocity (measure from 1/3 of depth *from* the bottom)	~~Area~~ Distance (FCI probe)	~~Discharge~~ Dept (FCI probe)	Velocity
	feet	feet	ft/s	ft	ft	19 secs
1	2	0.38	0.0	2	same	0.0
2	4	0.86	0.0	4		0.0
3	6	1.12	0.0	6		0.0
4	8	1.28	0.0	8		0.4
5	10	1.44	0.0	10		0.2
6	12	1.04	0.0	12		0.0
7	14	0.76	0.0	14		0.0
8	16	0.88	0.0	16		0.0
9	18	0.86	0.0	18		0.0
10	20	0.20	0.0	20		0.0
11						
12						
13						

Measurement Guide

Stream Width	Number of Vertical Measurements
0' - 3'	3-5
3' - 9'	5-8
9' - 15'	8-10
15' - 30'	10-20
>30'	20

Notes

Sample Checklist

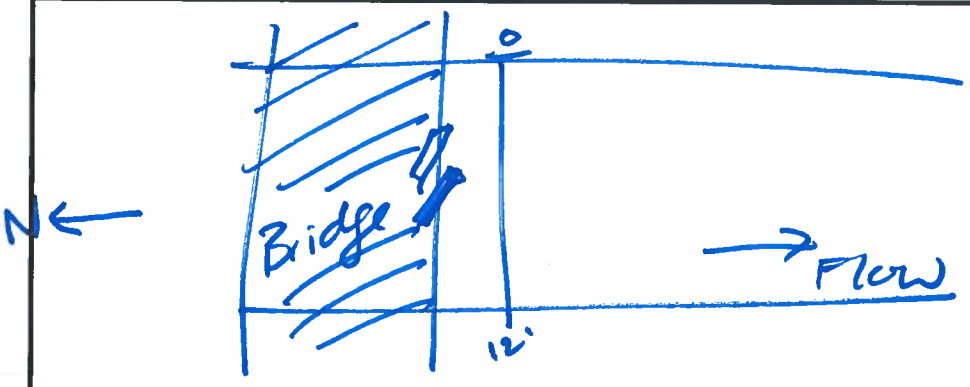
☑ Picture of Sample Location ☐ GPS'd

Location of photos: LL Phone

FLOW FORM

Date and Time: 9/6/22 11:43
Client: MPCA
Sample Location ID: North Channel #2
Field Staff: NP, LL
Project Number: 60663338
Weather: 74°F, Sunny
Corresponding Staff Gauge Msmt (ft): 0.48'

Creek/Channel/Stream Sketch



Stream Segment Total Width = 12'

Msmt No.	Dist to initial Point (Nortek probe)	Depth	Velocity (measure from 1/3 of depth *from* the bottom)	Area Distance (FET probe)	Discharge Depth	Velocity
	feet	feet	ft/s	ft	ft	ft/sec
1	1	0.26	0.0	1	same	0.0
2	2	0.44	0.0	2		0.0
3	3	0.58	0.0	3		0.2
4	4	0.60	0.0	4		0.2
5	5	0.60	0.0	5		0.4
6	6	0.60	0.0	6		0.4
7	7	0.62	0.0	7		0.2
8	8	0.66	0.0	8		0.2
9	9	0.56	0.0	9		0.0
10	10	0.40	0.0	10		0.0
11	11	0.36	0.0	11		0.0
12	12	0.10	0.0	12		0.0
13						

Measurement Guide

Stream Width	Number of Vertical Measurements
0' - 3'	3-5
3' - 9'	5-8
9' - 15'	8-10
15' - 30'	10-20
>30'	20

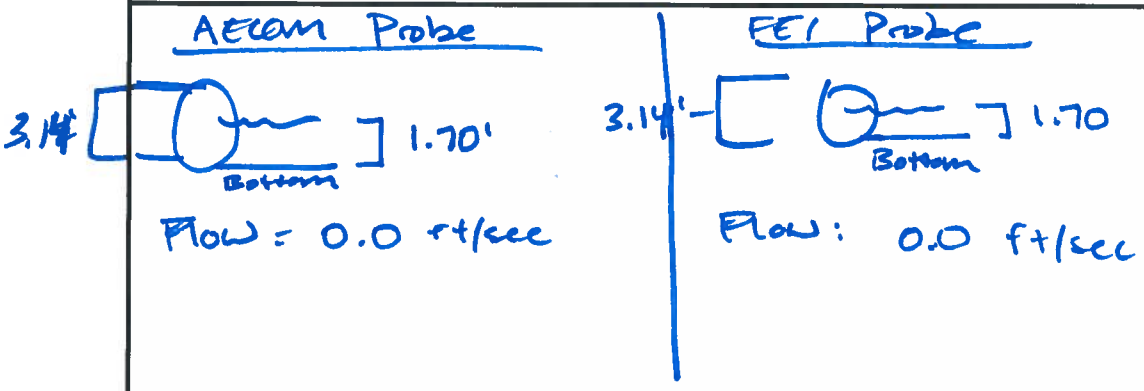
Notes

Sample Checklist
☑ Picture of Sample Location ☐ GPS'd
Location of photos: NP Phone

FLOW FORM

Date and Time: 9/6/22 11:57
Client: MPCA
Sample Location ID: South of S. pond
Field Staff: NP, LL
Project Number: 60663338
Weather: 74°F, Sunny
Corresponding Staff Gauge Msmt (ft): N/A

Creek/Channel/Stream Sketch



Stream Segment Total Width = N/A

Msmt No.	Dist to Initial Point	Depth	Velocity (measure from 1/3 of depth *from* the bottom)	Area	Discharge
	feet	feet	ft/s	ft^2	ft^3/s
1					
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					

Measurement Guide

Stream Width	Number of Vertical Measurements
0' - 3'	3-5
3' - 9'	5-8
9' - 15'	8-10
15' - 30'	10-20
>30'	20

Notes

Sample Checklist

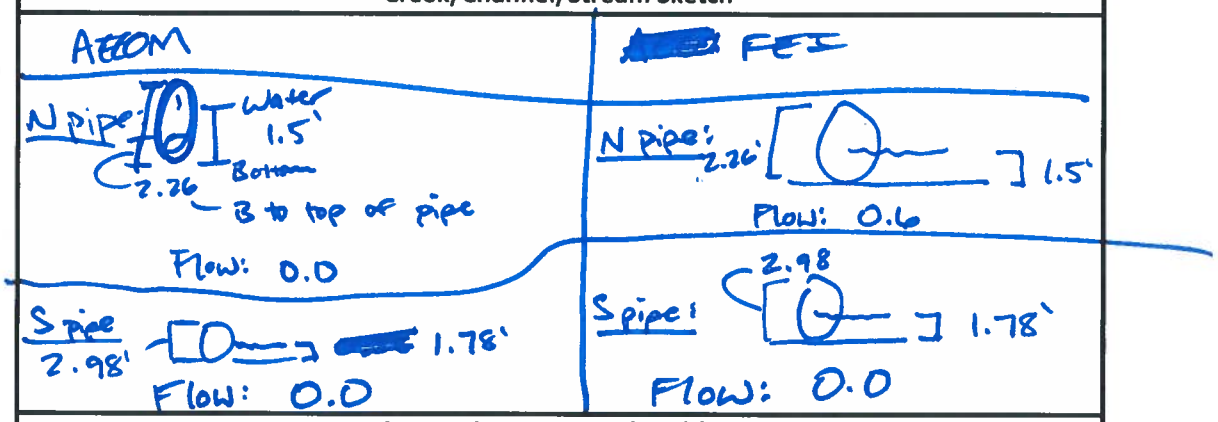
☑ Picture of Sample Location ☐ GPS'd

Location of photos: NP Phone

FLOW FORM

Date and Time: 9/6/22 10:46
Client: MPCA
Sample Location ID: N+S pipes
Field Staff: NP, LL
Project Number: 60663338
Weather: Sunny
Corresponding Staff Gauge Msmt (ft): 0.80'

Creek/Channel/Stream Sketch



Stream Segment Total Width =

Msmt No.	Dist to Initial Point	Depth	Velocity (measure from 1/3 of depth *from* the bottom)	Area	Discharge
	feet	feet	ft/s	ft^2	ft^3/s
1					
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					

Measurement Guide

Stream Width	Number of Vertical Measurements
0' - 3'	3-5
3' - 9'	5-8
9' - 15'	8-10
15' - 30'	10-20
>30'	20

Notes

Sample Checklist

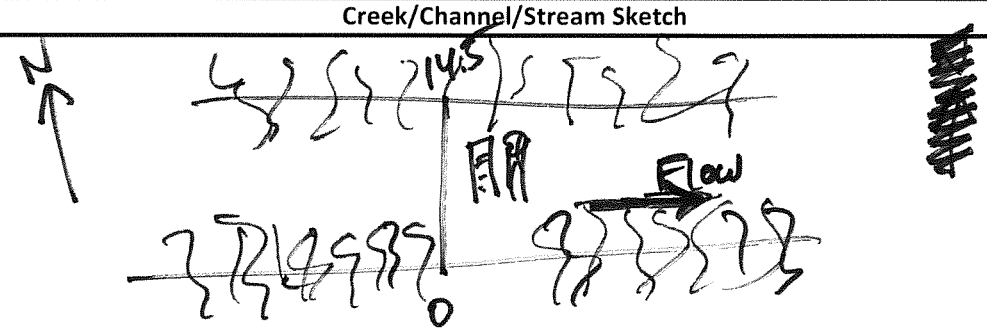
☑ Picture of Sample Location ☐ GPS'd

Location of photos: NP Phone

FLOW FORM

Date and Time: 9/14/22 11:02
Client: MPCA
Sample Location ID: DG Horseshoe #1
Field Staff: NP, AL
Project Number: 60663338
Weather: Sunny 65°F
Corresponding Staff Gauge Msmt (ft): 0.72

Creek/Channel/Stream Sketch



Stream Segment Total Width = 14.5

FEL Probe
AECOM Probe

Msmt No	Dist to Initial Point	Depth	Velocity (measure from 1/3 of depth *from* the bottom)	Dist	Depth	Velocity ft/sec
	feet	feet	ft/s	ft	ft	
1	1	0.82	0.0	1		
2	2	0.84	0.0	2		
3	3	0.82	0.0	3		
4	4	0.86	0.0	4		
5	5	0.94	0.4	5		0.0
6	6	0.94	0.0	6		0.0
7	7	0.86	0.0	7		
8	8	0.94	0.0	8		
9	9	1.1	0.0	9		
10	10	1.02	0.0	10		
11	11	0.74	0.0	11		
12	12	0.74	0.0	12		
13	13	0.6	0.0	13		
14	14	0.56	Measurement Guide 0.0	14		

Stream Width	Number of Vertical Measurements
0' - 3'	3-5
3' - 9'	5-8
9' - 15'	8-10
15' - 30'	10-20
>30'	20

Notes

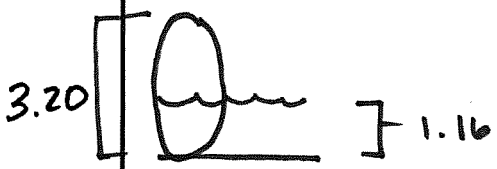
Sample Checklist
☑ Picture of Sample Location ☐ GPS'd
Location of photos: NP Phone
AL Phone

FLOW FORM

Date and Time: 9/14/22 10:40
Client: MPCA
Sample Location ID: S. of S. Pond Pipe
Field Staff: NP, AL
Project Number: 60663338
Weather: Sunny 60°F
Corresponding Staff Gauge Msmt (ft): —

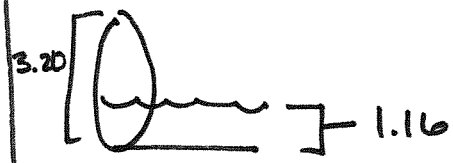
Creek/Channel/Stream Sketch

FEI Probe



Flow: 0.0

AECOM Probe



Flow: 0.0

Stream Segment Total Width =

Msmt No.	Dist to Initial Point	Depth	Velocity (measure from 1/3 of depth ***from*** the bottom)	Area	Discharge
	feet	feet	ft/s	ft^2	ft^3/s
1					
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					

Measurement Guide

Stream Width	Number of Vertical Measurements
0' - 3'	3-5
3' - 9'	5-8
9' - 15'	8-10
15' - 30'	10-20
>30'	20

Notes

Sample Checklist
☑ Picture of Sample Location ☐ GPS'd
Location of photos: NP Phone

FLOW FORM

Date and Time: 9/14/22

Client: MPCA

Sample Location ID: North Channel #2

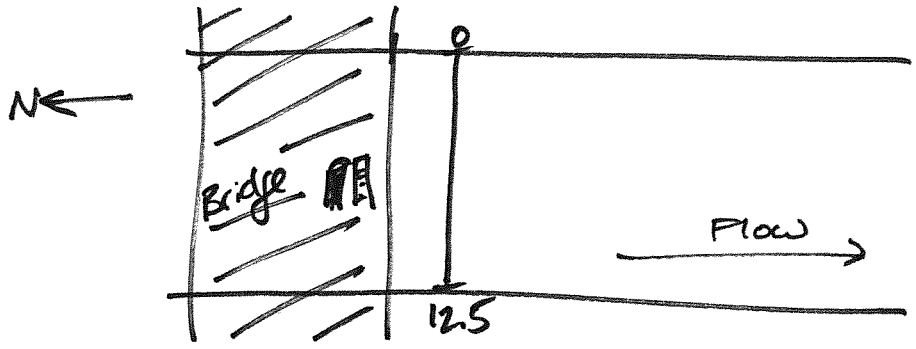
Field Staff: NP, AL

Project Number: 60663338

Weather: Sunny 60°F

Corresponding Staff Gauge Msmt (ft): 0.38

Creek/Channel/Stream Sketch



Stream Segment Total Width = [redacted] 12.5

Msmt No.	FEI Probe Dist to Initial Point	Depth	Velocity (measure from 1/3 of depth *from* the bottom)	AECOM Probe [redacted]	AECOM Probe [redacted]
	feet	feet	ft/s	ft[redacted]	ft[redacted]
1	1	0.20	0.0	1	Same
2	2	0.38	0.0	2	
3	3	0.52	0.0	3	
4	4	0.48	0.0	4	
5	5	0.54	0.0	5	
6	6	0.52	0.1	6	
7	7	0.50	0.2	7	
8	8	0.50	0.0	8	
9	9	0.52	0.0	9	
10	10	0.44	0.0	10	
11	11	0.34	0.0	11	
12	12	0.15	0.0	12	
13	[redacted]				

Velocity ft/sec

0.0
0.0

Measurement Guide

Stream Width	Number of Vertical Measurements
0' - 3'	3-5
3' - 9'	5-8
9' - 15'	8-10
15' - 30'	10-20
>30'	20

Notes

Sample Checklist

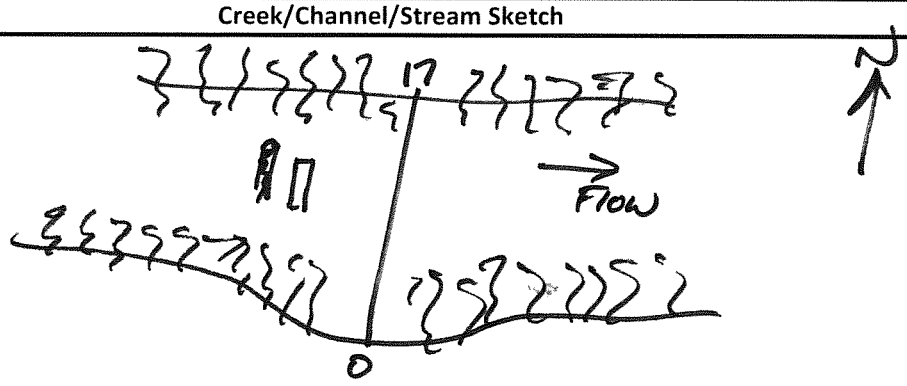
☑ Picture of Sample Location ☐ GPS'd

Location of photos: NP Phone

FLOW FORM

Date and Time: 9/14/22 9:65
Client: MPCA
Sample Location ID: DG Horseshoe #2
Field Staff: NP, AL
Project Number: 60663338
Weather: Sunny 60°F
Corresponding Staff Gauge Msmt (ft): 1.02

Creek/Channel/Stream Sketch



Stream Segment Total Width = 17.0

Msmt No.	FEI Probe Dist to Initial Point	Depth	Velocity (measure from 1/3 of depth *from* the bottom)	AECOM Probe [redacted] Distance	[redacted] Depth
	feet	feet	ft/s	ft	ft
1	1.5	0.72	0.0	1.5	
2	3	0.80	0.0	3	
3	4.5	1.0	0.0	4.5	
4	6	1.14	0.0	6	
5	7.5	1.18	0.0	7.5	
6	9	1.10	0.0	9	
7	10.5	0.80	0.0	10.5	
8	12	0.60	0.0	12	
9	13.5	0.70	0.0	13.5	
10	15	0.82	0.0	15	
11	16.5	0.20	0.0	16.5	
12					
13					

Velocity ft/sec

Measurement Guide

Stream Width	Number of Vertical Measurements
0' - 3'	3-5
3' - 9'	5-8
9' - 15'	8-10
15' - 30'	10-20
>30'	20

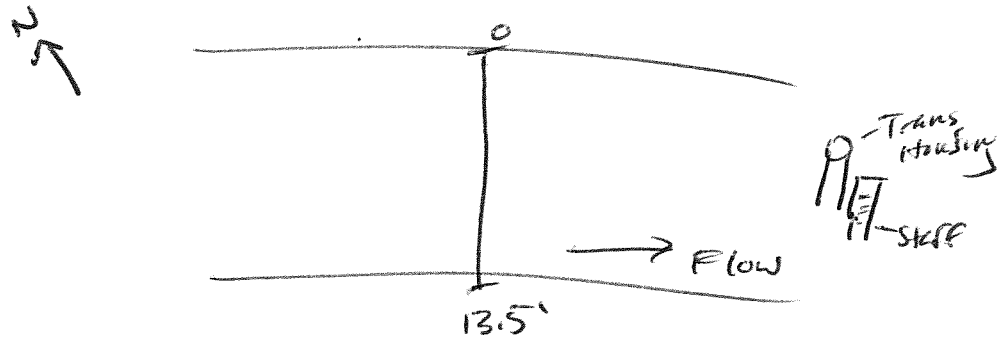
Notes

Sample Checklist
☑ Picture of Sample Location ☐ GPS'd
Location of photos: NP Phone

FLOW FORM

Date and Time: 9/14/22 9:12
Client: MPCA
Sample Location ID: NC #1
Field Staff: NP, AL
Project Number: 60663338
Weather: Sunny 60°F
Corresponding Staff Gauge Msmt (ft): [redacted] 0.50'

Creek/Channel/Stream Sketch



Stream Segment Total Width = 13.5'

AECOM Probe | FEI Probe

Msmt No.	Dist to Initial Point	Depth	Velocity (measure from 1/3 of depth *from* the bottom)	Distance [redacted]	[redacted] Depth	Velocity
	feet	feet	ft/s	ft [redacted]	ft [redacted]	ft/sec
1	1	[redacted] 0.1	[redacted]	1	same	0.0
2	2	0.2		2		0.0
3	3	0.2		3		[redacted] 0.0
4	4	0.25	0.0	4		[redacted] 0.2
5	5	0.30	0.0	5		0.4
6	6	0.36	0.0	6		0.4
7	7	0.4	0.0	7		0.4
8	8	0.4	0.0	8		0.4
9	9	0.38	0.0	9		0.2
10	10	0.34		10		0.0
11	11	0.28		11		0.0
12	12	0.10		12		0.0
13	13	0.05		13		0.0

Measurement Guide

Stream Width	Number of Vertical Measurements
0' - 3'	3-5
3' - 9'	5-8
9' - 15'	8-10
15' - 30'	10-20
>30'	20

Notes

AECOM Probe and FEI Probe both used to determine accuracy of AECOM Probe

Sample Checklist

☑ Picture of Sample Location ☐ GPS'd

Location of photos: NP PHONE

FLOW FORM

Date and Time: 9/14/22 11:38
Client: MPCA
Sample Location ID: N+S pipes
Field Staff: NP, AL
Project Number: 60663338
Weather: Sunny
Corresponding Staff Gauge Msmt (ft): 0.62

Creek/Channel/Stream Sketch

N pipe:
2.24 [ ] 1.28
FEI probe Flow: 0.5
Aecom probe Flow: 0.1

S. ~~pipe~~ pipe
2.94 [ ] 1.56
FEI Probe Flow: 0.0
Aecom probe: 0.0

Stream Segment Total Width =

Msmt No.	Dist to Initial Point	Depth	Velocity (measure from 1/3 of depth ***from*** the bottom)	Area	Discharge
	feet	feet	ft/s	ft^2	ft^3/s
1					
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					

Measurement Guide

Stream Width	Number of Vertical Measurements
0' - 3'	3-5
3' - 9'	5-8
9' - 15'	8-10
15' - 30'	10-20
>30'	20

Notes

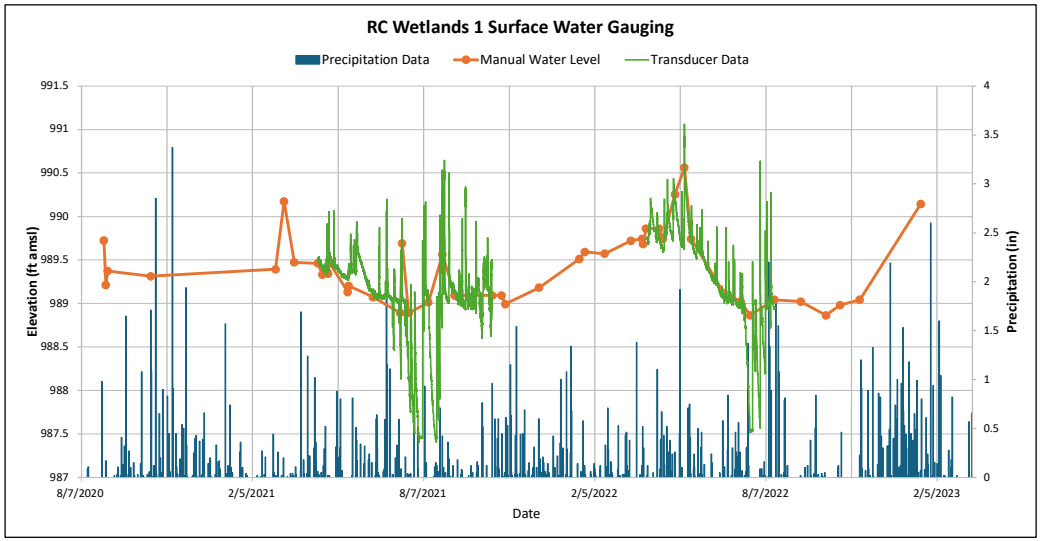
Sample Checklist
☑ Picture of Sample Location ☐ GPS'd
Location of photos: NP PHONE

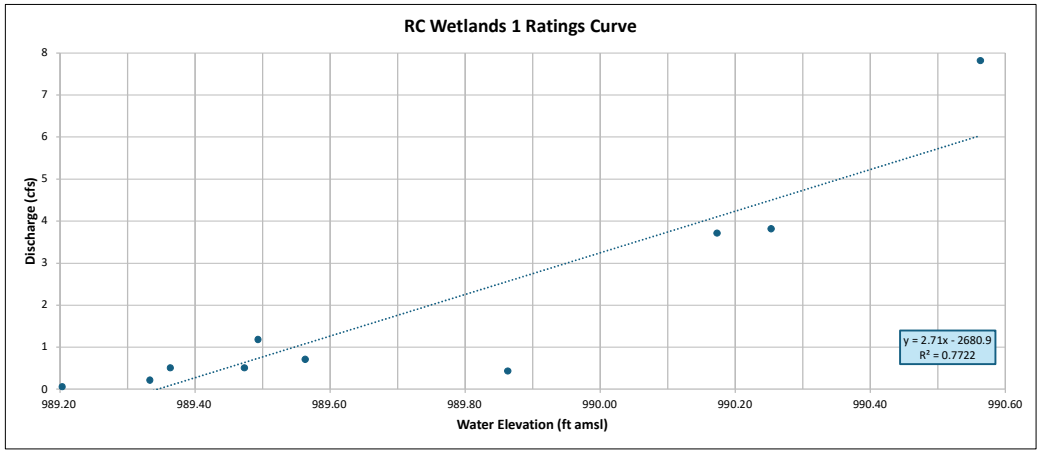
Attachment D-2
Surface Water Levels, Flow Velocity, and Rating Curves

Gauge Name:	RC Wetlands 1
Location Description:	Raleigh Creek east of ODS, across Hadley Ave N

Gauge Elevations	
Year	Elevation (ft amsl)
2020	992.914
2021	992.893
2022	992.863
2023	992.863

Date	Depth to Water (ft)	Water Elevation (ft amsl)	Total Discharge (ft^3/s)	Note
8/31/2020	0.81	989.724	Flow not measured	
9/2/2020	0.3	989.214	0	Zero Discharge
9/4/2020	0.46	989.374	Flow not measured	
10/20/2020	0.4	989.314	Flow not measured	
3/2/2021	0.5	989.393	Flow not measured	
3/11/2021	1.28	990.173	3.712	
3/22/2021	0.58	989.473	0.508	
4/16/2021	0.57	989.463	Flow not measured	
4/21/2021	0.44	989.333	0.217	
4/26/2021	0.47	989.363	0.508	
4/27/2021	0.45	989.343	Flow not measured	
4/28/2021	0.6	989.493	1.182	
4/29/2021	0.57	989.463	Flow not measured	
5/18/2021	0.24	989.133	Flow not measured	
5/19/2021	0.31	989.203	0.058	
6/14/2021	0.18	989.073	Flow not measured	
7/13/2021	0	988.893	Flow not measured	DRY
7/15/2021	0.8	989.693	Flow not measured	
7/22/2021	0	988.893	Flow not measured	DRY
8/12/2021	0.12	989.013	Flow not measured	
8/27/2021	0.67	989.563	0.71	
9/9/2021	0.2	989.093	Flow not measured	
10/19/2021	0.2	989.093	Flow not measured	
10/29/2021	0.2	989.093	Flow not measured	
11/2/2021	0.1	988.993	Flow not measured	
12/8/2021	0.29	989.183	Flow not measured	Frozen
1/20/2022	0.62	989.513	Flow not measured	Frozen
1/26/2022	0.7	989.593	Flow not measured	Frozen
2/16/2022	0.68	989.573	Flow not measured	Frozen and snow
3/16/2022	0.83	989.723	Flow not measured	
3/28/2022	0.85	989.743	Flow not measured	
3/29/2022	0.82	989.713	Flow not measured	
4/1/2022	1	989.863	0.435	
4/15/2022	1	989.863	Flow not measured	
4/18/2022	0.88	989.743	Flow not measured	
5/2/2022	1.39	990.253	3.82	
5/12/2022	1.7	990.563	7.822	
5/19/2022	0.88	989.743	Flow not measured	
6/23/2022	0.26	989.123	Flow not measured	
7/11/2022	0.16	989.023	Flow not measured	
7/21/2022	0	988.863	Flow not measured	DRY
8/16/2022	0.18	989.043	0	Zero Discharge
9/13/2022	0.16	989.023	Flow not measured	
10/10/2022	0	988.863	Flow not measured	DRY
10/25/2022	0.12	988.983	Flow not measured	
11/15/2022	0.18	989.043	Flow not measured	
1/19/2023	1.28	990.143	Flow not measured	SNOW

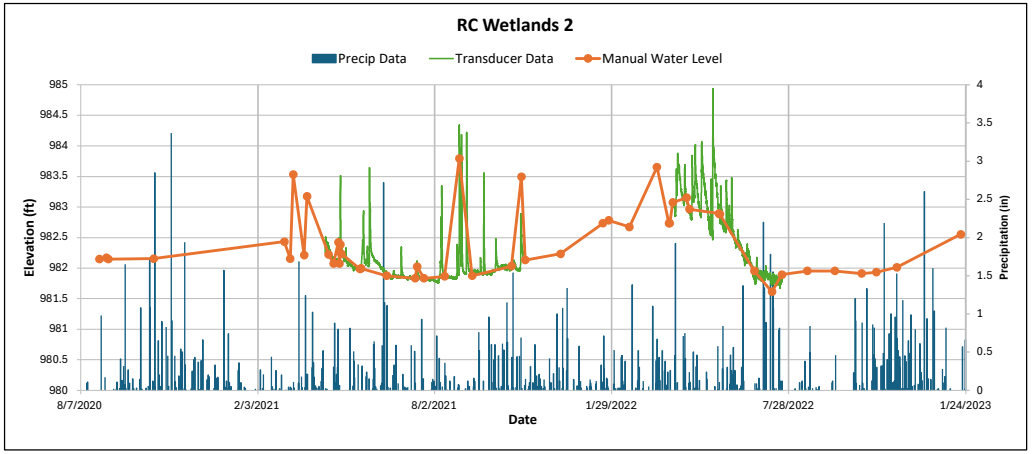


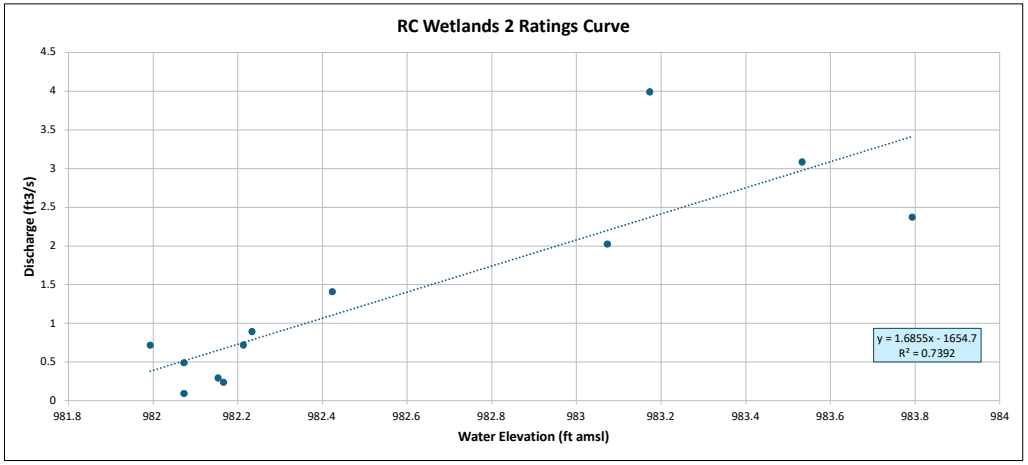


Gauge Name:	RC Wetlands 2
Location Description:	

Gauge Elevations	
Year	Elevation (ft amsl)
2020	985.846
2021	985.633
2022	985.613
2023	985.613

Date	Depth to Water (ft)	Water Elevation (ft amsl)	Total Discharge (ft^3/s)	Note
8/26/2020	0.3	982.146	Flow not measured	
9/2/2020	0.32	982.166	0.237	
9/4/2020	0.3	982.146	Flow not measured	
10/20/2020	0.31	982.156	Flow not measured	
3/2/2021	0.8	982.433	Flow not measured	
3/8/2021	0.52	982.153	0.295	
3/11/2021	1.9	983.533	3.085	
3/22/2021	0.58	982.213	0.72	
3/25/2021	1.54	983.173	3.992	
4/16/2021	0.59	982.223		
4/21/2021	0.44	982.073	0.094	
4/26/2021	0.79	982.423	1.41	
4/27/2021	0.44	982.073	0.491	
4/28/2021	0.75	982.383	0.894	
4/29/2021	0.6	982.233		
5/18/2021	0.35	981.983	Flow not measured	
5/19/2021	0.36	981.993	0.717	
6/14/2021	0.24	981.873	Flow not measured	
7/13/2021	0.2	981.833	Flow not measured	
7/15/2021	0.39	982.023	Flow not measured	
7/22/2021	0.2	981.833	0.71	
8/12/2021	0.23	981.863	Flow not measured	
8/27/2021	2.16	983.793	2.372	
9/9/2021	0.24	981.873	Flow not measured	
10/19/2021	0.4	982.033	Flow not measured	
10/29/2021	1.86	983.493	Flow not measured	Frozen and snow
11/2/2021	0.5	982.133	Flow not measured	Frozen
12/8/2021	0.6	982.233	Flow not measured	Frozen
1/20/2022	1.1	982.733	Flow not measured	Frozen and snow
1/26/2022	1.15	982.783	Flow not measured	
2/16/2022	1.04	982.673	Flow not measured	
3/16/2022	2.02	983.653	Flow not measured	
3/28/2022	1.1	982.733	Flow not measured	
3/29/2022	1.12	982.733	Flow not measured	
4/1/2022	1.46	983.073	2.023	
4/15/2022	1.54	983.153	Flow not measured	
4/18/2022	1.35	982.963	Flow not measured	
5/18/2022	1.28	982.893	Flow not measured	
5/19/2022	1.27	982.883	Flow not measured	
6/23/2022	0.34	981.953	Flow not measured	
7/11/2022	0	981.613	Flow not measured	DRY
7/21/2022	0.28	981.893	Flow not measured	
8/16/2022	0.34	981.953	Flow not measured	Zero Discharge
9/13/2022	0.34	981.953	Flow not measured	
10/10/2022	0.3	981.913	Flow not measured	
10/25/2022	0.32	981.933	Flow not measured	
11/15/2022	0.4	982.013	Flow not measured	
1/19/2023	0.94	982.553	Flow not measured	

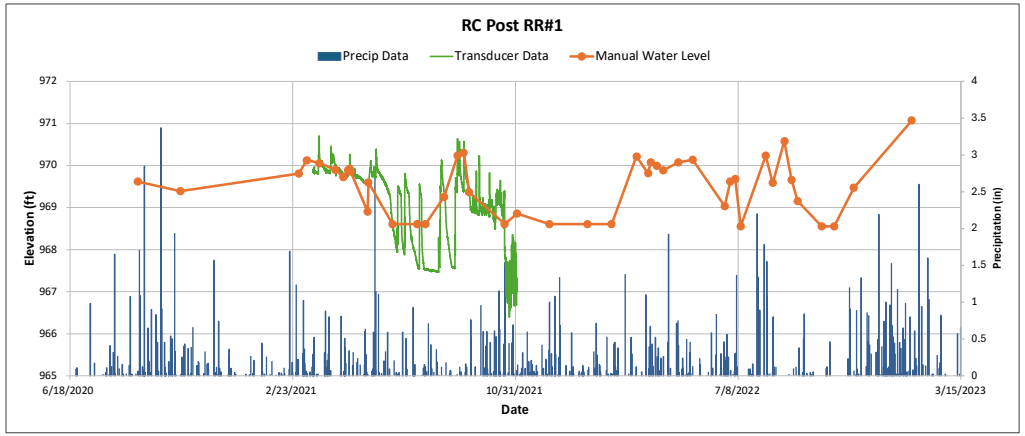


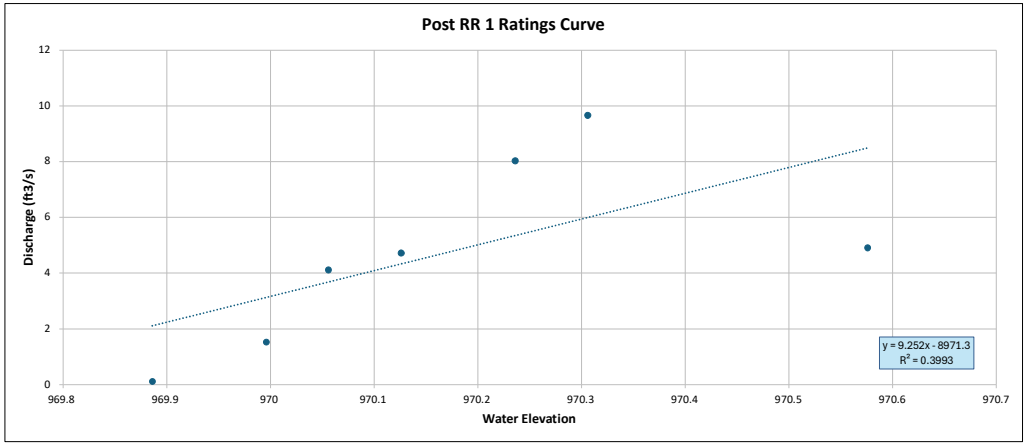


Gauge Name:	RC Post RR #1
Location Description:	

Gauge Elevations	
Year	Elevation (ft amsl)
2020	972.521
2021	972.606
2022	972.556
2023	972.566

Date	Depth to Water (ft)	Water Elevation (ft amsl)	Total Discharge (ft^3/s)	Note
9/2/2020	1.1	969.621	Flow not measured	
10/20/2020	0.87	969.391	Flow not measured	Zero Discharge
3/2/2021	1.2	969.806	4.724	
3/11/2021	1.52	970.126	Flow not measured	
3/25/2021	1.45	970.056	4.117	
4/12/2021	1.29	969.896	Flow not measured	
4/21/2021	1.12	969.726	Flow not measured	
4/26/2021	1.28	969.886	0.114	
4/28/2021	1.32	969.926	Flow not measured	
4/29/2021	1.25	969.856	Flow not measured	
5/18/2021	0.3	968.906	Flow not measured	
5/19/2021	0.99	969.596	Flow not measured	
6/15/2021	0	968.606	Flow not measured	DRY
7/13/2021	0	968.606	Flow not measured	DRY
7/22/2021	0	968.606	Flow not measured	DRY
8/12/2021	0.65	969.256	Flow not measured	
8/27/2021	1.63	970.236	8.03	
9/3/2021	1.7	970.306	9.663	
9/9/2021	0.76	969.366	Flow not measured	
10/19/2021	0	968.606	Flow not measured	DRY
11/2/2021	0.25	968.856	Flow not measured	
12/8/2021	0	968.606	Flow not measured	DRY
1/20/2022	0	968.606	Flow not measured	
2/16/2022	0	968.606	Flow not measured	DRY
3/16/2022	1.61	970.216	Flow not measured	DRY
3/29/2022	1.26	969.816	Flow not measured	DRY
4/1/2022	1.52	970.076	Flow not measured	
4/8/2022	1.44	969.996	1.525	
4/15/2022	1.33	969.886	Flow not measured	
5/2/2022	1.52	970.076	Flow not measured	
5/18/2022	1.58	970.136	Flow not measured	
6/23/2022	0.48	969.036	Flow not measured	
6/29/2022	1.06	969.616	Flow not measured	
7/5/2022	1.12	969.676	Flow not measured	
7/11/2022	0	968.556	Flow not measured	DRY
8/8/2022	1.68	970.236	Flow not measured	
8/16/2022	1.03	969.586	Flow not measured	
8/29/2022	2.02	970.576	Flow not measured	
9/6/2022	1.1	969.656	Flow not measured	
9/13/2022	0.6	969.156	Flow not measured	
10/10/2022	0	968.556	Flow not measured	DRY
10/24/2022	0	968.556	Flow not measured	DRY
11/15/2022	0.92	969.476	Flow not measured	
1/19/2023	2.52	971.076	Flow not measured	SNOW

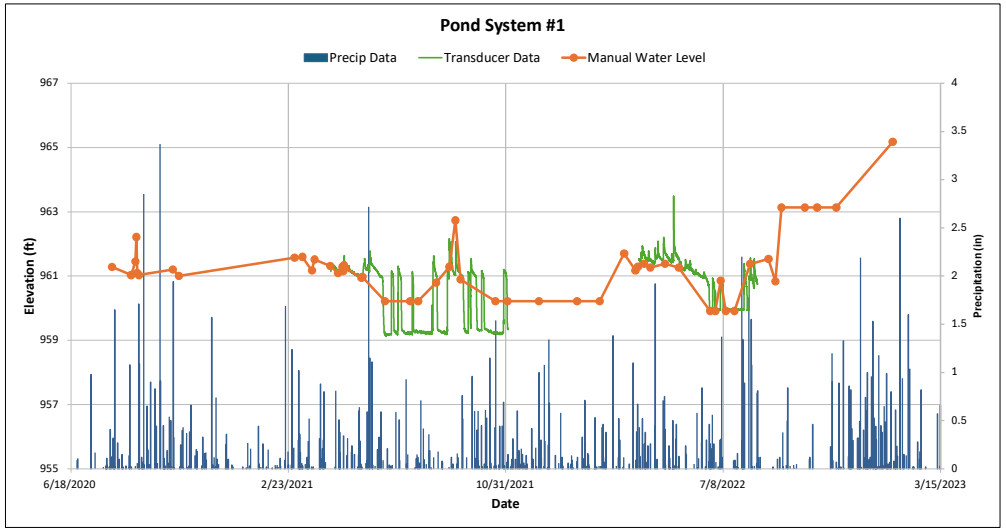


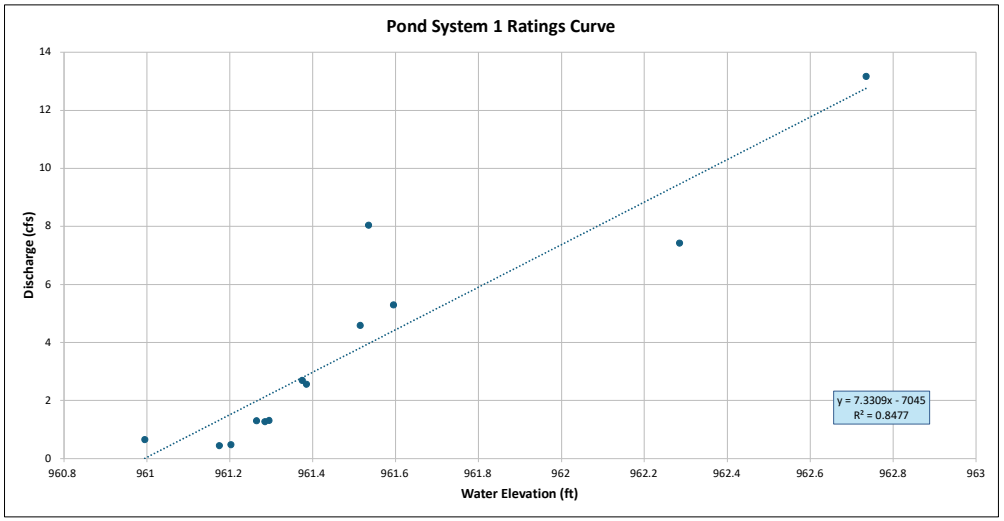


Gauge Name:	Pond System #1
Location Description:	

Gauge Elevations	
Year	Elevation (ft amsl)
2020	964.253
2021	964.215
2022	964.225
2023	963.915

Date	Depth to Water (ft)	Water Elevation (ft amsl)	Total Discharge (ft^3/s)	Note
8/4/2020	1.03	961.283	Flow not measured	
8/26/2020	0.78	961.033	Flow not measured	Zero Discharge
8/31/2020	1.2	961.453	Flow not measured	
9/1/2020	1.96	962.213	Flow not measured	
9/2/2020	0.84	961.093	Flow not measured	
9/4/2020	0.78	961.033	Flow not measured	
10/13/2020	0.95	961.203	0.479	
10/20/2020	0.75	961.003	Flow not measured	
3/2/2021	1.36	961.575	Flow not measured	
3/11/2021	1.38	961.595	5.295	
3/22/2021	0.96	961.175	0.445	
3/25/2021	1.3	961.515	4.584	
4/12/2021	1.1	961.315	Flow not measured	
4/21/2021	0.88	961.095	Flow not measured	
4/26/2021	1.07	961.285	1.272	
4/27/2021	0.94	961.155	Flow not measured	
4/28/2021	1.12	961.335	Flow not measured	
4/29/2021	1.04	961.255	Flow not measured	
5/18/2021	0.73	960.945	Flow not measured	
5/19/2021	0.76	960.975	Flow not measured	DRY
6/14/2021	0	960.215	Flow not measured	DRY
7/13/2021	0	960.215	Flow not measured	DRY
7/22/2021	0	960.215	Flow not measured	
8/12/2021	0.58	960.795	7.427	
8/27/2021	1.07	961.285	Flow not measured	
9/3/2021	2.52	962.735	13.173	
9/9/2021	0.68	960.895	Flow not measured	
10/19/2021	0	960.215	Flow not measured	DRY
11/2/2021	0	960.215	Flow not measured	DRY
12/8/2021	0	960.215	Flow not measured	DRY
1/21/2022	0	960.215	Flow not measured	DRY
2/16/2022	0	960.215	Flow not measured	DRY
3/16/2022	1.49	961.705	Flow not measured	
3/29/2022	0.95	961.175	Flow not measured	
4/1/2022	1.07	961.295	1.306	
4/8/2022	1.16	961.385	2.562	
4/15/2022	1.04	961.265	Flow not measured	
5/2/2022	1.16	961.385	Flow not measured	
5/18/2022	1.35	961.265	1.296	Resurveyed
6/23/2022	0	959.915	0.652	DRY
6/29/2022	0	959.915	Flow not measured	DRY
7/5/2022	0.94	960.855	Flow not measured	
7/11/2022	0	959.915	Flow not measured	DRY
7/21/2022	0	959.915	Flow not measured	DRY
8/8/2022	1.46	961.375	2.69	
8/29/2022	1.62	961.535	8.044	
9/6/2022	0.92	960.835	Flow not measured	
9/13/2022	0	963.135	Flow not measured	DRY
10/10/2022	0	963.135	Flow not measured	DRY
10/24/2022	0	963.135	Flow not measured	DRY
11/15/2022	0	963.135	Flow not measured	FROZEN
1/19/2023	2.04	965.175	Flow not measured	SNOW

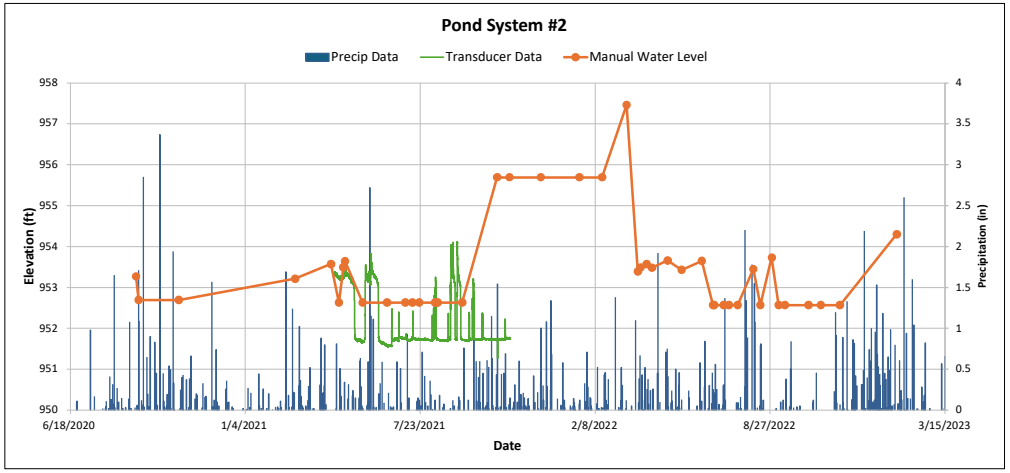


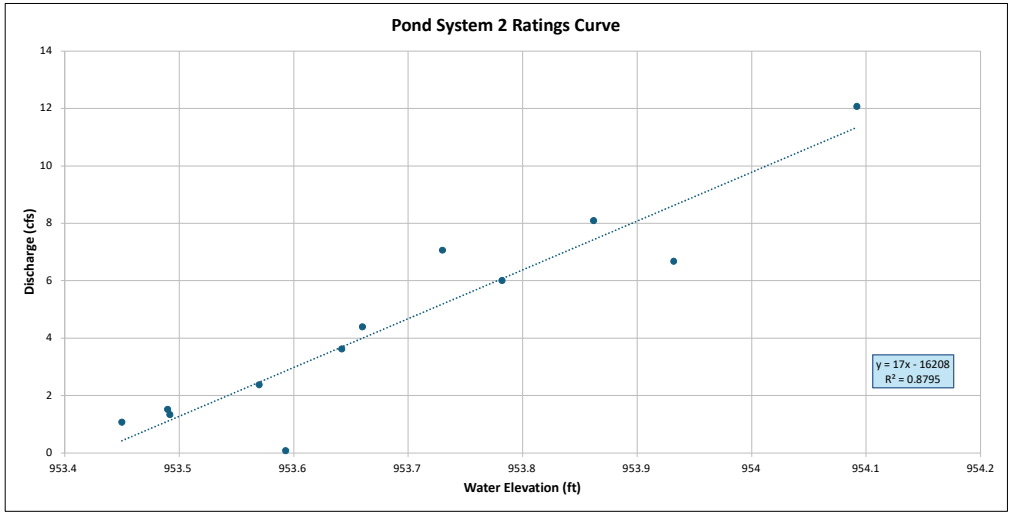


Gauge Name:	Pond System #2
Location Description:	

Gauge Elevations	
Year	Elevation (ft amsl)
2020	956.69
2021	956.63
2022	956.57
2023	956.57

Date	Depth to Water (ft)	Water Elevation (ft amsl)	Total Discharge (ft^3/s)	Note
9/1/2020	0.58	953.273	Flow not measured	
9/4/2020	0	952.693	Flow not measured	DRY
10/20/2020	0	952.693	0.082	DRY
3/2/2021	0.58	953.212	6.68	
4/12/2021	0.94	953.572	6.006	
4/21/2021	0	952.632	Flow not measured	DRY
4/26/2021	0.86	953.492	1.337	
4/28/2021	1.01	953.642	3.622	
5/18/2021	0	952.632	Flow not measured	DRY
6/15/2021	0	952.632	Flow not measured	DRY
7/6/2021	0	952.632	Flow not measured	DRY
7/14/2021	0	952.632	Flow not measured	DRY
7/22/2021	0	952.632	Flow not measured	DRY
8/9/2021	0	952.632	Flow not measured	DRY
8/11/2021	0	952.632	Flow not measured	DRY
8/12/2021	0	952.632	8.094	DRY
9/9/2021	0	952.632	12.07	DRY
10/19/2021	0	955.692	Flow not measured	DRY
11/2/2021	0	955.692	Flow not measured	DRY
12/8/2021	0	955.692	Flow not measured	DRY
1/21/2022	0	955.692	Flow not measured	DRY
2/16/2022	0	955.692	Flow not measured	DRY
3/16/2022	1.77	957.462	Flow not measured	
3/29/2022	0.82	953.39	Flow not measured	
4/1/2022	0.92	953.49	1.524	
4/8/2022	1	953.57	2.378	
4/14/2022	0.91	953.48	Flow not measured	
5/2/2022	1.09	953.66	4.398	
5/18/2022	0.86	953.43	Flow not measured	
6/10/2022	1.08	953.65	Flow not measured	
6/23/2022	0	952.57	Flow not measured	DRY
6/24/2022	0	952.57	Flow not measured	DRY
7/5/2022	0	952.57	Flow not measured	DRY
7/11/2022	0	952.57	Flow not measured	DRY
7/21/2022	0	952.57	Flow not measured	DRY
8/8/2022	0.88	953.45	1.075	
8/16/2022	0	952.57	Flow not measured	DRY
8/29/2022	1.16	953.73	7.064	
9/6/2022	0	952.57	Flow not measured	DRY
9/13/2022	0	952.57	Flow not measured	DRY
10/10/2022	0	952.57	Flow not measured	DRY
10/24/2022	0	952.57	Flow not measured	DRY
11/15/2022	0	952.57	Flow not measured	FROZEN
1/19/2023	1.73	954.3	Flow not measured	SNOW

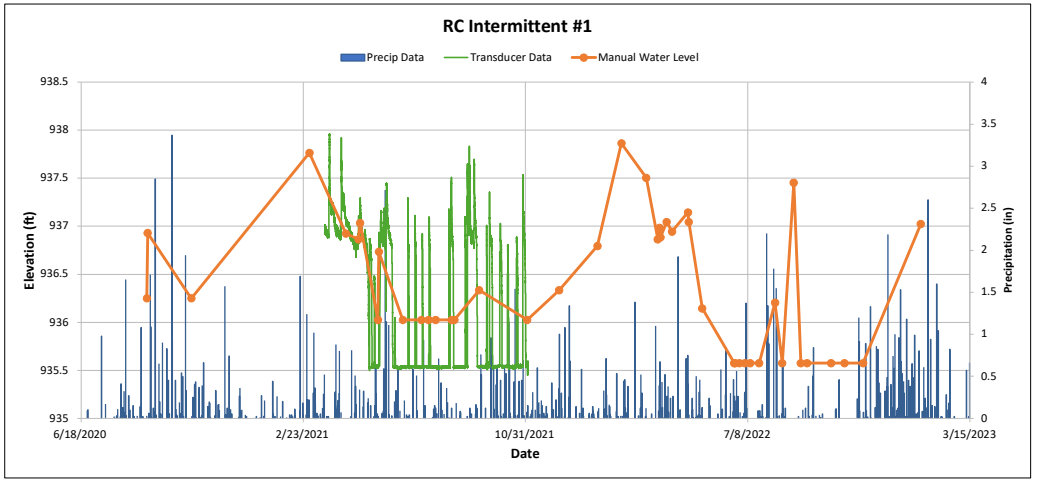


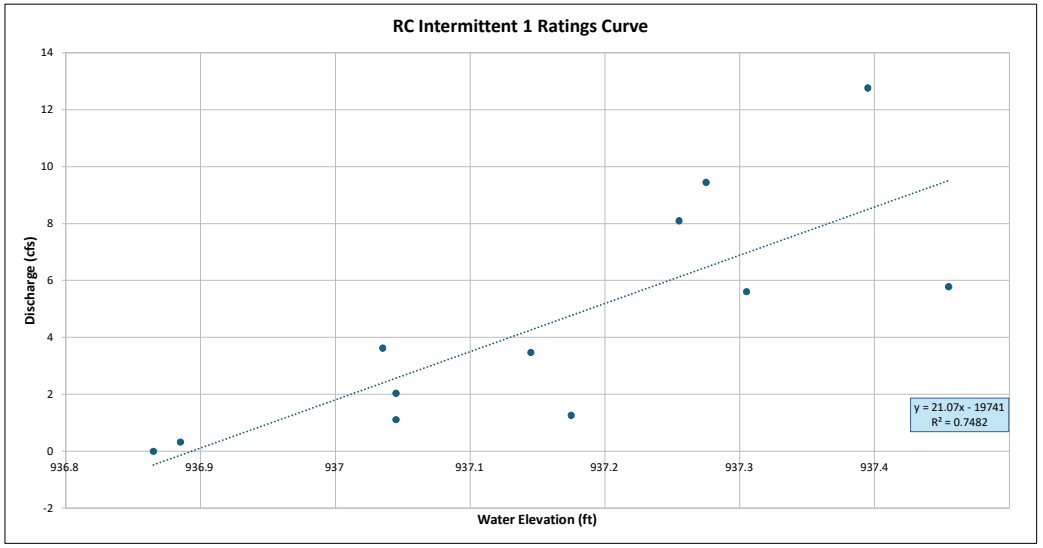


Gauge Name:	RC Intermittent #1
Location Description:	

Gauge Elevations	
Year	Elevation (ft amsl)
2020	940.25
2021	940.025
2022	940.045
2023	939.575

Date	Depth to Water (ft)	Water Elevation (ft amsl)	Total Discharge (ft^3/s)	Note
8/31/2020	0	936.25	Flow not measured	DRY
9/1/2020	0.68	936.93	Flow not measured	
10/20/2020	0	936.25	Flow not measured	DRY
3/2/2021	1.74	937.765	Flow not measured	
4/12/2021	0.9	936.925	Flow not measured	
4/26/2021	0.84	936.865	Flow not measured	
4/28/2021	1.01	937.035	0.479	
5/18/2021	0	936.025	Flow not measured	DRY
5/19/2021	0.71	936.735	Flow not measured	
6/15/2021	0	936.025	5.295	DRY
7/6/2021	0	936.025	0.445	DRY
7/14/2021	0	936.025	4.584	DRY
7/22/2021	0	936.025	Flow not measured	DRY
8/9/2021	0	936.025	Flow not measured	
8/12/2021	0	936.025	1.272	DRY
9/9/2021	0.31	936.335	Flow not measured	
11/2/2021	0	936.025	Flow not measured	DRY
12/8/2021	0.31	936.335	Flow not measured	Frozen, Snow
1/20/2022	0.77	936.795	Flow not measured	Frozen
2/16/2022	1.84	937.865	Flow not measured	Frozen
3/16/2022	1.48	937.505	Flow not measured	
3/29/2022	0.82	936.865	Flow not measured	
3/31/2022	0.94	936.985	Flow not measured	
4/1/2022	0.84	936.885	7.427	
4/8/2022	1	937.045	Flow not measured	
4/14/2022	0.9	936.945	13.173	
5/2/2022	1.1	937.145	Flow not measured	
5/3/2022	1	937.045	Flow not measured	
5/18/2022	0.57	936.145	Flow not measured	Resurveyed
6/23/2022	0	935.575	Flow not measured	DRY
6/24/2022	0	935.575	Flow not measured	DRY
6/29/2022	0	935.575	Flow not measured	DRY
7/5/2022	0	935.575	Flow not measured	DRY
7/11/2022	0	935.575	Flow not measured	DRY
7/21/2022	0	935.575	1.306	DRY
8/8/2022	0.63	936.205	2.562	
8/16/2022	0	935.575	Flow not measured	DRY
8/29/2022	1.88	937.455	Flow not measured	
9/6/2022	0	935.575	1.296	DRY
9/13/2022	0	935.575	0.652	DRY
10/10/2022	0	935.575	Flow not measured	DRY
10/25/2022	0	935.575	Flow not measured	DRY
11/15/2022	0	935.575	Flow not measured	DRY
1/19/2023	1.45	937.025	Flow not measured	SNOW

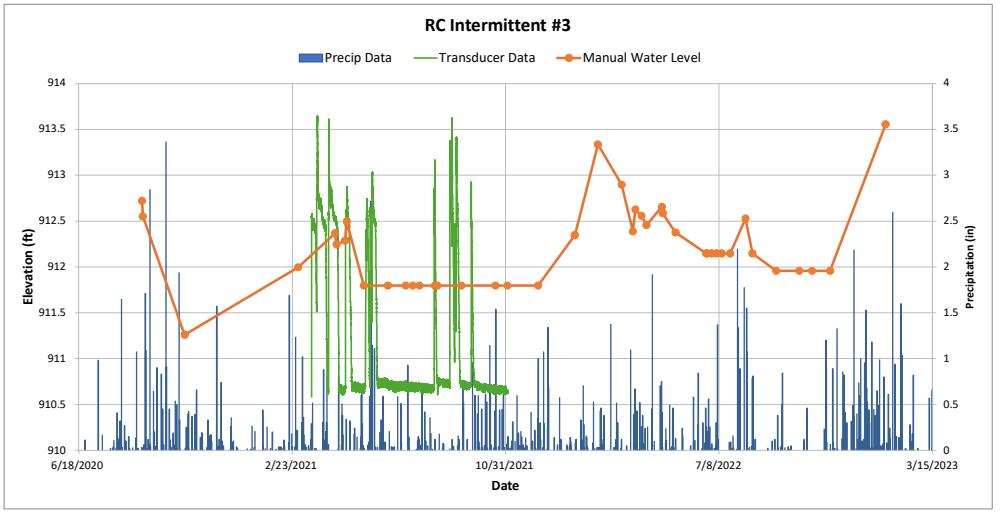


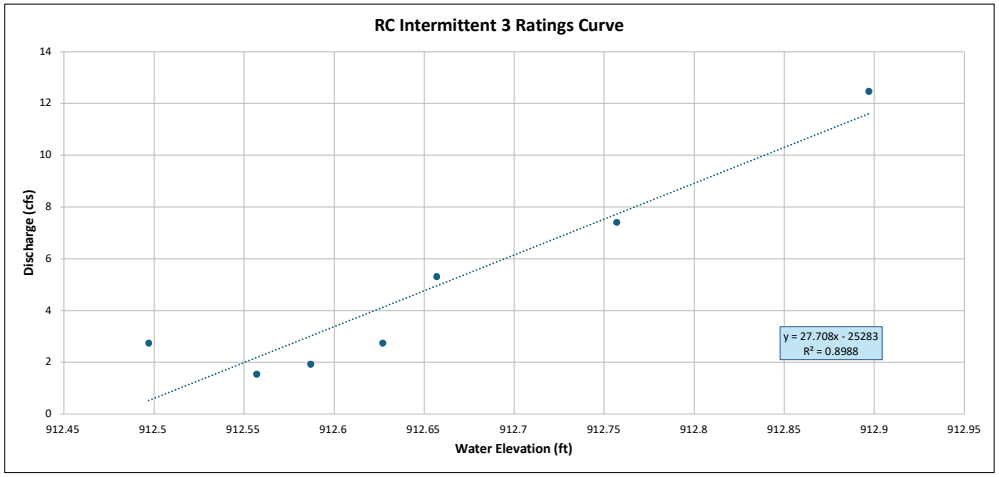


Gauge Name:	RC Intermittent #3
Location Description:	

Gauge Elevations	
Year	Elevation (ft amsl)
2020	940.25
2021	940.025
2022	940.045
2023	939.575

Date	Depth to Water (ft)	Water Elevation (ft amsl)	Total Discharge (ft^3/s)	Note
8/31/2020	1.46	912.721	Flow not measured	
9/1/2020	1.29	912.551	Flow not measured	
10/20/2020	0	911.261	Flow not measured	DRY
3/2/2021	0.2	911.997	Flow not measured	
4/14/2021	0.57	912.367	Flow not measured	
4/16/2021	0.45	912.247	Flow not measured	
4/26/2021	0.49	912.287	Flow not measured	
4/28/2021	0.7	912.497	2.745	
5/18/2021	0	911.797	Flow not measured	DRY
6/15/2021	0	911.797	Flow not measured	DRY
7/6/2021	0	911.797	Flow not measured	DRY
7/14/2021	0	911.797	Flow not measured	DRY
7/22/2021	0	911.797	Flow not measured	DRY
8/9/2021	0	911.797	Flow not measured	DRY
8/11/2021	0	911.797	Flow not measured	DRY
8/12/2021	0	911.797	7.404	DRY
9/9/2021	0	911.797	12.463	DRY
10/19/2021	0	911.797	Flow not measured	DRY
11/2/2021	0	911.797	Flow not measured	DRY
12/8/2021	0	911.797	Flow not measured	DRY
1/20/2022	0.55	912.347	Flow not measured	FROZEN
2/16/2022	1.54	913.337	Flow not measured	FROZEN
3/16/2022	1.1	912.897	Flow not measured	FROZEN
3/29/2022	0.49	912.387	Flow not measured	
4/1/2022	0.73	912.627	2.745	
4/8/2022	0.66	912.557	1.542	
4/14/2022	0.56	912.457	Flow not measured	
5/2/2022	0.76	912.657	5.31	
5/3/2022	0.69	912.587	1.924	
5/18/2022	0.23	912.377	Flow not measured	Resurveyed
6/23/2022	0	912.147	Flow not measured	DRY
6/24/2022	0	912.147	Flow not measured	DRY
6/29/2022	0	912.147	Flow not measured	DRY
7/5/2022	0	912.147	Flow not measured	DRY
7/11/2022	0	912.147	1.306	DRY
7/21/2022	0	912.147	2.562	DRY
8/8/2022	0.38	912.527	Flow not measured	
8/16/2022	0	912.147	Flow not measured	DRY
9/13/2022	0	911.957	1.296	DRY
10/10/2022	0	911.957	0.652	DRY
10/25/2022	0	911.957	Flow not measured	DRY
11/15/2022	0	911.957	Flow not measured	DRY
1/19/2023	1.6	913.557	Flow not measured	SNOW

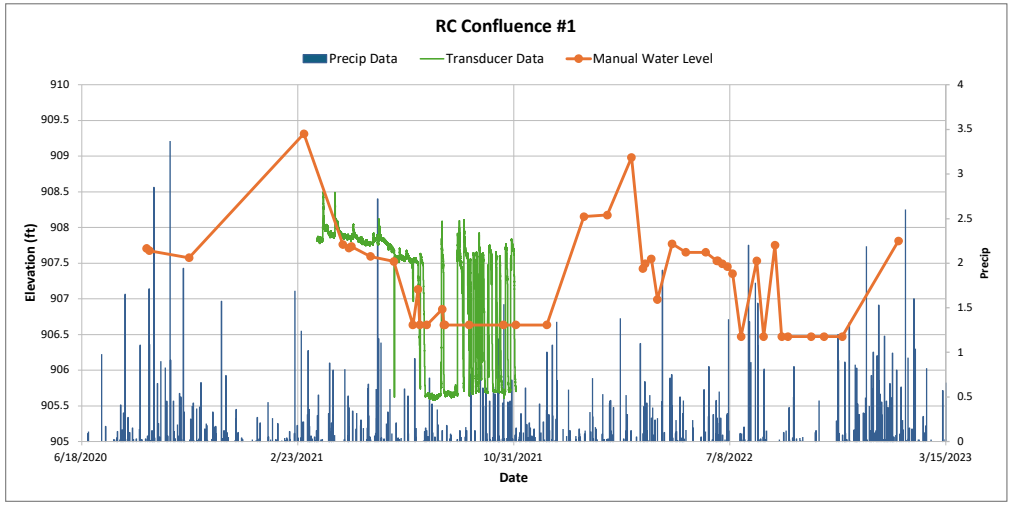


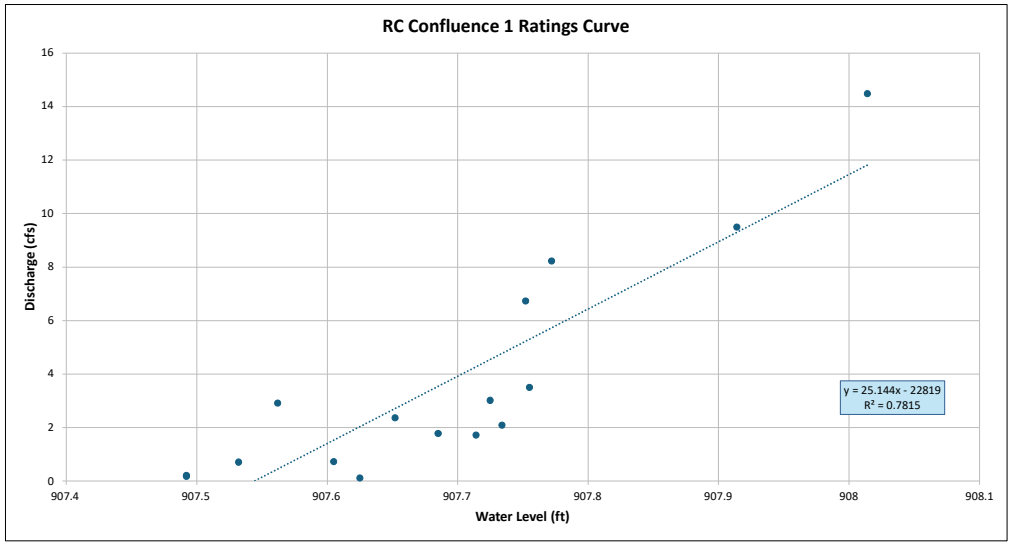


Gauge Name:	RC Confluence #1
Location Description:	

Gauge Elevations	
Year	Elevation (ft amsl)
2020	940.25
2021	940.025
2022	940.045
2023	939.575

Date	Depth to Water (ft)	Water Elevation (ft amsl)	Total Discharge (ft^3/s)	Note
9/1/2020	1.1	907.705	Flow not measured	
9/4/2020	1.07	907.675	Flow not measured	
10/20/2020	0.97	907.575	Flow not measured	
3/2/2021	2.68	909.314	Flow not measured	
4/16/2021	1.13	907.764	Flow not measured	
4/23/2021	1.08	907.714	Flow not measured	
4/26/2021	1.1	907.734	Flow not measured	
5/18/2021	0.96	907.594	2.745	
6/14/2021	0.89	907.524	Flow not measured	
7/6/2021	0	906.634	Flow not measured	
7/12/2021	0.5	907.134	Flow not measured	
7/14/2021	0	906.634	Flow not measured	DRY
7/22/2021	0	906.634	Flow not measured	DRY
8/9/2021	0.22	906.854	Flow not measured	
8/11/2021	0	906.634	Flow not measured	DRY
8/12/2021	0	906.634	7.404	DRY
9/9/2021	0	906.634	12.463	DRY
10/19/2021	0	906.634	Flow not measured	DRY
11/2/2021	0	906.634	Flow not measured	DRY
12/8/2021	0	906.634	Flow not measured	DRY
1/20/2022	1.52	908.154	Flow not measured	Frozen
2/16/2022	1.54	908.174	Flow not measured	Frozen
3/16/2022	2.35	908.984	Flow not measured	
3/29/2022	0.95	907.422	Flow not measured	
4/1/2022	1.02	907.492	2.745	
4/8/2022	1.09	907.562	1.542	
4/15/2022	0.52	906.992	Flow not measured	
5/2/2022	1.3	907.772	5.31	
5/18/2022	1.18	907.652	1.924	
6/10/2022	1.18	907.652	Flow not measured	
6/23/2022	1.06	907.532	Flow not measured	
6/24/2022	1.06	907.532	Flow not measured	
6/29/2022	1.02	907.492	Flow not measured	
7/5/2022	0.98	907.452	Flow not measured	
7/11/2022	0.88	907.352	1.306	
7/21/2022	0	906.472	2.562	DRY
8/8/2022	1.06	907.532	Flow not measured	
8/16/2022	0	906.472	Flow not measured	DRY
8/29/2022	1.28	907.752	1.296	
9/6/2022	0	906.472	0.652	DRY
9/13/2022	0	906.472	Flow not measured	DRY
10/10/2022	0	906.472	Flow not measured	DRY
10/25/2022	0	906.472	Flow not measured	DRY
11/15/2022	0	906.472	Flow not measured	DRY
1/19/2023	1.34	907.812	Flow not measured	SNOW

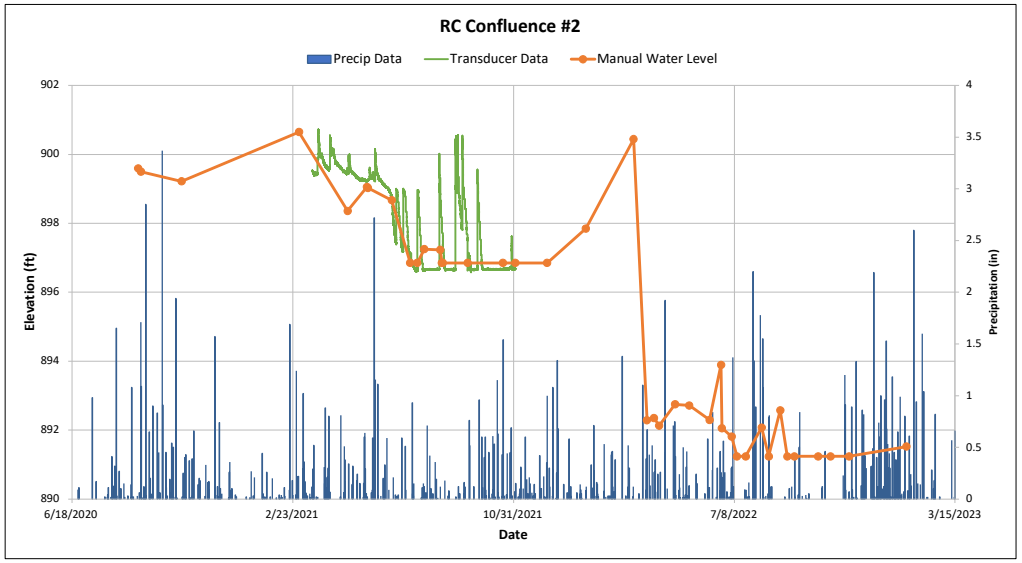


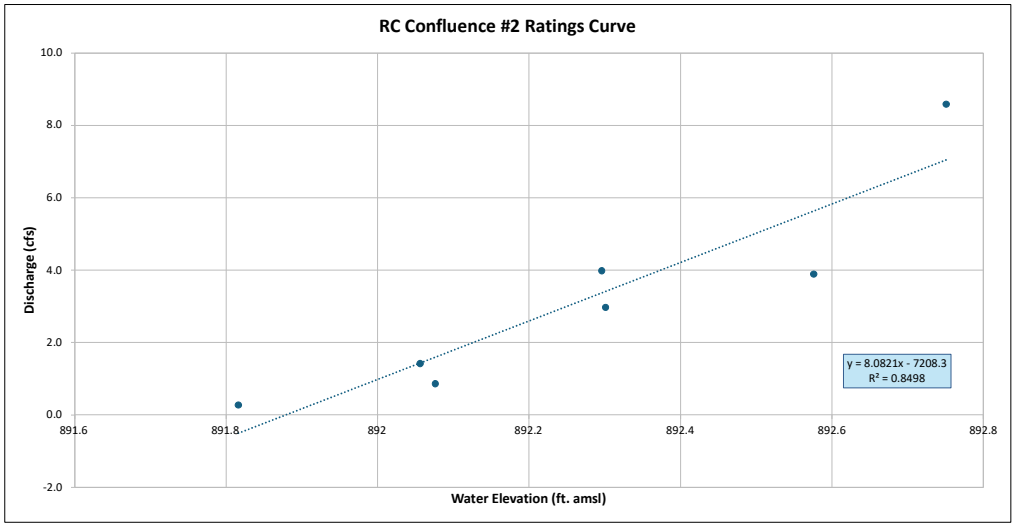


Gauge Name:	RC Confluence #2
Location Description:	

Gauge Elevations	
Year	Elevation (ft amsl)
2020	900.899
2021	900.851
2022	894.791
2023	895.236

Date	Depth to Water (ft)	Water Elevation (ft amsl)	Total Discharge (ft^3/s)	Note
9/1/2020	2.7	899.599	0.55	
9/4/2020	2.6	899.499	2.188	
10/20/2020	2.32	899.219	Flow not measured	
3/2/2021	3.8	900.651	1.776	
4/26/2021	1.51	898.361	2.971	
5/18/2021	2.21	899.061	8.588	
5/19/2021	2.18	899.031	Flow not measured	
6/15/2021	1.82	898.671	3.983	
7/6/2021	0	896.851	0.272	
7/14/2021	0	896.851	Flow not measured	DRY
7/22/2021	0.4	897.251	Flow not measured	
8/9/2021	0.38	897.231	Flow not measured	
8/11/2021	0	896.851	Flow not measured	DRY
8/12/2021	0	896.851	Flow not measured	DRY
9/9/2021	0	896.851	Flow not measured	DRY
10/19/2021	0	896.851	Flow not measured	DRY
11/2/2021	0	896.851	Flow not measured	DRY
12/8/2021	0	896.851	Flow not measured	DRY
1/21/2022	1	897.851	Flow not measured	FROZEN
3/16/2022	3.59	900.441	Flow not measured	
3/31/2022	1.5	892.291	Flow not measured	
4/8/2022	1.56	892.351	Flow not measured	
4/14/2022	1.34	892.131	Flow not measured	
5/2/2022	1.96	892.751	Flow not measured	
5/18/2022	1.48	892.716	Flow not measured	Resurveyed
6/10/2022	1.06	892.296	Flow not measured	
6/23/2022	2.66	893.896	Flow not measured	
6/24/2022	0.82	892.056	Flow not measured	
7/5/2022	0.58	891.816	Flow not measured	
7/11/2022	0	891.236	Flow not measured	DRY
7/21/2022	0	891.236	Flow not measured	DRY
8/8/2022	0.84	892.076	0.862	
8/16/2022	0	891.236	Flow not measured	DRY
8/29/2022	1.34	892.576	3.893	
9/6/2022	0	891.236	Flow not measured	DRY
9/14/2022	0	891.236	Flow not measured	DRY
10/11/2022	0	891.236	Flow not measured	DRY
10/25/2022	0	891.236	Flow not measured	DRY
11/15/2022	0	891.236	Flow not measured	DRY
1/19/2023	0.29	891.526	Flow not measured	SNOW

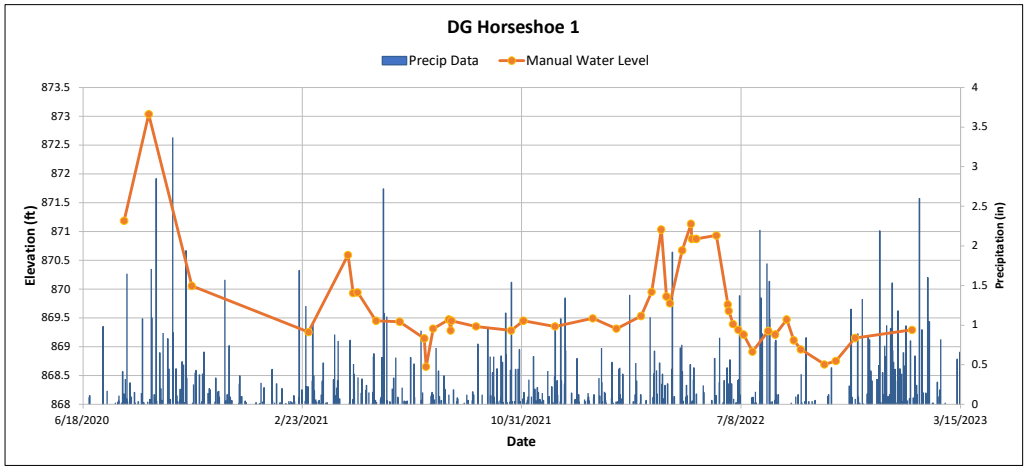


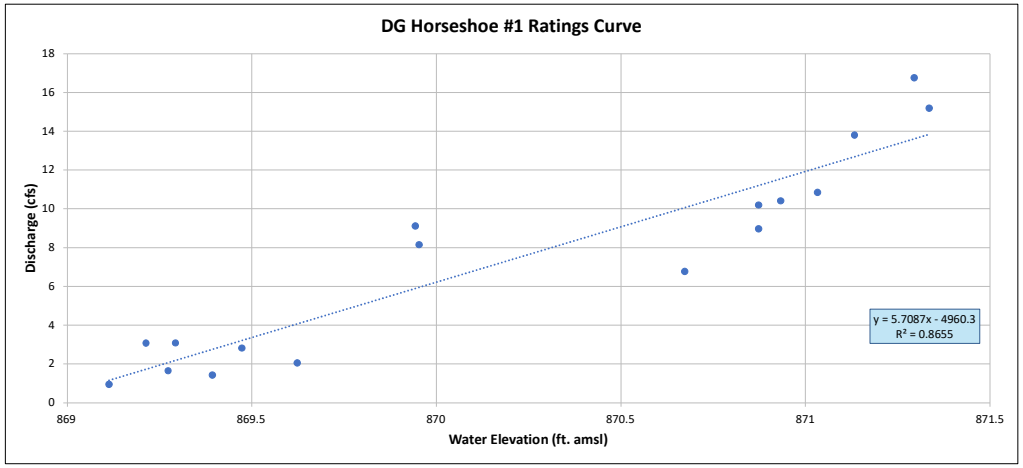


Gauge Name:	DG Horseshoe 1
Location Description:	

Gauge Elevations	
Year	Elevation (ft amsl)
2020	872.335
2021	872.253
2022	872.233
2023	872.233

Date	Depth to Water (ft)	Water Elevation (ft amsl)	Total Discharge (ft^3/s)	Note
8/4/2020	2.85	871.185	Flow not measured	
9/1/2020	4.7	873.035	Flow not measured	
10/20/2020	1.72	870.055	Flow not measured	
3/2/2021	1	869.253	Flow not measured	
4/16/2021	2.34	870.593	Flow not measured	
4/22/2021	1.68	869.933	Flow not measured	
4/27/2021	1.69	869.943	9.11	
5/18/2021	1.2	869.453	Flow not measured	
6/14/2021	1.18	869.433	Flow not measured	
7/12/2021	0.89	869.143	Flow not measured	
7/14/2021	0.4	868.653	Flow not measured	
7/22/2021	1.06	869.313	Flow not measured	
8/9/2021	1.22	869.473	Flow not measured	
8/11/2021	1.03	869.283	Flow not measured	
8/12/2021	1.2	869.453	Flow not measured	
9/9/2021	1.1	869.353	Flow not measured	
10/19/2021	1.03	869.283	Flow not measured	
11/2/2021	1.2	869.453	Flow not measured	
12/8/2021	1.1	869.353	Flow not measured	
1/20/2022	1.24	869.493	Flow not measured	
2/16/2022	1.06	869.313	Flow not measured	not frozen
3/16/2022	1.28	869.533	Flow not measured	
3/28/2022	1.72	869.953	8.151	
4/8/2022	2.8	871.033	10.85	
4/14/2022	1.64	869.873	Flow not measured	
4/18/2022	1.52	869.753	Flow not measured	
5/2/2022	2.44	870.673	6.768	
5/12/2022	2.9	871.133	13.8	
5/13/2022	2.64	870.873	8.974	
5/18/2022	2.64	870.873	10.198	
6/10/2022	2.7	870.933	Flow not measured	
6/23/2022	1.5	869.733	Flow not measured	
6/24/2022	1.39	869.623	2.052	
6/29/2022	1.16	869.393	1.428	
7/5/2022	1.06	869.293	3.087	
7/11/2022	0.98	869.213	3.074	
7/21/2022	0.68	868.913	Flow not measured	
8/8/2022	1.04	869.273	1.651	
8/16/2022	0.98	869.213	Flow not measured	
8/29/2022	1.24	869.473	2.823	
9/6/2022	0.88	869.113	0.954	
9/14/2022	0.72	868.953	Flow not measured	
10/11/2022	0.46	868.693	Flow not measured	
10/24/2022	0.52	868.753	Flow not measured	
11/15/2022	0.92	869.153	Flow not measured	
1/19/2023	1.06	869.293	Flow not measured	

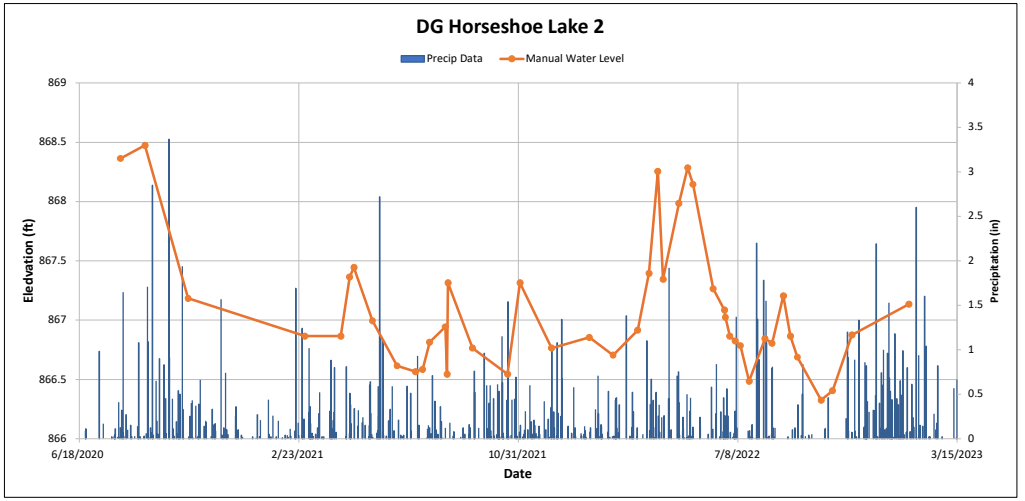


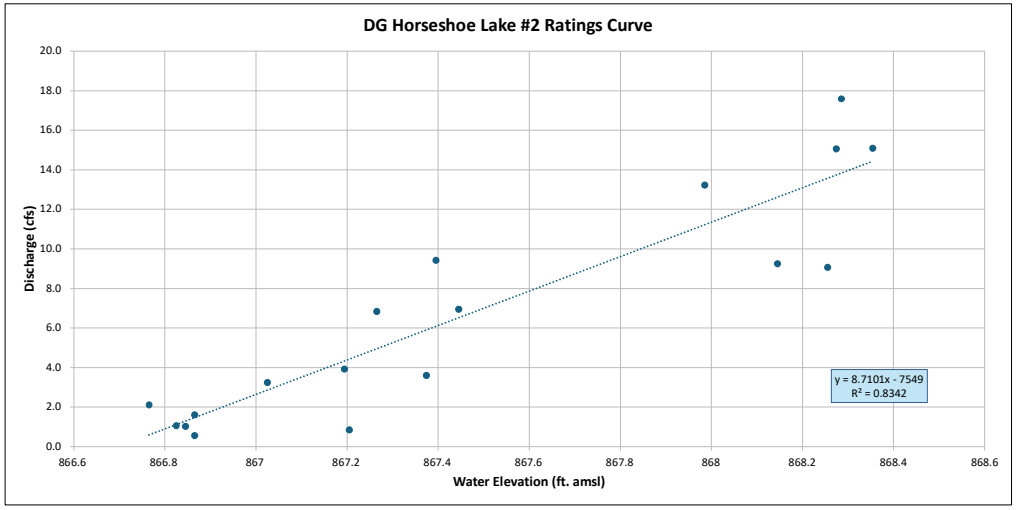


Gauge Name:	DG Horseshoe lake 2
Location Description:	

Gauge Elevations	
Year	Elevation (ft amsl)
2020	869.674
2021	869.565
2022	869.665
2023	869.665

Date	Depth to Water (ft)	Water Elevation (ft amsl)	Total Discharge (ft^3/s)	Note
8/4/2020	2.69	868.364	Flow not measured	
8/18/2020	1.7	867.374	3.6	
8/21/2020	2.6	868.274	15.064	
9/1/2020	2.8	868.474	Flow not measured	
9/9/2020	2.68	868.354	15.09	
9/17/2020	1.52	867.194	3.921	
10/20/2020	1.51	867.184	Flow not measured	
3/2/2021	1.3	866.865	Flow not measured	
4/12/2021	1.3	866.865	Flow not measured	
4/22/2021	1.8	867.365	Flow not measured	
4/27/2021	1.88	867.445	6.946	
5/18/2021	1.43	866.995	Flow not measured	
6/15/2021	1.05	866.615	Flow not measured	
7/6/2021	1	866.565	Flow not measured	
7/14/2021	1.02	866.585	Flow not measured	
7/22/2021	1.25	866.815	Flow not measured	
8/9/2021	1.38	866.945	Flow not measured	
8/11/2021	0.98	866.545	Flow not measured	
8/12/2021	1.75	867.315	Flow not measured	
9/9/2021	1.2	866.765	Flow not measured	
10/19/2021	0.98	866.545	Flow not measured	
11/2/2021	1.75	867.315	Flow not measured	
12/8/2021	1.2	866.765	Flow not measured	
1/20/2022	1.29	866.855	Flow not measured	Standing water
2/16/2022	1.14	866.705	Flow not measured	Not frozen
3/16/2022	1.35	866.915	Flow not measured	
3/29/2022	1.73	867.395	9.414	
4/8/2022	2.59	868.255	9.057	
4/14/2022	1.68	867.345	Flow not measured	
5/2/2022	2.32	867.985	13.227	
5/12/2022	2.62	868.285	17.586	
5/18/2022	2.48	868.145	9.25	
6/10/2022	1.6	867.265	6.828	
6/23/2022	1.42	867.085	Flow not measured	
6/24/2022	1.36	867.025	3.2415	
6/29/2022	1.2	866.865	0.558	
7/5/2022	1.16	866.825	1.053	
7/11/2022	1.12	866.785	2.111	
7/21/2022	0.82	866.485	Flow not measured	
8/8/2022	1.18	866.845	1.016	
8/16/2022	1.14	866.805	Flow not measured	Zero Discharge/Equipment Malfunction
8/29/2022	1.54	867.205	0.844	Zero Discharge/Equipment Malfunction
9/6/2022	1.2	866.865	1.6	
9/14/2022	1.023	866.688	Flow not measured	Zero Discharge
10/11/2022	0.66	866.325	Flow not measured	
10/24/2022	0.74	866.405	Flow not measured	
11/15/2022	1.21	866.875	Flow not measured	
1/19/2023	1.47	867.135	Flow not measured	

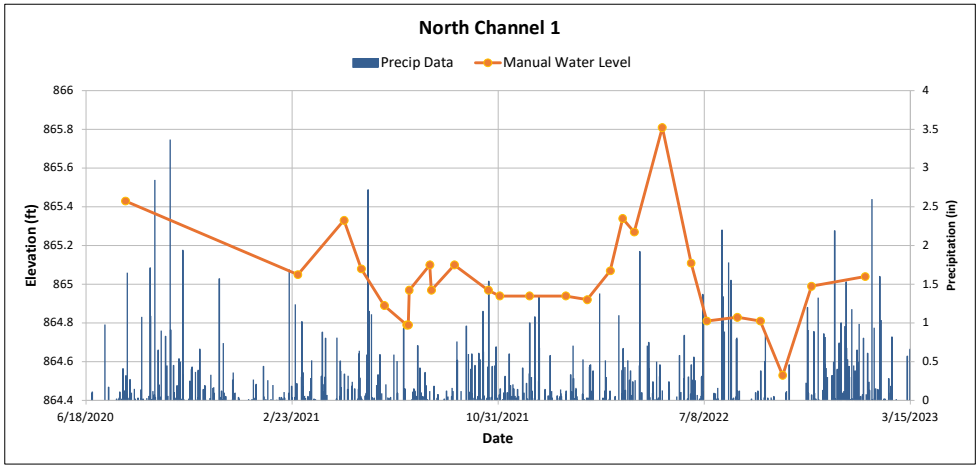


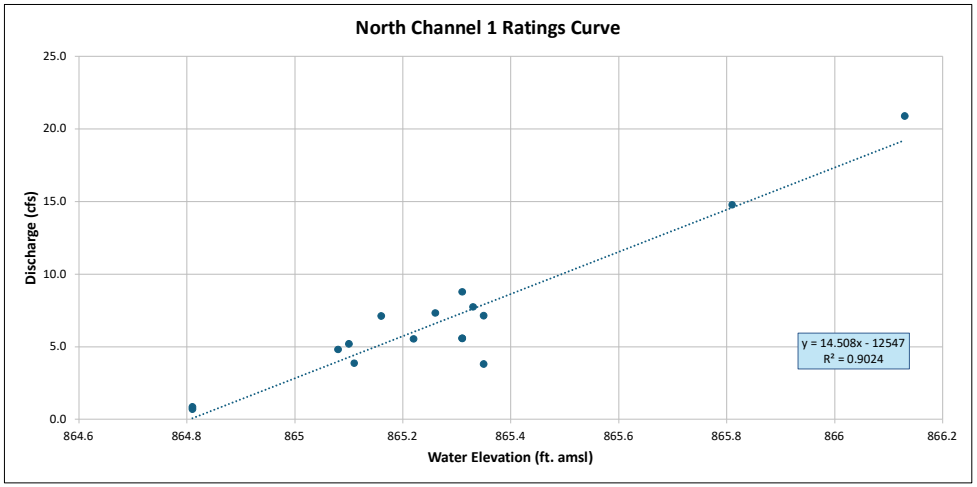


Gauge Name:	North Channel 1
Location Description:	

Gauge Elevations	
Year	Elevation (ft amsl)
2020	872.335
2021	872.253
2022	872.233
2023	872.233

Date	Depth to Water (ft)	Water Elevation (ft amsl)	Total Discharge (ft^3/s)	Note
44048	1.02	865.43	Flow not measured	
8/18/2020	0.75	865.16	7.13	
44076	0.85	865.26	7.332	
9/9/2020	1.72	866.13	20.892	
44089	0.9	865.31	5.596	
9/30/2020	0.94	865.35	7.1505	
3/2/2021	0.76	865.05	Flow not measured	
4/27/2021	1.04	865.33	Flow not measured	
5/18/2021	0.79	865.08	Flow not measured	
6/15/2021	0.6	864.89	Flow not measured	
7/12/2021	0.5	864.79	Flow not measured	
7/14/2021	0.5	864.79	Flow not measured	
7/15/2021	0.68	864.97	Flow not measured	
8/9/2021	0.81	865.1	Flow not measured	
8/11/2021	0.68	864.97	Flow not measured	
9/8/2021	0.81	865.1	Flow not measured	
10/19/2021	0.68	864.97	Flow not measured	
11/2/2021	0.65	864.94	Flow not measured	
12/8/2021	0.65	864.94	Flow not measured	
1/21/2022	0.65	864.94	Flow not measured	
2/16/2022	0.63	864.92	Flow not measured	frozen, flowing
3/16/2022	0.78	865.07	Flow not measured	
3/31/2022	1.03	865.34	Flow not measured	
4/14/2022	0.96	865.27	Flow not measured	
5/18/2022	1.5	865.81	Flow not measured	
6/22/2022	0.8	865.11	Flow not measured	
7/11/2022	0.5	864.81	Flow not measured	
8/17/2022	0.52	864.83	Flow not measured	
9/14/2022	0.5	864.81	Flow not measured	
10/11/2022	0.22	864.53	Flow not measured	
11/15/2022	0.68	864.99	Flow not measured	
1/19/2023	0.73	865.04	Flow not measured	

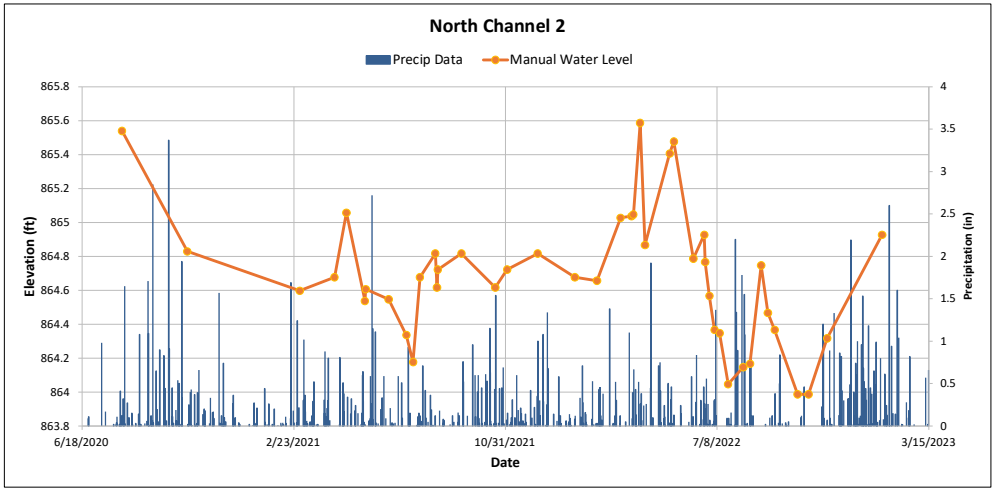


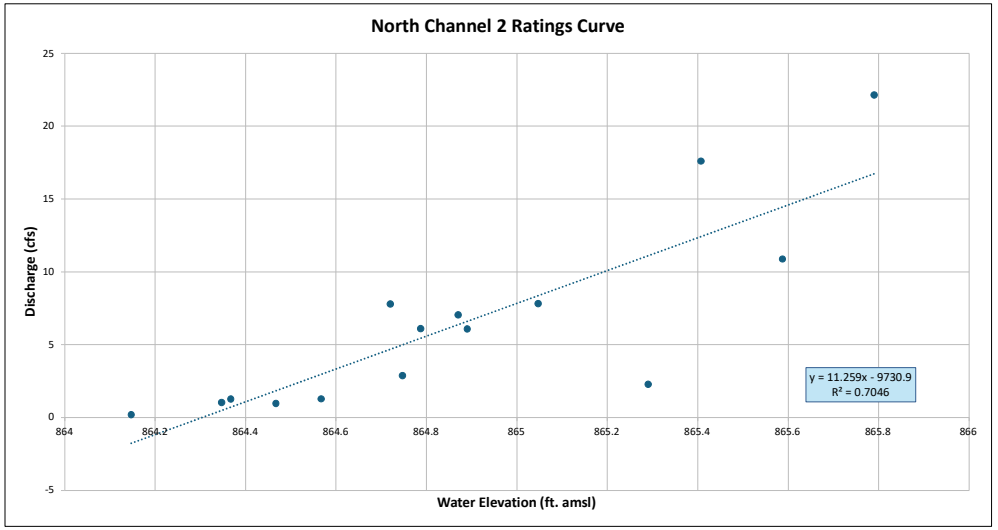


Gauge Name:	North Channel 2
Location Description:	

Gauge Elevations	
Year	Elevation (ft amsl)
2020	867.97
2021	867.997
2022	867.987
2023	867.987

Date	Depth to Water (ft)	Water Elevation (ft amsl)	Total Discharge (ft^3/s)	Note
8/4/2020	1.57	865.54	Flow not measured	
9/2/2020	0.75	864.72	7.792	
9/9/2020	1.82	865.79	22.14	
9/17/2020	0.92	864.89	6.08	
9/30/2020	0.9	864.87	7.0395	
10/7/2020	1.32	865.29	2.2785	
10/20/2020	0.86	864.83	Flow not measured	
3/2/2021	0.6	864.597	Flow not measured	
4/12/2021	0.68	864.677	Flow not measured	
4/26/2021	1.06	865.057	Flow not measured	
5/18/2021	0.54	864.537	Flow not measured	
5/19/2021	0.61	864.607	Flow not measured	
6/15/2021	0.55	864.547	Flow not measured	
7/6/2021	0.34	864.337	Flow not measured	
7/14/2021	0.18	864.177	Flow not measured	
7/22/2021	0.68	864.677	Flow not measured	
8/9/2021	0.82	864.817	Flow not measured	
8/11/2021	0.62	864.617	Flow not measured	
8/12/2021	0.725	864.722	Flow not measured	
9/9/2021	0.82	864.817	Flow not measured	
10/19/2021	0.62	864.617	Flow not measured	
11/2/2021	0.725	864.722	Flow not measured	
12/8/2021	0.82	864.817	Flow not measured	
1/21/2022	0.68	864.677	Flow not measured	Frozen
2/16/2022	0.66	864.657	Flow not measured	Frozen, Flowing
3/16/2022	1.03	865.027	Flow not measured	
3/29/2022	1.05	865.037	Flow not measured	
3/31/2022	1.06	865.047	7.82	
4/8/2022	1.6	865.587	10.88	
4/14/2022	0.88	864.867	Flow not measured	
5/13/2022	1.42	865.407	17.601	
5/18/2022	1.49	865.477	Flow not measured	
6/10/2022	0.8	864.787	6.101	
6/23/2022	0.94	864.927	Flow not measured	
6/24/2022	0.78	864.767	Flow not measured	
6/29/2022	0.58	864.567	1.276	
7/5/2022	0.38	864.367	1.272	
7/11/2022	0.36	864.347	1.034	
7/21/2022	0.06	864.047	Flow not measured	
8/8/2022	0.16	864.147	0.194	
8/16/2022	0.18	864.167	Flow not measured	
8/29/2022	0.76	864.747	2.873	
9/6/2022	0.48	864.467	0.972	
9/14/2022	0.38	864.367	Flow not measured	
10/11/2022	0	863.987	Flow not measured	DRY
10/24/2022	0	863.987	Flow not measured	DRY
11/15/2022	0.33	864.317	Flow not measured	
1/19/2023	0.94	864.927	Flow not measured	

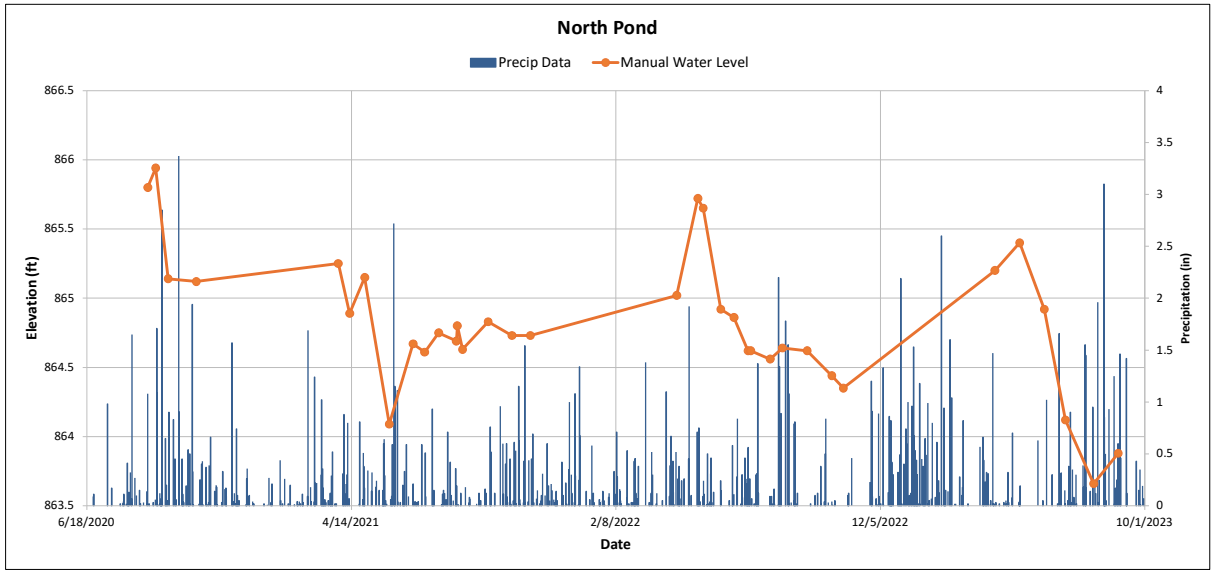




Gauge Name:	North Pond
Location Description:	

Gauge Elevations	
Year	Elevation (ft amsl)
2020	863.94
2021	863.65
2022	862.83
2022	863.02
2023	863.5

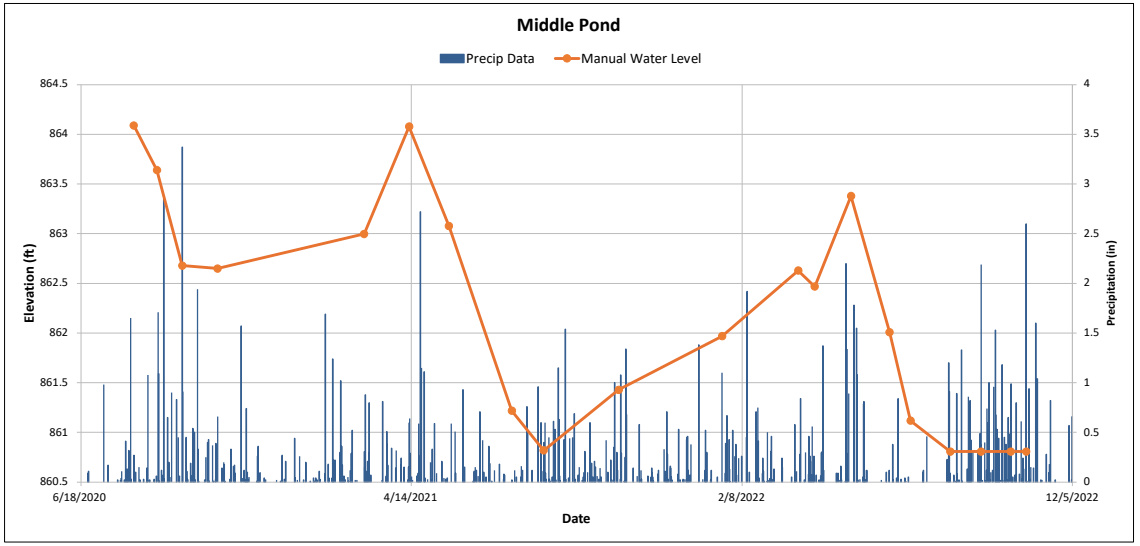
Date	Depth to Water (ft)	Water Elevation (ft amsl)
8/26/2020	1.86	865.8
9/4/2020	2	865.94
9/18/2020	1.2	865.14
10/20/2020	1.18	865.12
3/30/2021	1.6	865.25
4/12/2021	1.24	864.89
4/29/2021	1.5	865.15
5/27/2021	0.44	864.09
6/23/2021	1.02	864.67
7/6/2021	1.78	864.61
7/22/2021	1.92	864.75
8/11/2021	1.86	864.69
8/12/2021	1.97	864.8
8/18/2021	1.8	864.63
9/16/2021	2	864.83
10/13/2021	1.9	864.73
11/3/2021	1.9	864.73
4/18/2022	2	865.02
5/12/2022	2.7	865.72
5/18/2022	2.63	865.65
6/7/2022	1.9	864.92
6/22/2022	1.84	864.86
7/8/2022	1.6	864.62
7/11/2022	1.6	864.62
8/2/2022	1.54	864.56
8/16/2022	1.62	864.64
9/13/2022	1.6	864.62
10/11/2022	1.42	864.44
10/24/2022	1.33	864.35
4/14/2023	1.7	865.2
5/12/2023	1.9	865.4
6/9/2023	1.42	864.92
7/3/2023	0.62	864.12
8/4/2023	0.16	863.66
9/1/2023	0.38	863.88



Gauge Name:	Middle Pond
Location Description:	

Gauge Elevations	
Year	Elevation (ft amsl)
2020	865.059
2021	864.818
2022	864.808
2023	864.808

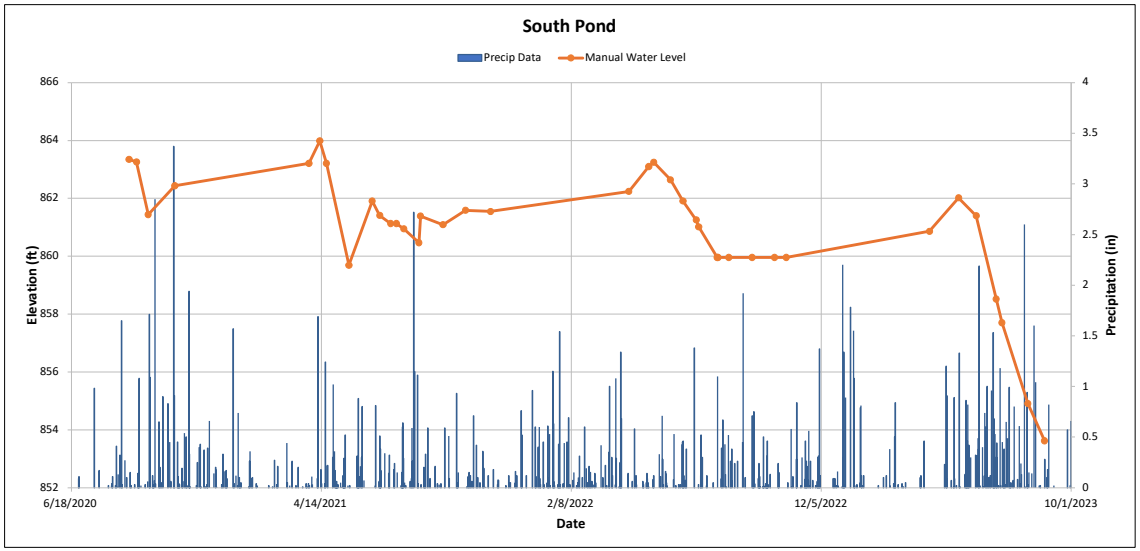
Date	Depth to Water (ft)	Water Elevation (ft amsl)	Note
8/5/2020	3.03	864.089	
8/26/2020	2.58	863.639	
9/18/2020	1.62	862.679	
10/20/2020	1.59	862.649	
3/2/2021	2.18	862.998	
4/12/2021	3.26	864.078	
5/18/2021	2.26	863.078	
7/14/2021	0.4	861.218	
8/12/2021	0	860.818	DRY
10/19/2021	0.61	861.428	
1/21/2022	1.15	861.968	Frozen
3/31/2022	1.82	862.628	
4/15/2022	1.66	862.468	
5/18/2022	2.57	863.378	
6/22/2022	1.2	862.008	
7/11/2022	0.31	861.118	
8/16/2022	0	860.808	DRY
9/13/2022	0	860.808	DRY
10/10/2022	0	860.808	DRY
10/24/2022	0	860.808	DRY



Gauge Name:	South Pond
Location Description:	

Gauge Elevations	
Year	Elevation (ft amsl)
2020	855.06
2021	858.11
2021	855.53
2022	859.96
2023	855.06

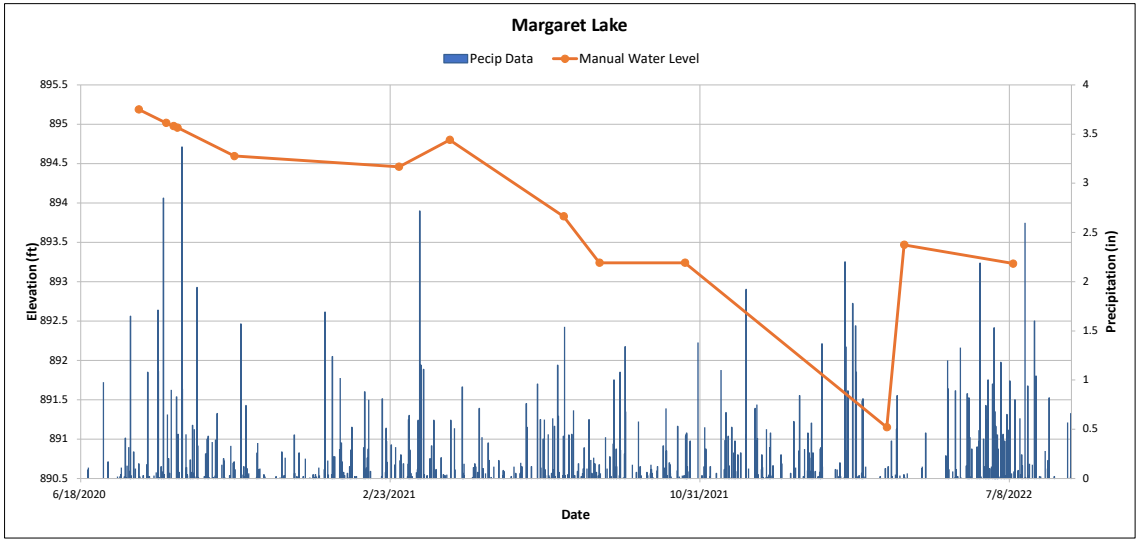
Date	Depth to Water (ft)	Water Elevation (ft amsl)	Note
8/26/2020	8.29	863.35	
9/4/2020	8.2	863.26	
9/18/2020	6.38	861.44	
10/20/2020	7.38	862.44	
3/30/2021	5.1	863.21	
4/12/2021	5.88	863.99	
4/20/2021	5.1	863.21	
5/17/2021	4.16	859.69	
6/14/2021	3.8	861.91	
6/23/2021	3.3	861.41	
7/6/2021	5.6	861.13	
7/13/2021	5.6	861.13	
7/22/2021	5.42	860.95	
8/9/2021	4.94	860.47	
8/11/2021	5.86	861.39	
9/7/2021	5.56	861.09	
10/4/2021	6.06	861.59	
11/3/2021	6.02	861.55	
4/18/2022	2.28	862.24	
5/12/2022	3.14	863.1	
5/18/2022	3.29	863.25	
6/7/2022	2.68	862.64	
6/22/2022	1.95	861.91	
7/8/2022	1.3	861.26	
7/11/2022	1.06	861.02	
8/2/2022	0	859.96	DRY
8/3/2022	0	859.96	DRY
8/16/2022	0	859.96	DRY
9/13/2022	0	859.96	DRY
10/10/2022	0	859.96	DRY
10/24/2022	0	859.96	DRY
4/14/2023	5.8	860.86	
5/19/2023	6.96	862.02	
6/9/2023	6.34	861.4	
7/3/2023	3.46	858.52	
7/10/2023	5	857.7	
8/10/2023		854.91	
8/30/2023		853.62	



Gauge Name:	Margaret Lake
Location Description:	

Gauge Elevations	
Year	Elevation (ft amsl)
2020	897.717
2021	897.5
2022	897.15
2023	897.15

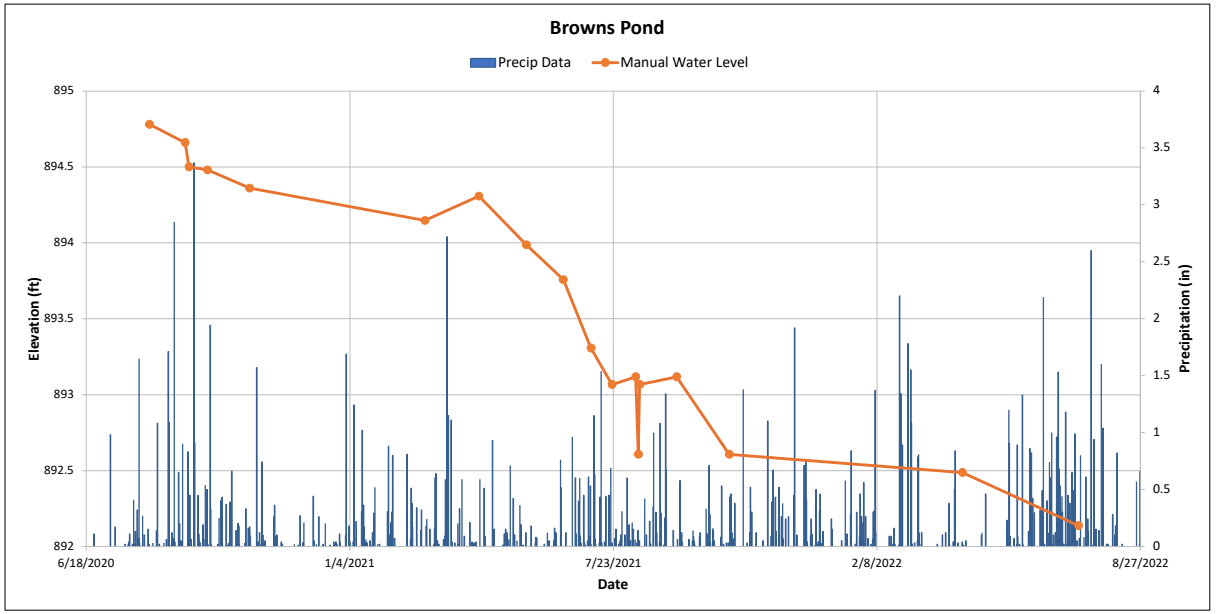
Date	Depth to Water (ft)	Water Elevation (ft amsl)	Note
8/4/2020	3.47	895.187	
8/26/2020	3.3	895.017	
9/1/2020	3.26	894.977	
9/4/2020	3.24	894.957	
10/20/2020	2.88	894.597	
3/2/2021	2.96	894.46	
4/12/2021	3.3	894.8	
7/13/2021	2.33	893.83	
8/11/2021	1.74	893.24	
10/19/2021	1.74	893.24	
3/31/2022	0	891.15	Dry/Frozen
4/14/2022	2.32	893.47	
7/11/2022	2.08	893.23	



Gauge Name:	Browns Pond
Location Description:	

Gauge Elevations	
Year	Elevation (ft amsl)
2020	896.78
2021	896.507
2022	896.507

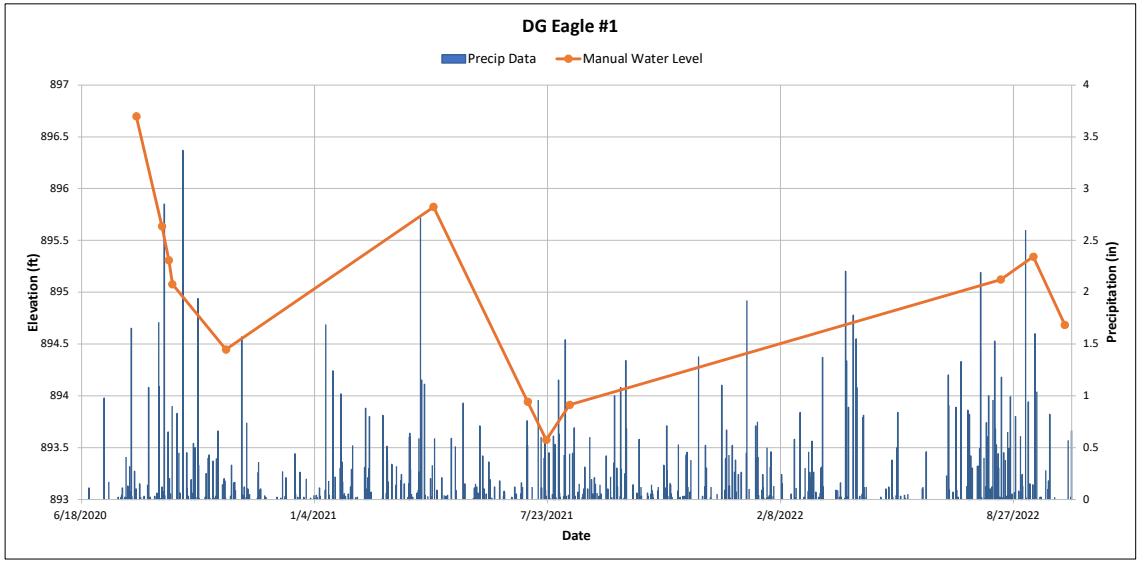
Date	Depth to Water (ft)	Water Elevation (ft amsl)
8/5/2020	4	894.78
9/1/2020	3.88	894.66
9/4/2020	3.72	894.5
9/18/2020	3.7	894.48
10/20/2020	3.58	894.36
3/2/2021	3.64	894.147
4/12/2021	3.8	894.307
5/18/2021	3.48	893.987
6/15/2021	3.25	893.757
7/6/2021	2.8	893.307
7/22/2021	2.56	893.067
8/9/2021	2.61	893.117
8/11/2021	2.1	892.607
8/12/2021	2.56	893.067
9/9/2021	2.61	893.117
10/19/2021	2.1	892.607
4/14/2022	1.98	892.487
7/11/2022	1.63	892.137



Gauge Name:	DC Eagle #1
Location Description:	

Gauge Elevations	
Year	Elevation (ft amsl)
2020	897.297
2021	897.253
2022	897.253

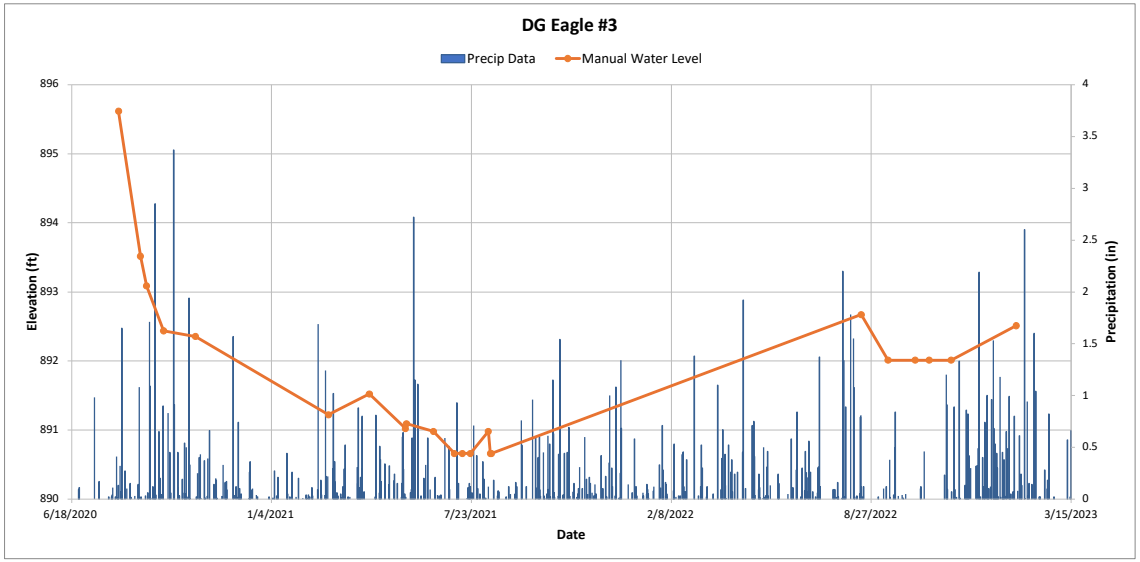
Date	Depth to Water (ft)	Water Elevation (ft amsl)	Note
8/4/2020	3.4	896.697	
8/26/2020	2.34	895.637	
9/1/2020	2.01	895.307	
9/4/2020	1.78	895.077	
10/20/2020	1.15	894.447	
4/16/2021	2.57	895.823	
7/6/2021	0.69	893.943	
7/22/2021	0.32	893.573	
8/11/2021	0.66	893.913	
8/16/2022	0.44	895.123	
9/13/2022	0.66	895.343	
10/10/2022	0.00	894.683	DRY



Gauge Name:	DC Eagle #3
Location Description:	

Gauge Elevations	
Year	Elevation (ft amsl)
2020	897.956
2021	896.661
2022	898.011
2023	898.011

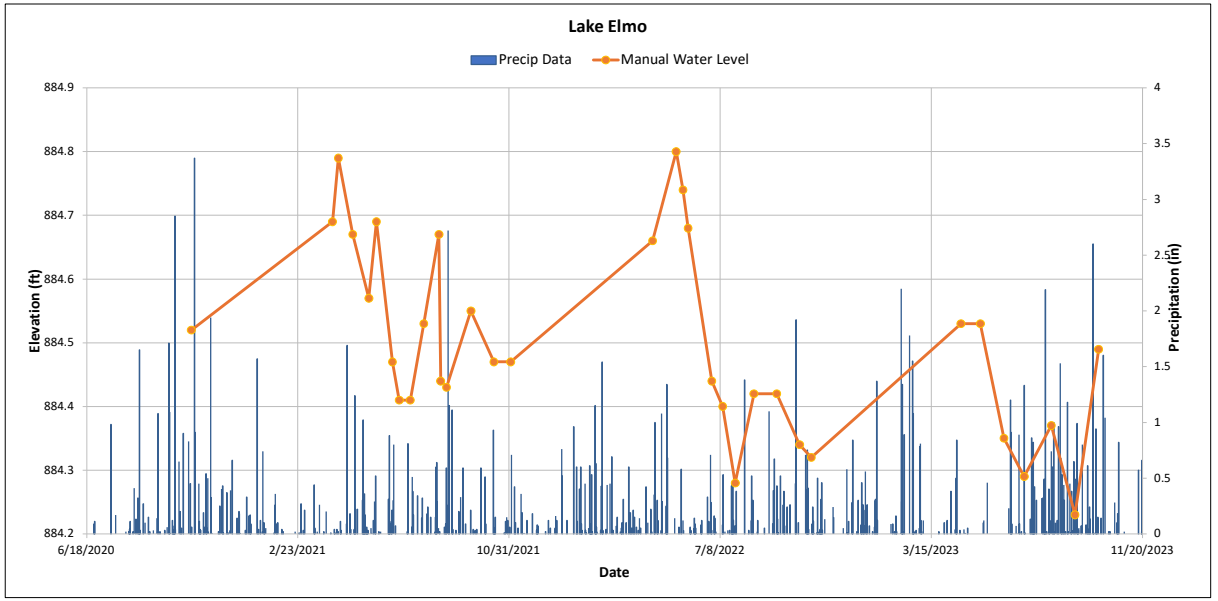
Date	Depth to Water (ft)	Water Elevation (ft amsl)	Note
8/4/2020	3.66	895.616	
8/26/2020	1.56	893.516	
9/1/2020	1.13	893.086	
9/18/2020	0.48	892.436	
10/20/2020	0.4	892.356	
3/2/2021	0.56	891.221	
4/12/2021	0.86	891.521	
5/18/2021	0.36	891.021	
5/19/2021	0.43	891.091	
6/15/2021	0.32	890.981	
7/6/2021	0	890.661	DRY
7/14/2021	0	890.661	DRY
7/22/2021	0	890.661	DRY
8/9/2021	0.32	890.981	
8/11/2021	0	890.661	
8/12/2021	0	890.661	DRY
8/17/2022	0.66	892.671	
9/13/2022	0	892.011	DRY
10/10/2022	0	892.011	DRY
10/24/2022	0	892.011	DRY
11/15/2022	0	892.011	DRY
1/19/2023	0.5	892.511	SNOW



Gauge Name:	Lake Elmo
Location Description:	

Gauge Elevations	
Year	Elevation (ft amsl)
2020	882.94
2021	883.09
2022	879.42
2023	875.83

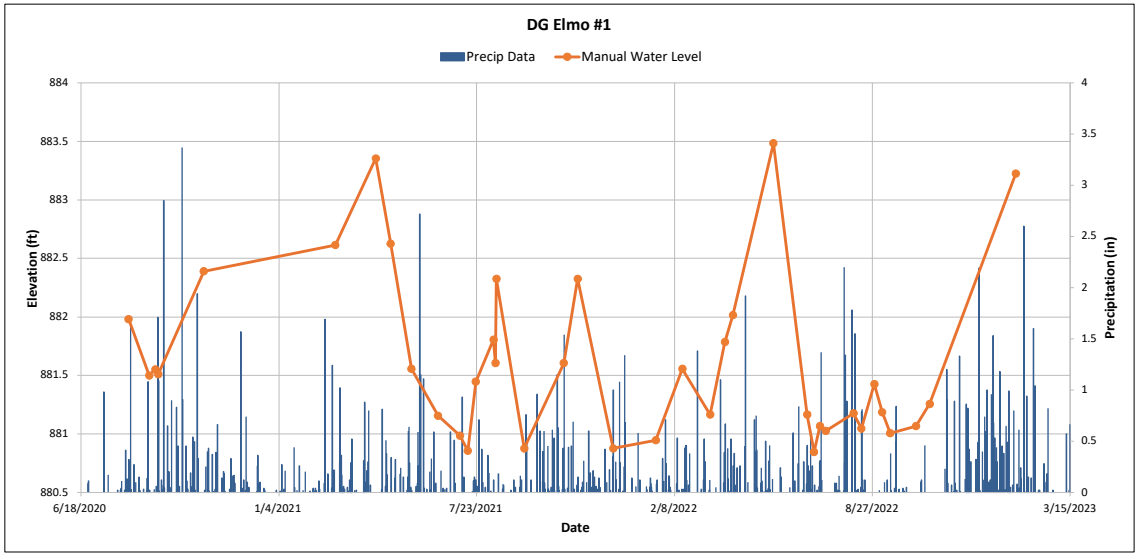
Date	Depth to Water (ft)	Water Elevation (ft amsl)
10/20/2020	1.58	884.52
4/5/2021	1.6	884.69
4/12/2021	1.7	884.79
4/29/2021	1.58	884.67
5/18/2021	1.48	884.57
5/27/2021	1.6	884.69
6/15/2021	1.38	884.47
6/23/2021	1.32	884.41
7/6/2021	1.32	884.41
7/22/2021	1.44	884.53
8/9/2021	1.58	884.67
8/11/2021	1.35	884.44
8/18/2021	1.34	884.43
9/16/2021	1.46	884.55
10/13/2021	1.38	884.47
11/2/2021	1.38	884.47
4/19/2022	5.24	884.66
5/17/2022	5.38	884.8
5/25/2022	5.32	884.74
5/31/2022	5.26	884.68
6/28/2022	5.02	884.44
7/11/2022	4.98	884.4
7/26/2022	4.86	884.28
8/17/2022	5	884.42
9/13/2022	5	884.42
10/10/2022	4.92	884.34
10/24/2022	4.9	884.32
4/19/2023	8.7	884.53
5/12/2023	8.7	884.53
6/9/2023	8.52	884.35
7/3/2023	8.46	884.29
8/4/2023	8.54	884.37
9/1/2023	8.4	884.23
9/29/2023	8.66	884.49



Gauge Name:	DG Elmo #1
Location Description:	

Gauge Elevations	
Year	Elevation (ft amsl)
2020	884.49
2021	884.355
2022	884.385
2023	884.385

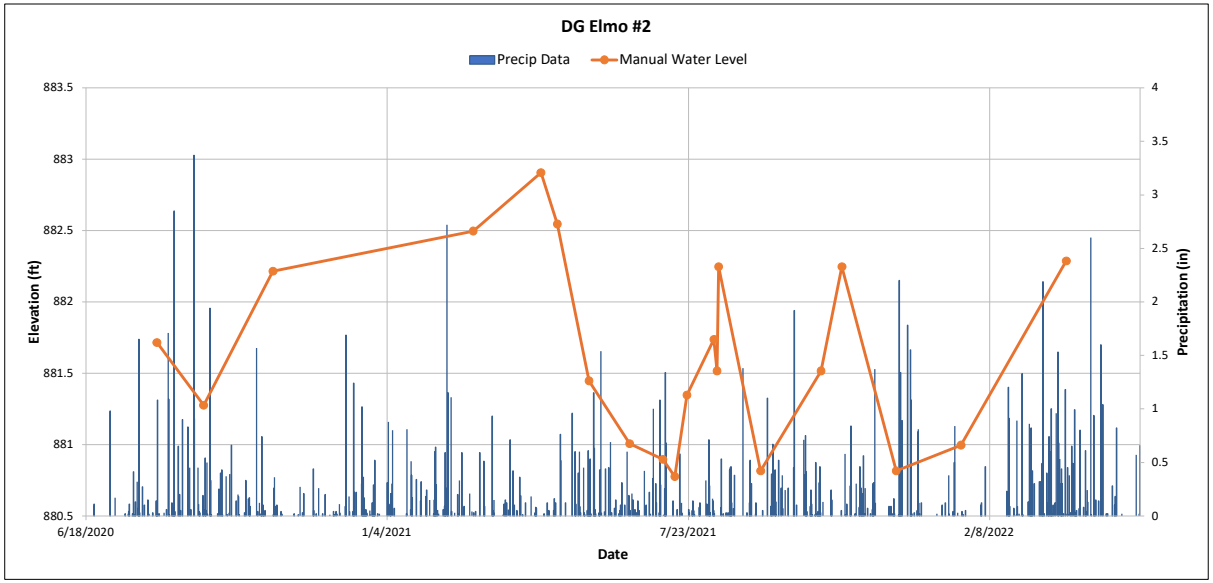
Date	Depth to Water (ft)	Water Elevation (ft amsl)	Note
8/5/2020	1.49	881.98	
8/26/2020	1.01	881.5	
9/1/2020	1.06	881.55	
9/4/2020	1.02	881.51	
10/20/2020	1.9	882.39	
3/2/2021	2.26	882.615	
4/12/2021	3	883.355	
4/27/2021	2.27	882.625	
5/18/2021	1.2	881.555	
6/14/2021	0.8	881.155	
7/6/2021	0.63	880.985	
7/14/2021	0.5	880.855	
7/22/2021	1.09	881.445	
8/9/2021	1.45	881.805	
8/11/2021	1.25	881.605	
8/12/2021	1.97	882.325	
9/9/2021	0.52	880.875	
10/19/2021	1.25	881.605	
11/2/2021	1.97	882.325	
12/8/2021	0.52	880.875	
1/20/2022	0.59	880.945	
2/16/2022	1.2	881.555	No ice
3/16/2022	0.81	881.165	
3/31/2022	1.4	881.785	
4/8/2022	1.63	882.015	
5/19/2022	3.1	883.485	
6/22/2022	0.78	881.165	
6/29/2022	0.46	880.845	
7/5/2022	0.68	881.065	
7/11/2022	0.64	881.025	
8/8/2022	0.79	881.175	
8/16/2022	0.66	881.045	
8/29/2022	1.04	881.425	
9/6/2022	0.8	881.185	
9/14/2022	0.62	881.005	
10/10/2022	0.68	881.065	
10/24/2022	0.87	881.255	
1/19/2023	2.84	883.225	



Gauge Name:	DG Elmo #2
Location Description:	

Gauge Elevations	
Year	Elevation (ft amsl)
2020	884.515
2021	884.496
2022	884.496

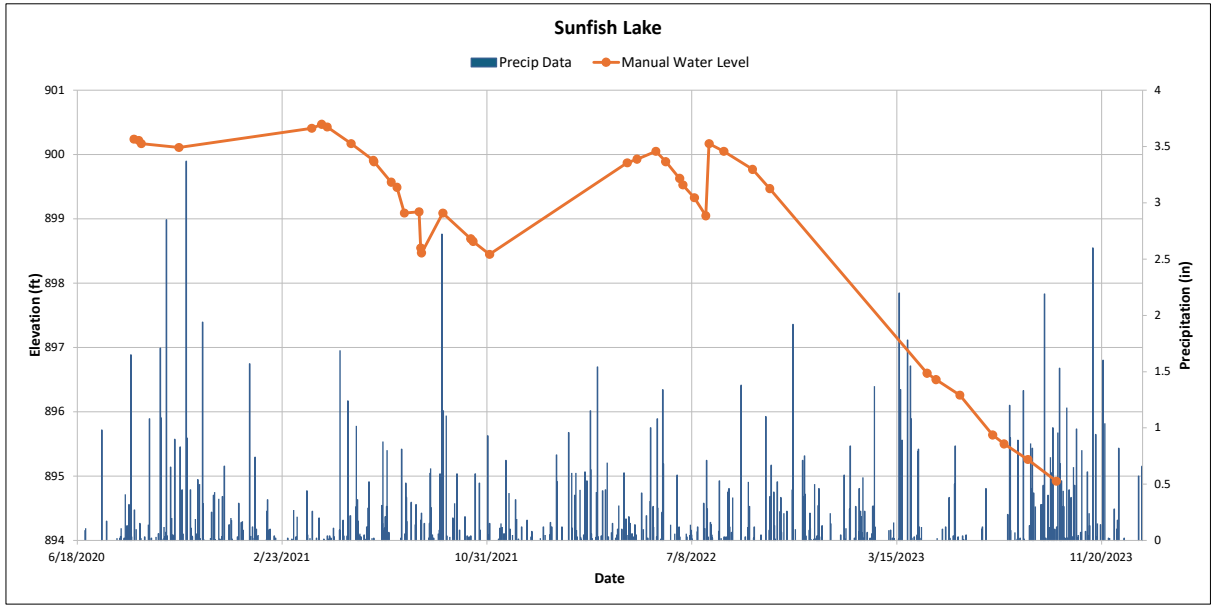
Date	Depth to Water (ft)	Water Elevation (ft amsl)
8/4/2020	1.2	881.715
9/4/2020	0.76	881.275
10/20/2020	1.7	882.215
3/2/2021	2	882.496
4/16/2021	2.41	882.906
4/27/2021	2.05	882.546
5/18/2021	0.95	881.446
6/14/2021	0.51	881.006
7/6/2021	0.4	880.896
7/14/2021	0.28	880.776
7/22/2021	0.85	881.346
8/9/2021	1.24	881.736
8/11/2021	1.02	881.516
8/12/2021	1.75	882.246
9/9/2021	0.32	880.816
10/19/2021	1.02	881.516
11/2/2021	1.75	882.246
12/8/2021	0.32	880.816
1/20/2022	0.5	880.996
3/31/2022	1.79	882.286



Gauge Name:	Sunfish Lake
Location Description:	

Gauge Elevations	
Year	Elevation (ft amsl)
2020	894.17
2021	898.07
2022	891

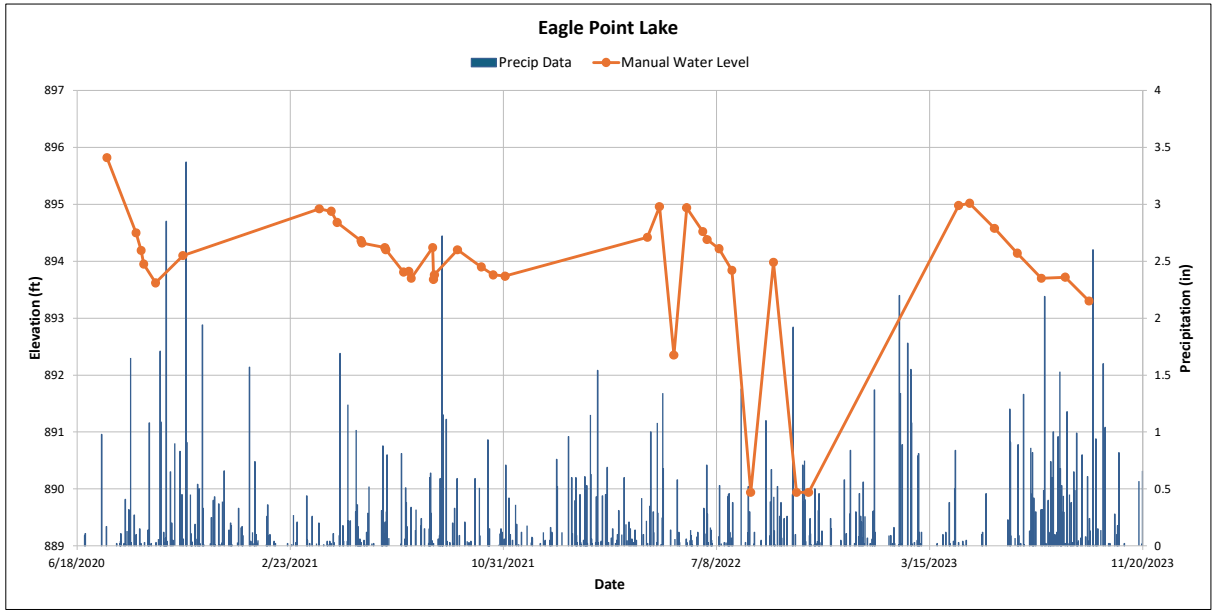
Date	Depth to Water (ft)	Water Elevation (ft amsl)
8/26/2020	6.07	900.24
9/1/2020	6.05	900.22
9/4/2020	6	900.17
10/20/2020	5.94	900.11
3/31/2021	2.34	900.41
4/12/2021	2.4	900.47
4/19/2021	2.36	900.43
5/18/2021	2.1	900.17
6/14/2021	1.84	899.91
6/15/2021	1.82	899.89
7/6/2021	1.5	899.57
7/13/2021	1.42	899.49
7/22/2021	1.02	899.09
8/9/2021	1.04	899.11
8/11/2021	0.48	898.55
8/12/2021	0.4	898.47
9/7/2021	1.02	899.09
10/11/2021	0.62	898.69
10/14/2021	0.58	898.65
11/3/2021	0.38	898.45
4/20/2022	1.8	899.87
5/2/2022	1.86	899.93
5/25/2022	1.98	900.05
6/6/2022	1.82	899.89
6/23/2022	1.56	899.63
6/27/2022	1.46	899.53
7/11/2022	1.26	899.33
7/25/2022	0.98	899.05
7/29/2022	2.1	900.17
8/16/2022	1.98	900.05
9/20/2022	1.7	899.77
10/11/2022	1.4	899.47
4/21/2023	5.6	896.6
5/2/2023	5.5	896.5
5/31/2023	5.26	896.26
7/10/2023	4.64	895.64
7/24/2023	4.5	895.5
8/22/2023	4.26	895.26
9/26/2023	3.92	894.92



Gauge Name:	Eagle Point Lake
Location Description:	

Gauge Elevations	
Year	Elevation (ft amsl)
2020	893.34
2021	893.12
2022	889.02
2022	889.94
2023	892.48

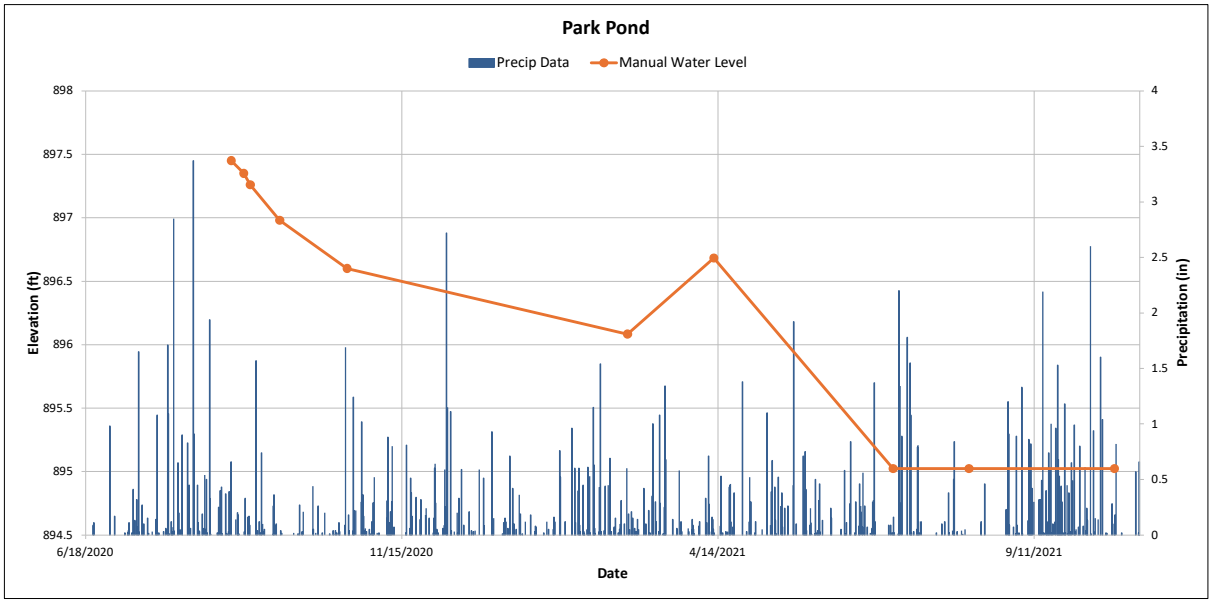
Date	Depth to Water (ft)	Water Elevation (ft amsl)
7/23/2020	2.48	895.82
8/26/2020	1.16	894.5
9/1/2020	0.85	894.19
9/4/2020	0.61	893.95
9/18/2020	0.28	893.62
10/20/2020	0.76	894.1
3/29/2021	1.8	894.92
4/12/2021	1.76	894.88
4/19/2021	1.56	894.68
5/17/2021	1.24	894.36
5/18/2021	1.2	894.32
6/14/2021	1.12	894.24
6/15/2021	1.08	894.2
7/6/2021	0.69	893.81
7/12/2021	0.7	893.82
7/15/2021	0.58	893.7
8/9/2021	1.12	894.24
8/10/2021	0.56	893.68
8/11/2021	0.64	893.76
9/7/2021	1.08	894.2
10/5/2021	0.78	893.9
10/19/2021	0.64	893.76
11/2/2021	0.62	893.74
4/18/2022	5.4	894.42
5/2/2022	5.94	894.96
5/19/2022	2.41	892.35
6/3/2022	5	894.94
6/22/2022	4.58	894.52
6/27/2022	4.44	894.38
7/11/2022	4.28	894.22
7/26/2022	3.9	893.84
8/17/2022	0	889.94
9/13/2022	4.04	893.98
10/10/2022	0	889.94
10/24/2022	0	889.94
4/18/2023	2.5	894.98
5/1/2023	2.54	895.02
5/30/2023	2.1	894.58
6/26/2023	1.66	894.14
7/24/2023	1.22	893.7
8/21/2023	1.24	893.72
9/18/2023	0.82	893.3



Gauge Name:	Park Pond
Location Description:	

Gauge Elevations	
Year	Elevation (ft amsl)
2020	899.06
2021	899.023

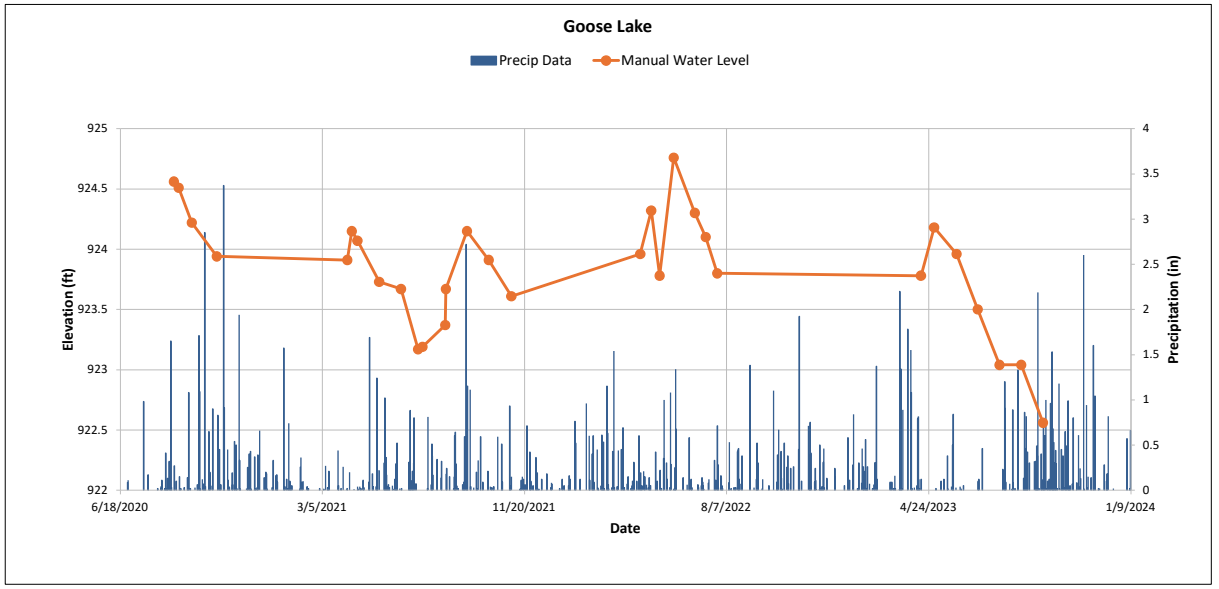
Date	Depth to Water (ft)	Water Elevation (ft amsl)
8/26/2020	2.39	897.45
9/1/2020	2.29	897.35
9/4/2020	2.2	897.26
9/18/2020	1.92	896.98
10/20/2020	1.54	896.6
3/2/2021	1.06	896.083
4/12/2021	1.66	896.683
7/6/2021	0	895.023
8/11/2021	0	895.023
10/19/2021	0	895.023



Gauge Name:	Goose Lake
Location Description:	

Gauge Elevations	
Year	Elevation (ft amsl)
2020	919.26
2021	922.31
2022	911.16
2022	912.3
2023	921.34

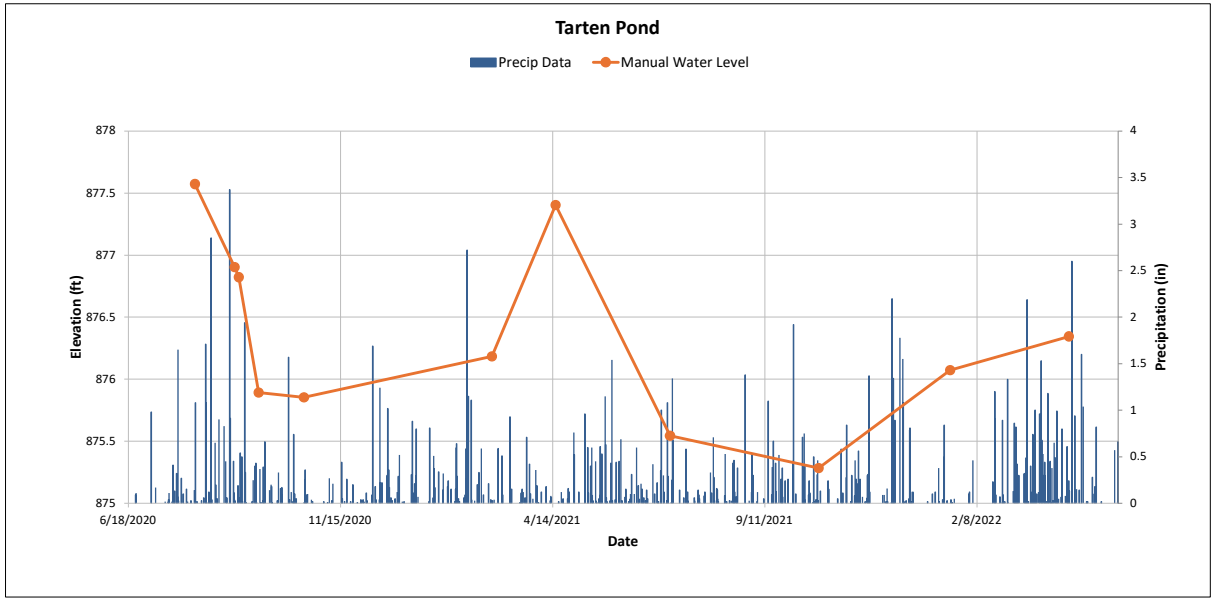
Date	Depth to Water (ft)	Water Elevation (ft amsl)
8/26/2020	5.3	924.56
9/1/2020	5.25	924.51
9/18/2020	4.96	924.22
10/20/2020	4.68	923.94
4/6/2021	1.6	923.91
4/12/2021	1.84	924.15
4/19/2021	1.76	924.07
5/17/2021	1.42	923.73
6/14/2021	1.36	923.67
7/6/2021	0.86	923.17
7/12/2021	0.88	923.19
8/10/2021	1.06	923.37
8/11/2021	1.36	923.67
9/7/2021	1.84	924.15
10/5/2021	1.6	923.91
11/3/2021	1.3	923.61
4/18/2022	12.8	923.96
5/2/2022	13.16	924.32
5/13/2022	12.62	923.78
5/31/2022	12.46	924.76
6/27/2022	12	924.3
7/11/2022	11.8	924.1
7/26/2022	11.5	923.8
4/14/2023	2.44	923.78
5/1/2023	2.84	924.18
5/30/2023	2.62	923.96
6/26/2023	2.16	923.5
7/24/2023	1.7	923.04
8/21/2023	1.7	923.04
9/18/2023	1.22	922.56



Gauge Name:	Tarten Pond
Location Description:	

Gauge Elevations	
Year	Elevation (ft amsl)
2020	879.013
2021	878.684
2022	878.585

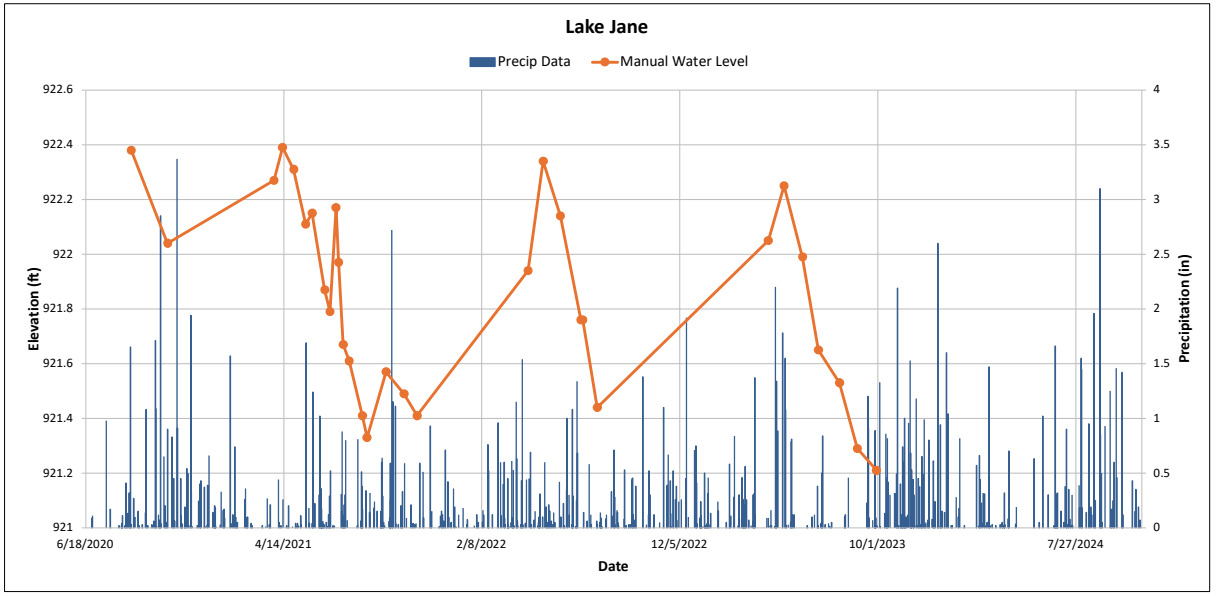
Date	Depth to Water (ft)	Water Elevation (ft amsl)
8/26/2020	5.3	924.56
9/1/2020	5.25	924.51
9/18/2020	4.96	924.22
10/20/2020	4.68	923.94
4/6/2021	1.6	923.91
4/12/2021	1.84	924.15
4/19/2021	1.76	924.07
5/17/2021	1.42	923.73
6/14/2021	1.36	923.67
7/6/2021	0.86	923.17
7/12/2021	0.88	923.19
8/10/2021	1.06	923.37
8/11/2021	1.36	923.67
9/7/2021	1.84	924.15
10/5/2021	1.6	923.91
11/3/2021	1.3	923.61
4/18/2022	12.8	923.96
5/2/2022	13.16	924.32
5/13/2022	12.62	923.78
5/31/2022	12.46	924.76
6/27/2022	12	924.3
7/11/2022	11.8	924.1
7/26/2022	11.5	923.8
4/14/2023	2.44	923.78
5/1/2023	2.84	924.18
5/30/2023	2.62	923.96
6/26/2023	2.16	923.5
7/24/2023	1.7	923.04
8/21/2023	1.7	923.04
9/18/2023	1.22	922.56



Gauge Name:	Lake Jane
Location Description:	

Gauge Elevations	
Year	Elevation (ft amsl)
2020	921.32
2021	921.17
2021	920.81
2022	920.64
2023	920.25

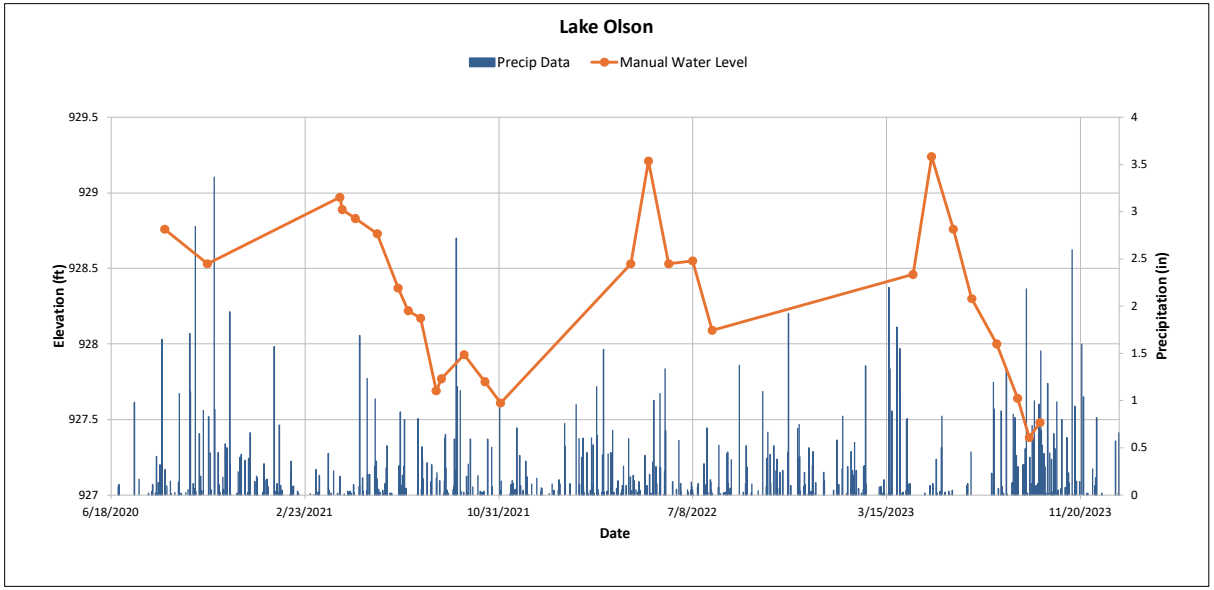
Date	Depth to Water (ft)	Water Elevation (ft amsl)
8/26/2020	1.06	922.38
10/20/2020	0.72	922.04
3/30/2021	1.1	922.27
4/12/2021	1.22	922.39
4/29/2021	1.14	922.31
5/17/2021	0.94	922.11
5/27/2021	0.98	922.15
6/15/2021	0.7	921.87
6/23/2021	0.62	921.79
7/2/2021	1	922.17
7/6/2021	0.8	921.97
7/13/2021	0.86	921.67
7/22/2021	0.8	921.61
8/11/2021	0.6	921.41
8/18/2021	0.52	921.33
9/16/2021	0.76	921.57
10/13/2021	0.68	921.49
11/2/2021	0.6	921.41
4/19/2022	1.3	921.94
5/12/2022	1.7	922.34
6/7/2022	1.5	922.14
7/8/2022	1.12	921.76
7/11/2022	1.12	921.76
8/2/2022	0.8	921.44
4/18/2023	1.8	922.05
5/12/2023	2	922.25
6/9/2023	1.74	921.99
7/3/2023	1.4	921.65
8/4/2023	1.28	921.53
8/31/2023	1.04	921.29
9/29/2023	0.96	921.21



Gauge Name:	Lake Olson
Location Description:	

Gauge Elevations	
Year	Elevation (ft amsl)
2020	927.28
2021	927.27
2021	927.33
2022	927.38
2023	920.25

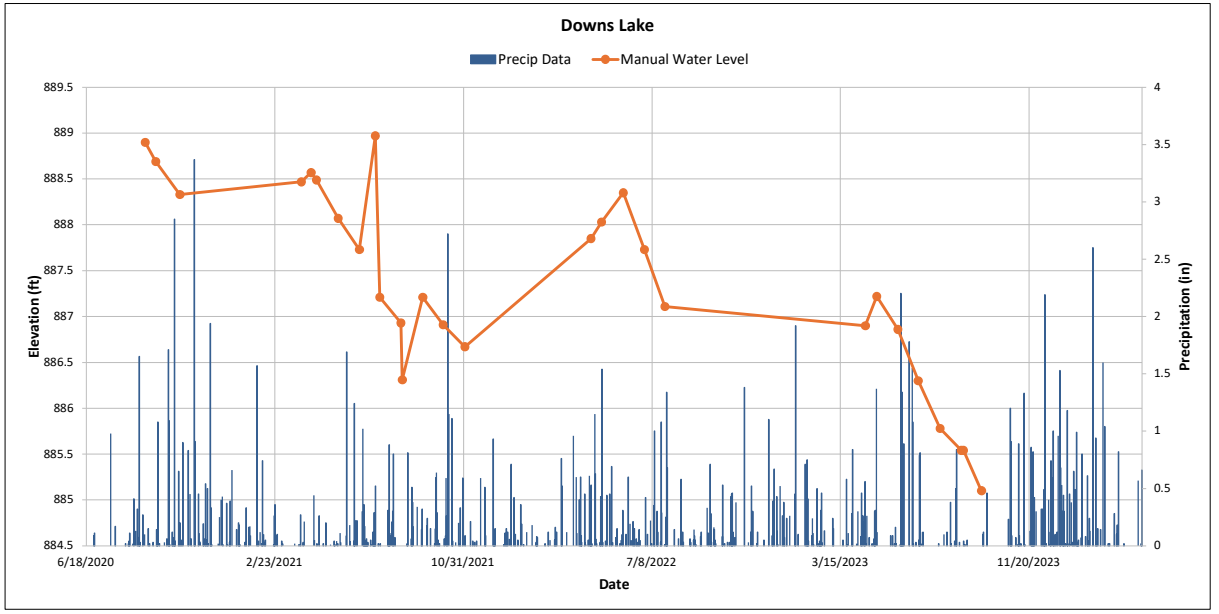
Date	Depth to Water (ft)	Water Elevation (ft amsl)
8/26/2020	1.48	928.76
10/20/2020	1.25	928.53
4/9/2021	1.7	928.97
4/12/2021	1.62	928.89
4/29/2021	1.56	928.83
5/27/2021	1.46	928.73
6/23/2021	1.1	928.37
7/6/2021	0.95	928.22
7/22/2021	0.9	928.17
8/11/2021	0.42	927.69
8/18/2021	0.5	927.77
9/16/2021	0.66	927.93
10/13/2021	0.48	927.75
11/2/2021	0.34	927.61
4/19/2022	1.2	928.53
5/12/2022	1.88	929.21
6/7/2022	1.2	928.53
7/8/2022	1.22	928.55
8/2/2022	0.76	928.09
4/18/2023	1.08	928.46
5/12/2023	1.86	929.24
6/9/2023	1.38	928.76
7/3/2023	0.92	928.3
8/4/2023	0.62	928
8/31/2023	0.26	927.64
9/15/2023	1.3	927.38
9/29/2023	1.4	927.48



Gauge Name:	Downs Lake
Location Description:	

Gauge Elevations	
Year	Elevation (ft amsl)
2020	886.71
2021	883.87
2021	882.21
2022	885.95
2023	881.78

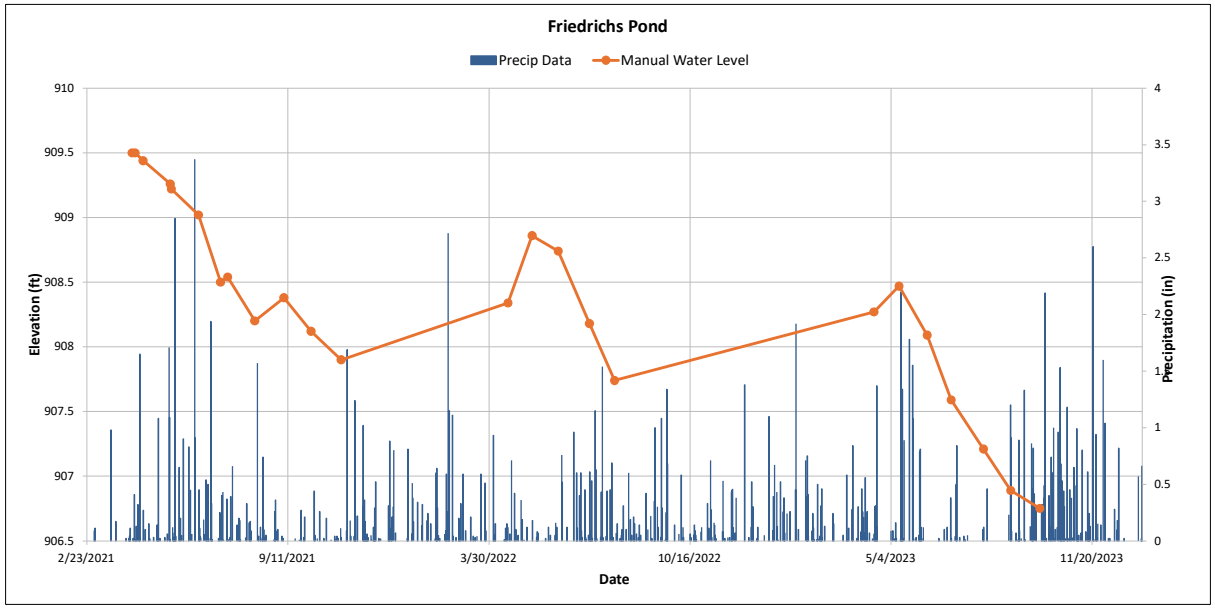
Date	Depth to Water (ft)	Water Elevation (ft amsl)
8/26/2020	1.48	928.76
10/20/2020	1.25	928.53
4/9/2021	1.7	928.97
4/12/2021	1.62	928.89
4/29/2021	1.56	928.83
5/27/2021	1.46	928.73
6/23/2021	1.1	928.37
7/6/2021	0.95	928.22
7/22/2021	0.9	928.17
8/11/2021	0.42	927.69
8/18/2021	0.5	927.77
9/16/2021	0.66	927.93
10/13/2021	0.48	927.75
11/2/2021	0.34	927.61
4/19/2022	1.2	928.53
5/12/2022	1.88	929.21
6/7/2022	1.2	928.53
7/8/2022	1.22	928.55
8/2/2022	0.76	928.09
4/18/2023	1.08	928.46
5/12/2023	1.86	929.24
6/9/2023	1.38	928.76
7/3/2023	0.92	928.3
8/4/2023	0.62	928
8/31/2023	0.26	927.64
9/15/2023	1.3	927.38
9/29/2023	1.4	927.48



Gauge Name:	Friedrichs Pond
Location Description:	

Gauge Elevations	
Year	Elevation (ft amsl)
2020	909.28
2021	907.2
2022	902.64
2023	899.67

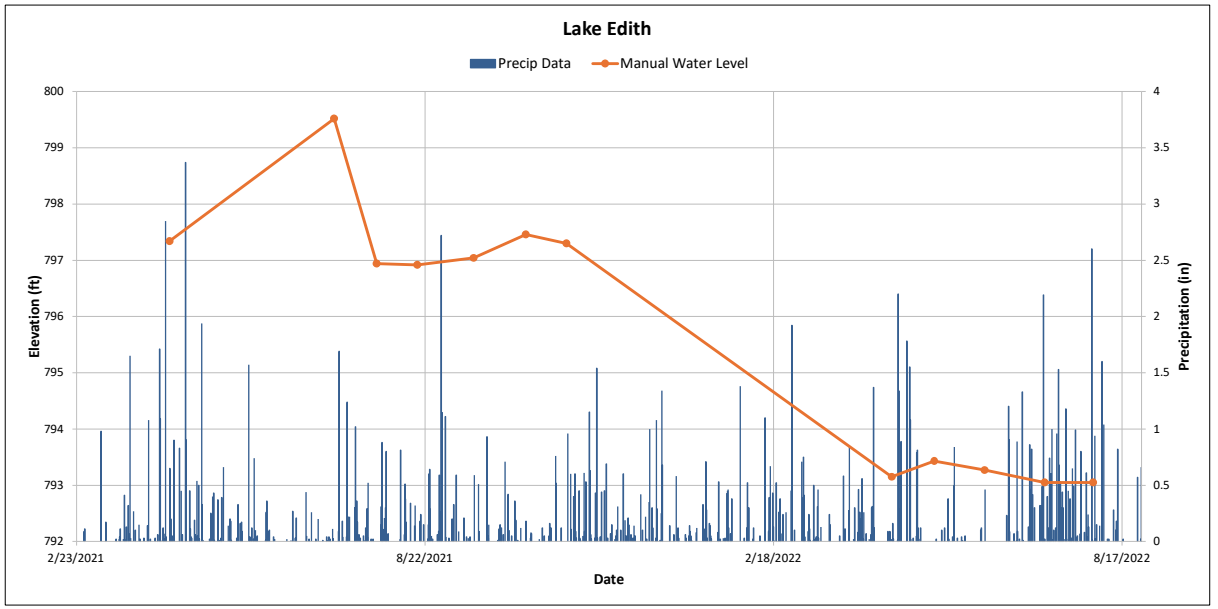
Date	Depth to Water (ft)	Water Elevation (ft amsl)
8/26/2020	1.48	928.76
10/20/2020	1.25	928.53
4/9/2021	1.7	928.97
4/12/2021	1.62	928.89
4/29/2021	1.56	928.83
5/27/2021	1.46	928.73
6/23/2021	1.1	928.37
7/6/2021	0.95	928.22
7/22/2021	0.9	928.17
8/11/2021	0.42	927.69
8/18/2021	0.5	927.77
9/16/2021	0.66	927.93
10/13/2021	0.48	927.75
11/2/2021	0.34	927.61
4/19/2022	1.2	928.53
5/12/2022	1.88	929.21
6/7/2022	1.2	928.53
7/8/2022	1.22	928.55
8/2/2022	0.76	928.09
4/18/2023	1.08	928.46
5/12/2023	1.86	929.24
6/9/2023	1.38	928.76
7/3/2023	0.92	928.3
8/4/2023	0.62	928
8/31/2023	0.26	927.64
9/15/2023	1.3	927.38
9/29/2023	1.4	927.48



Gauge Name:	Lake Edith
Location Description:	

Gauge Elevations	
Year	Elevation (ft amsl)
2020	909.28
2021	907.2
2022	902.64
2023	899.67

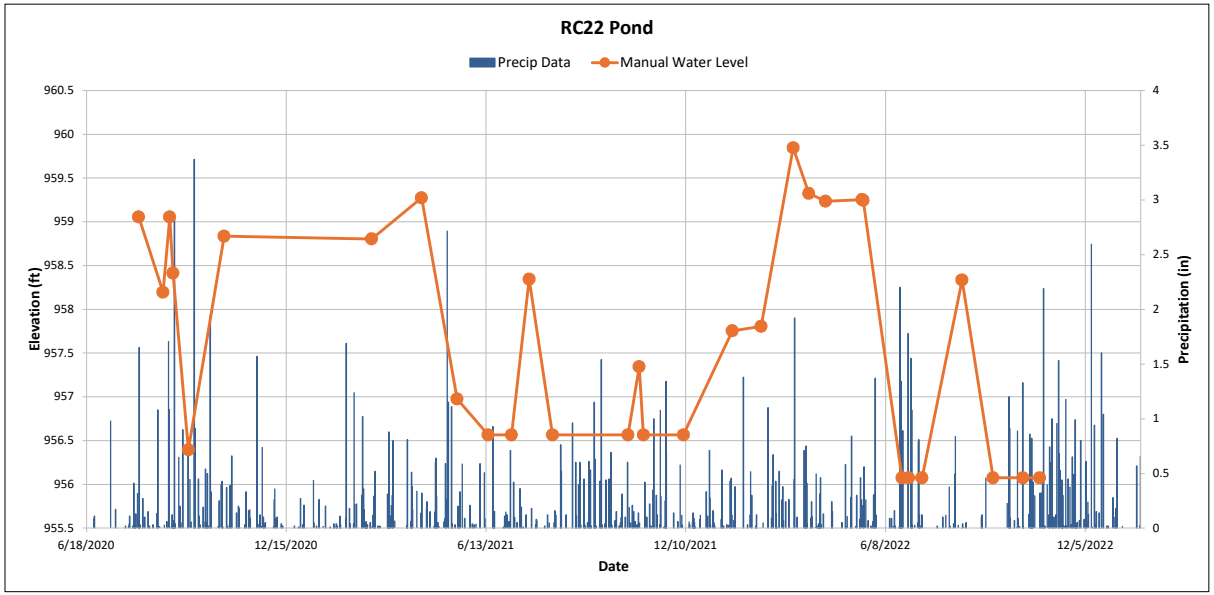
Date	Depth to Water (ft)	Water Elevation (ft amsl)
4/12/2021	1.42	797.34
7/6/2021	3.6	799.52
7/28/2021	1.02	796.94
8/18/2021	1	796.92
9/16/2021	1.12	797.04
10/13/2021	1.54	797.46
11/3/2021	1.38	797.3
4/20/2022	4.8	793.15
5/12/2022	5.08	793.43
6/7/2022	4.92	793.27
7/8/2022	4.7	793.05
8/2/2022	4.7	793.05



Gauge Name:	RC22 Pond
Location Description:	

Gauge Elevations	
Year	Elevation (ft amsl)
2020	909.28
2021	907.2
2022	902.64
2023	899.67

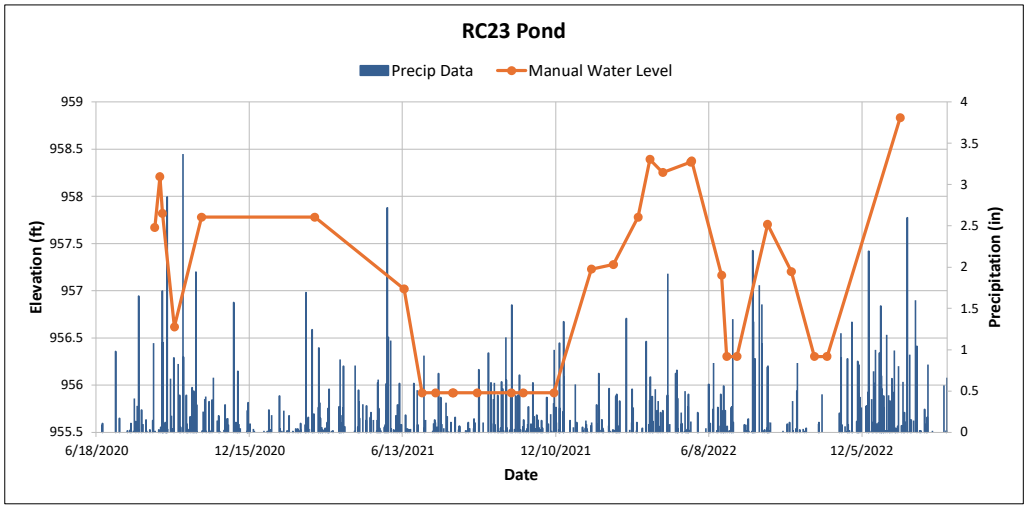
Date	Depth to Water (ft)	Water Elevation (ft amsl)
8/4/2020	2.66	959.055
8/26/2020	1.8	958.195
9/1/2020	2.66	959.055
9/4/2020	2.02	958.415
9/18/2020	0	956.395
10/20/2020	2.44	958.835
3/2/2021	2.24	958.805
4/16/2021	2.71	959.275
5/18/2021	0.41	956.975
6/15/2021	0	956.565
7/6/2021	0	956.565
7/22/2021	1.78	958.345
8/12/2021	0	956.565
10/19/2021	0	956.565
10/29/2021	0.78	957.345
11/2/2021	0	956.565
12/8/2021	0	956.565
1/21/2022	1.19	957.755
2/16/2022	1.24	957.805
3/17/2022	3.28	959.845
3/31/2022	3.25	959.325
4/15/2022	3.16	959.235
5/18/2022	3.18	959.255
5/19/2022	3.17	959.245
6/23/2022	0	956.075
6/29/2022	0	956.075
7/11/2022	0	956.075
8/16/2022	2.26	958.335
9/13/2022	0	956.075
10/10/2022	0	956.075
10/25/2022	0	956.075



Gauge Name:	RC23 Pond
Location Description:	

Gauge Elevations	
Year	Elevation (ft amsl)
2020	960.395
2021	960.565
2022	960.075

Date	Depth to Water (ft)	Water Elevation (ft amsl)	Note
8/26/2020	1.75	957.668	
9/1/2020	2.29	958.208	
9/4/2020	1.9	957.818	
9/18/2020	0.7	956.618	
10/20/2020	1.86	957.778	
3/2/2021	1.86	957.778	
6/15/2021	1.1	957.018	
7/6/2021	0	955.918	DRY
7/22/2021	0	955.918	DRY
8/11/2021	0	955.918	DRY
8/12/2021	0	955.918	DRY
9/9/2021	0	955.918	DRY
10/19/2021	0	955.918	DRY
11/2/2021	0	955.918	DRY
12/8/2021	0	955.918	DRY
1/21/2022	1.31	957.228	Frozen
2/16/2022	1.36	957.278	Frozen
3/17/2022	1.86	957.778	
3/31/2022	2.09	958.393	
4/15/2022	1.95	958.253	
5/18/2022	2.06	958.363	
5/19/2022	2.07	958.373	
6/23/2022	0.86	957.163	
6/29/2022	0	956.303	
7/11/2022	0	956.303	
8/16/2022	1.4	957.703	
9/13/2022	0.9	957.203	
10/10/2022	0	956.303	
10/25/2022	0	956.303	
1/19/2023	2.53	958.833	



Gauge Name:	Horseshoe Lake
Location Description:	

Gauge Elevations	
Year	Elevation (ft amsl)
2020	871.11
2021	874.36
2022	870.53
2023	867.5

Date	Depth to Water (ft)	Water Elevation (ft amsl)
8/26/2020	4.69	875.8
9/4/2020	4.6	875.71
9/18/2020	4.8	875.91
10/20/2020	4.74	875.85
3/29/2021	1.8	876.16
4/12/2021	1.65	876.01
4/19/2021	1.74	876.1
5/18/2021	1.6	875.96
6/14/2021	1.48	875.84
7/6/2021	1.44	875.8
7/12/2021	1.42	875.78
8/9/2021	1.56	875.92
8/11/2021	1.5	875.86
9/7/2021	1.64	876
10/4/2021	1.52	875.88
11/2/2021	1.5	875.86
4/18/2022	5.5	876.03
5/2/2022	5.28	875.81
5/18/2022	5.4	875.93
5/31/2022	5.44	875.97
6/22/2022	5.4	875.93
6/28/2022	5.3	875.83
7/11/2022	5.24	875.77
7/25/2022	5.16	875.69
8/16/2022	5.26	875.79
9/13/2022	5.25	875.78
10/10/2022	5.14	875.67
10/24/2022	5.19	875.72
4/17/2023	8.6	876.1
5/1/2023	8.58	876.08
5/30/2023	8.4	875.9
6/26/2023	8.16	875.66
7/25/2023	8.04	875.54
8/22/2023	8.24	875.74
9/18/2023	7.8	875.3