401 Wampanoag Trail, Suite 400
East Providence, RI 02915

t 401.330.1204

April 25, 2025

Christine Clancy, PE
DPW Director
9 Alpha Rd
Chelmsford, Massachusetts 01824

Re: Freeman Lake Chloride and Specific Conductance Sampling
TRC Project No. 557159

Dear Ms. Clancy,

As part of the recent update to the Freeman Lake Diagnostic and Lake Management Assessment, TRC Environmental Corporation (TRC) collected specific conductance and chloride data from Freeman Lake, the Stony Brook diversion channel, and stormwater outfalls to the lake. The purpose of this sampling was to develop a relationship between specific conductance, which is readily field-measured, and chloride concentrations, which require collection of water quality samples and laboratory analysis.

Specific conductance is a measure of electrical conductivity in the water and is standardized to a temperature of 25°C (77°F). Although specific conductance can be affected by the presence of any charged materials in the water, it is most responsive to dissolved salts and typically tracks with salinity. While specific conductance is not a pollutant itself, it can be used as an indicator of relative human impact on a waterbody, when compared with natural background levels.

Chloride is an anion (negatively charged ion), which contributes to electrical conductivity when dissolved in water. Although abundant in marine waters, chloride is relatively uncommon in inland waterbodies, except where introduced by human activities. Among the human actions that can add chloride to inland waterbodies are fertilization of lawns and gardens, septic discharges, and deicing of impervious surfaces – typically as rock salt (sodium chloride) but sometimes as magnesium chloride or calcium chloride). Chloride is considered a micronutrient for both plants and animals. However, at high concentrations, chloride can be toxic to freshwater aquatic life (chronic exposure of 230 mg/L or acute of 860 mg/L [US EPA 1988]).

The sample collection process and results are presented in the following sections.

Sample Collection

Specific conductance and chloride were assessed on October 2, 2024 at three locations and again on March 17, 2025 at five locations in and around Freeman Lake. Specific conductance was either field-measured using a YSI Pro2030 handheld meter or sent to Phoenix Environmental Laboratories of Manchester, Connecticut (Phoenix). Chloride samples were collected and sent to Phoenix for analysis.

The October 2, 2024 sampling event was representative of dry weather conditions in the lake and Stony Brook diversion channel during autumn. The March 17, 2025 sampling event was representative of late winter wet weather conditions and included sampling of three stormwater outfalls (Figure 1 and Table 1).

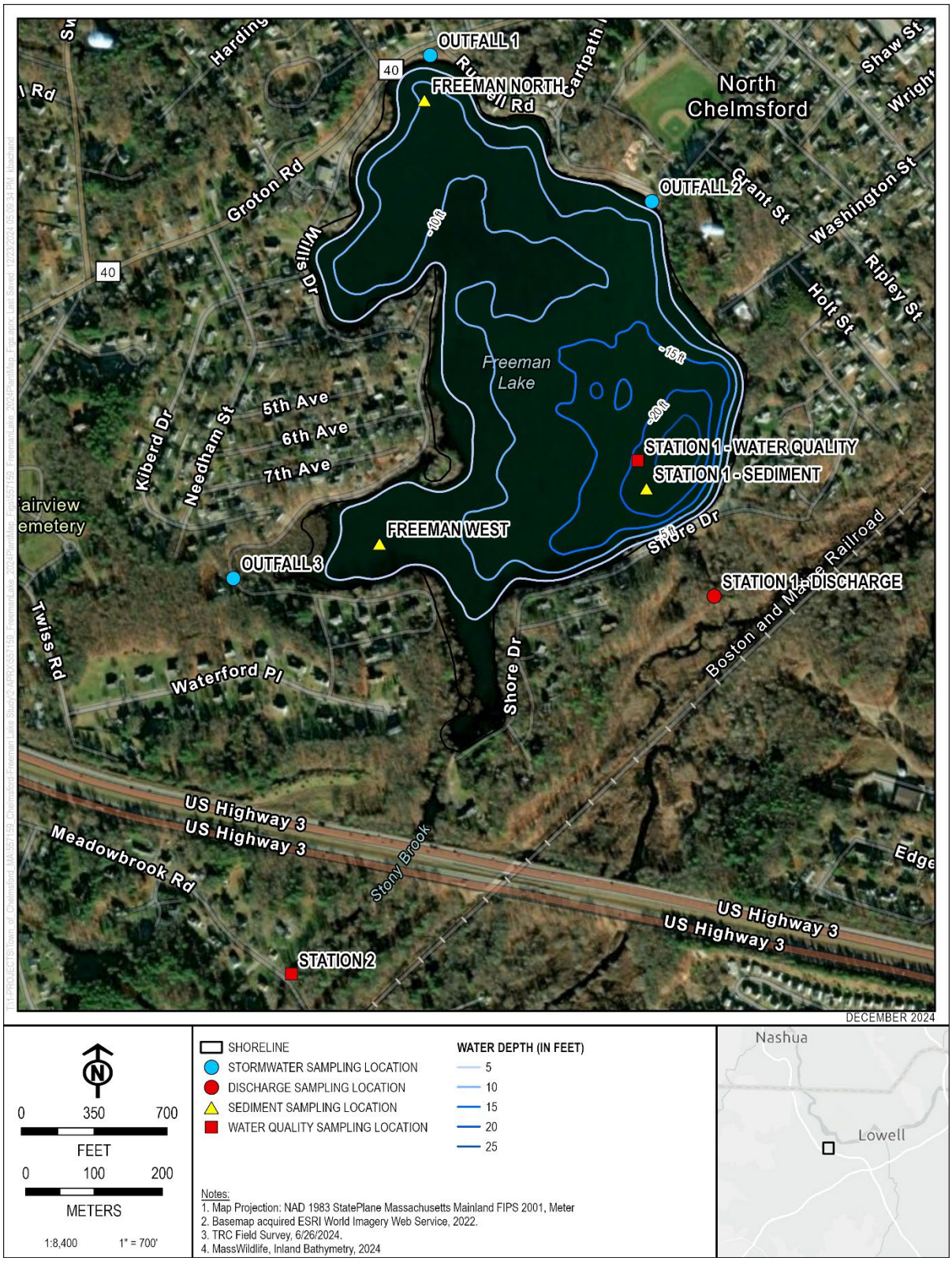

Figure 1. Freeman Lake Sampling Locations

Note: Sediment sampling and discharge measurement locations were visited as part of the broader Freeman Lake Diagnostic and Management Plan study but were not included in the chloride and specific conductance sampling events.

Results

Specific conductance ranged from 70 µS/cm to 500 µS/cm (Table 1). The lowest result was observed in the runoff collected from Outfall 3 on the northwest side of Freeman Lake (Willis Drive). The highest result was obtained from the bottom of Freeman Lake in the October 2, 2024 sample.

Chloride ranged from 4.7 mg/L in runoff collected from Outfall 3 on the northwest side of Freeman Lake to 111 mg/L at the surface of Freeman Lake in the March 17, 2025 sample. These values are below the acute and chronic exposure criteria for chloride, when associated with sodium (US EPA 1988).

Table 1. Specific Conductance and Chloride Results

Date	Site ID	Location	Specific Conductance (µS/cm)	Chloride (mg/L)
10/02/24	Station 1 - Surface	Freeman Lake Surface	451	108
	Station 1 - Bottom	Freeman Lake Bottom	500	97.8
	Station 2	Stony Brook Diversion	454	98.2
3/17/25	Station 1 - Surface	Freeman Lake Surface	440	111
	Station 2	Stony Brook Diversion	389	101
	Outfall 1 - North	Route 40	130	33.1
	Outfall 2 - East	Varney Park/Freeman Lake Beach	70	15.3
	Outfall 3 - Northwest	Willis Drive	31	4.7

When the Freeman Lake specific conductance results are plotted against chloride concentrations, the relationship appears to be linear (Figure 2) and can be represented by the following formula:

$$y = 0.226x + 1.5105$$

where y is chloride concentration in mg/L and x is specific conductance in µS/cm.

In the future, specific conductance can be field-measured and converted to chloride using this formula for Freeman Lake and its watershed. This includes discrete measurements with a handheld sensor or sonde, as well as continuous measurements using an in situ datalogger.

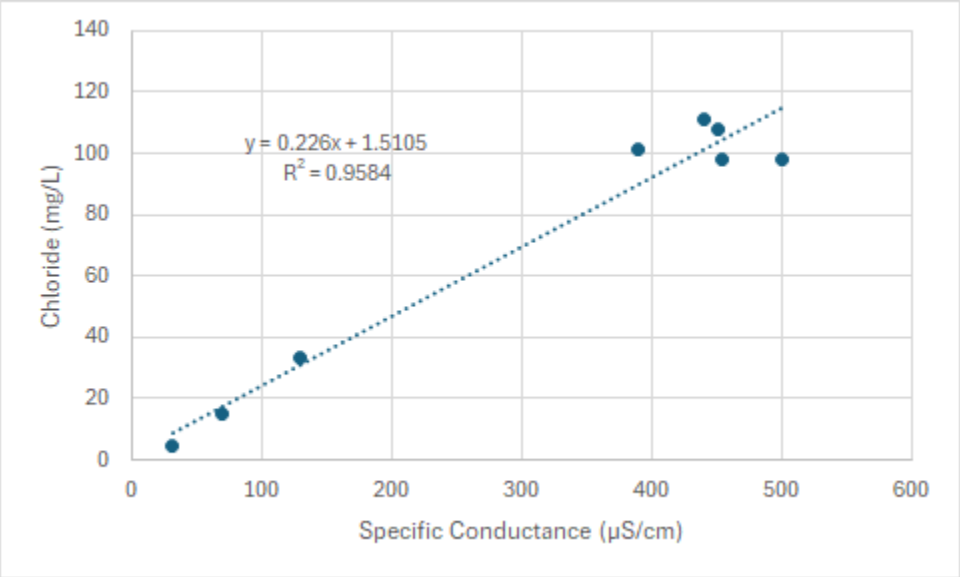

Figure 2. Plot of Specific Conductance against Chloride Concentration for Freeman Lake and Watershed

Should the Town of Chelmsford have any questions, please contact me at (401) 330-1204 or mladewig@trccompanies.com.

Sincerely,

TRC Environmental Corporation

Matt Ladewig, CLM
Project Manager

Attachments: Laboratory reports

PHOENIX
Environmental Laboratories, Inc.

Monday, October 14, 2024

Attn: Matt Ladewig
ESS Group Inc. A TRC Company
10 Hemingway Drive 2nd Floor
Riverside, RI 02915-2224

Project ID: 557159.0000.0000
SDG ID: GCR78239
Sample ID#s: CR78239 - CR78241

This laboratory is in compliance with the NELAC requirements of procedures used except where indicated.

This report contains results for the parameters tested, under the sampling conditions described on the Chain Of Custody, as received by the laboratory. This report is incomplete unless all pages indicated in the pagination at the bottom of the page are included.

A scanned version of the COC form accompanies the analytical report and is an exact duplicate of the original.

The contents of this report cannot be discussed with anyone other than the client listed above without their written consent.

Sincerely yours,

Phyllis Shiller
Laboratory Director

NELAC - #NY11301
CT Lab Registration #PH-0618
MA Lab Registration #M-CT007
ME Lab Registration #CT-007
NH Lab Registration #213693-A,B
NJ Lab Registration #CT-003
NY Lab Registration #11301
PA Lab Registration #68-03530
RI Lab Registration #63
VT Lab Registration #VT11301

Environmental Laboratories, Inc.
587 East Middle Turnpike, P.O.Box 370, Manchester, CT 06045
Tel. (860) 645-1102 Fax (860) 645-0823

Sample Id Cross Reference

October 14, 2024

SDG I.D.: GCR78239

Project ID: 557159.0000.0000

Client Id	Lab Id	Matrix
STATION 1-SURFACE	CR78239	SURFACE WATER
STATION 1-BOTTOM	CR78240	SURFACE WATER
STATION 2	CR78241	SURFACE WATER

Environmental Laboratories, Inc.
587 East Middle Turnpike, P.O.Box 370, Manchester, CT 06045
Tel. (860) 645-1102

Analysis Report

October 14, 2024

FOR: Attn: Matt Ladewig
ESS Group Inc. A TRC Company
10 Hemingway Drive 2nd Floor
Riverside, RI 02915-2224

Sample Information		Custody Information		Date	Time
Matrix:	SURFACE WATER	Collected by:		10/02/24	9:15
Location Code:	TRC-RI	Received by:	CP	10/03/24	15:50
Rush Request:	Standard	Analyzed by:	see "By" below		
P.O.#:					

Laboratory Data

SDG ID: GCR78239
Phoenix ID: CR78239

Project ID: 557159.0000.0000
Client ID: STATION 1-SURFACE

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
Alkalinity-CaCO3	33	20.0	mg/L	1	10/04/24	MW	SM2320B-11
Chloride	108	3.0	mg/L	1	10/07/24	ER	SM4500CLE-11
Ammonia as Nitrogen	0.08	0.05	mg/L	1	10/11/24	KDB	E350.1
Nitrate-N	< 0.02	0.02	mg/L	1	10/03/24 22:56	ER	E353.2
Soluble Reactive Phosphorus, as P	< 0.01	0.01	mg/L	1	10/04/24	ER	SM4500PE-99
Nitrogen Tot Kjeldahl	0.52	0.10	mg/L	1	10/11/24	KDB	E351.1
Phosphorus, as P	0.052	0.003	mg/L	0.5	10/10/24	BS	SM4500PE-11
Total Suspended Solids	< 2.5	2.5	mg/L	0.5	10/07/24	AK/EC	SM2540D-15

RL/PQL=Reporting/Practical Quantitation Level ND=Not Detected BRL=Below Reporting Level

Comments:

If you are the client above and have any questions concerning this testing, please do not hesitate to contact Phoenix Client Services at ext.200.
The contents of this report cannot be discussed with anyone other than the client listed above without their written consent.

Phyllis Shiller, Laboratory Director
October 14, 2024
Reviewed and Released by: Anil Makol, Project Manager

Ver 1

Environmental Laboratories, Inc.
587 East Middle Turnpike, P.O.Box 370, Manchester, CT 06045
Tel. (860) 645-1102

Analysis Report

October 14, 2024

FOR: Attn: Matt Ladewig
ESS Group Inc. A TRC Company
10 Hemingway Drive 2nd Floor
Riverside, RI 02915-2224

Sample Information		Custody Information		Date	Time
Matrix:	SURFACE WATER	Collected by:		10/02/24	9:25
Location Code:	TRC-RI	Received by:	CP	10/03/24	15:50
Rush Request:	Standard	Analyzed by:	see "By" below		
P.O.#:					

Laboratory Data

SDG ID: GCR78239
Phoenix ID: CR78240

Project ID: 557159.0000.0000
Client ID: STATION 1-BOTTOM

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
Alkalinity-CaCO3	65	20.0	mg/L	1	10/04/24	MW	SM2320B-11
Chloride	97.8	3.0	mg/L	1	10/07/24	ER	SM4500CLE-11
Ammonia as Nitrogen	1.21	0.05	mg/L	1	10/11/24	KDB	E350.1
Nitrate-N	< 0.02	0.02	mg/L	1	10/03/24 23:07	ER	E353.2
Soluble Reactive Phosphorus, as P	< 0.01	0.01	mg/L	1	10/04/24	ER	SM4500PE-99
Nitrogen Tot Kjeldahl	1.65	0.10	mg/L	1	10/11/24	KDB	E351.1
Phosphorus, as P	0.037	0.003	mg/L	0.5	10/10/24	BS	SM4500PE-11
Total Suspended Solids	3.3	2.8	mg/L	0.6	10/07/24	AK/EC	SM2540D-15

RL/PQL=Reporting/Practical Quantitation Level ND=Not Detected BRL=Below Reporting Level

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Phyllis Shiller, Laboratory Director
October 14, 2024
Reviewed and Released by: Anil Makol, Project Manager

Ver 1

Environmental Laboratories, Inc.
587 East Middle Turnpike, P.O.Box 370, Manchester, CT 06045
Tel. (860) 645-1102

Analysis Report

October 14, 2024

FOR: Attn: Matt Ladewig
ESS Group Inc. A TRC Company
10 Hemingway Drive 2nd Floor
Riverside, RI 02915-2224

Sample Information		Custody Information		Date	Time
Matrix:	SURFACE WATER	Collected by:		10/02/24	10:40
Location Code:	TRC-RI	Received by:	CP	10/03/24	15:50
Rush Request:	Standard	Analyzed by:	see "By" below		
P.O.#:					

Laboratory Data

SDG ID: GCR78239
Phoenix ID: CR78241

Project ID: 557159.0000.0000
Client ID: STATION 2

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
Alkalinity-CaCO3	53	20.0	mg/L	1	10/04/24	MW	SM2320B-11
Chloride	98.2	3.0	mg/L	1	10/07/24	ER	SM4500CLE-11
Ammonia as Nitrogen	0.08	0.05	mg/L	1	10/11/24	KDB	E350.1
Nitrate-N	0.37	0.02	mg/L	1	10/03/24 23:08	ER	E353.2
Soluble Reactive Phosphorus, as P	< 0.01	0.01	mg/L	1	10/04/24	ER	SM4500PE-99
Nitrogen Tot Kjeldahl	0.43	0.10	mg/L	1	10/11/24	KDB	E351.1
Phosphorus, as P	0.037	0.003	mg/L	0.5	10/10/24	BS	SM4500PE-11
Total Suspended Solids	< 2.5	2.5	mg/L	0.5	10/07/24	AK/EC	SM2540D-15

RL/PQL=Reporting/Practical Quantitation Level ND=Not Detected BRL=Below Reporting Level

Comments:

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Phyllis Shiller, Laboratory Director
October 14, 2024
Reviewed and Released by: Anil Makol, Project Manager

Environmental Laboratories, Inc.
587 East Middle Turnpike, P.O.Box 370, Manchester, CT 06045
Tel. (860) 645-1102

QA/QC Report

October 14, 2024

QA/QC Data

SDG I.D.: GCR78239

Parameter	Blank	Blk RL	Sample Result	Dup Result	Dup RPD	LCS %	LCSD %	LCS RPD	MS %	MSD %	MS RPD	% Rec Limits	% RPD Limits
QA/QC Batch 753126 (mg/L), QC Sample No: CR78109 (CR78239, CR78240, CR78241)													
Phosphorus, as P	BRL	0.01	0.101	0.119	16.4	98.3			97.0			85 - 115	20
Comment:													
Additional: LCS acceptance range is 85-115% MS acceptance range 75-125%.													
QA/QC Batch 752449 (mg/L), QC Sample No: CR78196 (CR78239, CR78240, CR78241)													
Total Suspended Solids	BRL	2.5	<2.0	<2.0	NC	105						85 - 115	
QA/QC Batch 752294 (mg/L), QC Sample No: CR78239 (CR78239, CR78240, CR78241)													
Alkalinity-CaCO3	BRL	5.00	33	31	NC	100						85 - 115	20
Comment:													
Additional: LCS acceptance range is 85-115% MS acceptance range 75-125%.													
QA/QC Batch 752145 (mg/L), QC Sample No: CR77708 (CR78239, CR78240, CR78241)													
Nitrate as Nitrogen	BRL	0.05	<0.01	<0.05	NC	95.1			95.0			90 - 110	20
QA/QC Batch 752585 (mg/L), QC Sample No: CR78159 (CR78239, CR78240, CR78241)													
Chloride	BRL	3.0	14.6	14.5	NC	101			103			90 - 110	20
QA/QC Batch 752140 (mg/L), QC Sample No: CR78165 (CR78239)													
Nitrate-N	BRL	0.02	0.29	0.29	0	95.2			99.0			90 - 110	20
QA/QC Batch 752142 (mg/L), QC Sample No: CR78543 (CR78240, CR78241)													
Nitrate-N	BRL	0.02	0.03	0.03	NC	94.3			99.6			90 - 110	20
QA/QC Batch 753015 (mg/L), QC Sample No: CR78184 (CR78239, CR78240, CR78241)													
Ammonia as Nitrogen	BRL	0.05	1.40	1.40	0	91.7			91.0			90 - 110	20
Nitrogen Tot Kjeldahl	BRL	0.10	2.94	2.74	7.00	93.5			108			85 - 115	20
Comment:													
TKN is reported as Organic Nitrogen in the Blank, LCS, DUP and MS.													

If there are any questions regarding this data, please call Phoenix Client Services at extension 200.

RPD - Relative Percent Difference
LCS - Laboratory Control Sample
LCSD - Laboratory Control Sample Duplicate
MS - Matrix Spike
MS Dup - Matrix Spike Duplicate
NC - No Criteria
Intf - Interference
(ISO) - Isotope Dilution

Phyllis Shiller, Laboratory Director
October 14, 2024

Monday, October 14, 2024

Criteria: None

State: MA

Sample Criteria Exceedances Report

GCR78239 - TRC-RI

SampNo	Acode	Phoenix Analyte	Criteria	Result	RL	Criteria	RL Criteria	Analysis Units

*** No Data to Display ***

Phoenix Laboratories does not assume responsibility for the data contained in this exceedance report. It is provided as an additional tool to identify requested criteria exceedences. All efforts are made to ensure the accuracy of the data (obtained from appropriate agencies). A lack of exceedence information does not necessarily suggest conformance to the criteria. It is ultimately the site professional's responsibility to determine appropriate compliance.

Environmental Laboratories, Inc.
587 East Middle Turnpike, P.O.Box 370, Manchester, CT 06045
Tel. (860) 645-1102 Fax (860) 645-0823

ACCREDITED IN ACCORDANCE WITH nelac NY # 11301

Analysis Comments

October 14, 2024 SDG I.D.: GCR78239

The following analysis comments are made regarding exceptions to criteria not already noted in the Analysis Report or QA/QC Report: None.

Cooler: Yes ☑ No ☐
Coolant: IPK ☑ ICE ☐ No ☐

PHOENIX
Environmental Laboratories, Inc.

CT/MA/RI CHAIN OF CUSTODY RECORD

587 East Middle Turnpike, P.O. Box 370, Manchester, CT 06040
Email: makrina@phoenixlabs.com Fax (860) 645-0823
Client Services (860) 645-1102

Temp 1.1 ° C Pg of

Data Delivery/Contact Options:
☐ Fax: _____
☐ Phone: _____
☐ Email: mladewig@trccompanies.com

Customer: TRC Environmental Corporation
Address: 10 Hemingway Drive
East Providence, RI 02915

Project: 557159.0000.0000
Report to: Matt Ladewig
Invoice to:
Quote #

Project P.O:

This section MUST be completed with Bottle Quantities.

Client Sample - Information - Identification

Sampler's Signature _____ Date: _____

Matrix Code:
DW=Drinking Water **GW**=Ground Water **SW**=Surface Water **WW**=Waste Water
RW=Raw Water **SE**=Sediment **SL**=Sludge **S**=Soil **SD**=Solid **W**=Wipe **OIL**=Oil
B=Bulk **L**=Liquid **X** = _____(Other)

PHOENIX USE ONLY SAMPLE #	Customer Sample Identification	Sample Matrix	Date Sampled	Time Sampled	*MS/MSD (May be billable at analysis unit rate)	Total Phosphorus	TKN	Nitrate-Nitrogen	Ammonia Nitrogen	Alkalinity	Soluble Reactive Phosphorus	Total Suspended Solids	Chloride				GL Amber 8 oz. [ ] w/H_3PO_4 [ ] $NAHSO_4$	Soil VOA Vials [ ] methanol [ ] H_2O	GL Soil container ( ) oz	GL Soil container ( ) oz	40 ml VOA Vial [ ] As is [ ] HCl	GL Amber 1000ml [ ] As is [ ] H_2SO_4	PL As is [X] 250ml [ ] 500ml [ ] 1000ml	PL H_2SO_4 [ ] 250ml [ ] 500ml [X] 500ml	PL HNO_3 250ml [ ] 500ml	PL NaOH 250ml	Bacteria Bottle w/thio	Bacteria Bottle as is	As Is (alk)
38239	Station 1- Surface	SW	10/2	0915		x	x	x	x	x	x	x	x									4	1						1
38240	Station 1- Bottom	SW	10/2	0925		x	x	x	x	x	x	x	x									4	1						1
38241	Station 2	SW	10/2	1040		x	x	x	x	x	x	x	x									4	1						1

Relinquished by:	Accepted by:	Date:	Time:
		10/3/24	940
		10/3/24	15:50

Comments, Special Requirements or Regulations:
Note low detect on phos -0.01 mg/L or better
~~Low detect on Cu, 0.004 ppm or better~~
~~results will be compared to MA industrial stormwater standards~~

MS/MSD are considered site samples and will be billed as such in accordance with the prices quoted.

Turnaround Time:
☐ 1 Day* ☑ Standard
☐ 2 Days* ☐ Other _____
☐ 3 Days*
☐ 4 Days*
☐ 5 Days*

*** SURCHARGES MAY APPLY**

RI
☐ RES DEC
☐ I/C DEC
☐ GA Leachability
☐ GB Leachability
☐ GA -GW Objectives
☐ GB -GW Objectives
☐ Other

CT
☐ RCP Cert
☐ GWPC
☐ SWPC
☐ GA PMC
☐ GB PMC
☐ SWPC
☐ RES DEC
☐ I/C DEC

MA
☐ MCP Certification
☐ GW-1 ☐ RCS-1 / RCGW-1
☐ GW-2 ☐ RCS-2 / RCGW-2
☐ GW-3
☐ S-1 ☐ _____
☐ S-2
☐ S-3
☐ SW Protection

State where samples were collected: MA

Data Format
☑ Excel
☑ PDF
☐ GIS/Key
☐ EQuIS
☐ Other

Data Package
☐ Tier II Checklist*
☐ Full Data Package*
☑ Phoenix Std
☐ Other

*** SURCHARGE APPLIES**

PHOENIX
Environmental Laboratories, Inc.

Friday, March 21, 2025

Attn: Matt Ladewig
ESS Group Inc. A TRC Company
401 Wampanoag Trail
Riverside, RI 02915-2224

Project ID: **FREEMAN LAKE (557159)**
SDG ID: **GCS82294**
Sample ID#s: **CS82294 - CS82298**

This laboratory is in compliance with the NELAC requirements of procedures used except where indicated.

This report contains results for the parameters tested, under the sampling conditions described on the Chain Of Custody, as received by the laboratory. This report is incomplete unless all pages indicated in the pagination at the bottom of the page are included.

A scanned version of the COC form accompanies the analytical report and is an exact duplicate of the original.

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Sincerely yours,

Phyllis Shiller
Laboratory Director

NELAC - #NY11301
CT Lab Registration #PH-0618
MA Lab Registration #M-CT007
ME Lab Registration #CT-007
NH Lab Registration #213693-A,B
NJ Lab Registration #CT-003
NY Lab Registration #11301
PA Lab Registration #68-03530
RI Lab Registration #63
VT Lab Registration #VT11301

Environmental Laboratories, Inc.
587 East Middle Turnpike, P.O.Box 370, Manchester, CT 06045
Tel. (860) 645-1102 Fax (860) 645-0823

Sample Id Cross Reference

March 21, 2025

SDG I.D.: GCS82294

Project ID: FREEMAN LAKE (557159)

Client Id	Lab Id	Matrix	Col Date
STATION 1	CS82294	SURFACE WATER	03/17/25 8:50
OUTLET 1 (NORTH)	CS82295	SURFACE WATER	03/17/25 9:10
OUTLET 2 (EAST)	CS82296	SURFACE WATER	03/17/25 9:00
OUTLET 3 (WEST)	CS82297	SURFACE WATER	03/17/25 9:15
STATION 2	CS82298	SURFACE WATER	03/17/25 9:30

Environmental Laboratories, Inc.
587 East Middle Turnpike, P.O.Box 370, Manchester, CT 06045
Tel. (860) 645-1102

Analysis Report

March 21, 2025

FOR: Attn: Matt Ladewig
ESS Group Inc. A TRC Company
401 Wampanoag Trail
Riverside, RI 02915-2224

Sample Information		Custody Information		Date	Time
Matrix:	SURFACE WATER	Collected by:		03/17/25	8:50
Location Code:	TRC-RI	Received by:	CP	03/18/25	15:30
Rush Request:	Standard	Analyzed by:	see "By" below		
P.O.#:					

Laboratory Data

SDG ID: GCS82294
Phoenix ID: CS82294

Project ID: FREEMAN LAKE (557159)
Client ID: STATION 1

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
Chloride	111	3.0	mg/L	1	03/19/25	ER	SM4500CLE-11
Conductivity	440	5.00	umhos/cm	1	03/19/25	KG/KDB	SM2510B-11

RL/PQL=Reporting/Practical Quantitation Level ND=Not Detected BRL=Below Reporting Level

Comments:

If you are the client above and have any questions concerning this testing, please do not hesitate to contact Phoenix Client Services at ext.200.
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Phyllis Shiller, Laboratory Director
March 21, 2025
Reviewed and Released by: Helen Geoghegan, Project Manager

Environmental Laboratories, Inc.
587 East Middle Turnpike, P.O.Box 370, Manchester, CT 06045
Tel. (860) 645-1102

Analysis Report

March 21, 2025

FOR: Attn: Matt Ladewig
ESS Group Inc. A TRC Company
401 Wampanoag Trail
Riverside, RI 02915-2224

Sample Information		Custody Information		Date	Time
Matrix:	SURFACE WATER	Collected by:		03/17/25	9:10
Location Code:	TRC-RI	Received by:	CP	03/18/25	15:30
Rush Request:	Standard	Analyzed by:	see "By" below		
P.O.#:					

Laboratory Data

SDG ID: GCS82294
Phoenix ID: CS82295

Project ID: FREEMAN LAKE (557159)
Client ID: OUTLET 1 (NORTH)

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
Chloride	33.1	3.0	mg/L	1	03/19/25	ER	SM4500CLE-11
Conductivity	130	5.00	umhos/cm	1	03/19/25	KG/KDB	SM2510B-11

RL/PQL=Reporting/Practical Quantitation Level ND=Not Detected BRL=Below Reporting Level

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Phyllis Shiller, Laboratory Director
March 21, 2025
Reviewed and Released by: Helen Geoghegan, Project Manager

Environmental Laboratories, Inc.
587 East Middle Turnpike, P.O.Box 370, Manchester, CT 06045
Tel. (860) 645-1102

Analysis Report

March 21, 2025

FOR: Attn: Matt Ladewig
ESS Group Inc. A TRC Company
401 Wampanoag Trail
Riverside, RI 02915-2224

Sample Information		Custody Information		Date	Time
Matrix:	SURFACE WATER	Collected by:		03/17/25	9:00
Location Code:	TRC-RI	Received by:	CP	03/18/25	15:30
Rush Request:	Standard	Analyzed by:	see "By" below		
P.O.#:					

Laboratory Data

SDG ID: GCS82294
Phoenix ID: CS82296

Project ID: FREEMAN LAKE (557159)
Client ID: OUTLET 2 (EAST)

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
Chloride	15.3	3.0	mg/L	1	03/19/25	ER	SM4500CLE-11
Conductivity	70	5.00	umhos/cm	1	03/19/25	KG/KDB	SM2510B-11

RL/PQL=Reporting/Practical Quantitation Level ND=Not Detected BRL=Below Reporting Level

Comments:

If you are the client above and have any questions concerning this testing, please do not hesitate to contact Phoenix Client Services at ext.200.
The contents of this report cannot be discussed with anyone other than the client listed above without their written consent.

Phyllis Shiller, Laboratory Director
March 21, 2025
Reviewed and Released by: Helen Geoghegan, Project Manager

Environmental Laboratories, Inc.
587 East Middle Turnpike, P.O.Box 370, Manchester, CT 06045
Tel. (860) 645-1102

Analysis Report

March 21, 2025

FOR: Attn: Matt Ladewig
ESS Group Inc. A TRC Company
401 Wampanoag Trail
Riverside, RI 02915-2224

Sample Information		Custody Information		Date	Time
Matrix:	SURFACE WATER	Collected by:		03/17/25	9:15
Location Code:	TRC-RI	Received by:	CP	03/18/25	15:30
Rush Request:	Standard	Analyzed by:	see "By" below		
P.O.#:					

Laboratory Data

SDG ID: GCS82294
Phoenix ID: CS82297

Project ID: FREEMAN LAKE (557159)
Client ID: OUTLET 3 (WEST)

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
Chloride	4.7	3.0	mg/L	1	03/19/25	ER	SM4500CLE-11
Conductivity	31	5.00	umhos/cm	1	03/19/25	KG/KDB	SM2510B-11

RL/PQL=Reporting/Practical Quantitation Level ND=Not Detected BRL=Below Reporting Level

Comments:

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Phyllis Shiller, Laboratory Director
March 21, 2025
Reviewed and Released by: Helen Geoghegan, Project Manager

Environmental Laboratories, Inc.
587 East Middle Turnpike, P.O.Box 370, Manchester, CT 06045
Tel. (860) 645-1102

Analysis Report

March 21, 2025

FOR: Attn: Matt Ladewig
ESS Group Inc. A TRC Company
401 Wampanoag Trail
Riverside, RI 02915-2224

Sample Information		Custody Information		Date	Time
Matrix:	SURFACE WATER	Collected by:		03/17/25	9:30
Location Code:	TRC-RI	Received by:	CP	03/18/25	15:30
Rush Request:	Standard	Analyzed by:	see "By" below		
P.O.#:					

Laboratory Data

SDG ID: GCS82294
Phoenix ID: CS82298

Project ID: FREEMAN LAKE (557159)
Client ID: STATION 2

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
Chloride	101	3.0	mg/L	1	03/19/25	ER	SM4500CLE-11
Conductivity	389	5.00	umhos/cm	1	03/19/25	KG/KDB	SM2510B-11

RL/PQL=Reporting/Practical Quantitation Level ND=Not Detected BRL=Below Reporting Level

Comments:

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Phyllis Shiller, Laboratory Director
March 21, 2025
Reviewed and Released by: Helen Geoghegan, Project Manager

Environmental Laboratories, Inc.
587 East Middle Turnpike, P.O.Box 370, Manchester, CT 06045
Tel. (860) 645-1102

QA/QC Report

March 21, 2025

QA/QC Data

SDG I.D.: GCS82294

Parameter	Blank	Blk RL	Sample Result	Dup Result	Dup RPD	LCS %	LCSD %	LCS RPD	MS %	MSD %	MS RPD	% Rec Limits	% RPD Limits
QA/QC Batch 775236 (umhos/cm), QC Sample No: CS81940 (CS82294, CS82295, CS82296, CS82297, CS82298)													
Conductivity	BRL	5.00	425	438	3.00	98.1						85 - 115	20
Comment:													
Additional: LCS acceptance range is 85-115% MS acceptance range 75-125%.													
QA/QC Batch 775548 (mg/L), QC Sample No: CS83681 (CS82294, CS82295, CS82296, CS82297, CS82298)													
Chloride	BRL	3.0	13.2	13.3	NC	102			104			90 - 110	20

If there are any questions regarding this data, please call Phoenix Client Services at extension 200.

RPD - Relative Percent Difference
LCS - Laboratory Control Sample
LCSD - Laboratory Control Sample Duplicate
MS - Matrix Spike
MS Dup - Matrix Spike Duplicate
NC - No Criteria
Intf - Interference
(ISO) - Isotope Dilution

Phyllis Shiller, Laboratory Director
March 21, 2025

Friday, March 21, 2025

Criteria: None

State: MA

Sample Criteria Exceedances Report

GCS82294 - TRC-RI

SampNo	Acode	Phoenix Analyte	Criteria	Result	RL	Criteria	RL Criteria	Analysis Units

*** No Data to Display ***

Phoenix Laboratories does not assume responsibility for the data contained in this exceedance report. It is provided as an additional tool to identify requested criteria exceedences. All efforts are made to ensure the accuracy of the data (obtained from appropriate agencies). A lack of exceedence information does not necessarily suggest conformance to the criteria. It is ultimately the site professional's responsibility to determine appropriate compliance.

Environmental Laboratories, Inc.
587 East Middle Turnpike, P.O.Box 370, Manchester, CT 06045
Tel. (860) 645-1102 Fax (860) 645-0823

ACCREDITED IN ACCORDANCE WITH nelac NY # 11301

Analysis Comments

March 21, 2025 SDG I.D.: GCS82294

The following analysis comments are made regarding exceptions to criteria not already noted in the Analysis Report or QA/QC Report: None.

Cooler: Yes ☑ No ☐
Coolant: IPK ☐ ICE ☑ No ☐

Temp 1.3 °C Pg of

PHOENIX
Environmental Laboratories, Inc.

CT/MA/RI CHAIN OF CUSTODY RECORD

587 East Middle Turnpike, P.O. Box 370, Manchester, CT 06040
Email: makrina@phoenixlabs.com Fax (860) 645-0823
Client Services (860) 645-1102

Data Delivery/Contact Options:
☐ Fax: _____
☐ Phone: _____
☑ Email: mladewig@jrccompanies.com

Customer: JRC
Address: 401 Wampanoag Trail, Suite 400
East Providence RI 02915

Project: Freeman Lake (557159)
Report to: Matt Ladewig
Invoice to:
Quote #

Project P.O:

This section MUST be completed with Bottle Quantities.

Client Sample - Information - Identification

Sampler's Signature: [signature] Date: 3/17/25

Matrix Code:
DW=Drinking Water **GW**=Ground Water **SW**=Surface Water **WW**=Waste Water
RW=Raw Water **SE**=Sediment **SL**=Sludge **S**=Soil **SD**=Solid **W**=Wipe **OIL**=Oil
B=Bulk **L**=Liquid **X** = _____(Other)

PHOENIX USE ONLY SAMPLE #	Customer Sample Identification	Sample Matrix	Date Sampled	Time Sampled	*MS/MSD (May be billable at analysis unit rate)	Chloride	Conductivity	GL Amber 8 oz. [ ] w/H_3PO_4 [ ] $NAHSO_4$	Soil VOA Vials [ ] methanol [ ] H_2O	GL Soil container ( )oz	GL Soil container ( )oz	40 ml VOA Vial [ ] As is [ ] HCl	GL Amber 1000ml [ ] As is [ ] H_2SO_4	PL As is [ ]	PL H_2SO_4 [ ] 250ml [ ] 500ml [ ] 1000ml	PL HNO_3 250ml	PL NaOH 250ml	Bacteria Bottle w/thio	Bacteria Bottle as is
82294	Station 1	SW	3/17	0850		X	X							1					
82295	Outlet 1 (North)	SW	3/17	0910		X	X							1					
82296	Outlet 2 (East)	SW	3/17	0900		X	X							1					
82297	Outlet 3 (West)	SW	3/17	0915		X	X							1					
82298	Station 2	SW	3/17	0930		X	X							1					

Relinquished by:	Accepted by:	Date:	Time:
[signature]	[signature]	3-18-25	910
[signature]	[signature]	3-18-25	15:30

Comments, Special Requirements or Regulations:
Please measure for conductivity in each sample

Turnaround Time:
☐ 1 Day* ☑ Standard
☐ 2 Days* ☐ Other _____
☐ 3 Days*
☐ 4 Days*
☐ 5 Days*

RI
☐ RES DEC
☐ I/C DEC
☐ GA Leachability
☐ GB Leachability
☐ GA -GW Objectives
☐ GB -GW Objectives
☐ Other

CT
☐ RCP Cert
☐ GWPC
☐ SWPC
☐ GA PMC
☐ GB PMC
☐ SWPC
☐ RES DEC
☐ I/C DEC

MA
☐ MCP Certification
☐ GW-1 ☐ RCS-1 / RCGW-1
☐ GW-2 ☐ RCS-2 / RCGW-2
☐ GW-3 ☐ _____
☐ S-1
☐ S-2
☐ S-3
☐ SW Protection

Data Format
☑ Excel
☐ PDF
☐ GIS/Key
☐ EQuIS
☐ Other

Data Package
☐ Tier II Checklist*
☐ Full Data Package*
☑ Phoenix Std
☐ Other

***MS/MSD are considered site samples and will be billed as such in accordance with the prices quoted.**

*** SURCHARGES MAY APPLY**

State where samples were collected: MA

*** SURCHARGE APPLIES**

Form PEL126 Rev. 1/23