

1005 BOSTON POST ROAD
MADISON, CT 06443



ENVIRONMENTAL
CONSULTING LABORATORIES, INC.

Phone 203-245-0568
Fax 203-318-0830
Connecticut Certification PH-0535
www.eclinonline.com

September 9, 2019

Town of Old Lyme WPCA
Attn: Richard Prendergast
Town Hall
82 Lyme Street
Old Lyme, Ct 06371

RE: Monitoring Well Test Results

Dear Mr Prendergast,

Enclosed is the report of test results for samples collected on August 21, 2019.

As discussed we will collect the next round in September of 2019.

Please contact me should you have any questions.

Sincerely,



David C. Barris
Laboratory Director

Enclosure

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REPORT OF TESTS

REPORT PREPARED FOR:

**Town of Old Lyme WPCA
83 Lyme Street
Old Lyme, CT 06371**

REPORT PREPARED BY:

**David C. Barris
Laboratory Director**

**ENVIRONMENTAL CONSULTING LABORATORIES, INC.
1005 Boston Post Road
Madison, CT 06443**

REPORT DATE: September 9, 2019

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INTRODUCTION

ENVIRONMENTAL CONSULTING LABORATORIES, INC., is a State of Connecticut certified public health laboratory. Dedicated to servicing our clients, we offer comprehensive, cost-effective environmental consulting and testing services. Analytical capabilities include testing of industrial effluents, groundwater, hazardous wastes, sewage, sludge, sediment, soils. All sampling and analytical procedures are in accordance with Federal and State regulations.

Environmental Consulting Laboratories, Inc., maintains strict quality control and assurance procedures to ensure data that can be used with confidence. Strict adherence to EPA approved methods, blanks, standards, spikes, and duplicate sample analyses are routine lab practice. In addition, Environmental Consulting Laboratories, Inc., participates in EPA and Connecticut proficiency performance evaluations.

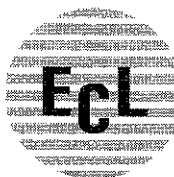
SAMPLE & SITE IDENTIFICATION

Ground water samples were collected by Environmental Consulting Laboratories, Inc., on August 21, 2019. Monitoring wells are identified as HN-1-98, HN-2-98, HN-3-98, HN-4N, HN-5N, HN-6, HN-7, HN-8, HN-9, HN-10 and HN-11. See Site Map in Appendix B

SAMPLING METHODOLOGY

Groundwater samples were taken in accordance with Town of Old Lyme Groundwater Monitoring Standard Operating Procedures. See document in Appendix D.

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ENVIRONMENTAL
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Report of Analysis

Name: Old Lyme Town Hall
c/o WPCA
52 Lyme Street
Old Lyme, CT 06371
Attn: Richard Prendergast
Sample Date: 8/21/2019
Receipt Date: 8/21/2019
Report Date: 9/9/2019
Sample Site: HN-1-98

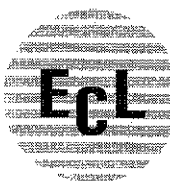
Sample ID#: 126992
Sample Type: Groundwater
Sample Source: Monitoring Wells
Sampler: ECL - MB

Parameter	Sample Result	Units	Method	MDL	Analysis Date	Analyst
Biological						
Coliform, E. Coli	<10	MPN/100mL	Colilert-18	10	8/21/2019	JB
Coliform, Total	246	MPN/100mL	Colilert-18	10	8/21/2019	JB
Enterococcus Bacteria	<10	MPN/100mL	Enterolert	10	8/21/2019	JB
Fecal Coliform Bacteria	<10	MPN/100mL	Colilert-18	10	8/21/2019	JB
Fecal Strep Bacteria	80	col/100ml	SM9230	10	8/21/2019	JB
Chemical						
Ammonia as N	ND	mg/L	ASTM D6919-03	0.05	9/5/2019	KC
Chloride	15.6	mg/L	EPA300.0	0.5	8/21/2019	JB
Nitrate as N	4.05	mg/L	EPA300.0	0.1	8/21/2019	JB
Nitrite as N	ND	mg/L	EPA300.0	0.01	8/21/2019	JB
Phosphorous -Total as P	0.09	mg/L	EPA 200.7	0.04	8/27/2019	JB
TKN as N	1.06	mg/L	4500NorgC	0.5	9/6/2019	KC
Total Nitrogen as N	5.11	mg/L	CALC	1	9/9/2019	KC
Physical						
Conductivity	138	umhos/cm	SM2510B	1	8/21/2019	JB
PH	5.20	pH	EPA 150.2	1	8/21/2019	MB
Turbidity	17	NTU	180.1	0.05	8/21/2019	JB


DAVID BARRIS - LABORATORY DIRECTOR

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Name: Old Lyme Town Hall
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52 Lyme Street
Old Lyme, CT 06371
Attn: Richard Prendergast
Sample Date: 8/21/2019
Receipt Date: 8/21/2019
Report Date: 9/9/2019
Sample Site: HN-2-98

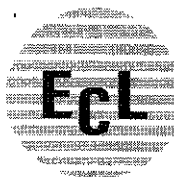
Sample ID#: 126993
Sample Type: Groundwater
Sample Source: Monitoring Wells
Sampler: ECL - MB

Parameter	Sample Result	Units	Method	MDL	Analysis Date	Analyst
Biological						
Coliform, E. Coli	<10	MPN/100mL	Colilert-18	10	8/21/2019	JB
Coliform, Total	359	MPN/100mL	Colilert-18	10	8/21/2019	JB
Enterococcus Bacteria	<10	MPN/100mL	Enterolert	10	8/21/2019	JB
Fecal Coliform Bacteria	<10	MPN/100mL	Colilert-18	10	8/21/2019	JB
Fecal Strep Bacteria	10	col/100ml	SM9230	10	8/21/2019	JB
Chemical						
Ammonia as N	ND	mg/L	ASTM D6919-03	0.05	9/5/2019	KC
Chloride	17.6	mg/L	EPA300.0	0.5	8/21/2019	JB
Nitrate as N	3.37	mg/L	EPA300.0	0.1	8/21/2019	JB
Nitrite as N	ND	mg/L	EPA300.0	0.01	8/21/2019	JB
Phosphorous -Total as P	ND	mg/L	EPA 200.7	0.04	8/27/2019	JB
TKN as N	<0.50	mg/L	4500NorgC	0.5	9/6/2019	KC
Total Nitrogen as N	3.37	mg/L	CALC	1	9/9/2019	KC
Physical						
Conductivity	130	umhos/cm	SM2510B	1	8/21/2019	JB
PH	5.50	pH	EPA 150.2	1	8/21/2019	MB
Turbidity	13	NTU	180.1	0.05	8/21/2019	JB


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Name: Old Lyme Town Hall
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52 Lyme Street
Old Lyme, CT 06371
Attn: Richard Prendergast
Sample Date: 8/21/2019
Receipt Date: 8/21/2019
Report Date: 9/9/2019
Sample Site: HN-3-98

Sample ID#: 126994
Sample Type: Groundwater
Sample Source: Monitoring Wells
Sampler: ECL - MB

Parameter	Sample Result	Units	Method	MDL	Analysis Date	Analyst
Biological						
Coliform, E. Coli	20	MPN/100mL	Colilert-18	10	8/21/2019	JB
Coliform, Total	2282	MPN/100mL	Colilert-18	10	8/21/2019	JB
Enterococcus Bacteria	52	MPN/100mL	Enterolert	10	8/21/2019	JB
Fecal Coliform Bacteria	75	MPN/100mL	Colilert-18	10	8/21/2019	JB
Fecal Strep Bacteria	770	col/100ml	SM9230	10	8/21/2019	JB
Chemical						
Ammonia as N	ND	mg/L	ASTM D6919-03	0.05	9/5/2019	KC
Chloride	14.8	mg/L	EPA300.0	0.5	8/21/2019	JB
Nitrate as N	5.26	mg/L	EPA300.0	0.1	8/21/2019	JB
Nitrite as N	0.01	mg/L	EPA300.0	0.01	8/21/2019	JB
Phosphorous -Total as P	0.08	mg/L	EPA 200.7	0.04	8/27/2019	JB
TKN as N	1.06	mg/L	4500NorgC	0.5	9/6/2019	KC
Total Nitrogen as N	6.33	mg/L	CALC	1	9/9/2019	KC
Physical						
Conductivity	169	umhos/cm	SM2510B	1	8/21/2019	JB
PH	6.00	pH	EPA 150.2	1	8/21/2019	MB
Turbidity	6.9	NTU	180.1	0.05	8/21/2019	JB


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Old Lyme, CT 06371
Attn: Richard Prendergast
Sample Date: 8/21/2019
Receipt Date: 8/21/2019
Report Date: 9/9/2019
Sample Site: HN-4N

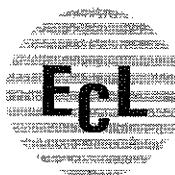
Sample ID#: 126995
Sample Type: Groundwater
Sample Source: Monitoring Wells
Sampler: ECL - MB

Parameter	Sample Result	Units	Method	MDL	Analysis Date	Analyst
Biological						
Coliform, E. Coli	<10	MPN/100mL	Colilert-18	10	8/21/2019	JB
Coliform, Total	107	MPN/100mL	Colilert-18	10	8/21/2019	JB
Enterococcus Bacteria	<10	MPN/100mL	Enterolert	10	8/21/2019	JB
Fecal Coliform Bacteria	<10	MPN/100mL	Colilert-18	10	8/21/2019	JB
Fecal Strep Bacteria	<10	col/100ml	SM9230	10	8/21/2019	JB
Chemical						
Ammonia as N	ND	mg/L	ASTM D6919-03	0.05	9/5/2019	KC
Chloride	33.8	mg/L	EPA300.0	0.5	8/21/2019	JB
Nitrate as N	2.53	mg/L	EPA300.0	0.1	8/21/2019	JB
Nitrite as N	ND	mg/L	EPA300.0	0.01	8/21/2019	JB
Phosphorous -Total as P	ND	mg/L	EPA 200.7	0.04	8/27/2019	JB
TKN as N	0.54	mg/L	4500NorgC	0.5	9/6/2019	KC
Total Nitrogen as N	5.94	mg/L	CALC	1	9/9/2019	KC
Physical						
Conductivity	162	umhos/cm	SM2510B	1	8/21/2019	JB
PH	5.40	pH	EPA 150.2	1	8/21/2019	MB
Turbidity	26	NTU	180.1	0.05	8/21/2019	JB

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Attn: Richard Prendergast
Sample Date: 8/21/2019
Receipt Date: 8/21/2019
Report Date: 9/9/2019
Sample Site: HN-5N

Sample ID#: 126996
Sample Type: Groundwater
Sample Source: Monitoring Wells
Sampler: ECL - MB

Parameter	Sample Result	Units	Method	MDL	Analysis Date	Analyst
Biological						
Coliform, E. Coli	20	MPN/100mL	Colilert-18	10	8/21/2019	JB
Coliform, Total	1046	MPN/100mL	Colilert-18	10	8/21/2019	JB
Enterococcus Bacteria	10	MPN/100mL	Enterolert	10	8/21/2019	JB
Fecal Coliform Bacteria	<10	MPN/100mL	Colilert-18	10	8/21/2019	JB
Fecal Strep Bacteria	<10	col/100ml	SM9230	10	8/21/2019	JB
Chemical						
Ammonia as N	8.58	mg/L	ASTM D6919-03	0.05	9/5/2019	KC
Chloride	42.0	mg/L	EPA300.0	0.5	8/21/2019	JB
Nitrate as N	0.17	mg/L	EPA300.0	0.1	8/21/2019	JB
Nitrite as N	ND	mg/L	EPA300.0	0.01	8/21/2019	JB
Phosphorous -Total as P	1.31	mg/L	EPA 200.7	0.04	8/27/2019	JB
TKN as N	9.33	mg/L	4500NorgC	0.5	9/6/2019	KC
Total Nitrogen as N	9.50	mg/L	CALC	1	9/9/2019	KC
Physical						
Conductivity	309	umhos/cm	SM2510B	1	8/21/2019	JB
PH	6.30	pH	EPA 150.2	1	8/21/2019	MB
Turbidity	600	NTU	180.1	0.05	8/21/2019	JB


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Attn: Richard Prendergast

Sample ID#: 126997
Sample Type: Groundwater
Sample Source: Monitoring Wells
Sampler: ECL - MB

Sample Date: 8/21/2019
Receipt Date: 8/21/2019
Report Date: 9/9/2019
Sample Site: HN-6

Parameter	Sample Result	Units	Method	MDL	Analysis Date	Analyst
Biological						
Coliform, E. Coli	<10	MPN/100mL	Colilert-18	10	8/21/2019	JB
Coliform, Total	20	MPN/100mL	Colilert-18	10	8/21/2019	JB
Enterococcus Bacteria	<10	MPN/100mL	Enterolert	10	8/21/2019	JB
Fecal Coliform Bacteria	<10	MPN/100mL	Colilert-18	10	8/21/2019	JB
Fecal Strep Bacteria	<10	col/100ml	SM9230	10	8/21/2019	JB
Chemical						
Ammonia as N	ND	mg/L	ASTM D6919-03	0.05	9/5/2019	KC
Chloride	46.3	mg/L	EPA300.0	0.5	8/21/2019	JB
Nitrate as N	3.62	mg/L	EPA300.0	0.1	8/21/2019	JB
Nitrite as N	0.03	mg/L	EPA300.0	0.01	8/21/2019	JB
Phosphorous -Total as P	ND	mg/L	EPA 200.7	0.04	8/27/2019	JB
TKN as N	0.91	mg/L	4500NorgC	0.5	9/6/2019	KC
Total Nitrogen as N	4.56	mg/L	CALC	1	9/9/2019	KC
Physical						
Conductivity	152	umhos/cm	SM2510B	1	8/21/2019	JB
PH	6.30	pH	EPA 150.2	1	8/21/2019	MB
Turbidity	5.4	NTU	180.1	0.05	8/21/2019	JB

A handwritten signature in black ink, appearing to read "David Barris", is written over a light blue horizontal line.

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Name: Old Lyme Town Hall
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52 Lyme Street
Old Lyme, CT 06371
Attn: Richard Prendergast
Sample Date: 8/21/2019
Receipt Date: 8/21/2019
Report Date: 9/9/2019
Sample Site: HN-7

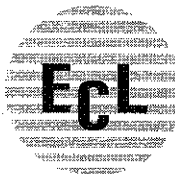
Sample ID#: 126998
Sample Type: Groundwater
Sample Source: Monitoring Wells
Sampler: ECL - MB

Parameter	Sample Result	Units	Method	MDL	Analysis Date	Analyst
Biological						
Coliform, E. Coli	<10	MPN/100mL	Colilert-18	10	8/21/2019	JB
Coliform, Total	110	MPN/100mL	Colilert-18	10	8/21/2019	JB
Enterococcus Bacteria	<10	MPN/100mL	Enterolert	10	8/21/2019	JB
Fecal Coliform Bacteria	<10	MPN/100mL	Colilert-18	10	8/21/2019	JB
Fecal Strep Bacteria	10	col/100ml	SM9230	10	8/21/2019	JB
Chemical						
Ammonia as N	ND	mg/L	ASTM D6919-03	0.05	9/5/2019	KC
Chloride	91.8	mg/L	EPA300.0	0.5	8/21/2019	JB
Nitrate as N	1.17	mg/L	EPA300.0	0.1	8/21/2019	JB
Nitrite as N	ND	mg/L	EPA300.0	0.01	8/21/2019	JB
Phosphorous -Total as P	1.34	mg/L	EPA 200.7	0.04	8/27/2019	JB
TKN as N	<0.50	mg/L	4500NorgC	0.5	9/6/2019	KC
Total Nitrogen as N	1.17	mg/L	CALC	1	9/9/2019	KC
Physical						
Conductivity	354	umhos/cm	SM2510B	1	8/21/2019	JB
PH	5.40	pH	EPA 150.2	1	8/21/2019	MB
Turbidity	750	NTU	180.1	0.05	8/21/2019	JB


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Name: Old Lyme Town Hall
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52 Lyme Street
Old Lyme, CT 06371
Attn: Richard Prendergast
Sample Date: 8/21/2019
Receipt Date: 8/21/2019
Report Date: 9/9/2019
Sample Site: HN-8

Sample ID#: 126999
Sample Type: Groundwater
Sample Source: Monitoring Wells
Sampler: ECL - MB

Parameter	Sample Result	Units	Method	MDL	Analysis Date	Analyst
Biological						
Coliform, E. Coli	<10	MPN/100mL	Colilert-18	10	8/21/2019	JB
Coliform, Total	108	MPN/100mL	Colilert-18	10	8/21/2019	JB
Enterococcus Bacteria	<10	MPN/100mL	Enterolert	10	8/21/2019	JB
Fecal Coliform Bacteria	<10	MPN/100mL	Colilert-18	10	8/21/2019	JB
Fecal Strep Bacteria	<10	col/100ml	SM9230	10	8/21/2019	JB
Chemical						
Ammonia as N	ND	mg/L	ASTM D6919-03	0.05	9/5/2019	KC
Chloride	29.2	mg/L	EPA300.0	0.5	8/21/2019	JB
Nitrate as N	1.03	mg/L	EPA300.0	0.1	8/21/2019	JB
Nitrite as N	ND	mg/L	EPA300.0	0.01	8/21/2019	JB
Phosphorous -Total as P	0.11	mg/L	EPA 200.7	0.04	8/27/2019	JB
TKN as N	0.70	mg/L	4500NorgC	0.5	9/6/2019	KC
Total Nitrogen as N	1.73	mg/L	CALC	1	9/9/2019	KC
Physical						
Conductivity	156	umhos/cm	SM2510B	1	8/21/2019	JB
PH	6.00	pH	EPA 150.2	1	8/21/2019	MB
Turbidity	100	NTU	180.1	0.05	8/21/2019	JB


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52 Lyme Street
Old Lyme, CT 06371
Attn: Richard Prendergast
Sample Date: 8/21/2019
Receipt Date: 8/21/2019
Report Date: 9/9/2019
Sample Site: HN-9

Sample ID#: 127000
Sample Type: Groundwater
Sample Source: Monitoring Wells
Sampler: ECL - MB

Parameter	Sample Result	Units	Method	MDL	Analysis Date	Analyst
Biological						
Coliform, E. Coli	<10	MPN/100mL	Colilert-18	10	8/21/2019	JB
Coliform, Total	<10	MPN/100mL	Colilert-18	10	8/21/2019	JB
Enterococcus Bacteria	<10	MPN/100mL	Enterolert	10	8/21/2019	JB
Fecal Coliform Bacteria	<10	MPN/100mL	Colilert-18	10	8/21/2019	JB
Fecal Strep Bacteria	<10	col/100ml	SM9230	10	8/21/2019	JB
Chemical						
Ammonia as N	0.36	mg/L	ASTM D6919-03	0.05	9/5/2019	KC
Chloride	4430	mg/L	EPA300.0	0.5	8/21/2019	JB
Nitrate as N	0.16	mg/L	EPA300.0	0.1	8/21/2019	JB
Nitrite as N	ND	mg/L	EPA300.0	0.01	8/21/2019	JB
Phosphorous -Total as P	0.33	mg/L	EPA 200.7	0.04	8/27/2019	JB
TKN as N	2.71	mg/L	4500NorgC	0.5	9/6/2019	KC
Total Nitrogen as N	2.87	mg/L	CALC	1	9/9/2019	KC
Physical						
Conductivity	6400	umhos/cm	SM2510B	1	8/21/2019	JB
PH	6.70	pH	EPA 150.2	1	8/21/2019	MB
Turbidity	95	NTU	180.1	0.05	8/21/2019	JB


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52 Lyme Street
Old Lyme, CT 06371
Attn: Richard Prendergast
Sample Date: 8/21/2019
Receipt Date: 8/21/2019
Report Date: 9/9/2019
Sample Site: HN-10

Sample ID#: 127001
Sample Type: Groundwater
Sample Source: Monitoring Wells
Sampler: ECL - MB

Parameter	Sample Result	Units	Method	MDL	Analysis Date	Analyst
Biological						
Coliform, E. Coli	52	MPN/100mL	Colilert-18	10	8/21/2019	JB
Coliform, Total	63	MPN/100mL	Colilert-18	10	8/21/2019	JB
Enterococcus Bacteria	10	MPN/100mL	Enterolert	10	8/21/2019	JB
Fecal Coliform Bacteria	20	MPN/100mL	Colilert-18	10	8/21/2019	JB
Fecal Strep Bacteria	<10	col/100ml	SM9230	10	8/21/2019	JB
Chemical						
Ammonia as N	1.51	mg/L	ASTM D6919-03	0.05	9/5/2019	KC
Chloride	1717	mg/L	EPA300.0	0.5	8/21/2019	JB
Nitrate as N	0.16	mg/L	EPA300.0	0.1	8/21/2019	JB
Nitrite as N	ND	mg/L	EPA300.0	0.01	8/21/2019	JB
Phosphorous -Total as P	0.64	mg/L	EPA 200.7	0.04	8/27/2019	JB
TKN as N	4.68	mg/L	4500NorgC	0.5	9/6/2019	KC
Total Nitrogen as N	4.84	mg/L	CALC	1	9/9/2019	KC
Physical						
Conductivity	3000	umhos/cm	SM2510B	1	8/21/2019	JB
PH	5.50	pH	EPA 150.2	1	8/21/2019	MB
Turbidity	160	NTU	180.1	0.05	8/21/2019	JB


DAVID BARRIS - LABORATORY DIRECTOR

ND = Not Detected

1005 BOSTON POST ROAD
MADISON, CT 06443
Phone 203-245-0568
FAX 203-318-0830
Connecticut Certification PH-0535
www.eclinonline.com



ENVIRONMENTAL
CONSULTING LABORATORIES, INC.

Report of Analysis

Name: Old Lyme Town Hall
c/o WPCA
52 Lyme Street
Old Lyme, CT 06371
Attn: Richard Prendergast
Sample Date: 8/21/2019
Receipt Date: 8/21/2019
Report Date: 9/9/2019
Sample Site: HN-11

Sample ID#: 127002
Sample Type: Groundwater
Sample Source: Monitoring Wells
Sampler: ECL - MB

Parameter	Sample Result	Units	Method	MDL	Analysis Date	Analyst
Biological						
Coliform, E. Coli	<10	MPN/100mL	Colilert-18	10	8/21/2019	JB
Coliform, Total	<10	MPN/100mL	Colilert-18	10	8/21/2019	JB
Enterococcus Bacteria	<10	MPN/100mL	Enterolert	10	8/21/2019	JB
Fecal Coliform Bacteria	<10	MPN/100mL	Colilert-18	10	8/21/2019	JB
Fecal Strep Bacteria	<10	col/100ml	SM9230	10	8/21/2019	JB
Chemical						
Ammonia as N	ND	mg/L	ASTM D6919-03	0.05	9/5/2019	KC
Chloride	2326	mg/L	EPA300.0	0.5	8/21/2019	JB
Nitrate as N	ND	mg/L	EPA300.0	0.1	8/21/2019	JB
Nitrite as N	ND	mg/L	EPA300.0	0.01	8/21/2019	JB
Phosphorous -Total as P	0.12	mg/L	EPA 200.7	0.04	8/27/2019	JB
TKN as N	1.99	mg/L	4500NorgC	0.5	9/6/2019	KC
Total Nitrogen as N	1.99	mg/L	CALC	1	9/9/2019	KC
Physical						
Conductivity	3850	umhos/cm	SM2510B	1	8/21/2019	JB
PH	6.40	pH	EPA 150.2	1	8/21/2019	MB
Turbidity	40	NTU	180.1	0.05	8/21/2019	JB


DAVID BARRIS - LABORATORY DIRECTOR

ND = Not Detected

APPENDIX A

ENVIRONMENTAL

CONSULTING LABORATORIES, INC.

1005 Boston Post Road
Madison, CT 06443

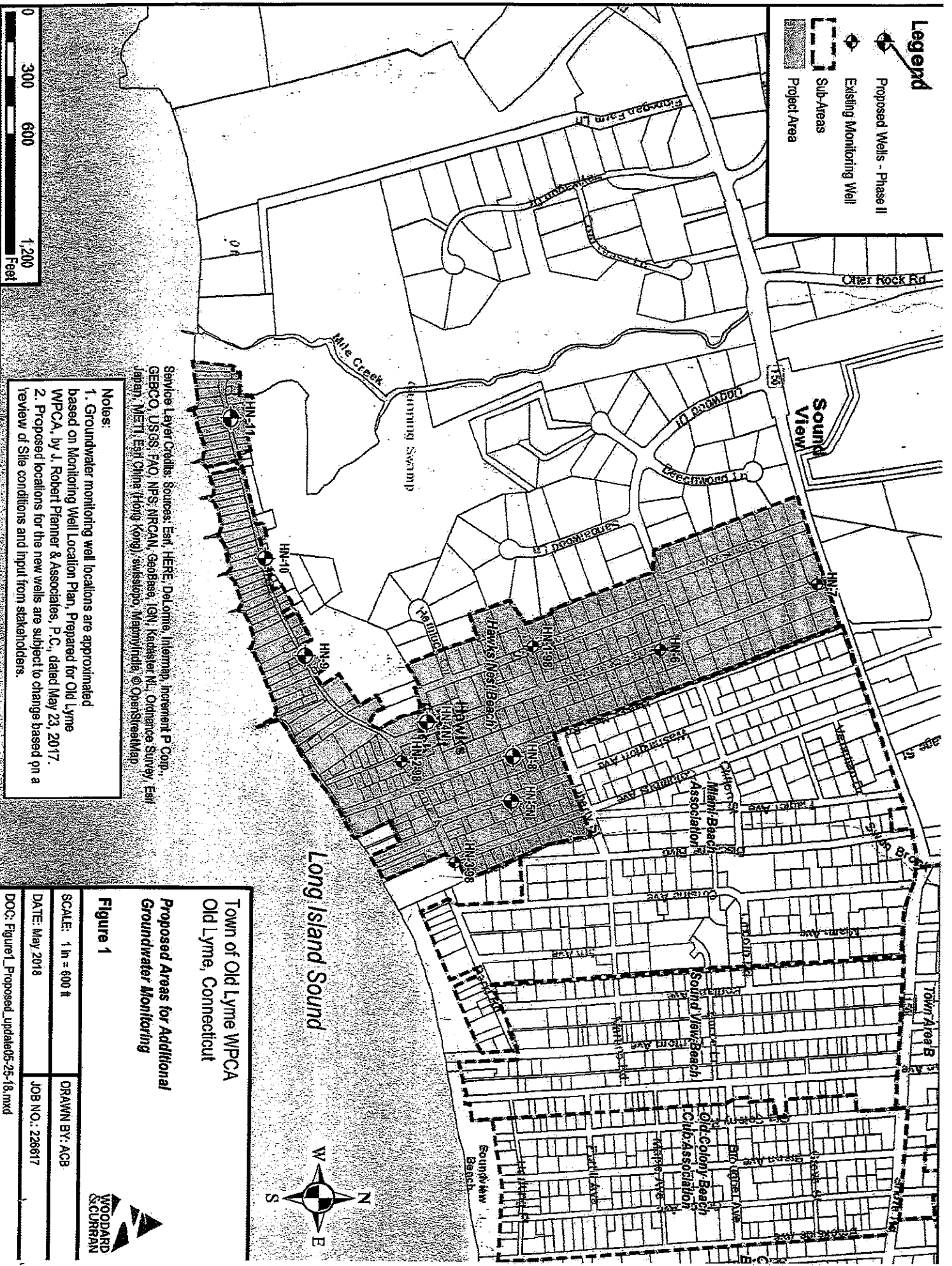
(203) 245-0568 Phone
(203) 318-0830 Fax

Client: Old Lyme Town Hall			Project:			Additional ground water testing Monitoring Wells										
Contact: C/O WPCA Richard Prendergast			Address: 52 Lyme St. Old Lyme, CT 06371			Phone: 203-641-1237 Email: chairWPCA@oldlyme-ct.gov										
System Type:			M. Barris - J. McKenna			Samplers Name: (Print)										
Client I.D.	Sampling Location	Date	Time	Sample Type			Number of Containers	Required Analysis							ECL Sample I.D. #	
				Water	Grab			Total Coliform + Ecoli	Fecal Coliform	Enterococci, Fecal Strep	Phosphorus- Total	Nitrate/Nitrite, TKN, TN	Ammonia, Chloride	Conductivity, pH		Turbidity
	HN-1-98	8-4-14	11:45 AM	X		X	5	X	X	X	X	X	X	X	X	126992
	HN-2-98		9:55 AM	X		X	5	X	X	X	X	X	X	X	X	126993
	HN-3-98		10:40 AM	X		X	5	X	X	X	X	X	X	X	X	126994
	HN-4N		11:30 AM	X		X	5	X	X	X	X	X	X	X	X	126995
	HN-5N		10:35 AM	X		X	5	X	X	X	X	X	X	X	X	126996
	HN-6		11:50 AM	X		X	5	X	X	X	X	X	X	X	X	126997
	HN-7		12:10 PM	X		X	5	X	X	X	X	X	X	X	X	126998
	HN-8		10:50 AM	X		X	5	X	X	X	X	X	X	X	X	126999
	HN-9		9:30 AM	X		X	5	X	X	X	X	X	X	X	X	127000
	HN-10		9:07 AM	X		X	5	X	X	X	X	X	X	X	X	127001
	HN-11		8:50 AM	X		X	5	X	X	X	X	X	X	X	X	127002
Relinquished by:		Date	Time	Received by:		Signature		Were Samples received within holding time? <input checked="" type="checkbox"/> Y <input type="checkbox"/> N Were Samples chilled upon receipt? <input checked="" type="checkbox"/> Y <input type="checkbox"/> N Were Samples in appropriate containers? <input checked="" type="checkbox"/> Y <input type="checkbox"/> N If No Explain _____ Are containers broken/leaking? <input checked="" type="checkbox"/> Y <input type="checkbox"/> N Did Samples need to be split upon receipt? <input checked="" type="checkbox"/> Y <input type="checkbox"/> N Were Samples preserved properly? <input checked="" type="checkbox"/> Y <input type="checkbox"/> N If No Explain _____								
Relinquished by:		8/21/14	2:00 PM	Jordan Barris		M. Barris										

Mike Barris

APPENDIX B

- Legend**
- Proposed Wells - Phase II
 - Existing Monitoring Well
 - Sub-Areas
 - Project Area



Service Layer Credits: Sources: Esri, HERE, DeLorme, Intermap, Incentive P Corp., GEBCO, USGS, FAO, NPS, NRCAN, Geobase, IGN, Kachelrie, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), Swisstopo, Mapbox, OpenStreetMap

- Notes:**
1. Groundwater monitoring well locations are approximated based on Monitoring Well Location Plan, Prepared for Old Lyme WPCA, by J. Robert Planner & Associates, P.C., dated May 23, 2017.
 2. Proposed locations for the new wells are subject to change based on a review of site conditions and input from stakeholders.

Town of Old Lyme WPCA
Old Lyme, Connecticut
Proposed Areas for Additional
Groundwater Monitoring

Figure 1

SCALE: 1 in = 600 ft

DRAWN BY: ACB

DATE: May 2018

JOB NO.: 226617

DOC: Figure1_Proposed_updated05-26-18.mxd



APPENDIX C

GROUND WATER SAMPLE LOG

1. Sample Location: Old Lyme
2. Well Number: HN-1-98
3. Sampled By: MB-IM
4. Date: 8-21
5. Time: 11:15 am
6. Weather: Cloudy Cold Snow
Sunny Warm Rain
Hot Windy
7. Sample Method: Bailer (Disposable)
8. Depth to bottom of well from measuring point: 20.1 Feet
9. Depth to Water: 11.60 Feet
10. #8 - #9 = LWC: 8.50 Feet (Length of water column)
11. Diameter of inner casings: 2" 4" 6"
12. Volume of water in well:
2" Diameter well = $0.163 \times \text{LWC} =$ 1.38 Gallons
4" Diameter Well = $0.633 \times \text{LWC} =$ _____ Gallons
6" Diameter Well = $1.467 \times \text{LWC} =$ _____ Gallons
13. Purge Volume: $3 \times \#12 =$ 4.20 Gallons to purge

Town of Old Lyme

Location (Site/Facility Name) - Old Lyme

Well Number H/N-1-98 Date 8-21

[illegible]

GROUND WATER SAMPLE LOG

1. Sample Location: Old Lyme
2. Well Number: HN-7-98
3. Sampled By: MB-jm
4. Date: 8-21
5. Time: 9:55 Am
6. Weather: ☒ Cloudy ☐ Cold ☐ Snow
☐ Sunny ☒ Warm ☒ Rain
☐ Hot ☐ Windy
7. Sample Method: Bailer (Disposable)
8. Depth to bottom of well from measuring point: 15.6 Feet
9. Depth to Water: 7.80 Feet
10. #8 - #9 = LWC: 7.80 Feet (Length of water column)
11. Diameter of inner casings: 2" 4" 6"
12. Volume of water in well:
2" Diameter well = $0.163 \times \text{LWC} =$ 1.27 Gallons
4" Diameter Well = $0.633 \times \text{LWC} =$ _____ Gallons
6" Diameter Well = $1.467 \times \text{LWC} =$ _____ Gallons
13. Purge Volume: $3 \times \#12 =$ 23.80 Gallons to purge

Town of Old Lyme

Location (Site/Facility Name) - Old Lyme

Well Number HN-4-98 Date 8-21-19

[illegible]

GROUND WATER SAMPLE LOG

1. Sample Location: Old Lyme
2. Well Number: HW-3-98
3. Sampled By: MB-JM
4. Date: 8-21
5. Time: 10:40 am
6. Weather: ☒ Cloudy Cold Snow
 ☐ Sunny ☒ Warm Rain
 ☐ Hot ☐ Windy
7. Sample Method: ☒ Bailer (Disposable)
8. Depth to bottom of well from measuring point: 13.0 Feet
9. Depth to Water: 6-60 Feet
10. #8 - #9 = LWC: 6.40 Feet (Length of water column)
11. Diameter of inner casings: ☒ 2" 4" 6"
12. Volume of water in well:
☒ Diameter well = $0.163 \times \text{LWC} =$ 1.04 Gallons
4" Diameter Well = $0.633 \times \text{LWC} =$ _____ Gallons
6" Diameter Well = $1.467 \times \text{LWC} =$ _____ Gallons
13. Purge Volume: $3 \times \#12 =$ 3.13 Gallons to purge

Town of Old Lyme

Location (Site/Facility Name) - Old Lyme

Well Number HN-3-98 Date 8-71

[illegible]

GROUND WATER SAMPLE LOG

1. Sample Location: 01d Lyme
2. Well Number: HN-4N
3. Sampled By: M3-JM
4. Date: 8-21
5. Time: 11:30 AM
6. Weather: ~~Cloudy~~ Cold Snow
~~Sunny~~ Warm Rain
~~Hot~~ Windy
7. Sample Method: Bailer (Disposable)
8. Depth to bottom of well from measuring point: 16.3 Feet
9. Depth to Water: 10.10 Feet
10. #8 - #9 = LWC: 6.25 Feet (Length of water column)
11. Diameter of inner casings: Ø 4" 6"
12. Volume of water in well:
Ø Diameter well = $0.163 \times \text{LWC} =$ 1.02 Gallons
4" Diameter Well = $0.633 \times \text{LWC} =$ _____ Gallons
6" Diameter Well = $1.467 \times \text{LWC} =$ _____ Gallons
13. Purge Volume: $3 \times \#12 =$ 3.06 Gallons to purge

Town of Old Lyme

Location (Site/Facility Name) - Old Lyme

Well Number H/N-4N Date 8-21

[illegible]

GROUND WATER SAMPLE LOG

1. Sample Location: Old Lyme
2. Well Number: HN-5N
3. Sampled By: Sm-mB
4. Date: 8-21-19
5. Time: 10:35 am
6. Weather: Cloudy Cold Snow
Sunny Warm Rain
Hot Windy
7. Sample Method: Bailer (Disposable)
8. Depth to bottom of well from measuring point: 14.9 Feet
9. Depth to Water: 5.6 Feet
10. #8 - #9 = LWC: 7.3 Feet (Length of water column)
11. Diameter of inner casings: 2" 4" 6"
12. Volume of water in well:
2" Diameter well = $0.163 \times \text{LWC} =$ 1.2 Gallons
4" Diameter Well = $0.633 \times \text{LWC} =$ _____ Gallons
6" Diameter Well = $1.467 \times \text{LWC} =$ _____ Gallons
13. Purge Volume: $3 \times \#12 =$ 3.6 Gallons to purge

FIELD WATER QUALITY MEASUREMENTS FORM

Well Number HN-5N Date 8-21-19

[illegible]

GROUND WATER SAMPLE LOG

1. Sample Location: Old Lyme
2. Well Number: HN-6
3. Sampled By: MB-JM
4. Date: 8-21
5. Time: 11:50 AM
6. Weather: ~~Cloudy~~ Cold Snow
Sunny Warm Rain
Hot Windy
7. Sample Method: Bailer (Disposable)
8. Depth to bottom of well from measuring point: 13.0 Feet
9. Depth to Water: 10.70 Feet
10. #8 - #9 = LWC: 4.30 Feet (Length of water column)
11. Diameter of inner casings: 3" 4" 6"
12. Volume of water in well:
3" Diameter well = $0.163 \times \text{LWC} =$ 0.375 Gallons
4" Diameter Well = $0.633 \times \text{LWC} =$ _____ Gallons
6" Diameter Well = $1.467 \times \text{LWC} =$ _____ Gallons
13. Purge Volume: $3 \times \#12 =$ 1.13 Gallons to purge

Town of Old Lyme

Location (Site/Facility Name) - Old Lyme

Well Number F/V-8 Date 8-21

[illegible]

GROUND WATER SAMPLE LOG

1. Sample Location: Old Lyme
2. Well Number: HN-7
3. Sampled By: jm-mB
4. Date: 8-21
5. Time: 12:10pm
6. Weather: ☒ Cloudy ☐ Cold ☐ Snow
☐ Sunny ☒ Warm ☐ Rain
☐ Hot ☐ Windy
7. Sample Method: Bailer (Disposable)
8. Depth to bottom of well from measuring point: 16.8 Feet
9. Depth to Water: 9.80 Feet
10. #8 - #9 = LWC: 7.0 Feet (Length of water column)
11. Diameter of inner casings: ☒ 2" ☐ 4" ☐ 6"
12. Volume of water in well:
2" Diameter well = $0.163 \times \text{LWC} =$ 1.14 Gallons
4" Diameter Well = $0.633 \times \text{LWC} =$ _____ Gallons
6" Diameter Well = $1.467 \times \text{LWC} =$ _____ Gallons
13. Purge Volume: $3 \times \#12 =$ 3.42 Gallons to purge

FIELD WATER QUALITY MEASUREMENTS FORM

Well Number HN-7 Date 8-21-19

[illegible]

GROUND WATER SAMPLE LOG

1. Sample Location: Old Lyme
2. Well Number: HN-8
3. Sampled By: MJ - Jm
4. Date: 8-21
5. Time: 10:50 am
6. Weather: ~~Cloudy~~ Cold Snow
Sunny Warm Rain
~~Hot~~ Windy
7. Sample Method: **Bailer (Disposable)**
8. Depth to bottom of well from measuring point: 11.9 Feet
9. Depth to Water: 6-70 Feet
10. #8 - #9 = LWC: 5-20 Feet (**Length of water column**)
11. Diameter of inner casings: 2" 4" 6"
12. Volume of water in well:
2" Diameter well = $0.163 \times \text{LWC} =$ 0.85 Gallons
4" Diameter Well = $0.633 \times \text{LWC} =$ _____ Gallons
6" Diameter Well = $1.467 \times \text{LWC} =$ _____ Gallons
13. Purge Volume: $3 \times \#12 =$ 2.60 Gallons to purge

Town of Old Lyme

Location (Site/Facility Name) - Old Lyme

Well Number H/N-8 Date 8-71

[illegible]

GROUND WATER SAMPLE LOG

1. Sample Location: 016 Lyme
2. Well Number: HN-9
3. Sampled By: MJ-JM
4. Date: 8-21
5. Time: 9:30 am
6. Weather: ~~Cloudy~~ Cold Snow
Sunny ~~Warm~~ Rain
Hot Windy
7. Sample Method: Bailer (Disposable)
8. Depth to bottom of well from measuring point: 11.4 Feet
9. Depth to Water: 4.20 Feet
10. #8 - #9 = LWC: 7.20 Feet (Length of water column)
11. Diameter of inner casings: 2" 4" 6"
12. Volume of water in well:
2" Diameter well = $0.163 \times \text{LWC} =$ 1.17 Gallons
4" Diameter Well = $0.633 \times \text{LWC} =$ _____ Gallons
6" Diameter Well = $1.467 \times \text{LWC} =$ _____ Gallons
13. Purge Volume: $3 \times \#12 =$ 3.52 Gallons to purge

Town of Old Lyme

Location (Site/Facility Name) - Old Lyme

Well Number HN-9 Date 8/21

[illegible]

GROUND WATER SAMPLE LOG

1. Sample Location: Old Lyme
2. Well Number: HN-10
3. Sampled By: MB-3m
4. Date: 8-21
5. Time: 9:07am
6. Weather: Cloudy Cold Snow
Sunny Warm Rain
Hot Windy
7. Sample Method: Bailer (Disposable)
8. Depth to bottom of well from measuring point: 11.5 Feet
9. Depth to Water: 4.40 Feet
10. #8 - #9 = LWC: 7.10 Feet (Length of water column)
11. Diameter of inner casings: 2 4" 6"
12. Volume of water in well:
2 Diameter well = $0.163 \times \text{LWC} =$ 1.16 Gallons
4" Diameter Well = $0.633 \times \text{LWC} =$ _____ Gallons
6" Diameter Well = $1.467 \times \text{LWC} =$ _____ Gallons
13. Purge Volume: $3 \times \#12 =$ 3.50 Gallons to purge

Town of Old Lyme

Location (Site/Facility Name) - Old Lyme

Well Number HN-10 Date 8-21-19

[illegible]

GROUND WATER SAMPLE LOG

1. Sample Location: Old Lyne
2. Well Number: HN-11
3. Sampled By: MB-JM
4. Date: 8-21
5. Time: 8:50 am
6. Weather: ~~Cloudy~~ Cold Snow
Sunny ~~Warm~~ Rain
Hot Windy
7. Sample Method: Bailer (Disposable)
8. Depth to bottom of well from measuring point: 11.4 Feet
9. Depth to Water: 5.20 Feet
10. #8 - #9 = LWC: 6.20 Feet (Length of water column)
11. Diameter of inner casings: 2" 4" 6"
12. Volume of water in well:
2" Diameter well = $0.163 \times \text{LWC} =$ 1.01 Gallons
4" Diameter Well = $0.633 \times \text{LWC} =$ _____ Gallons
6" Diameter Well = $1.467 \times \text{LWC} =$ _____ Gallons
13. Purge Volume: $3 \times \#12 =$ 3.03 Gallons to purge

FIELD WATER QUALITY MEASUREMENTS FORM

Well Number HN-11 Date 8-21-19

[illegible]

APPENDIX D

Town of Old Lyme Ground Water Monitoring

SAMPLING SOP Rev 4 - Environmental Consulting Lab

Groundwater Monitoring Wells

Bailer Purge Technique

Overview:

Stagnant water must be removed from the monitoring well in order to obtain an accurate sample of groundwater for laboratory analysis.

This SOP will address the bailing and sampling procedures to be taken.

Safety:

Prior to sampling, field personnel should conduct a preliminary assessment of the area to determine any safety hazards.

Placement of traffic cones, safety vests and truck hazard lights should be used.

Minimize monitoring well water contact with potential personal protective equipment i.e. safety glasses & nitrile gloves.

Procedure:

Prior to purging the well, observe for any physical problems with monitoring well, ie: lock present, well cap broken or missing, condition of casing, etc.

Measure groundwater to the nearest hundredth of inch record on field sheet with time of measurement. Calculate the volume of standing water to purge a minimum of three volumes using prior readings of depth to bottom, to avoid agitating fines that may have accumulated on the bottom of the well.

A separate new bailer will be used for each well to minimize the potential for cross contamination of sampling equipment.

Lower bailer into monitoring well in a manner as to create minimum water disturbance. Repeat this process until three well volumes have been purged.

Following purging of three well volumes, measure pH and Temperature of the groundwater and record on field worksheet.

Sample Collection:

1. Do not rinse or empty bottles. Several bottles contain a preservative that must remain in the bottle.
2. If there is an overflow while filling a sample bottle that contains preservatives, restart the procedure using a new sample bottle.
3. If one bottle is to be used for several different tests, be sure there are no conflicts with preservation requirements.

Field Logs:

Use the Ground Water Sample Log (attached) to record all field information. Include Well ID, Date and Time, Weather, readings, observations and calculations for purge volume

Complete the Chain of Custody form (attached). Include sample ID/location, date and time.

The following pages contain specific sampling instructions and procedures that are dependent on analyte type.

GROUP:
Inorganics

SUBGROUP:

Chloride,Nitrate,Nitrite

BOTTLE: 500-mL

Preservative: Chill to 4 degrees C.

Holding Time: 48 Hrs

Test Method: EPA 300.1 Ion Chromatography

PROCEDURE

1. Using waterproof ink, fill out and attach label. At a minimum, include the Well ID number, sampling point and date.
2. Remove the sampling container cap. Be careful not to touch the inside of the sampling container or cap with your fingers. When possible, hold the sampling container in one hand and the cap in the other or set the cap on a clean surface. Quickly position the sampling container under the water flow.
3. Fill to the shoulder of the container. Do not over fill.
4. Quickly remove the sampling container from the water flow.
5. Replace cap and tighten.
6. Completely fill out the chain of custody form.
7. Sample must be placed in coolers for laboratory submittal.

GROUP:
Bacteria

Total/ Fecal
Coliforms,
Enterococci, Fecal
Strep

BOTTLE: (4) 120 mL sterile plastic bottle

Preservative: Chill to 4 degrees C.

Holding Time: 8 Hrs.

Test Methods: Colilert-18, Enterolert, SM9230

PROCEDURE

1. Using waterproof ink, fill out and attach label. At a minimum, include the Well ID number, sampling point and date.
2. Remove the sampling container cap. Be careful not to touch the inside of the sampling container or cap with your fingers. When possible, hold the sampling container in one hand and the cap in the other or set the cap on a clean surface. Quickly position the sampling container under the water flow.
3. Fill to at least the 100 mL mark. Leave some air space.
4. Quickly remove the sampling container from the waterflow.
5. Replace cap and tighten.
6. Completely fill out the chain of custody form.
7. Sample must be placed in coolers for laboratory submittal.

GROUP:
Inorganic

SUBGROUP:

Phosphorus-Total

BOTTLE: One 125 ml

Preservative: PH<2 1:1 Nitric Acid

Test Method: EPA 200.7 ICP

PROCEDURE:

1. Using waterproof ink, fill out and attach label. At a minimum, include the Well ID number, sampling point and date.
2. Remove the sampling container cap. Be careful not to touch the inside of the sampling container or cap with your fingers. When possible, hold the sampling container in one hand and the cap in the other or set the cap on a clean surface. Quickly position the sampling container under the water flow.
3. Fill to the shoulder of the container. Do not over fill.
4. Quickly remove the sampling container from the water flow.
5. Bottle contains Nitric Acid Preservative.
6. Replace cap and tighten.
7. Completely fill out the chain of custody form.
8. Sample must be placed in coolers for laboratory submittal.

GROUP:

Inorganic

SUBGROUP:

Ammonia, TKN

BOTTLE: 125-mL

Preservative: PH <2 with 1:1 Sulfuric Acid

Holding time: 28 Days

Test Method: ASTM D6919-03, SM 4500-Norg C

PROCEDURE

1. Using waterproof ink, fill out and attach label. At a minimum, include the Well ID number, sampling point and date.
2. Remove the sampling container cap. Be careful not to touch the inside of the sampling container or cap with your fingers. When possible, hold the sampling container in one hand and the cap in the other or set the cap on a clean surface. Quickly position the sampling container under the water flow.
3. Fill to the shoulder of the container. Do not over fill.
4. Quickly remove the sampling container from the water flow.
5. Bottle contains Sulfuric Acid Preservative.
6. Replace cap and tighten.
7. Completely fill out the chain of custody form.
8. Sample must be placed in coolers for laboratory submittal