

The logo for the Sudbury-Waterloo Conservation Authority (SWCA) is positioned vertically on the left side of the page. It consists of the letters 'S', 'W', 'C', and 'A' in a large, stylized, light blue font, stacked one above the other.

Results of the Water Quality Monitoring Program for Coldwater Fisheries

Sudbury to Hudson Reliability Project

NOVEMBER 2021 – FEBRUARY
2022

MARCH 2022

PREPARED FOR
Eversource Energy

PREPARED BY
SWCA Environmental Consultants

**RESULTS OF THE WATER QUALITY MONITORING
PROGRAM FOR COLDWATER FISHERIES
SUDBURY TO HUDSON RELIABILITY PROJECT
NOVEMBER 2021 – FEBRUARY 2022**

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CONTENTS

1	Introduction	1
2	Water Quality Monitoring Methods and Results	1
2.1	Surface Water Monitoring Methods	1
2.2	Temperature	3
2.3	Dissolved Oxygen.....	3
2.4	pH	3
2.5	Specific Conductivity	3
2.6	Turbidity	3
2.7	Other Parameters	3
3	References	4

Appendices

Appendix A. Figure Map Book
Appendix B. Tables
Appendix C. Field Logs
Appendix D. Laboratory Report

Tables

Table 1. Surface Water Conditions for Cold Water Fisheries	2
Table 2. Surface Water Conditions for Freshwater Fish.....	2

1 INTRODUCTION

The Sudbury to Hudson Reliability Project (Project) consists of a new, approximately 9-mile-long transmission line between Eversource's existing Sudbury substation in Sudbury, Massachusetts, and the Hudson Light & Power Company's (HL&P) substation in Hudson, Massachusetts. The new underground transmission line will be installed in the municipalities of Sudbury, Hudson, Stow, and Marlborough, Massachusetts. Approximately 7.5 miles of the new transmission line will be installed within an inactive Massachusetts Bay Transportation Authority (MBTA) railroad right-of-way (ROW) which is to be converted into the Massachusetts Central Rail Trail (MCRT).

Special Condition Part I(q) of the Sudbury Order of Conditions (OOC) for the Project required baseline monitoring of flow and water quality for all Coldwater Fisheries Resources (CFR) crossed by the Project. SWCA has prepared this quarterly summary of the water quality monitoring for the two (2) crossings of CFR in Hop Brook and six (6) other streams or tributaries that contribute to CFR and are crossed by the Project (see Figures in Appendix A).

The following eight streams were included in this monitoring plan as requested by the Sudbury Conservation Commission:

- Hop Brook – Bridge 128 (400+30): ST 400 Perennial Stream and State-listed CFR;
- Unnamed Stream (527+30): ST 527 Intermittent Stream and local CFR;
- Dudley Brook (539+40): ST 540 Perennial and local CFR;
- Unnamed intermittent stream (560+82): ST 561 Intermittent and local CFR;
- Unnamed Intermittent stream (593+18): ST 593 Intermittent and local CFR;
- Intermittent Tributary to Hop Brook (700+50, 710+50): ST 700/710 Intermittent and local CFR;
- Hop Brook (Bridge 127) (725+00): ST 725 Perennial Stream and State-listed CFR; and
- Intermittent Tributary to Wash Brook (747+39): ST 747 Intermittent and local CFR.

2 WATER QUALITY MONITORING METHODS AND RESULTS

2.1 Surface Water Monitoring Methods

In accordance with the *Baseflow and Baseline Water Quality Monitoring Program for Cold Water Fisheries* proposed by SWCA dated August 25, 2021 and approved by the Sudbury Conservation Commission, the following parameters were monitored on a monthly basis:

- temperature, dissolved oxygen, as well as pH, specific conductivity, and oxygen reduction potential (ORP) measured with a YSI multi-meter;
- flow velocity with a Hach FH950 flow velocity meter;
- turbidity levels measured with a turbidity meter; and

- chlorine, hardness and alkalinity measured with field test strips.

Based on the Massachusetts Surface Water Quality Standards (SWQS) (314 CMR 4.00), CFRs have special designated criteria for dissolved oxygen and temperature. All other criteria are the same as those for warm water fisheries.

The following Table 1 includes ranges for temperature, dissolved oxygen and pH that are favorable to cold water fisheries. Table 2 indicates ranges for other surface water criteria that are favorable for freshwater fish.

Table 1. Surface Water Conditions for Cold Water Fisheries

Parameter ¹	Favorable Ranges for Cold Water Fisheries
Temperature	below 20°C (up to 26°C for 24 hours)
Dissolved Oxygen	min of 6 mg/L, up to 7 mg/L preferred
pH	6.5 - 8.3

Note: C = Celsius; mg/L = milligrams per liter

Source:

1: 314 CMR 4.00: Massachusetts Surface Water Quality Standards

Table 2. Surface Water Conditions for Freshwater Fish

Parameter	Favorable Ranges for Freshwater Stream or Fish
Specific Conductivity ¹	150 - 500 µs/cm
Turbidity ²	"free from turbidity that would impair fish habitat"
Chlorine ³	<4 mg/L
Alkalinity ^{4,5}	20 - 300 mg/L

Note: ORP = oxygen reduction potential; mg/L = milligrams per liter; µs/cm = microsiemens per centimeter; mV = millivolts

Sources:

1: EPA Volunteer Stream Monitoring: A Methods Manual

2: 314 CMR 4.00: Massachusetts Surface Water Quality Standards

3: EPA National Primary Drinking Water Regulations

4: UMass Dartmouth Northeast Regional Aquaculture Center NRAC Fact Sheet No. 170-1993.

5: EPA National Recommended Water Quality Criteria for Aquatic Life.

SWCA monitored these eight locations on November 30, December 23, 2021, January 19 and February 23, 2022. All crossings were observed to be flowing to some extent with the exception of the unnamed stream at station 593, which has been dry since August when the initial survey was conducted. Temperature and dissolved oxygen can fluctuate naturally when the sun rises and enables aquatic plants to release more oxygen. Sampling was conducted in the same order of monitoring points and as a result, the sampling was conducted during roughly the same time of day at each location each month to help ensure comparability over time. The Table 3 attached to this report in Appendix B summarizes the data collected during each of these monitoring events. The individual summary field logs are also included in Appendix C.

2.2 Temperature

Results of the monitoring indicate that in the winter months of November through February, the temperatures were all below 20 degrees Celsius for all of the monitoring points; and therefore, are within normal ranges for cold water fisheries.

2.3 Dissolved Oxygen

Dissolved oxygen levels were lower than the favorable value of 6 mg/L in November at the upgradient side of Hop Brook Tributary at Station 700, reported at 5.45 mg/L and in January at the upgradient side of the unnamed stream at Station 561, reported at 5.81 mg/L. However, levels measured for all other monitoring events were all above 6 mg/L for all other locations. Levels of dissolved oxygen increasing is evident in all monitoring locations with the colder weather and the colder temperatures in the streams.

2.4 pH

Results of the monitoring indicate that in unnamed intermittent stream at Station 527, the pH was lower than 6.5 for all monitoring events since August for both upgradient and downgradient locations. In the intermittent Hop Brook tributary at Station 700, a lower than 6.5 reading was found in the months of December and January, with the other monthly events reported readings just above 6.5. The rest of the monitoring locations reported all of the pH levels to be within normal ranges for cold water fisheries at 6.5-8.3.

2.5 Specific Conductivity

The monitoring parameter for specific conductivity reported typical concentrations for freshwater for all monitoring stations with the exception of the results from the Hop Brook Tributary locations (ST 700 and ST 710), which are reported to be above 500 $\mu\text{S}/\text{cm}$ for all four monitoring events.

2.6 Turbidity

Turbidity levels are not specifically defined by a standard value in Massachusetts. Based on available information, for the purpose of this assessment, it can be assumed that a value of less than 5 NTU is favorable for freshwater, however the lower the better as typical groundwater is less than 1 NTU. Turbidity values reported for each station were less than 5 NTUs for all monitoring events except for the November, December, and February monitoring events at the Hop Brook Tributary (ST 700 and ST 710).

2.7 Other Parameters

The stream flow velocities from the downgradient side to the upgradient side were comparable and consistent from month to month. The ORP, alkalinity, chlorine, and hardness levels from the downgradient side to the upgradient side were comparable. Alkalinity and chlorine levels were below the favorable levels for freshwater.

3 REFERENCES

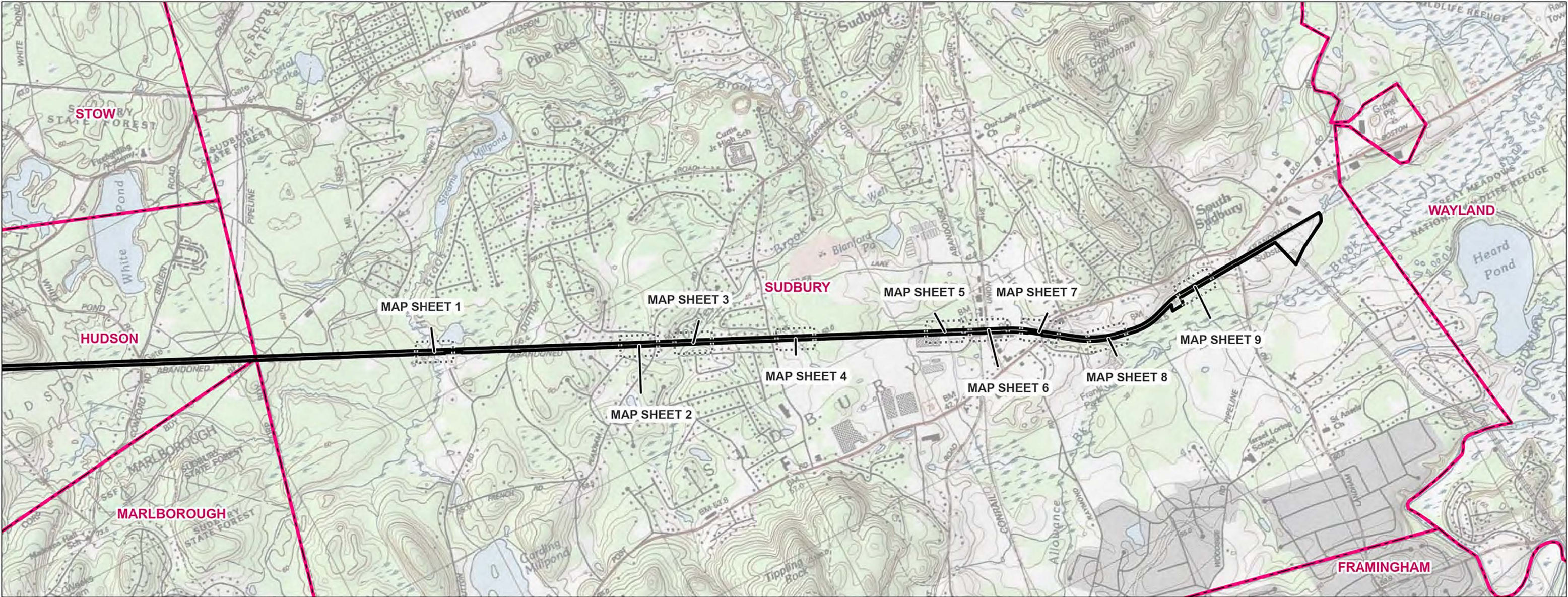
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APPENDIX A

Figures Map Book

2021 - Sudbury Hudson Reliability Project
HUDSON, STOW, & SUDBURY, MA
Water Sampling Map

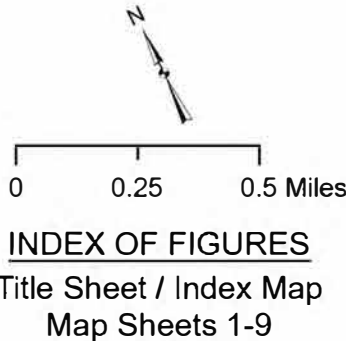
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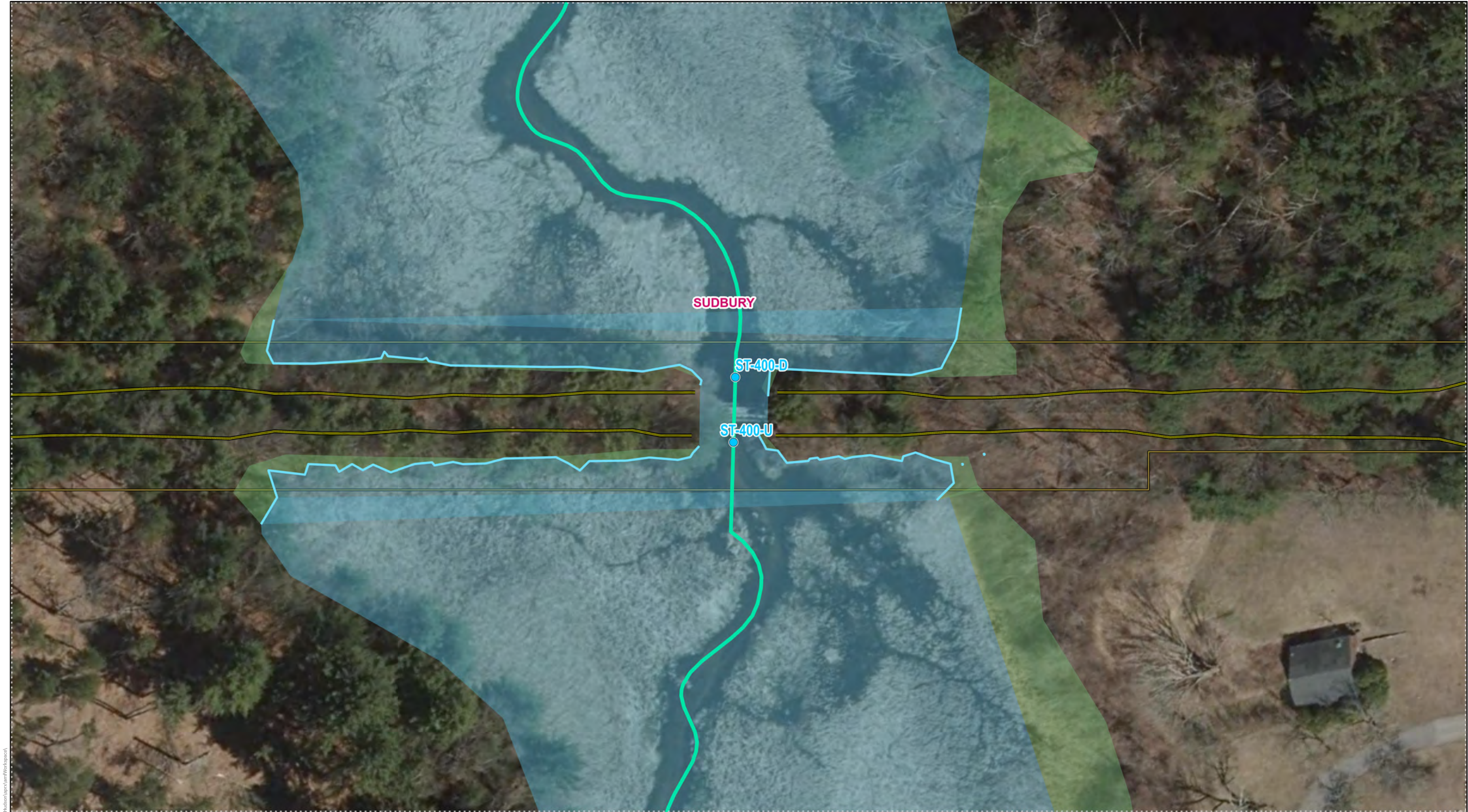
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PREPARED FOR:
EVERSOURCE
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107 Selden Street
Berlin, CT 06037

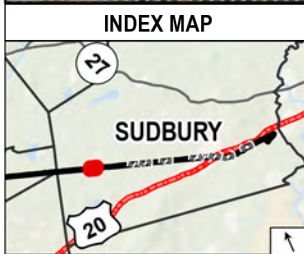


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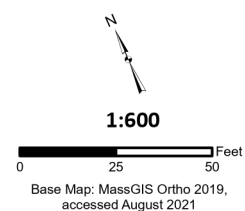
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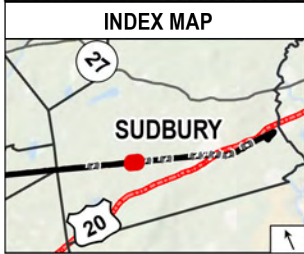
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- Watercourse
- Limit Of Work (LOW)
- Coldwater Fisheries Line

- Open Water
- Approximate Wetland (Not Delineated)
- Existing Right-of-Way (ROW)
- Municipal Boundary



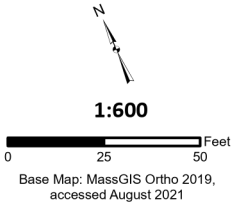
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Sudbury Hudson Reliability Project Water Sampling Map	
SUDBURY, MA	MAP SHEET 1 OF 9
Date: August, 2021	SWCA ENVIRONMENTAL CONSULTANTS



- Legend**
- Water Sampling Point
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Water Sampling Map**

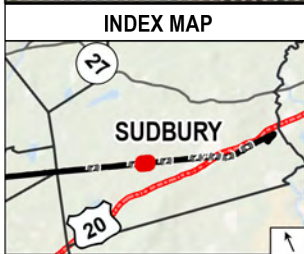
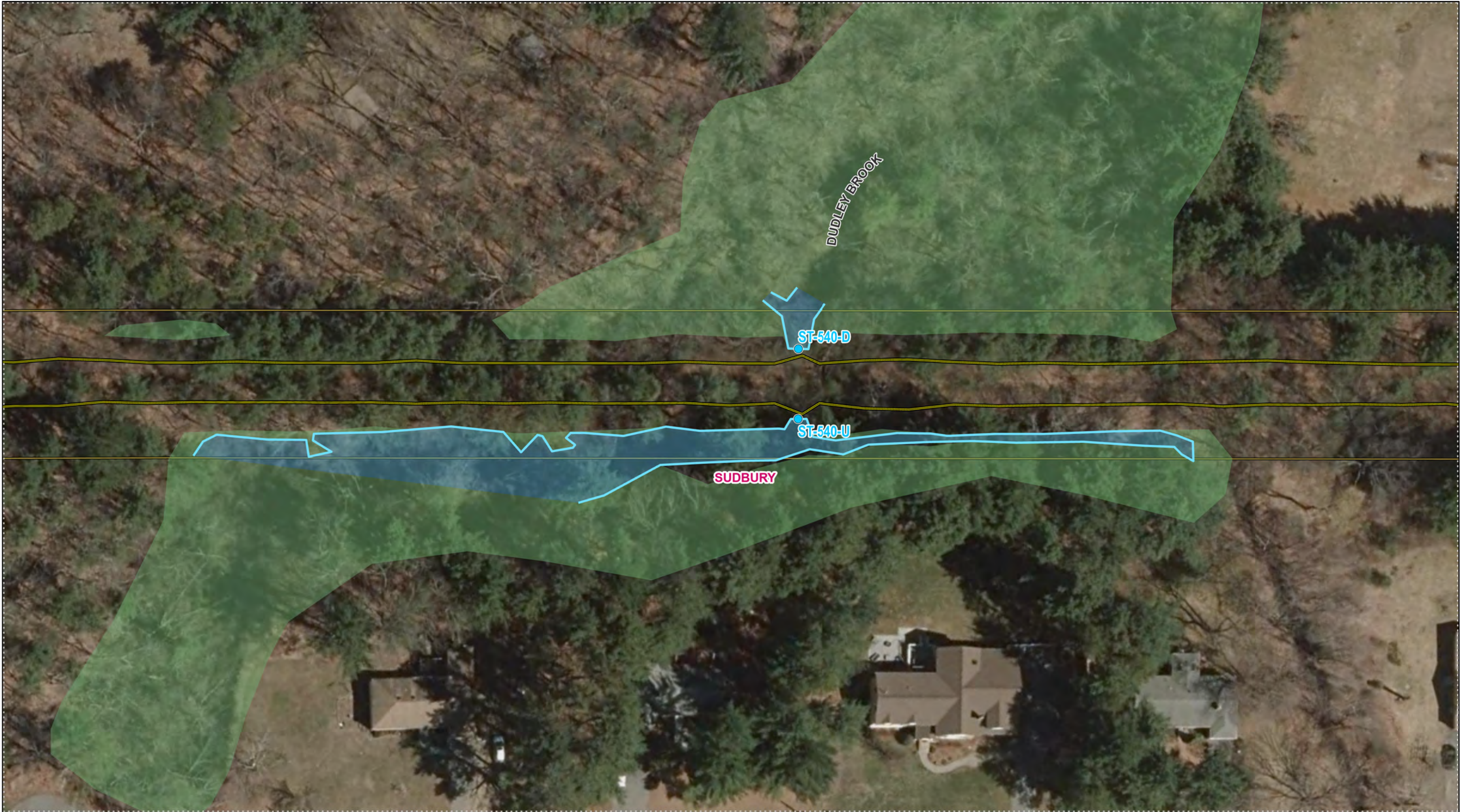
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Date: August, 2021

MAP SHEET 2 OF 9

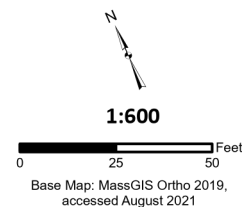
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Legend

- Water Sampling Point
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NO.	DATE	REVISIONS

**Sudbury Hudson Reliability Project
Water Sampling Map**

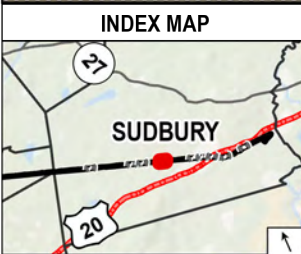
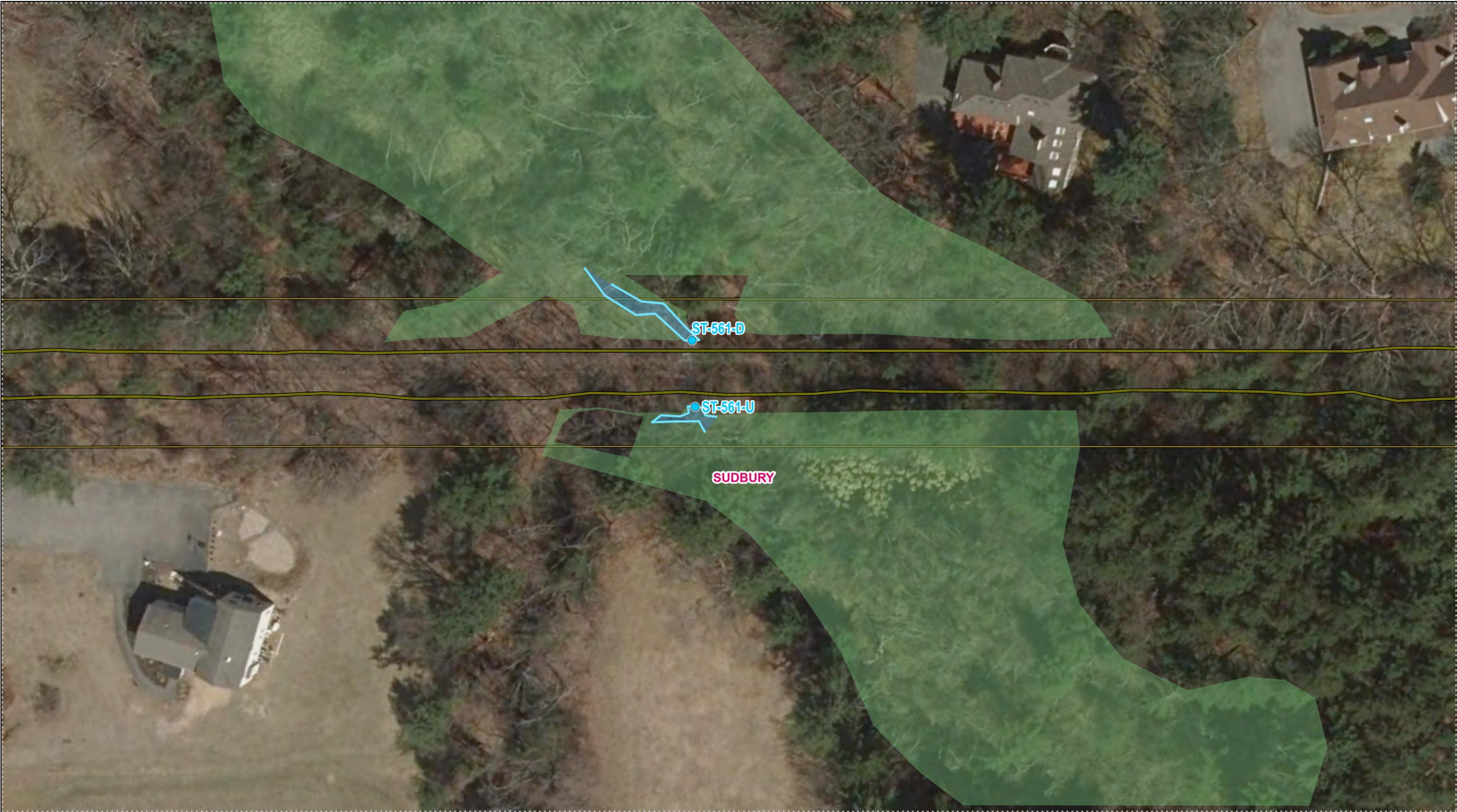
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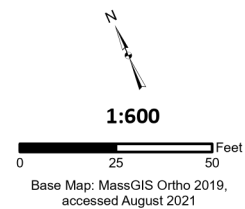
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- Municipal Boundary



NO.	DATE	REVISIONS

**Sudbury Hudson Reliability Project
Water Sampling Map**

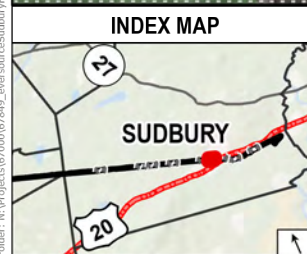
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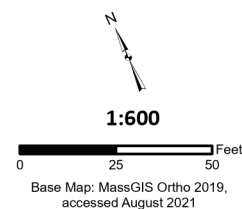
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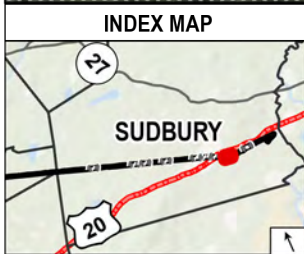


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-  Water Sampling Point
  Open Water
-  Watercourse
  Approximate Wetland (Not Delineated)
-  Limit Of Work (LOW)
  Existing Right-of-Way (ROW)
-  Coldwater Fisheries Line
  Municipal Boundary

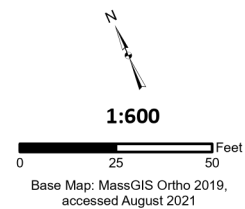


					
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				SUDBURY, MA	MAP SHEET 6 OF 9
				Date: August, 2021	
NO.	DATE	REVISIONS			



Legend

- Water Sampling Point
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NO.	DATE	REVISIONS

**Sudbury Hudson Reliability Project
Water Sampling Map**

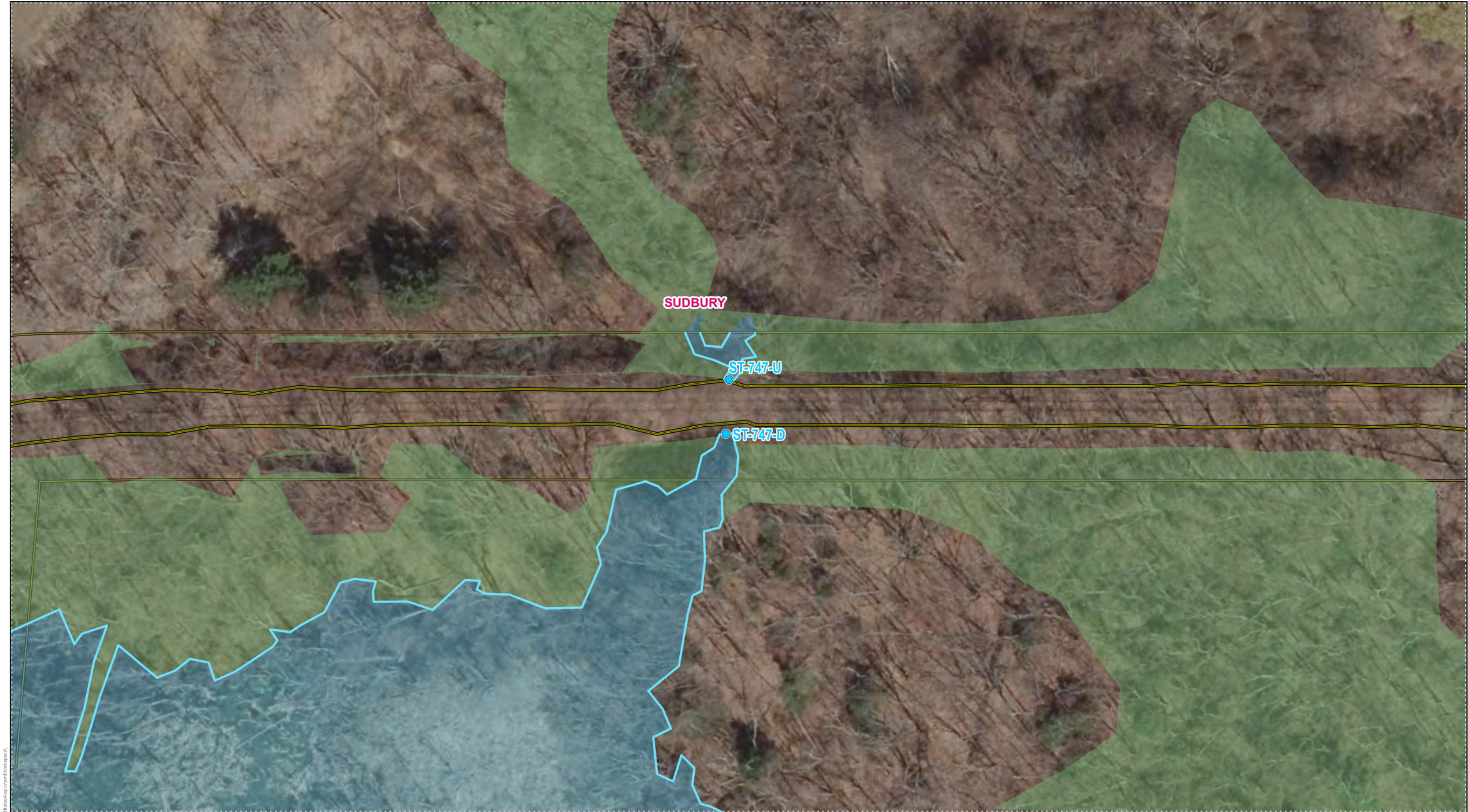
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MAP SHEET 8 OF 9

ENVIRONMENTAL CONSULTANTS

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INDEX MAP

Legend

- Water Sampling Point
- Watercourse
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- Open Water
- Approximate Wetland (Not Delineated)
- Existing Right-of-Way (ROW)
- Municipal Boundary

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Base Map: MassGIS Ortho 2019, accessed August 2021

			EVERSOURCE ENERGY	
			Sudbury Hudson Reliability Project Water Sampling Map	
			SUDBURY, MA	MAP SHEET 9 OF 9
			Date: August, 2021	SWCA ENVIRONMENTAL CONSULTANTS
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APPENDIX B

Tables

Table 3: Cold Water Fisheries Monitoring Results
Sudbury to Hudson Reliability Project

Station #	Favorable Conditions for Cold Water Fisheries	ST 400 UP							ST 400 DOWN						
Brook/Stream/Tributary		Hop Brook							Hop Brook						
Plan #		PLAN 47							PLAN 47						
Direction of Flow		south							south						
Type		perennial							perennial						
Date	Fisheries	30-Aug	30-Sep	29-Oct	30-Nov	23-Dec	19-Jan	23-Feb	30-Aug	30-Sep	29-Oct	30-Nov	23-Dec	19-Jan	23-Feb
Temperature (°C)	< 20	22.25	16.20	9.23	2.77	2.16	2.48	6.48	22.25	16.17	9.22	2.74	2.12	2.47	6.45
Specific Conductance (µS/cm @ 25°C)	150-500	414	422	421	408	410	573	768	415	422	420	408	408	573	775
Specific Conductance (µS/cm)	150-500	393	351	294	235	231	327	496	394	351	293	235	230	327	500
Dissolved Oxygen (%)	nsi	62	80	87	97	101	99	80.1	60	78	86	104	105	99	83.5
Dissolved Oxygen (mg/L)	> 6	5.34	7.85	9.99	13.12	13.95	13.40	9.82	5.20	7.64	9.02	14.05	14.33	13.46	10.24
pH	6.5-8.3	6.6	6.8	6.7	6.5	6.8	7.0	7.2	6.6	6.7	6.7	6.5	6.8	7.0	7.1
ORP	nsi	91	94	93	78	104	69	156	91	94	93	79	117	119	159
Turbidity (NTU)	free from turbidity that would impair fish habitat	2.86	1.73	2.39	1.95	2.37	2.58	1.83	2.86	1.73	2.30	2.02	2.43	2.56	1.88
Alkalinity	< 300	40	40	0	0	0	0	100	40	40	0	0	0	0	100
Chlorine, Free	< 4	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Chlorine, Total	< 4	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hardness	nsi	100	0	0	0	20	0	40	100	0	0	0	20	0	40
Velocity (ft/s)	nsi	0.35	0.38	0.4	0.28	Na	0.36	1.3	0.34	0.31	0.39	0.4	Na	0.35	1.25

Table 3: Cold Water Fisheries Monitoring Results
Sudbury to Hudson Reliability Project

Station #	Favorable Conditions for Cold Water Fisheries	ST 527 UP							ST 527 DOWN						
Brook/Stream/Tributary		Unnamed Stream							Unnamed Stream						
Plan #		PLAN 52							PLAN 52						
Direction of Flow		south							south						
Type		intermittent							intermittent						
Date	Fisheries	30-Aug	30-Sep	29-Oct	30-Nov	23-Dec	19-Jan	23-Feb	30-Aug	30-Sep	29-Oct	30-Nov	23-Dec	19-Jan	23-Feb
Temperature (°C)	< 20	17.19	12.17	7.42	2.39	1.56	1.08	5.58	17.07	12.13	7.36	2.48	1.63	1.07	5.49
Specific Conductance (µS/cm @ 25°C)	150-500	305	290	201	301	260	309	527	301	287	204	304	262	294	538
Specific Conductance (µS/cm)	150-500	259	219	148	170	144	163	332	255	217	154	174	145	159	337
Dissolved Oxygen (%)	nsi	51	61	54	67	70	72	62.4	52	64	56	67	74	74	64.6
Dissolved Oxygen (mg/L)	> 6	4.94	6.56	6.02	9.17	9.71	10.2	7.82	4.98	6.87	6.16	9.12	10.31	10.45	8.13
pH	6.5-8.3	5.4	6.1	6.3	6.3	6.0	6.0	6.2	5.8	6.5	6.4	6.4	6.2	6.0	6.2
ORP	nsi	130	117	105	97	127	97	200	127	106	105	96	122	81	175
Turbidity (NTU)	free from turbidity that would impair fish habitat	2.30	0.63	1.52	1.53	2.98	2.20	2.03	1.18	0.84	1.56	1.40	2.00	1.50	1.81
Alkalinity	< 300	0	0	0	100	0	0	0	0	0	0	100	0	0	0
Chlorine, Free	< 4	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Chlorine, Total	< 4	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hardness	nsi	100	0	0	0	20	0	0	100	100	0	0	0	0	0
Velocity (ft/s)	nsi	0.2	0.18	0.1	0.21	Na	0.15	0.53	0.21	0.06	0.13	0.14	Na	0.1	0.48

Table 3: Cold Water Fisheries Monitoring Results
Sudbury to Hudson Reliability Project

Station #	Favorable Conditions for Cold Water Fisheries	ST 540 UP							ST 540 DOWN						
Brook/Stream/Tributary		Dudley Brook							Dudley Brook						
Plan #		PLAN 54							PLAN 54						
Direction of Flow		south							south						
Type		perennial							perennial						
Date		30-Aug	30-Sep	29-Oct	30-Nov	23-Dec	19-Jan	23-Feb	30-Aug	30-Sep	29-Oct	30-Nov	23-Dec	19-Jan	23-Feb
Temperature (°C)	< 20	18.84	13.17	7.78	1.62	1.02	0.42	5.2	18.83	13.18	7.89	1.72	0.80	0.27	5.47
Specific Conductance (µS/cm @ 25°C)	150-500	340	305	271	312	288	377	573	344	311	274	311	296	376	628
Specific Conductance (µS/cm)	150-500	300	236	182	172	157	198	360	303	241	184	173	159	199	394
Dissolved Oxygen (%)	nsi	16	56	52	73	79	80	83	42	67	59	76	88	78	74.3
Dissolved Oxygen (mg/L)	> 6	1.41	5.91	6.11	10.16	11.15	11.60	10.26	3.86	6.98	7.00	10.57	12.49	11.33	9.28
pH	6.5-8.3	6.1	6.7	6.5	6.6	6.6	7.0	6.7	6.3	6.7	6.9	6.8	6.5	7.0	6.8
ORP	nsi	123	101	101	87	106	55	162	115	97	101	85	103	52	137
Turbidity (NTU)	free from turbidity that would impair fish habitat	3.14	1.37	1.90	1.86	1.54	1.66	2.2	2.09	1.34	1.84	1.77	1.46	1.94	2.08
Alkalinity	< 300	40	20	0	100	0	0	100	40	40	0	0	0	0	0
Chlorine, Free	< 4	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Chlorine, Total	< 4	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hardness	nsi	100	0	0	0	0	0	0	100	0	0	0	20	0	0
Velocity (ft/s)	nsi	0.55	0.44	0.66	0.31	Na	0.8	0.78	0.4	0.34	0.8	0.31	Na	0.25	0.6

Table 3: Cold Water Fisheries Monitoring Results
Sudbury to Hudson Reliability Project

Station #	Favorable Conditions for Cold Water Fisheries	ST 561 UP							ST 561 DOWN						
Brook/Stream/Tributary		Unnamed Stream							Unnamed Stream						
Plan #		PLAN 57							PLAN 57						
Direction of Flow		north							north						
Type		intermittent							intermittent						
Date	Fisheries	30-Aug	30-Sep	29-Oct	30-Nov	23-Dec	19-Jan	23-Feb	30-Aug	30-Sep	29-Oct	30-Nov	23-Dec	19-Jan	23-Feb
Temperature (°C)	< 20	20.59	14.12	7.57	0.84	0.02	0.22	6.7	20.14	14.10	7.61	1.17	0.19	0.27	6.79
Specific Conductance (µS/cm @ 25°C)	150-500	361	344	243	308	244	269	485	350	338	252	311	245	281	497
Specific Conductance (µS/cm)	150-500	331	272	162	166	127	141	315	318	268	168	168	129	149	324
Dissolved Oxygen (%)	nsi	22	42	38	64	71	40	62.4	37	62	62	76	85	44	63.6
Dissolved Oxygen (mg/L)	> 6	2.00	4.32	4.53	9.07	10.4	5.81	7.6	3.36	5.34	7.28	10.78	12.28	6.29	7.74
pH	6.5-8.3	6.1	6.7	6.4	6.9	6.6	6.7	6.8	6.7	7.0	7.3	7.2	6.5	6.7	6.9
ORP	nsi	47	78	73	72	99	68	147	53	70	52	46	79	95	131
Turbidity (NTU)	free from turbidity that would impair fish habitat	5.74	1.40	2.16	1.72	1.44	1.70	1.58	1.87	1.90	3.27	1.90	1.73	1.67	1.89
Alkalinity	< 300	40	40	40	0	0	0	100	40	40	40	100	0	0	0
Chlorine, Free	< 4	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Chlorine, Total	< 4	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hardness	nsi	100	100	0	0	40	0	40	100	100	0	40	0	0	0
Velocity (ft/s)	nsi	0.08	0.06	0.19	0.16	Na	0.04	0.15	0.1	0.13	0.45	0.37	Na	0.04	0.28

Table 3: Cold Water Fisheries Monitoring Results
Sudbury to Hudson Reliability Project

[illegible]

Table 3: Cold Water Fisheries Monitoring Results
Sudbury to Hudson Reliability Project

Station #	Favorable Conditions for Cold Water Fisheries	ST 700 UP							ST 710 DOWN						
Brook/Stream/Tributary		Hop Brook Tributary							Hop Brook Tributary						
Plan #		PLAN 61							PLAN 63						
Direction of Flow		East							East						
Type		intermittent							intermittent						
Date	Fisheries	30-Aug	30-Sep	29-Oct	30-Nov	23-Dec	19-Jan	23-Feb	30-Aug	30-Sep	29-Oct	30-Nov	23-Dec	19-Jan	23-Feb
Temperature (°C)	< 20	21.13	16.14	9.67	7.56	6.43	4.49	6.79	21.08	14.28	9.55	0.40	0.01	frozen	8.55
Specific Conductance (µS/cm @ 25°C)	150-500	1362	1129	1104	1110	1079	1689	2225	1122	755	927	1054	1108	frozen	2215
Specific Conductance (µS/cm)	150-500	1263	938	702	742	697	1027	1450	1039	600	653	559	580	frozen	1520
Dissolved Oxygen (%)	nsi	43	41	52	51	56	61	84.2	37	49	61	59	73	frozen	54.8
Dissolved Oxygen (mg/L)	> 6	3.96	4.13	5.87	5.45	6.88	7.84	10.19	3.30	4.97	6.87	8.52	10.51	frozen	6.35
pH	6.5-8.3	6.5	6.9	6.8	6.6	6.4	6.4	6.8	6.8	6.9	6.8	6.5	6.5	frozen	6.8
ORP	nsi	62	10	20	29	15	70	56.3	66	51	25	72	60	frozen	92.4
Turbidity (NTU)	free from turbidity that would impair fish habitat	20.90	12.09	8.17	14.70	7.59	3.76	6.34	11.50	9.48	6.62	6.00	3.82	frozen	3.98
Alkalinity	< 300	40	80	40	250	0	100	250	100	120	40	100	0	frozen	100
Chlorine, Free	< 4	0	0	0	0	0	0	0	0	0	0	0	0	frozen	0
Chlorine, Total	< 4	0	0	0	0	0	0	0	0	0	0	0	0	frozen	0
Hardness	nsi	100	100	100	80	40	40	40	100	100	100	40	20	frozen	40
Velocity (ft/s)	nsi	0.23	0.02	0.05	0.01	Na	0.02	0.1	0.08	0.02	0.07	0.02	Na	frozen	0.18

Table 3: Cold Water Fisheries Monitoring Results
Sudbury to Hudson Reliability Project

Station #	Favorable Conditions for Cold Water Fisheries	ST 725 UP							ST 725 DOWN						
Brook/Stream/Tributary		Hop Brook							Hop Brook						
Plan #		PLAN 65							PLAN 65						
Direction of Flow		south							south						
Type		perennial							perennial						
Date		30-Aug	30-Sep	29-Oct	30-Nov	23-Dec	19-Jan	23-Feb	30-Aug	30-Sep	29-Oct	30-Nov	23-Dec	19-Jan	23-Feb
Temperature (°C)	< 20	20.55	14.52	7.67	1.17	0.54	0.05	6.3	20.49	14.45	7.63	1.13	0.51	0.06	4.91
Specific Conductance (µS/cm @ 25°C)	150-500	393	355	380	309	358	487	789	399	360	378	324	358	487	777
Specific Conductance (µS/cm)	150-500	360	284	254	168	190	255	507	365	287	253	176	190	255	479
Dissolved Oxygen (%)	nsi	75	87	94	95	97	105	82.8	80	79	100	102	101	106	74
Dissolved Oxygen (mg/L)	> 6	6.74	8.87	11.23	13.48	13.89	15.20	10.29	7.20	8.00	11.88	14.37	14.52	15.39	9.44
pH	6.5-8.3	6.8	7.0	6.9	7.1	7.2	7.4	7.2	7.2	7.0	7.1	7.2	7.2	7.3	7.1
ORP	nsi	97	96	88	81	94	35	88.5	98	98	80	76	92	29	128
Turbidity (NTU)	free from turbidity that would impair fish habitat	2.62	2.15	2.62	2.42	2.25	2.21	2.07	2.63	2.19	3.05	2.25	2.21	2.40	2.76
Alkalinity	< 300	40	0	0	100	0	0	0	40	0	0	100	0	0	100
Chlorine, Free	< 4	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Chlorine, Total	< 4	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hardness	nsi	100	0	0	40	0	0	0	100	0	0	0	0	0	0
Velocity (ft/s)	nsi	0.23	0.15	0.51	0.23	Na	0.46	0.34	0.08	0.13	0.17	0.28	Na	0.3	0.28

Table 3: Cold Water Fisheries Monitoring Results
Sudbury to Hudson Reliability Project

Station #	Favorable Conditions for Cold Water Fisheries	ST 747 UP							ST 747 DOWN						
Brook/Stream/Tributary		Wash Brook Tributary							Wash Brook Tributary						
Plan #		PLAN 67							PLAN 67						
Direction of Flow		south							south						
Type		intermittent							intermittent						
Date	Fisheries	30-Aug	30-Sep	29-Oct	30-Nov	23-Dec	19-Jan	23-Feb	30-Aug	30-Sep	29-Oct	30-Nov	23-Dec	19-Jan	23-Feb
Temperature (°C)	< 20	19.39	13.34	7.72	1.94	0.32	0.83	5.04	19.45	13.26	7.76	1.75	0.33	0.76	6.31
Specific Conductance (µS/cm @ 25°C)	150-500	524	418	379	451	377	530	774	495	451	382	453	403	532	803
Specific Conductance (µS/cm)	150-500	468	325	254	252	200	286	473	443	350	256	252	213	285	516
Dissolved Oxygen (%)	nsi	91	86	89	92	107	97	73.5	80	85	82	96	95	103	81.8
Dissolved Oxygen (mg/L)	> 6	8.32	9.02	10.57	12.66	15.15	13.77	9.33	7.36	8.85	9.79	13.37	13.79	14.63	10.06
pH	6.5-8.3	7.2	7.0	6.6	7.2	7.2	7.4	7.15	7.0	6.8	6.5	7.3	7.1	7.8	7.07
ORP	nsi	58	60	80	59	76	-15	124	73	75	84	57	82	21	25.5
Turbidity (NTU)	free from turbidity that would impair fish habitat	0.72	1.15	1.88	1.69	1.58	2.17	3.32	0.79	1.87	1.81	1.82	1.77	2.27	2.21
Alkalinity	< 300	80	40	40	100	0	0	100	80	40	40	100	0	0	0
Chlorine, Free	< 4	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Chlorine, Total	< 4	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hardness	nsi	100	100	100	40	20	40	40	100	100	100	40	40	40	0
Velocity (ft/s)	nsi	0.24	0.23	0.35	0.33	Na	0.1	0.36	0.07	0.1	0.2	0.17	Na	0.06	0.39

APPENDIX C

Field Logs

	Summary of Field Monitoring (pg 1/3)									
	November 2021									
Stream Point ID	Station Number	Weather	Air Temp	Technician	Date	Upgradient or Downgradient	Flow Appearance	Flow_Odor	Location	Sampling Site
ST 400 down	400	Overcast	35	Alison	11/30/2021	Downgradient	Clear	None	From Bridge	Open Channel
ST 400 up	400	Overcast	35	Alison	11/30/2021	Upgradient	Clear	None	From Bridge	Open Channel
ST 527 down	527	Overcast	35	Alison	11/30/2021	Downgradient	Dark tea clear	None	From Headwall	Open Channel
ST 527 up	527	Overcast	35	Alison	11/30/2021	Upgradient	Dark tea cloudy scum	None	From Bank	Open Channel
ST 540 down	540	Overcast	35	Alison	11/30/2021	Downgradient	Dark tea clear	None	From Headwall	Open Channel
ST 540 up	540	Overcast	35	Alison	11/30/2021	Upgradient	Dark tea clear	None	From Headwall	Open Channel
ST 561 down	561	Sunny	35	Alison	11/30/2021	Downgradient	Clear	None	From Bank	Open Channel
ST 561 up	561	Sunny	35	Alison	11/30/2021	Upgradient	Dark tea clear	None	From Headwall	Open Channel
ST 593 down	593	Sunny	35	Alison	11/30/2021	Downgradient	No flow	None	From Headwall	Other
ST 593 up	593	Sunny	35	Alison	11/30/2021	Upgradient	No flow	None	From Headwall	Other
ST 700 up	700	Sunny	35	Alison	11/30/2021	Upgradient	Dark tea cloudy yellow orangish	Sewer	From Headwall	Open Channel
ST 710 down	710	Sunny clear	30	Alison	11/30/2021	Downgradient	Only slight flow	None	From Headwall	Open Channel
ST 725 Up	725	Sunny	35	Alison	11/30/2021	Upgradient	Dark tea clear	None	From Bridge	Open Channel
ST 747 Down	747	Sunny	30	Alison	11/30/2021	Downgradient	Clear	None	From Bank	Open Channel
ST-725-D	725	Sunny	35	Alison	11/30/2021	Downgradient	Dark tea clear	None	From Bridge	Open Channel
ST-747-U	747	Sunny	30	Alison	11/30/2021	Upgradient	Clear	None	From Bank	Open Channel

		Summary of Field Monitoring (pg2/3)						
		November 2021						
Stream Point ID	Signs of Flow	Floatables	Condition of Bottom	Survey Comments	Water Temperature	Specific Conductance μS/cm @ 25 Degrees	Specific Conductance μS/cm	Dissolved Oxygen %
ST 400 down	Present-Fast	Other- None	Sand	No floatables	2.74	408	235	104
ST 400 up	Present-Fast	Debris_buildup	Sand		2.77	408	235	97
ST 527 down	Present-Slow	Iron_Bacteria,Debris_buildup	Not visible		2.48	304	174	67
ST 527 up	Present-Slow	Debris_buildup,Floating_Solids ,Iron_Bacteria,Trash	Not visible	Top of culvert below water level causing debris buildup	2.39	301	170	67
ST 540 down	Present-Fast	Foam,Debris_buildup	Sand and gravel		1.72	311	173	76
ST 540 up	Present-Fast	Other- None	Not visible	No floatables	1.62	312	172	73
ST 561 down	Present-Slow	Other- None	Gravel and sand	No floatables	1.17	311	168	76
ST 561 up	Present-Slow	Other- None	Sand and gravel	No floatables	0.84	308	166	64
ST 593 down	Not Seen	Other	Leaves	No flow	Ns	Ns	Ns	Ns
ST 593 up	Not Seen	Other	Leaves	No flow	Ns	Ns	Ns	Ns
ST 700 up	Not Seen	Iron_Bacteria,Debris_buildup, Floating_Solids,Trash	Not visible	Stagnant and orange foam	7.56	1110	742	51
ST 710 down	Not Seen	Other- None	Muds	No floatables	0.4	1054	559	59
ST 725 Up	Present-Fast	Debris_buildup,Foam,Trash	Not visible	Lot of foam and trash	1.17	309	168	95
ST 747 Down	Present-Slow	Other- None	Sand and mud	No floatables	1.75	453	252	96
ST-725-D	Present-Fast	Other- None	Not visible	No floatables	1.13	324	176	102
ST-747-U	Present-Slow	Other- None	Sand	No floatables	1.94	451	252	92

		Summary of Field Monitoring (pg 3/3)							
		November 2021							
Stream Point ID	Dissolved Oxygen mg/L	pH	ORP	Turbidity (NTU)	Hardness	Chlorine_Free	Chlorine_Total	Alkalinity	Velocity (ft/s)
ST 400 down	14.05	6.5	79	2.02	0	0	0	0	0.40
ST 400 up	13.12	6.5	78	1.95	0	0	0	0	0.28
ST 527 down	9.12	6.4	96	1.4	100	0	0	0	0.14
ST 527 up	9.17	6.3	97	1.53	100	0	0	0	0.21
ST 540 down	10.57	6.8	85	1.77	0	0	0	0	0.31
ST 540 up	10.16	6.6	87	1.86	100	0	0	0	0.31
ST 561 down	10.78	7.2	46	1.90	100	0	0	40	0.37
ST 561 up	9.07	6.9	72	1.72	0	0	0	0	0.16
ST 593 down	Ns	Ns	Ns	Ns	Ns	Ns	Ns	Ns	Ns
ST 593 up	Ns	Ns	Ns	Ns	Ns	Ns	Ns	Ns	Ns
ST 700 up	5.45	6.6	29	14.70	250	0	0	80	0.01
ST 710 down	8.52	6.5	72	6.00	100	0	0	40	0.02
ST 725 Up	13.48	7.1	81	2.42	100	0	0	40	0.23
ST 747 Down	13.37	7.3	57	1.82	100	0	0	40	0.17
ST-725-D	14.37	7.2	76	2.25	100	0	0	0	0.28
ST-747-U	12.66	7.2	59	1.69	100	0	0	40	0.33

	Summary of Field Monitoring (pg 1/3)								
	December 2021.								
Stream Point ID	Station Number	Weather	Air Temp	Technician	Date	Upgradient or Downgradient	Flow Appearance	Flow_Odor	Location
ST 400 down	Hop Brook	Sunny	33	ALH	12/23/2021	Downgradient	Clear	None	From Bridge
ST 400 up	Hop Brook	Sunny	33	ALH	12/23/2021	Upgradient	Clear	None	From Bridge
ST 527 down	Unnamed stream	Sunny	33	ALH	12/23/2021	Downgradient	Dark tea	None	From Headwall
ST 527 up	Unnamed stream	Sunny	33	ALH	12/23/2021	Upgradient	Cloudy dark tea	None	From Bank
ST 540 down	Dudley Brook	Sunny	32	ALH	12/23/2021	Downgradient	Clear light tea	None	From Headwall
ST 540 up	Dudley Brook	Sunny	32	ALH	12/23/2021	Upgradient	Clear dark tea	None	From Headwall
ST 561 down	Unnamed stream	Sunny	32	ALH	12/23/2021	Downgradient	Clear dark tea	None	From Bank
ST 561 up	Unnamed stream	Sunny	32	ALH	12/23/2021	Upgradient	Clear light tea	None	From Headwall
ST 593 down	Unnamed stream	Sunny	32	ALH	12/23/2021	Downgradient	No flow	None	From Headwall
ST 593 up	Unnamed stream	Sunny	32	ALH	12/23/2021	Upgradient	No flow	None	From Headwall
ST 700 up	Hop Brook Tributary	Sunny	31	ALH	12/23/2021	Upgradient	Cloudy scummy dark tea	None	From Headwall
ST 710 down	Hop brook tributary	Sunny	31	ALH	12/23/2021	Downgradient	Cloudy and clear	None	From Headwall
ST 725 Up	Hop Brook	Sunny	30	ALH	12/23/2021	Upgradient	Clear light tea color	None	From Bridge
ST 725-D	Hop Brook	Sunny	30	ALH	12/23/2021	Downgradient	Cloudy light tea color	None	From Bridge
ST 747 Down	<Null>	Sunny	30	ALH	12/23/2021	Downgradient	Clear	None	From Bank
ST 747-U	<Null>	Sunny	30	ALH	12/23/2021	Upgradient	Clear	None	From Bank

	Summary of Field Monitoring (pg2/3)								
	December 2021.								
Stream Point ID	Sampling Site	Signs of Flow	Floatables	Condition of Bottom	Survey Comments	Water Temperature	Specific Conductance $\mu\text{S}/\text{cm}$ @ 25 Degrees	Specific Conductance $\mu\text{S}/\text{cm}$	Dissolved Oxygen %
ST 400 down	Open Channel	Present-Fast	Debris_buildup	Sandy		2.12	408	230	105
ST 400 up	Open Channel	Present-Fast	Debris_buildup	Sandy		2.16	410	231	101.4
ST 527 down	Open Channel	Present-Slow	Other - None	Not visible	No floatables	1.63	262	145	74.2
ST 527 up	Open Channel	Present-Slow	Debris_buildup,Floating_Solids,Foam,Trash	Not visible	Culvert top below top of water	1.56	260	144	69.5
ST 540 down	Open Channel	Present-Fast	Foam	Sandy gravel	Double culvert	0.8	296	159	87.8
ST 540 up	Open Channel	Present-Fast	Debris_buildup	Gravel		1.02	288	157	79.3
ST 561 down	Open Channel	Present-Slow	Foam,Debris_buildup	Mud and sand		0.19	245	129	85
ST 561 up	Open Channel	Present-Slow	Other - None	Mud sandy	No floatables	0.02	244	127	71.3
ST 593 down	Other	Not Seen	Other	Leaves	No flow	Ns	Ns	Ns	Ns
ST 593 up	Other	Not Seen	Other	Leaves	No flow	Ns	Ns	Ns	Ns
ST 700 up	Backwater	Not Seen	Debris_buildup,Iron_Bacteria,Oil_Sheen,Trash	Not visible	Plastic wrapping in water	6.43	1079	697	56.2
ST 710 down	Pool	Not Seen	Iron_Bacteria	Mud leaves	Slight ice in surface	0.01	1108	580	72.8
ST 725 Up	Pool	Present-Slow	Debris_buildup,Floating_Solids,Foam,Trash	Not visible	Lots of foam. Trash building up each time	0.54	358	190	96.6
ST 725-D	Pool	Present-Fast	Other - None	Not visible	No floatables	0.51	358	190	101
ST 747 Down	Pool	Present-Slow	Other - None	Sandy	No floatables	0.33	403	213	95.3
ST 747-U	Pool	Present-Slow	Other - None	Sandy	No floatables, very clear	0.32	377	200	107

	Summary of Field Monitoring (pg 3/3)								
	December 2021.								
Stream Point ID	Dissolved Oxygen mg/L	pH	ORP	Turbidity (NTU)	Hardness	Chlorine_Free	Chlorine_Total	Alkalinity	Velocity (ft/s)
ST 400 down	14.33	6.8	117	2.43	0	0	0	20	Na
ST 400 up	13.95	6.8	104	2.37	0	0	0	20	Na
ST 527 down	10.31	6.2	122	2	0	0	0	0	Na
ST 527 up	9.71	6.0	127	2.98	0	0	0	20	Na
ST 540 down	12.49	6.5	103	1.46	0	0	0	20	Na
ST 540 up	11.15	6.6	106	1.54	0	0	0	0	Na
ST 561 down	12.28	6.5	79	1.73	0	0	0	0	Na
ST 561 up	10.4	6.6	98.6	1.44	0	0	0	40	Na
ST 593 down	Ns	Ns	Ns	Ns	Ns	Ns	Ns	Ns	Ns
ST 593 up	Ns	Ns	Ns	Ns	Ns	Ns	Ns	Ns	Ns
ST 700 up	6.88	6.4	14.5	7.59	0	0	0	40	Na
ST 710 down	10.51	6.5	60.2	3.82	0	0	0	20	Na
ST 725 Up	13.89	7.2	94	2.25	0	0	0	0	Na
ST 725-D	14.52	7.2	92.2	2.21	0	0	0	0	Na
ST 747 Down	13.79	7.1	82.3	1.77	0	0	0	40	Na
ST 747-U	15.15	7.2	76.4	1.58	0	0	0	20	Na

	Summary of Field Monitoring (pg 1/3)									
	January 2022									
Stream Point ID	Station Number	Weather	AirTemp	Technician	Date	Upgradient or Downgradient	Flow Appearance	Flow_Odor	Location	Sampling Site
ST 400 down	Hop brook	Sunny	40	ALH	1/19/2022	Downgradient	Clear	None	From Bridge	Open Channel
ST 400 up	Hop Brook	Windy sunny	40	ALH	1/19/2022	Upgradient	Clear	None	From Bridge	Open Channel
ST 527 down	Unnamed	Sunny	40	ALH	1/19/2022	Downgradient	Clear dark tea	None	From Headwall	Open Channel
ST 527 up	Unnamed	Sunny	40	ALH	1/19/2022	Upgradient	Clear dark tea	None	From Headwall	Open Channel
ST 540 down	Dudley Brook	Overcast	40	ALH	1/19/2022	Downgradient	Clear	None	From Headwall	Open Channel
ST 540 up	Dudley brook	Sunny	40	ALH	1/19/2022	Upgradient	Clear dark tea	None	From Headwall	Open Channel
ST 561 down	Unnamed	Overcast	38	ALH	1/19/2022	Downgradient	Clear	None	From Bank	Open Channel
ST 561 up	Unnamed	Overcast	38	ALH	1/19/2022	Upgradient	Clear	None	From Headwall	Open Channel
ST 593 down	Unnamed	Sunny	38	ALH	1/19/2022	Downgradient	No flow	None	From Headwall	Other
ST 593 up	Unnamed	Sunny	38	ALH	1/19/2022	Upgradient	No flow	None	From Headwall	Other
ST 700 up	Hop Brook tributary	Sunny	35	ALH	1/19/2022	Upgradient	Cloudy light tea	None	From Headwall	Open Channel
ST 710 down	Hop brook tributary	Overcast	30	ALH	1/19/2022	Downgradient	Clear light brown	None	From Headwall	Open Channel
ST 725 Up	Hop Brook	Sunny	35	ALH	1/19/2022	Upgradient	Clear	None	From Bank	Open Channel
ST 725-D	Hop Brook	Sunny	35	ALH	1/19/2022	Downgradient	Clear	None	From Bank	Open Channel
ST 747 Down	Wash brook tributary	Overcast	30	ALH	1/19/2022	Downgradient	Clear	None	From Bank	Open Channel
ST 747-U	Wash brook tributary	Overcast	30	ALH	1/19/2022	Upgradient	Clear	None	From Bank	Open Channel

	Summary of Field Monitoring (pg2/3)							
	January 2022							
Stream Point ID	Signs of Flow	Floatables	Condition of Bottom	Survey Comments	Water Temperature	Specific Conductance μS/cm @ 25 Degrees	Specific Conductance μS/cm	Dissolved Oxygen %
ST 400 down	Present-Fast	Other	Not visible	<Null>	2.47	573	327	98.9
ST 400 up	Present-Fast	Debris_buildup	Sandy	<Null>	2.48	573	327	99.1
ST 527 down	Present-Slow	Other	Not visible	Ice	1.07	294	159	73.8
ST 527 up	Present-Slow	Other	Not visible	Ice	1.08	309	163	72.3
ST 540 down	Present-Fast	Foam,Other	Sand and gravel	Ice	0.27	376	199	78.2
ST 540 up	Present-Fast	Debris_buildup,Other	Not visible or muddy	Ice	0.42	377	198	80.4
ST 561 down	Present-Slow	Debris_buildup	Gravel and rock	<Null>	0.27	281	149	43.9
ST 561 up	Present-Slow	Other	Sandy	No floats	0.22	269	141	40.2
ST 593 down	Not Seen	Other	Leaves	No flow	Ns	Ns	Ns	Ns
ST 593 up	Not Seen	Other	Leaves	No flow	Ns	Ns	Ns	Ns
ST 700 up	Present-Slow	Debris_buildup,Foam,Iron_Bacteria,Trash	Not visible	Large trash	4.49	1689	1027	61.4
ST 710 down	Not Seen	Other	Mud leaves	Iced over no floats	Ns	Ns	Ns	0
ST 725 Up	Present-Fast	Debris_buildup,Floating_Solids,Trash,Other	Not visible	Ice	0.05	487	255	104.5
ST 725-D	Present-Fast	Other	Not visible	Ice	0.06	487	255	105.9
ST 747 Down	Present-Slow	Other	Sandy	No floats	0.76	532	285	102.6
ST 747-U	Present-Slow	Other	Gravel and sand	No floats. Some Ice	0.83	530	286	96.6

	Summary of Field Monitoring (pg 3/3)								
	January 2022								
Stream Point ID	Dissolved Oxygen mg/L	pH	ORP	Turbidity (NTU)	Hardness	Chlorine_Free	Chlorine_Total	Alkalinity	Velocity (ft/s)
ST 400 down	13.46	7.0	119	2.56	0	0	0	0	0.35
ST 400 up	13.4	7.0	68.6	2.58	0	0	0	0	0.36
ST 527 down	10.45	6.0	81	1.5	0	0	0	0	0.1
ST 527 up	10.2	6.0	97	2.2	0	0	0	0	0.15
ST 540 down	11.33	7.0	52	1.94	0	0	0	0	0.25
ST 540 up	11.6	7.0	55	1.66	0	0	0	0	0.8
ST 561 down	6.29	6.7	95.3	1.67	0	0	0	0	0.04
ST 561 up	5.81	6.7	67.8	1.7	0	0	0	0	0.04
ST 593 down	Ns	Ns	Ns	Ns	Ns	Ns	Ns	Ns	Ns
ST 593 up	Ns	Ns	Ns	Ns	Ns	Ns	Ns	Ns	Ns
ST 700 up	7.84	6.4	70	3.76	100	0	0	40	0.02
ST 710 down	Ns	Ns	Ns	Ns	Ns	Ns	Ns	Ns	0
ST 725 Up	15.2	7.4	35	2.21	0	0	0	0	0.46
ST 725-D	15.39	7.3	29	2.4	0	0	0	0	0.3
ST 747 Down	14.63	7.84	21.2	2.27	0	0	0	40	0.06
ST 747-U	13.77	7.36	-14.8	2.17	0	0	0	40	0.1

	Summary of Field Monitoring (pg 1/3)									
	Feb-22									
Stream Point ID	Station Number	Weather	AirTemp	Technician	Date	Upgradient or Downgradient	Flow Appearance	Flow_Odor	Location	Sampling Site
ST 400 down	Hop brook	Partly cloudy	60	ALH	2/23/2022	Downgradient	Clear	None	Bridge	Open Channel
ST 400 up	Hop Brook	Partly cloudy	60	ALH	2/23/2022	Upgradient	Clear	None	Bridge	Open Channel
ST 527 down	Unnamed	Partly cloudy	60	ALH	2/23/2022	Downgradient	Clear	None	Headwall	Open Channel
ST 527 up	Unnamed	Partly cloudy	60	ALH	2/23/2022	Upgradient	Clear	None	Headwall	Open Channel
ST 540 down	Dudley Brook	Partly cloudy	60	ALH	2/23/2022	Downgradient	Clear	None	Headwall	Open Channel
ST 540 up	Dudley brook	Partly sunny	60	ALH	2/23/2022	Upgradient	Clear	None	Headwall	Open Channel
ST 561 down	Unnamed	Partly cloudy	58	ALH	2/23/2022	Downgradient	Clear	None	Headwall	Open Channel
ST 561 up	Unnamed	Partly cloudy	58	ALH	2/23/2022	Upgradient	Clear	None	Headwall	Open Channel
ST 593 down	Unnamed	Partly cloudy	55	ALH	2/23/2022	Downgradient	None	Ns	Ns	Ns
ST 593 up	Unnamed	Partly cloudy	55	ALH	2/23/2022	Upgradient	None	Ns	Ns	Ns
ST 700 up	Hop Brook tributary	Partly cloudy	55	ALH	2/23/2022	Upgradient	Cloudy orange	Sewage	Headwall	Open Channel
ST 710 down	Hop brook tributary	Sunny	60	ALH	2/23/2022	Downgradient	Clear orangey	None	Headwall	Open Channel
ST 725 Up	Hop Brook	Sunny	60	ALH	2/23/2022	Upgradient	Clear	None	Bridge	Open Channel
ST 725-D	Hop Brook	Sunny	55	ALH	2/23/2022	Downgradient	Clear	None	Bank	Open Channel
ST 747 Down	Wash brook tributary	Sunny	60	ALH	2/23/2022	Downgradient	Clear	None	Bridge	Open Channel
ST 747-U	Wash brook tributary	Sunny	56	ALH	2/23/2022	Upgradient	Clear	None	Bank	Open Channel

	Summary of Field Monitoring (pg2/3)							
	Feb-22							
Stream Point ID	Signs of Flow	Floatables	Condition of Bottom	Survey Comments	Water Temperature	Specific Conductance µS/cm @ 25 Degrees	Specific Conductance µS/cm	Dissolved Oxygen %
ST 400 down	Present_Fast	Debris_buildup	Sandy		6.45	775	500	83.5
ST 400 up	Present_Fast	Debris_buildup	Sandy		6.48	768	496	80.1
ST 527 down	Present_Fast	Other	Not visible	No floats	5.49	538	337	64.6
ST 527 up	Present_Fast	Foam	Not visible		5.58	527	332	62.4
ST 540 down	Present_Fast	Foam	Not visible		5.47	628	394	74.3
ST 540 up	Present_Fast	Other	Not visible	No floats	5.2	573	360	83
ST 561 down	Present_Slow	Other	Gravelly	No floats	6.79	497	324	63.6
ST 561 up	Present_Slow	Debris_buildup	Gravel		6.7	485	315	62.4
ST 593 down	Ns	Ns	Ns	Ns	Ns	Ns	Ns	Ns
ST 593 up	Ns	Ns	Ns	Ns	Ns	Ns	Ns	Ns
ST 700 up	Present_Slow	Debris_buildup,Floating_Solids, Foam,Iron_Bacteria,Trash	Not visible		6.79	2225	1450	84.2
ST 710 down	Present_Slow	Trash	Orange scum leaves		8.55	2215	1520	54.8
ST 725 Up	Present_Fast	Debris_buildup,Foam,Trash	Not visible		6.3	789	507	82.8
ST 725-D	Present_Fast	Foam	Sandy		4.91	777	479	74
ST 747 Down	Present_Fast	Other	Not visible	No floats	6.31	803	516	81.8
ST 747-U	Present_Fast	Foam	Sandy		5.04	774	473	73.5

	Summary of Field Monitoring (pg 3/3)								
	Feb-22								
Stream Point ID	Dissolved Oxygen mg/L	pH	ORP	Turbidity (NTU)	Hardness	Chlorine_Free	Chlorine_Total	Alkalinity	Velocity (ft/s)
ST 400 down	10.24	7.1	159	1.88	100	0	0	40	1.25
ST 400 up	9.82	7.2	156	1.83	100	0	0	40	1.3
ST 527 down	8.13	6.2	175	1.81	0	0	0	0	0.48
ST 527 up	7.82	6.2	200	2.03	0	0	0	0	0.53
ST 540 down	9.28	6.8	137	2.08	0	0	0	0	0.6
ST 540 up	10.26	6.7	162	2.2	100	0	0	0	0.78
ST 561 down	7.74	6.9	131	1.89	0	0	0	0	0.28
ST 561 up	7.6	6.8	147	1.58	100	0	0	40	0.15
ST 593 down	Ns	Ns	Ns	Ns	Ns	Ns	Ns	Ns	Ns
ST 593 up	Ns	Ns	Ns	Ns	Ns	Ns	Ns	Ns	Ns
ST 700 up	10.19	6.8	56.3	6.34	250	0	0	40	0.1
ST 710 down	6.35	6.8	92.4	3.98	100	0	0	40	0.18
ST 725 Up	10.29	7.2	88.5	2.07	0	0	0	0	0.34
ST 725-D	9.44	7.1	128	2.76	100	0	0	0	0.28
ST 747 Down	10.06	7.07	25.5	2.21	0	0	0	0	0.39
ST 747-U	9.33	7.15	124	3.32	100	0	0	40	0.36