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## TOWN OF CANTON RESIDENTIAL WELL SAMPLING 4 Barbourtown Road Canton, Connecticut

December 2019  
File No. 05.0046589.00



**PREPARED FOR:**  
Town of Canton  
Collinsville, Connecticut

**GZA GeoEnvironmental, Inc.**  
95 Glastonbury Boulevard, 3<sup>rd</sup> Floor | Glastonbury, CT 06033  
860-286-8900

31 Offices Nationwide  
[www.gza.com](http://www.gza.com)

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95 Glastonbury Boulevard  
3rd Floor  
Glastonbury, CT 06033  
T: 860.286.8900  
F: 860.633.5699  
www.gza.com



December 23, 2019  
File No. 05.0046589.00

Town of Canton  
Canton Town Hall  
P.O. Box 168, 4 Market Street  
Collinsville, CT 06019

Attention: Mr. Robert Skinner

Re: Residential Well Sampling  
4 Barbourtown Road  
Canton, Connecticut

Dear Mr. Robert Skinner

On November 15, 2019 the Connecticut Department of Energy and Environmental Protection (CTDEEP) Bureau of Water Protection and Land Reuse Remediation Division sent a letter to the Town of Canton requesting that the Town conduct additional investigations at the locations where Aqueous Film Forming Foam (AFFF) were used in firefighting training. The letter request that a Work Plan be developed to evaluate sensitive receptors (potable water supply wells) and investigate the soil where the AFFF was released on the school grounds.

The attached Work Plan describes those actions to be implements to satisfy the November 15, 2019 letter. If you have any questions, please do not hesitate to contact Richard Desrosiers at 860-858-3130.

Very truly yours,

GZA GeoEnvironmental, Inc.

Richard J. Desrosiers, PG, LEP  
Associate Principal

Gordon T. Brookman, PE, LEP  
Consultant/Reviewer

cc: Shannon Pociu, CTDEEP  
Robert Robinson, CTDEEP  
Robert Bessel, First Selectman, Town of Canton  
Kevin Case, Superintendent of Schools  
Jennifer Kertanis, Farmington Valley Health District  
Dianne Harding, Farmington Valley Health District  
Brain Toal, DPH Environmental health Section  
Lori Mathieu, DPH Drinking Water Section



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## 1.0 INTRODUCTION

GZA understands that in 2014 and perhaps as early as 2007/2008, the Town of Canton fire department conducted fire training drills using Aqueous Film Forming Foam (AFFF), at two locations on the grounds of the Cherry Brook Primary School, located at 4 Barbourtown Road in Canton, Connecticut (Figure 1). During the 2014 fire training drill, approximately 40-gallons of the AFFF concentrate were mixed with approximately 1,300-gallons of water and sprayed in two locations (see attached Figure 2). The first area was the grassy field area between the school's parking lot and Barbourtown Road ("eastern field"), whereas, the second area was defined as the grassy field south of the school building and north of a playscape ("southern field").

On November 15, 2019 the Connecticut Department of Energy and Environmental Protection (CTDEEP) Bureau of Water Protection and Land Reuse Remediation Division sent a letter to the Town of Canton requesting that the Town conduct additional investigations at the two AFFF release areas, evaluate sensitive receptors (potable water supply wells) and investigate the soil where the AFFF was released on the school grounds.

The Cherry Brook Primary School has two primary water supply wells (Wells 1 & 2). These wells are located along the western property line, upgradient of the release of the firefighting foam. An influent well sample (pre-holding tank) was collected from Wells 1 and 2 on November 11, 2019 and a combined sample (Wells 1 & 2) was collected on November 6, 2019, after the holding tank. These samples were analyzed using EPA Method 537.1. On November 27, 2019, the laboratory reported the results as non-detect at less than 2 parts per trillion (ppt) (Appendix A). The Town provided approximately 2,000 gallons of potable water to the school per day, during the period when the samples were being analyzed.

This work plan will focus on the requirements in the November 15<sup>th</sup> letter concerning sampling residential wells within 500-feet of the Cherry Brook Primary School property and a soil investigation within the two areas where the firefighting foams were used.

## 2.0 CONCEPTUAL SITE MODEL

### 2.1 GEOLOGIC SETTING

According to the Connecticut Environmental Conditions Online (CTECO), the Cherry Brook Primary School is located west of Cherry Brook, at a grade elevation of approximately 400-feet, whereas, Cherry Brook is at elevation approximate 390-feet (Figure 3). Cherry Brook is located within a valley flat between two glacial uplands (eastern upland elevation is approximately 800-feet and the western upland elevation is approximately 900-feet). The valley deposits are comprised of alluvium overlying sand and gravel beneath the eastern area and sand and gravel underlying the "southern area". The upland areas are comprised of glacial till. The depth of the valley deposits may be up to 50-feet (well completion reports identified up to 45 feet at 197 Cherry Brook Road) and the glacial till may exist as a thin veneer over bedrock or thickness greater than 10-feet on the upland areas. A fault is located east of the Cherry Brook Primary School and Cherry Brook Road that strikes in a northeasterly direction. The underlying bedrock is classified as the Cobble Mountain Formation comprised of a gray to silvery, medium to coarse-grained schist and granofels.

The Connecticut Department of Energy and Environmental Protection (CTDEEP) has classified groundwater beneath the Site and in the vicinity as Class "GA." According to the CTDEEP Water Quality Standards Regulations (October 2013),



Class “GA” groundwater is described as “ground water within the area of existing private water supply wells or an area with the potential to provide water to public or private water supply wells. The department presumes that ground water in such an area is, at a minimum, suitable for drinking or other domestic uses without treatment.”

## 2.2 CONSTITUENT OF CONCERN

The primary chemical of concern as is the aqueous film forming foam (AFFF) that was used as part of the fire-training likely containing per- and polyfluoroalkyl substances (PFAS). There are many types of PFAS compounds that may have been used in the formulation of AFFF including perfluorooctane sulfonic acid (PFOS), perfluorooctanoic acid (PFOA), perfluorohexane sulfonate (PFHxS) and perfluoronanoate (PFNA) which have action limits set by the Connecticut Department of Health. Since it is unknown which AFFF product was used, at the time of training, this work plan will focus on those legacy AFFF chemicals or parent chemicals (manufactured from the late 1960’s) that break down into PFAS compounds that are regulated by the State of Connecticut and can remain persistent in the environment. The type of legacy AFFF product may include:

- AFFF containing predominantly legacy PFOS were manufactured in the United States from the late 1960’s until 2002. These products would have contained perfluorooctanesulfonic acid (PFOS) and other fluorinated precursors. These precursors could potentially break down in the environment to PFOS and other PFAS compounds such as perfluorohexane sulfonate (PFHxS) and PFOA along with other perfluoroalkyl carboxylates.
- AFFF containing legacy fluorotelomers were manufactured in the United States from the 1970’s until 2016. While these foams were not made with PFOA, they contain perfluoroalkyl precursors that are shown to degrade to PFOA along with other perfluoroalkyl carboxylates. However, it is unlikely that legacy fluorotelomers would break down to PFOS or other perfluorosulfonic acid.

## 2.3 RELEASE MECHANISM AND POTENTIAL MIGRATION PATHWAYS

The primary release mechanism for the AFFF would be direct application to the ground. The migration pathways could have been vertical migration (infiltration) through the underlying coarse-grained soil to the groundwater or overland flow. However, given the subsurface conditions, it is assumed the AFFF would have infiltrated to the underlying soil. Based upon the geologic setting, groundwater is anticipated to flow to the east, towards Cherry Brook. For the purpose of this work plan, the assumption is that the foams were directed to the grassy areas and that the foams were not used on paved surfaces where runoff could have collected in stormwater catch basins.

## **3.0 RECEPTOR STUDY**

The November 15<sup>th</sup> letter requested that a well receptor survey be completed. The Farmington Valley Health District (FVHD) completed a review of properties within 500-feet of the property and identified a total of 11 properties (Figure 4.0). Table 1.0 lists the addresses and well construction information (where available) of these properties with a water supply well and Appendix B includes summary information regarding well completion information on those wells with well log records.



## 4.0 FIELD SAMPLING PLAN

All sampling will follow, GZA Standard Operating Procedures as shown in Appendix C. GZA will ensure that those prohibited items listed in the equipment and materials section will not be used during the course of sampling and protocol will be put in place for staff to avoid material that may contain PFAS compounds 48-hours prior to sampling.

### 4.1 HEALTH AND SAFETY & SITE CONTROL

GZA is committed to performing its work safely. Prior to commencement of any field activities and consistent with our corporate policy, GZA will prepare a site-specific health and safety plan (HASP) outlining possible hazards at the site and protocols and procedures to address unforeseen incidents. The HASP will include information to the nearest emergency room (hospital) along with contacts for key emergency personal. To control exposure to the sampling areas, GZA will create exclusion zones to reduce the potential for cross contamination from outside factors.

GZA will mark the approximate field locations of the proposed exploration locations (Figure 5). While GZA will be using hand tools to advance borings, GZA will Call-Before-You-Dig (CBYD) along with coordinating with the town on the proposed sampling to identify any subsurface utilities. However, since CBYD typically does not mark utility locations on private properties, we request that the Client provide GZA with existing utility plans and pre-mark utility locations (if any) near the proposed boring locations. GZA shall not be held responsible for damage to utilities that are not accurately marked/identified in the field and/or shown on the drawings provided by the Client.

GZA notes that in the proposed southern sampling area, there appears to be a subsurface disposal system (SDS) identified on the drawings provided by the Town. GZA will need to understand the construction of the SDS as it is located in the proposed sampling area. It is known that a leaching field may be a source for PFAS compounds (i.e. floor waxes) and the data will have to be carefully evaluated to determine the source of any PFAS contamination (effluent discharges or AFFF applications).

### 4.2 RESIDENTIAL WELL SAMPLING PLAN

The Farmington Valley Health District (FVHD) has developed a list of potable water supply wells located within 500-feet of the Cherry Brook Primary School. Table 1.0 summarizes a list of 13 property addresses where potable water supply wells are located within 500-foot of the school's property. These properties are also shown on Figure 4. In addition, the FVHD has collected information of the construction of these wells and these data are included in Appendix B.



**TABLE 1.0 – Potable Water Supply Properties and Well Information**

Number On Figure 4.0	Street Number	Street Name	Town	Approximate Distance - owner's property to School's Property	Approximate Distance - owner's property to closest fire training area	Well Information (casing, depth, yield)
1	18	Barbourtown Road	Canton	Abutting to the north	60 feet	40', 200', 2.25 gpm
10	22	Barbourtown Road	Canton	Abutting to northwest	260 feet	NA
2	4	West Mountain Road	Canton	450 feet	870 feet	NA
3	7	West Mountain Road	Canton	Abutting to the southwest	280 feet	20', 200', 20+gpm
11	197	Cherry Brook Road	Canton	495 feet	850 feet	See 197 + 199 below
11	197 + 199	Cherry Brook Road	Canton	495 feet	850 feet	50', 375', 4 gpm
6	203	Cherry Brook Road	Canton	360 feet	700 feet	27', 305', 1.5 gpm
7	207	Cherry Brook Road	Canton	280 feet	580 feet	NA
5	210	Cherry Brook Road	Canton	30 feet	425 feet	NA
4	214	Cherry Brook Road	Canton	Abutting to the east	280 feet	42, 250', 2.5 gpm
8	221	Cherry Brook Road	Canton	Cross street, to the east	460 feet	NA
9	225	Cherry Brook Road	Canton	Cross street, to the east	425 feet	42', 400', 4 gpm

NA – Not Available



GZA will work with the Town of Canton on communicating and obtaining property owner access in order to collect a potable water supply sample. GZA will only collect samples where the property owner have granted permission to collect the sample.

Because many of our everyday consumer products contain PFAS compounds, GZA will provide a high level of quality control when collecting residential samples. This will include a two-person sampling team, whereas only one of our samplers will be in direct contact with the actual sampling bottle, in which the sample is collected. This person will be referred to as the “clean-hands” person. The second person will be responsible for other activities and will be referred to as the “dirty-hands” person.

The water sample will be collected closest to the point of entry into the building (closest spigot to the holding tank) and prior to any type water treatment systems. Should the only point for sampling be at a sink, GZA will remove the strainer. Once the sampling spigot is selected, the cold water will be turned on at a high rate of flow for 10-minutes to purge the lines. After purging, the flow at the spigot will be reduced to a very slow rate to permit the collection of the sample. The sampler will unscrew the containers cover/cap ensuring that it does not touch any surface. Once opened the sampler will fill the bottle directly from the purged spigot ensuring that the inside portion or the threads of the bottle do not contact the spigot or sampling port.

Upon sample collection, the sampler will secure the cover/cap. Once secured, the bottle will be labeled and placed in an individual re-sealable plastic bag and then into loose ice (PFAS free) within a cooler. Upon completion, the water will be shut off. GZA will document the sampling location and other information related to the sampling. GZA will complete a Chain-of-Custody for each individual water supply sample collected and will request that the laboratory provide an individual report per property. The samples will be shipped to the laboratory for analyses in accordance with Section 5.0.

As part of the quality control, GZA will request that our laboratory provide PFAS free sampling containers and that PFAS free water will be provided. In addition, GZA will request that the laboratory provide a trip blank that will accompany the unfilled sample containers from the laboratory and this trip blank will then accompany the actual samples back to the laboratory. This trip blank will evaluate any laboratory potential contamination that might be associated as part of the analytical analysis. GZA will also collect one field blank per day to ensure that no cross contamination took place during the sampling day.

GZA has estimated up to 11 residential potable water supply samples will be collected. GZA has assumed 2-field days to complete the sampling, dependent on access.

#### 4.3 SOIL SAMPLING PLAN

GZA has proposed a triad phased approach to manage the subsurface investigation uncertainties because the exact locations where the foams were used is still somewhat undefined. This approach will avoid sampling areas that may not be impacted (reducing costs). This phased will focus on complying with the November 15<sup>th</sup> letter and will include collecting samples (using hand tools) from a 0- to 3-inch sample (excluding grass and leaf mat) and a deeper sample from approximately 3- to 5- feet below grade within the areas identified by the Town of Canton where firefighting foam were used. Should elevated concentrations be detected above the CTDEEP numerical criteria (see Section 6.0)



for the PFAS compounds, then subsequent investigations may be required targeting only those areas where elevated PFAS compounds have been detected above a criteria.

GZA's assumption is that it is likely that the fire department staged their truck on the asphalt and directed the foam into the grassy areas. As such, there would be a greater potential for soil impact away from the parking lot where the foams could have had dispersed over a wider area.

Based upon the information provided by the Town of Canton as to where the foams were used, the sampling plan is shown on Figure 5 and includes:

- The eastern impact area which is approximately 100 feet (east/west) by 200 feet (north/south). A total of 7-borings will be advanced within the release area. Three borings will be advanced (spaced approximately 50-feet apart), closest to the pavement and 4-borings (spaced approximately 50-feet apart), further to the east, assessing foam dispersion.
- The southern impact area which is approximately 125 feet (east/west) by 100 feet (north/south). A total of 5-borings will be advanced within the release area. These borings will be located approximately 50-feet apart, on a triangular grid. The deeper samples within the southern area may have to be relocated because of the septic leaching field.

#### 4.3.1 Soil Sampling Program

GZA proposes to use hand field equipment that are PFAS free (stainless-steel and/or steel samplers). At each sampling site, high-density polyethylene sheeting will be placed on the ground to ensure that no field equipment or sampling bottles will encounter the surface to reduce potential false positives. All equipment will be decontaminated (using Alconox® or Liquinox) prior to arrival and between each sample to reduce the potential for false positives. In addition, one equipment blank will be collected from the sampling equipment mid-day of the sampling activities for quality control. The homogenized samples will be collected as follows:

- GZA will collect one soil sample from the 0 to 3-inch interval directly beneath the grass or leaf mat from each of the 12- proposed sampling locations. Because these samples are at the surface where children could encounter soil, a new dedicated stainless-steel spatula will be used to collect these samples, reducing the potential for false positives.

The grass and leaf mat will be cleared from the surface and the sample will be collected and placed directly into a laboratory provided PFAS free sampling container. This procedure will ensure the sample only is in contact with the new stainless-steel spatula and the bottle.

All shallow samples will be collected prior to the collection of the deeper samples within each area. This will reduce the potential for cross-contamination between sampling intervals.

- GZA will then advance a 4 to 6-inch diameter hand auger to approximately 3-feet below grade. Once at depth, a 24-inch long, 2-inch diameter split spoon sampler will be pushed through the underlying soil from 3 to 5 feet in depth. The larger diameter boring from 0 to 3-feet is designed to prevent carry down



of surface soils to the discrete sampling interval, providing a representative sample from the targeted zone.

The split spoon will be retrieved and opened at the surface on a PFAS free surface. The soil will be logged (augured and split spoon sampling intervals) describing the subsurface conditions and to determine if any restrictive soils are present that would have limited the vertical migration of contaminants. Should a fine grained confining unit (silt and/or clay) be identified within the soil profile, prior to the collection of the deeper sample, GZA field staff will communicate with the Principal-in-Charge to determine if the sample should be collected at the predetermined location or just above the confining unit. Confining units are known to limit vertical migration of contaminants which could be concentrated directly above the confining unit. Knowing that there are floodplain soils adjacent to Cherry Brook there is a potential for fine grained soil to be present. Any confining unit will be noted on the boring log.

Based upon the visual soil description, GZA will collect a discrete sample from the split spoon core. The portion of the split spoon to be sampled will be from the lower 18-inches of the spoon. The first 6-inches will not be sample because it might contain some carry down from the upper portion of the borehole. The goal is to collect a representative sample from the target interval.

GZA has estimated up to 12 soil samples will be collected from each vertical interval (total of 24-samples). Samples will be placed in a cooler with ice (no blue freezer packs will be used due to the potential for PFAS cross contamination). Upon completion, all samples will be transmitted to a laboratory for the analysis of PFAS (see Section 5.0). Each sample cooler will also contain a trip blank for quality control.

GZA has estimated up to 24 soil samples from 12 locations at 2-discrete depth intervals per location. GZA has assumed a maximum of 2-field days to collect these soil samples.

## **5.0 LABORATORY ANALYSES AND QUALITY CONTROL**

PFAS analysis will be performed by Shealy Environmental Services, Inc (Shealy) of West Columbia, South Carolina. Data Quality Objectives (DQOs) for this study include providing quality data to determine the presence or absence of PFAS in soil and potable water supply wells. GZA will request that the potable water sample achieve a detection limit of 2 parts per trillion and that the soil detection limit be 500 parts per trillion; however, individual PFAS compounds may be reported at 1,000 parts per trillion and GenX at 4,000 parts per trillion. Detection limits for the five regulated PFAS compounds will be below the APS criterial established by CTDEEP (see Section 6.0).



Because PFAS is ubiquitous in the environment, GZA will provide the following quality control field samples:

- Field duplicates samples shall be collected by filling a separate container immediately following the collection of the PFAS sample at the rate of 1 field duplicate per 20-samples collected. GZA will collect 1-field duplicate each for potable water and soil.
- Field blanks will be collected from each batch of PFAS-free DI water while in the field by pouring an aliquot of the PFAS free water into a secondary PFAS sample container at the rate of 1 field duplicate per 20-samples collected or 1 per day, per matrix. GZA will collect 1-field blank each for potable water and soil.
- Equipment blanks will be collected on all decontaminated non-dedicated equipment to ensure that the decontamination procedures were effective. The equipment blank will consist of pouring PFAS-free laboratory grade DI water over, around and through the sampling equipment. The water that touches the equipment will be collected in a laboratory provided sample container. One equipment blank will be collected per non-dedicated equipment type. GZA will collect 1-equipment blank.
- Trip blanks shall be prepared by the laboratory prior to the sampling event using PFAS-free DI water. These samples will accompany the cooler to and from the site unopened. One trip per chain-of-custody, per cooler is acceptable. GZA has estimated 4-trip blanks.
- A MS/MSD sample of soil will be collected to evaluate matrix issues. GZA will collect one MS/MSD sample.

Laboratory methods will be in accordance with *EPA Test Methods for Evaluating Solid Waste, Physical/Chemical Methods*, also known as SW-846, revised 2014. Additionally, sample analysis will be in accordance with:

- Water supply samples will be analyzed by the laboratory using EPA Method 537.1 version 1.0 (November 2018).
- Soil samples will be analyzed by the laboratory using Liquid Chromatography Tandem Mass Spectrometry (LC/MS/MS) with isotope dilution or internal standard quantification in matrices other than drinking water. Because there are no EPA Methods for soil analyses, the laboratory will be providing a modified version of the EPA drinking water Method 537.1.

GZA will perform a Data Quality Assessment and Data Usability Evaluation on all the samples delivered by the laboratory, in general accordance with CTDEEP guidance (May 2009, revised December 2010) including the review of sample results, laboratory and field quality control sample results, the laboratory case narrative, and sample handling procedures.

GZA will be requesting a 2-week turn-around on the samples submitted for analyses.



## 6.0 REGULATORY CRITERIA

All sampling data will be compared to the following regulations:

- **Connecticut Department of Public Health (CTDPH)**
  - CTDPH has established a Drinking Water Action Level for drinking water of 70 parts per trillion for the sum of 5- PFAS compounds (PFOA, PFOS, PFNA, PFHxS and PFHpA).
- **Connecticut Energy and Environmental Protection (CTDEEP)**
  - The CTDEEP has established Additional Polluting Substances (APS) criteria for the groundwater classification beneath the Site (i.e. “GA”). The APS criteria listed below are for the sum of 5- PFAS compounds (PFOA, PFOS, PFNA, PFHxS and PFHpA).
    - Soil - Residential Direct Exposure Criterion – 1.35 mg/Kg
    - Soil - GA Pollutant Mobility Criteria – 1.4 µg/L
    - Groundwater Protection Criterion – 70 ppt

## 7.0 DATA ANALYSIS SUMMARY REPORT

### 7.1 RESIDENTIAL WELL ANALYSES

GZA will develop individual property letter reports which the Town can submit to the property owner. The letter report will summarize the sampling procedures, provide the analytical report from the laboratory and will indicate if the results are above or below the applicable drinking water criteria.

### 7.2 SOIL ANALYSES

GZA will develop a summary report of all field activities including precautions used to reduce false positive. This report will include a copy of the analytical reports and a summary of the data compared to the applicable regulations. This report will identify any soil above a criteria and will make recommendations if subsequent subsurface investigations are warranted based upon the data collected.

This report will also include a summary of the potable water supply samples collected with an attachment of the individual properties. Based upon the data, GZA will make a recommendation if additional private water supply sampling is warranted.

## 8.0 SCHEDULE

The schedule will focus primarily on the potable water supply well sampling; however, soil sampling will be completed immediately following. However, winter conditions may delay the sampling. The proposed schedule is as follows:

- Sampling potable water supplies
  - GZA will begin to mobilize the laboratory to provide sampling containers and other material while this work plan is being reviewed. In addition, GZA will work with the local stakeholders (Town of Canton and FVHD) to obtain access to the 11 properties . Therefore, once DPH/DEEP has approved this work plan, GZA can mobilize the sampling team within two weeks of approval. It is anticipated that the sampling of



private potable water wells may take up to 2-days. Sampling will be dependent on property owner approval and signed access agreements.

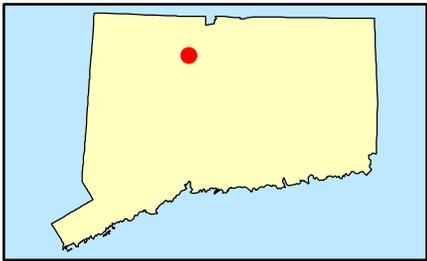
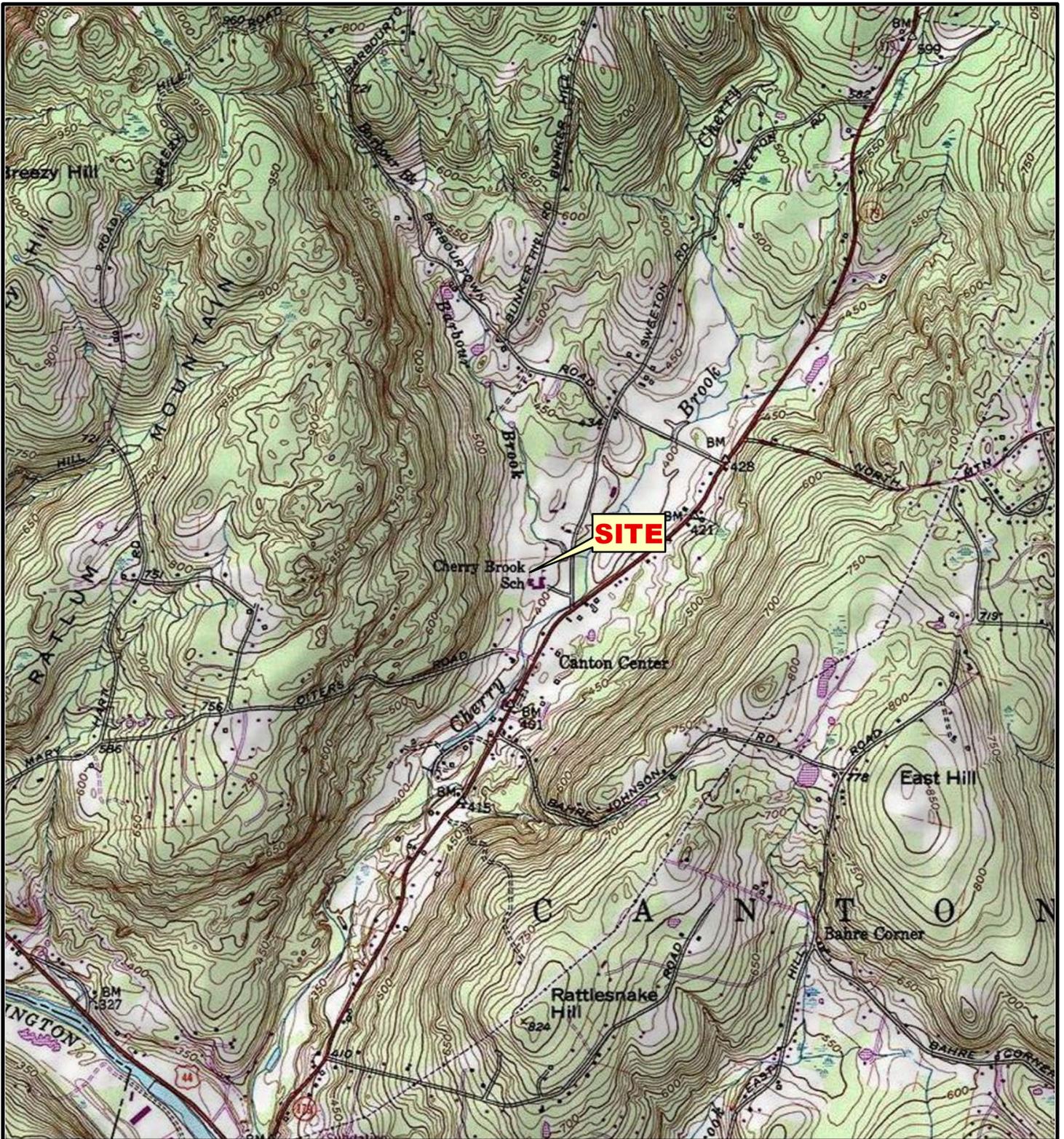
- Upon completion of the private potable water well sampling, GZA will mark-out the proposed sampling locations at the two location on the school's property for CBYD notification. GZA will have the Town review these location to see if there are utility issues (i.e., septic leaching field).

GZA anticipates that the field work will take 2-days to complete. However, weather may be an issue such as frozen soil or thick snow cover.

- GZA has requested that the laboratory provide their analytical reports within 10 business days for receipt of the samples.
- GZA will provide a report within 2-weeks of receipt of the sampling data for soil. Individual potable water supply letter-reports will be issued once the data is received.



## FIGURES



SOURCE : USGS TOPOGRAPHIC QUADRANGLES SCANNED BY THE NATIONAL GEOGRAPHIC SOCIETY & I-CUBED, COPYRIGHT 2011

Data Supplied by :



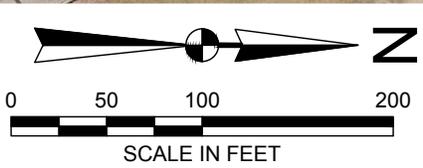
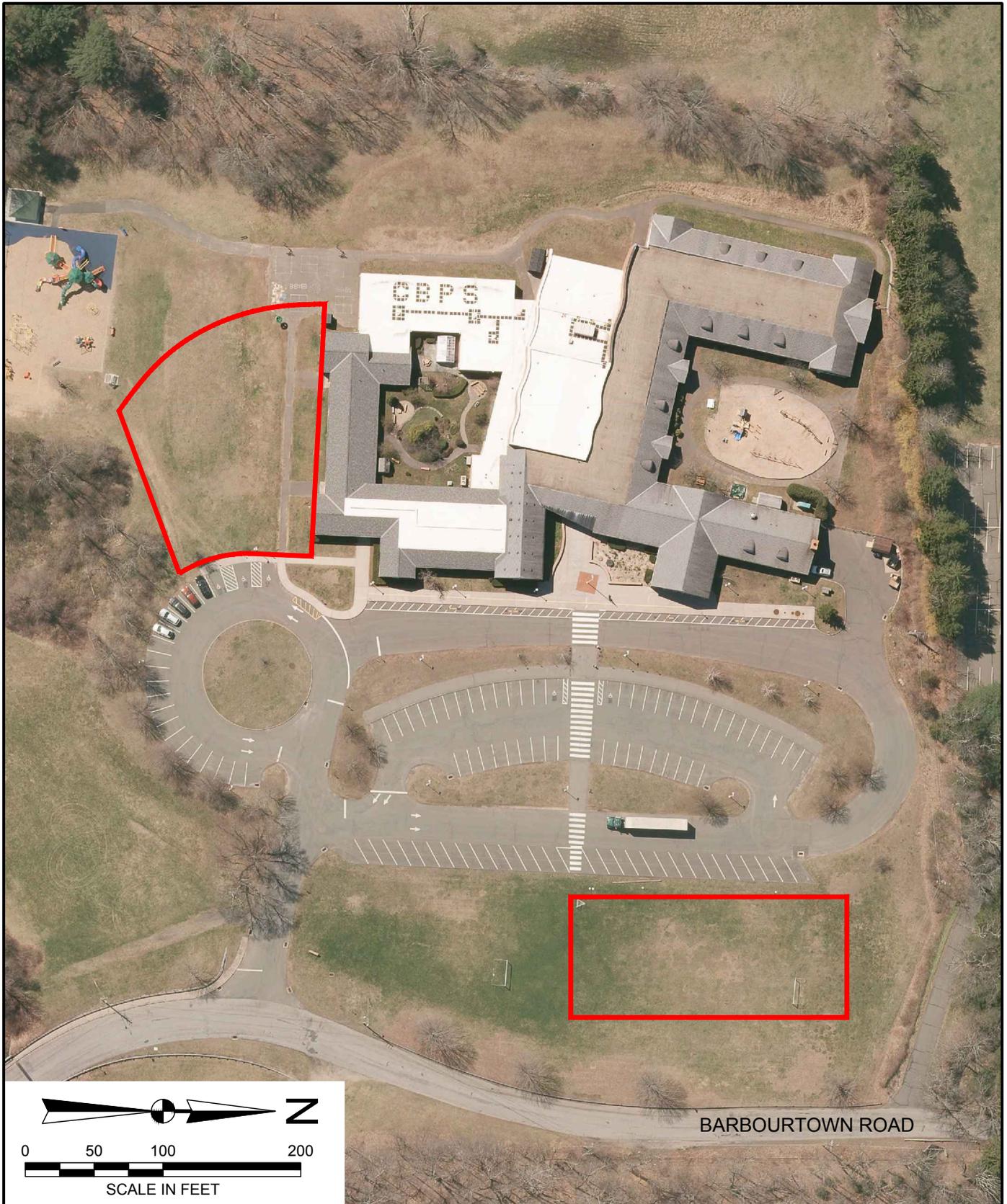
PROJ. MGR.: RJD  
DESIGNED BY: RJD  
REVIEWED BY: RJD  
OPERATOR: MJT  
DATE: 12-10-2019

## SITE LOCUS

CHERRY BROOK SCHOOL  
4 BARBOURTOWN RD  
CANTON, CONNECTICUT

JOB NO.  
05.0046589.00

FIGURE NO.  
**1**

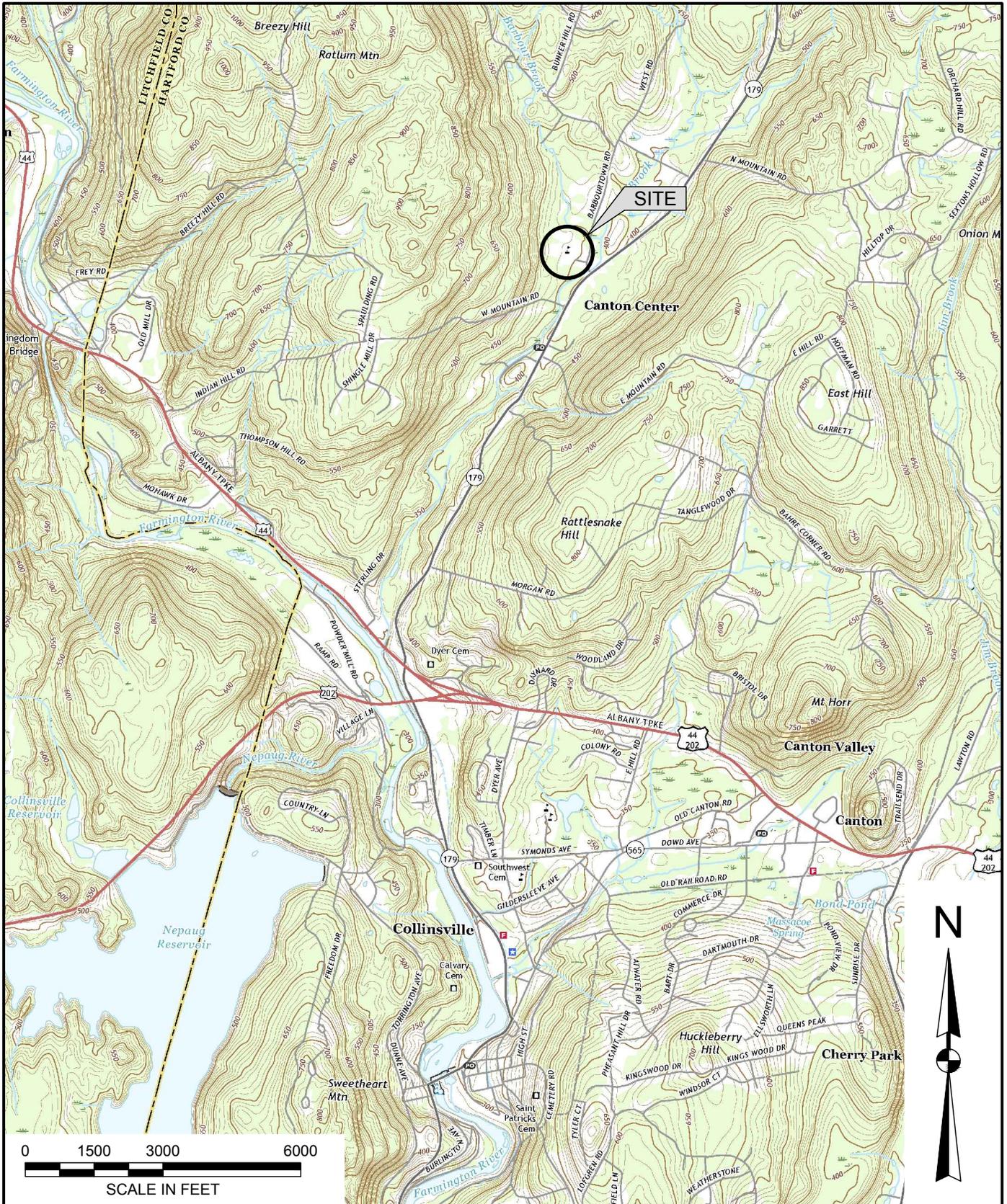


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CHERRY BROOK PRIMARY SCHOOL
<b>AREAS OF AFFF APPLICATION</b>

NO.	ISSUE/DESCRIPTION	BY	DATE

PREPARED BY: <b>GZA</b> GeoEnvironmental, Inc. Engineers and Scientists www.gza.com	PREPARED FOR: TOWN OF CANTON		
PROJ MGR: DESIGNED BY: DATE:	REVIEWED BY: DRAWN BY: PROJECT NO.:	CHECKED BY: SCALE: AS SHOWN REVISION NO.:	FIGURE <b>2</b> SHEET NO. 1 OF 1
11-20-2019	05.P000411.20		



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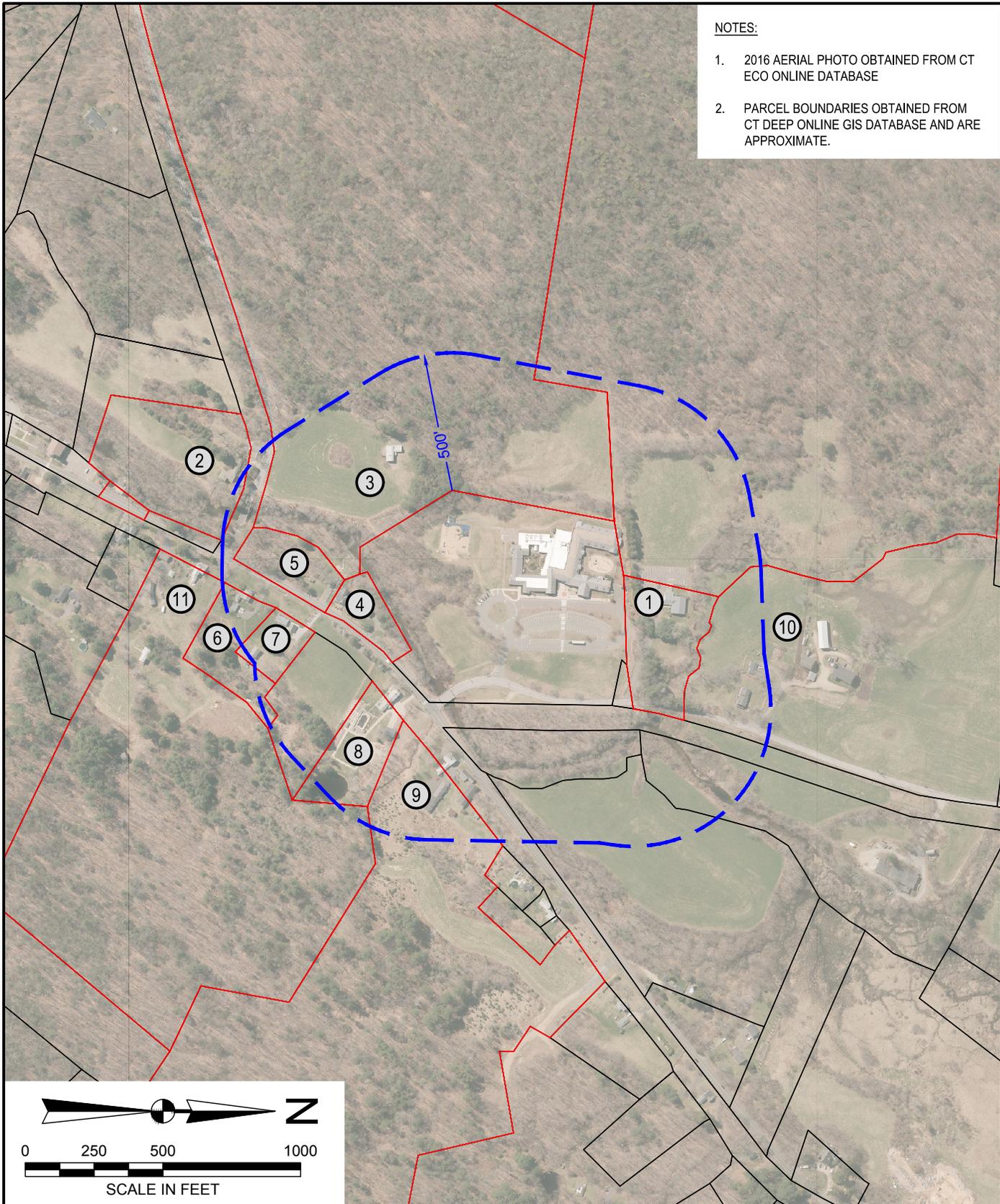
CHERRY BROOK PRIMARY SCHOOL		GZA GeoEnvironmental, Inc. Engineers and Scientists www.gza.com		TOWN OF CANTON	
<b>REGIONAL TOPO PLAN</b>		PROJ MGR:	REVIEWED BY:	CHECKED BY:	<b>FIGURE 3</b> SHEET NO. 1 OF 1
		DESIGNED BY:	DRAWN BY:	SCALE: AS SHOWN	
		DATE: 11-20-2019	PROJECT NO. 05.P000411.20	REVISION NO.	

NO.	ISSUE/DESCRIPTION	BY	DATE

© 2019 - GZA GeoEnvironmental, Inc. GZA-U:\\_46,500-46,999\46589.H89 TOWN OF CANTON\46589-00.RJD\CAD\FIGURES\B-FIG1-SLP.DWG FIG4 RES WELLS ALT DECEMBER 12, 2019 MICHAEL TUMOLO

**NOTES:**

1. 2016 AERIAL PHOTO OBTAINED FROM CT ECO ONLINE DATABASE
2. PARCEL BOUNDARIES OBTAINED FROM CT DEEP ONLINE GIS DATABASE AND ARE APPROXIMATE.



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CHERRY BROOK PRIMARY SCHOOL	
<b>POTABLE WATER SUPPLY PROPERTIES</b>	

NO.	ISSUE/DESCRIPTION	BY	DATE

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PROJ MGR:	REVIEWED BY:	CHECKED BY:
DESIGNED BY:	DRAWN BY:	SCALE: AS SHOWN
DATE: 11-20-2019	PROJECT NO. 05.P000411.20	REVISION NO.

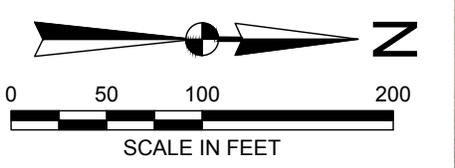
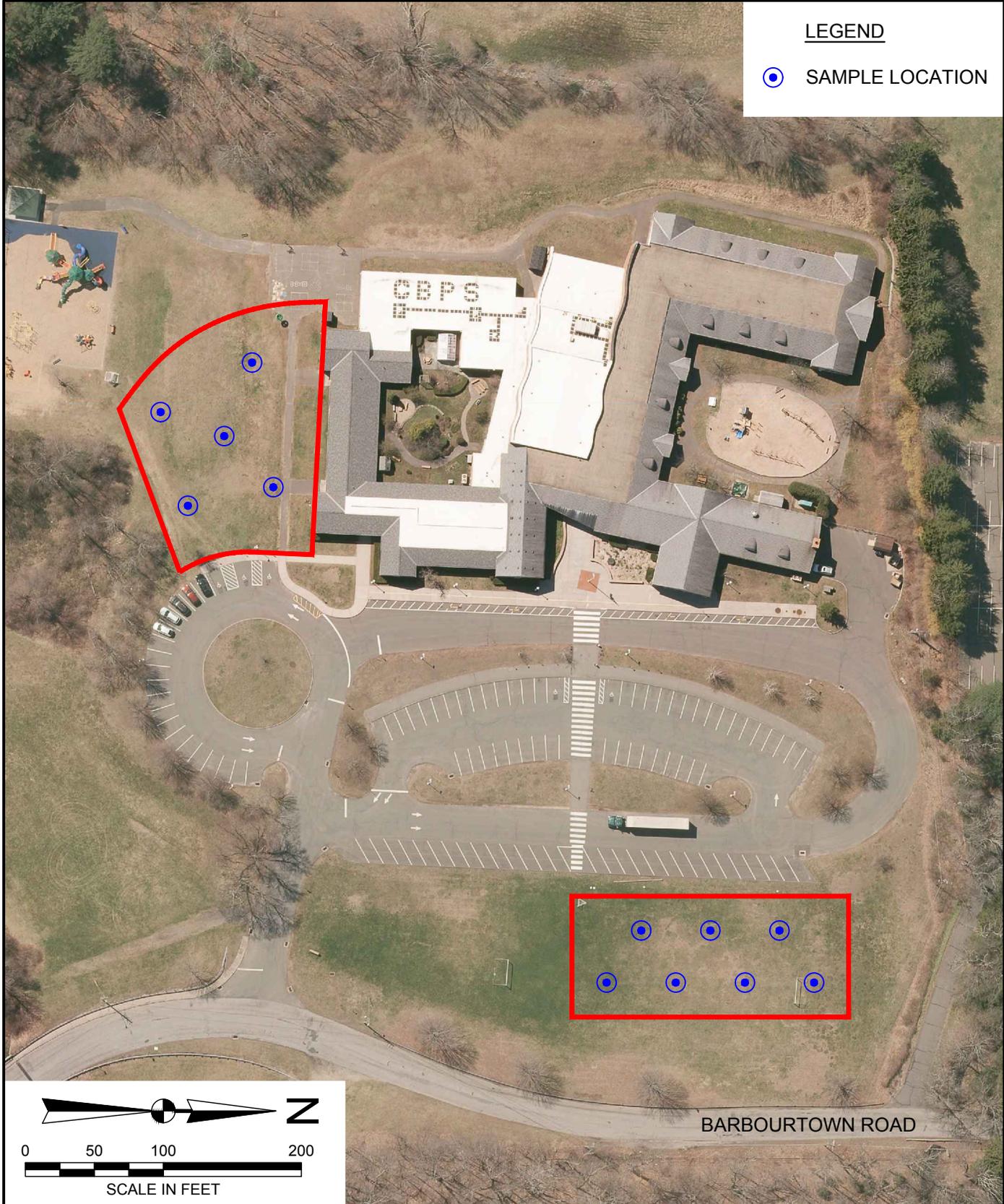
**FIGURE 4**

SHEET NO. 1 OF 1

© 2019 - GZA GeoEnvironmental, Inc. GZA-U:\\_46,500-46,999\46569.H89 TOWN OF CANTON\46589-00.RJD\CAD\FIGURES\B-FIG1-SLP.DWG FIG5 PROP SAMPL DECEMBER 10, 2019 MICHAEL TUMOLO

**LEGEND**

● SAMPLE LOCATION



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CHERRY BROOK PRIMARY SCHOOL	
<b>SOIL SAMPLE LOCATION PLAN</b>	

NO.	ISSUE/DESCRIPTION	BY	DATE

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PROJ MGR:	REVIEWED BY:	CHECKED BY:	FIGURE <b>5</b> SHEET NO. 1 OF 1
DESIGNED BY:	DRAWN BY:	SCALE: AS SHOWN	
DATE: 11-20-2019	PROJECT NO. 05.P000411.20	REVISION NO.	



**APPENDIX A**  
**CHERRY BROOK PRIMARY SCHOOL WATER SUPPLY ANALYTICAL REPORTS**



39 Spruce Street \* East Longmeadow, MA 01028 \* FAX 413/525-6405 \* TEL. 413/525-2332

November 27, 2019

Shane Grant  
Eastern Water Solutions  
5 Benson Road  
Oxford, CT 06478

Project Location: 4 Barbourtown Rd. Canton, CT  
Client Job Number:  
Project Number: WELL #1, Y2hp CT 0230392  
Laboratory Work Order Number: 19K0630

Enclosed are results of analyses for samples received by the laboratory on November 11, 2019. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

A handwritten signature in cursive script that reads "Michelle Koch". The signature is written in black ink and is positioned above the typed name and title.

Michelle M. Koch  
Project Manager

## Table of Contents

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Eastern Water Solutions  
5 Benson Road  
Oxford, CT 06478  
ATTN: Shane Grant

REPORT DATE: 11/27/2019

PURCHASE ORDER NUMBER:

PROJECT NUMBER: WELL #1, Y2hp CT 0230392

**ANALYTICAL SUMMARY**

WORK ORDER NUMBER: 19K0630

The results of analyses performed on the following samples submitted to the CON-TEST Analytical Laboratory are found in this report.

PROJECT LOCATION: 4 Barbourtown Rd. Canton, CT

FIELD SAMPLE #	LAB ID:	MATRIX	SAMPLE DESCRIPTION	TEST	SUB LAB
Well #1 Field Blank	19K0630-01	Drinking Water		EPA 537.1	
Well #1	19K0630-02	Drinking Water		EPA 537.1	



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#### CASE NARRATIVE SUMMARY

All reported results are within defined laboratory quality control objectives unless listed below or otherwise qualified in this report.

The results of analyses reported only relate to samples submitted to the Con-Test Analytical Laboratory for testing.

I certify that the analyses listed above, unless specifically listed as subcontracted, if any, were performed under my direction according to the approved methodologies listed in this document, and that based upon my inquiry of those individuals immediately responsible for obtaining the information, the material contained in this report is, to the best of my knowledge and belief, accurate and complete.

A handwritten signature in black ink that reads "Tod Kopycinski". The signature is written in a cursive style with a large, sweeping initial "T".

Tod E. Kopycinski  
Laboratory Director



39 Spruce Street \* East Longmeadow, MA 01028 \* FAX 413/525-6405 \* TEL. 413/525-2332

Project Location: 4 Barbourtown Rd. Canton, CT

Sample Description:

Work Order: 19K0630

Date Received: 11/11/2019

Field Sample #: Well #1 Field Blank

Sampled: 11/11/2019 12:00

Sample ID: 19K0630-01

Sample Matrix: Drinking Water

## Semivolatile Organic Compounds by - LC/MS-MS

Analyte	Results	MCL/SMCL		Units	Dilution	Flag/Qual	Method	Date	Date/Time	Analyst
		RL	MA ORSG					Prepared	Analyzed	
Perfluorobutanesulfonic acid (PFBS)	ND	2.0		ng/L	1		EPA 537.1	11/22/19	11/27/19 4:02	BLM
Perfluorohexanoic acid (PFHxA)	ND	2.0		ng/L	1		EPA 537.1	11/22/19	11/27/19 4:02	BLM
Perfluorohexanesulfonic acid (PFHxS)	ND	2.0		ng/L	1		EPA 537.1	11/22/19	11/27/19 4:02	BLM
Perfluoroheptanoic acid (PFHpA)	ND	2.0		ng/L	1		EPA 537.1	11/22/19	11/27/19 4:02	BLM
Perfluorooctanoic acid (PFOA)	ND	2.0		ng/L	1		EPA 537.1	11/22/19	11/27/19 4:02	BLM
Perfluorooctanesulfonic acid (PFOS)	ND	2.0		ng/L	1		EPA 537.1	11/22/19	11/27/19 4:02	BLM
Perfluorononanoic acid (PFNA)	ND	2.0		ng/L	1		EPA 537.1	11/22/19	11/27/19 4:02	BLM
Perfluorodecanoic acid (PFDA)	ND	2.0		ng/L	1		EPA 537.1	11/22/19	11/27/19 4:02	BLM
N-EtFOSAA	ND	2.0		ng/L	1		EPA 537.1	11/22/19	11/27/19 4:02	BLM
Perfluoroundecanoic acid (PFUnA)	ND	2.0		ng/L	1		EPA 537.1	11/22/19	11/27/19 4:02	BLM
N-MeFOSAA	ND	2.0		ng/L	1		EPA 537.1	11/22/19	11/27/19 4:02	BLM
Perfluorododecanoic acid (PFDoA)	ND	2.0		ng/L	1		EPA 537.1	11/22/19	11/27/19 4:02	BLM
Perfluorotridecanoic acid (PFTriDA)	ND	2.0		ng/L	1		EPA 537.1	11/22/19	11/27/19 4:02	BLM
Perfluorotetradecanoic acid (PFTA)	ND	2.0		ng/L	1		EPA 537.1	11/22/19	11/27/19 4:02	BLM
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND	2.0		ng/L	1		EPA 537.1	11/22/19	11/27/19 4:02	BLM
11Cl-PF3OUdS (F53B Major)	ND	2.0		ng/L	1		EPA 537.1	11/22/19	11/27/19 4:02	BLM
9Cl-PF3ONS (F53B Minor)	ND	2.0		ng/L	1		EPA 537.1	11/22/19	11/27/19 4:02	BLM
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	ND	2.0		ng/L	1		EPA 537.1	11/22/19	11/27/19 4:02	BLM

Surrogates	% Recovery	Recovery Limits	Flag/Qual
13C-PFHxA	93.4	70-130	11/27/19 4:02
M3HFPO-DA	89.3	70-130	11/27/19 4:02
13C-PFDA	117	70-130	11/27/19 4:02
d5-NEtFOSAA	119	70-130	11/27/19 4:02



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Project Location: 4 Barbourtown Rd. Canton, CT

Sample Description:

Work Order: 19K0630

Date Received: 11/11/2019

Field Sample #: Well #1

Sample ID: 19K0630-02

Start Date/Time: 11/11/2019 12:06:00PM

Sample Matrix: Drinking Water

Stop Date/Time: 11/11/2019 12:10:00PM

## Semivolatile Organic Compounds by - LC/MS-MS

Analyte	Results	MCL/SMCL		Units	Dilution	Flag/Qual	Method	Date	Date/Time	Analyst
		RL	MA ORSG					Prepared	Analyzed	
Perfluorobutanesulfonic acid (PFBS)	ND	2.0		ng/L	1		EPA 537.1	11/22/19	11/27/19 4:24	BLM
Perfluorohexanoic acid (PFHxA)	ND	2.0		ng/L	1		EPA 537.1	11/22/19	11/27/19 4:24	BLM
Perfluorohexanesulfonic acid (PFHxS)	ND	2.0		ng/L	1		EPA 537.1	11/22/19	11/27/19 4:24	BLM
Perfluoroheptanoic acid (PFHpA)	ND	2.0		ng/L	1		EPA 537.1	11/22/19	11/27/19 4:24	BLM
Perfluorooctanoic acid (PFOA)	ND	2.0		ng/L	1		EPA 537.1	11/22/19	11/27/19 4:24	BLM
Perfluorooctanesulfonic acid (PFOS)	ND	2.0		ng/L	1		EPA 537.1	11/22/19	11/27/19 4:24	BLM
Perfluorononanoic acid (PFNA)	ND	2.0		ng/L	1		EPA 537.1	11/22/19	11/27/19 4:24	BLM
Perfluorodecanoic acid (PFDA)	ND	2.0		ng/L	1		EPA 537.1	11/22/19	11/27/19 4:24	BLM
N-EtFOSAA	ND	2.0		ng/L	1		EPA 537.1	11/22/19	11/27/19 4:24	BLM
Perfluoroundecanoic acid (PFUnA)	ND	2.0		ng/L	1		EPA 537.1	11/22/19	11/27/19 4:24	BLM
N-MeFOSAA	ND	2.0		ng/L	1		EPA 537.1	11/22/19	11/27/19 4:24	BLM
Perfluorododecanoic acid (PFDoA)	ND	2.0		ng/L	1		EPA 537.1	11/22/19	11/27/19 4:24	BLM
Perfluorotridecanoic acid (PFTrDA)	ND	2.0		ng/L	1		EPA 537.1	11/22/19	11/27/19 4:24	BLM
Perfluorotetradecanoic acid (PFTA)	ND	2.0		ng/L	1		EPA 537.1	11/22/19	11/27/19 4:24	BLM
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND	2.0		ng/L	1		EPA 537.1	11/22/19	11/27/19 4:24	BLM
11Cl-PF3OUdS (F53B Major)	ND	2.0		ng/L	1		EPA 537.1	11/22/19	11/27/19 4:24	BLM
9Cl-PF3ONS (F53B Minor)	ND	2.0		ng/L	1		EPA 537.1	11/22/19	11/27/19 4:24	BLM
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	ND	2.0		ng/L	1		EPA 537.1	11/22/19	11/27/19 4:24	BLM

Surrogates	% Recovery	Recovery Limits	Flag/Qual
13C-PFHxA	102	70-130	11/27/19 4:24
M3HFPO-DA	96.5	70-130	11/27/19 4:24
13C-PFDA	123	70-130	11/27/19 4:24
d5-NEtFOSAA	125	70-130	11/27/19 4:24



---

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### Sample Extraction Data

Prep Method: EPA 537-EPA 537.1

Lab Number [Field ID]	Batch	Initial [mL]	Final [mL]	Date
19K0630-01 [Well #1 Field Blank]	B246729	250	1.00	11/22/19
19K0630-02 [Well #1]	B246729	250	1.00	11/22/19



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## QUALITY CONTROL

## Semivolatile Organic Compounds by - LC/MS-MS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>Batch B246729 - EPA 537</b>										
<b>Blank (B246729-BLK1)</b>										
Prepared: 11/22/19 Analyzed: 11/27/19										
Perfluorobutanesulfonic acid (PFBS)	ND	2.0	ng/L							
Perfluorohexanoic acid (PFHxA)	ND	2.0	ng/L							
Perfluorohexanesulfonic acid (PFHxS)	ND	2.0	ng/L							
Perfluoroheptanoic acid (PFHpA)	ND	2.0	ng/L							
Perfluorooctanoic acid (PFOA)	ND	2.0	ng/L							
Perfluorooctanesulfonic acid (PFOS)	ND	2.0	ng/L							
Perfluorononanoic acid (PFNA)	ND	2.0	ng/L							
Perfluorodecanoic acid (PFDA)	ND	2.0	ng/L							
N-EtFOSAA	ND	2.0	ng/L							
Perfluoroundecanoic acid (PFUnA)	ND	2.0	ng/L							
N-MeFOSAA	ND	2.0	ng/L							
Perfluorododecanoic acid (PFDoA)	ND	2.0	ng/L							
Perfluorotridecanoic acid (PFTrDA)	ND	2.0	ng/L							
Perfluorotetradecanoic acid (PFTA)	ND	2.0	ng/L							
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND	2.0	ng/L							
11Cl-PF3OUds (F53B Major)	ND	2.0	ng/L							
9Cl-PF3ONS (F53B Minor)	ND	2.0	ng/L							
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	ND	2.0	ng/L							
Surrogate: 13C-PFHxA	45.8		ng/L	40.0		115	70-130			
Surrogate: M3HFPO-DA	45.4		ng/L	40.0		114	70-130			
Surrogate: 13C-PFDA	43.7		ng/L	40.0		109	70-130			
Surrogate: d5-NEtFOSAA	167		ng/L	160		104	70-130			
<b>LCS (B246729-BS1)</b>										
Prepared: 11/22/19 Analyzed: 11/27/19										
Perfluorobutanesulfonic acid (PFBS)	9.44	2.0	ng/L	10.0		94.4	70-130			
Perfluorohexanoic acid (PFHxA)	10.3	2.0	ng/L	10.0		103	70-130			
Perfluorohexanesulfonic acid (PFHxS)	9.89	2.0	ng/L	9.10		109	70-130			
Perfluoroheptanoic acid (PFHpA)	10.3	2.0	ng/L	10.0		103	70-130			
Perfluorooctanoic acid (PFOA)	10.9	2.0	ng/L	10.0		109	70-130			
Perfluorooctanesulfonic acid (PFOS)	10.2	2.0	ng/L	9.25		110	70-130			
Perfluorononanoic acid (PFNA)	11.5	2.0	ng/L	10.0		115	70-130			
Perfluorodecanoic acid (PFDA)	12.0	2.0	ng/L	10.0		120	70-130			
N-EtFOSAA	12.1	2.0	ng/L	10.0		121	70-130			
Perfluoroundecanoic acid (PFUnA)	11.6	2.0	ng/L	10.0		116	70-130			
N-MeFOSAA	9.95	2.0	ng/L	10.0		99.5	70-130			
Perfluorododecanoic acid (PFDoA)	10.8	2.0	ng/L	10.0		108	70-130			
Perfluorotridecanoic acid (PFTrDA)	10.8	2.0	ng/L	10.0		108	70-130			
Perfluorotetradecanoic acid (PFTA)	10.4	2.0	ng/L	10.0		104	70-130			
11Cl-PF3OUds (F53B Major)	8.73	2.0	ng/L	9.40		92.9	70-130			
9Cl-PF3ONS (F53B Minor)	8.88	2.0	ng/L	9.30		95.5	70-130			
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	9.94	2.0	ng/L	10.0		99.4	70-130			
Surrogate: 13C-PFHxA	40.7		ng/L	40.0		102	70-130			
Surrogate: M3HFPO-DA	39.6		ng/L	40.0		99.0	70-130			
Surrogate: 13C-PFDA	45.2		ng/L	40.0		113	70-130			
Surrogate: d5-NEtFOSAA	174		ng/L	160		109	70-130			



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**FLAG/QUALIFIER SUMMARY**

*	QC result is outside of established limits.
†	Wide recovery limits established for difficult compound.
‡	Wide RPD limits established for difficult compound.
#	Data exceeded client recommended or regulatory level
ND	Not Detected
RL	Reporting Limit is at the level of quantitation (LOQ)
DL	Detection Limit is the lower limit of detection determined by the MDL study
MCL	Maximum Contaminant Level

Percent recoveries and relative percent differences (RPDs) are determined by the software using values in the calculation which have not been rounded.

No results have been blank subtracted unless specified in the case narrative section.



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## CERTIFICATIONS

## Certified Analyses included in this Report

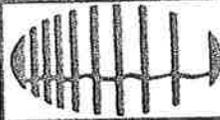
Analyte	Certifications
<i>EPA 537.1 in Drinking Water</i>	
Perfluorobutanesulfonic acid (PFBS)	NH-P,VT-DW,NJ,CT
Perfluorohexanoic acid (PFHxA)	NH-P,VT-DW,NJ,CT
Perfluorohexanesulfonic acid (PFHxS)	NH-P,VT-DW,NJ,CT
Perfluoroheptanoic acid (PFHpA)	NH-P,VT-DW,NJ,CT
Perfluorooctanoic acid (PFOA)	VT-DW,NJ,NY,NH,CT
Perfluorooctanesulfonic acid (PFOS)	VT-DW,NJ,NY,NH,CT
Perfluorononanoic acid (PFNA)	NH-P,VT-DW,NJ,CT
Perfluorodecanoic acid (PFDA)	NH-P,VT-DW,NJ,CT
N-EtFOSAA	NH-P,VT-DW,NJ,CT
Perfluoroundecanoic acid (PFUnA)	NH-P,VT-DW,NJ,CT
N-MeFOSAA	NH-P,VT-DW,NJ,CT
Perfluorododecanoic acid (PFDoA)	NH-P,VT-DW,NJ,CT
Perfluorotridecanoic acid (PFTeDA)	NH-P,VT-DW,NJ,CT
Perfluorotetradecanoic acid (PFTA)	NH-P,VT-DW,NJ,CT
Hexafluoropropylene oxide dimer acid (HFPO-DA)	NH-P,VT-DW,NJ,CT
11Cl-PF3OUdS (F53B Major)	NH-P,VT-DW,NJ,CT
9Cl-PF3ONS (F53B Minor)	NH-P,VT-DW,NJ,CT
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	NH-P,VT-DW,NJ,CT

The CON-TEST Environmental Laboratory operates under the following certifications and accreditations:

Code	Description	Number	Expires
AIHA	AIHA-LAP, LLC - ISO17025:2017	100033	03/1/2020
MA	Massachusetts DEP	M-MA100	06/30/2020
CT	Connecticut Department of Public Health	PH-0567	09/30/2021
NY	New York State Department of Health	10899 NELAP	04/1/2020
NH-S	New Hampshire Environmental Lab	2516 NELAP	02/5/2020
RI	Rhode Island Department of Health	LAO00112	12/30/2019
NC	North Carolina Div. of Water Quality	652	12/31/2019
NJ	New Jersey DEP	MA007 NELAP	06/30/2020
FL	Florida Department of Health	E871027 NELAP	06/30/2020
VT	Vermont Department of Health Lead Laboratory	LL015036	07/30/2020
ME	State of Maine	2011028	06/9/2021
VA	Commonwealth of Virginia	460217	12/14/2019
NH-P	New Hampshire Environmental Lab	2557 NELAP	09/6/2020
VT-DW	Vermont Department of Health Drinking Water	VT-255716	06/12/2020
NC-DW	North Carolina Department of Health	25703	07/31/2020
PA	Commonwealth of Pennsylvania DEP	68-05812	06/30/2020



I Have Not Confirmed Sample Container Numbers With Lab Staff Before Relinquishing Over Samples \_\_\_\_\_



**con-test**  
ANALYTICAL LABORATORY

Doc# 277 Rev 5 2017

**Login Sample Receipt Checklist - (Rejection Criteria Listing - Using Acceptance Policy) Any False Statement will be brought to the attention of the Client - State True or False**

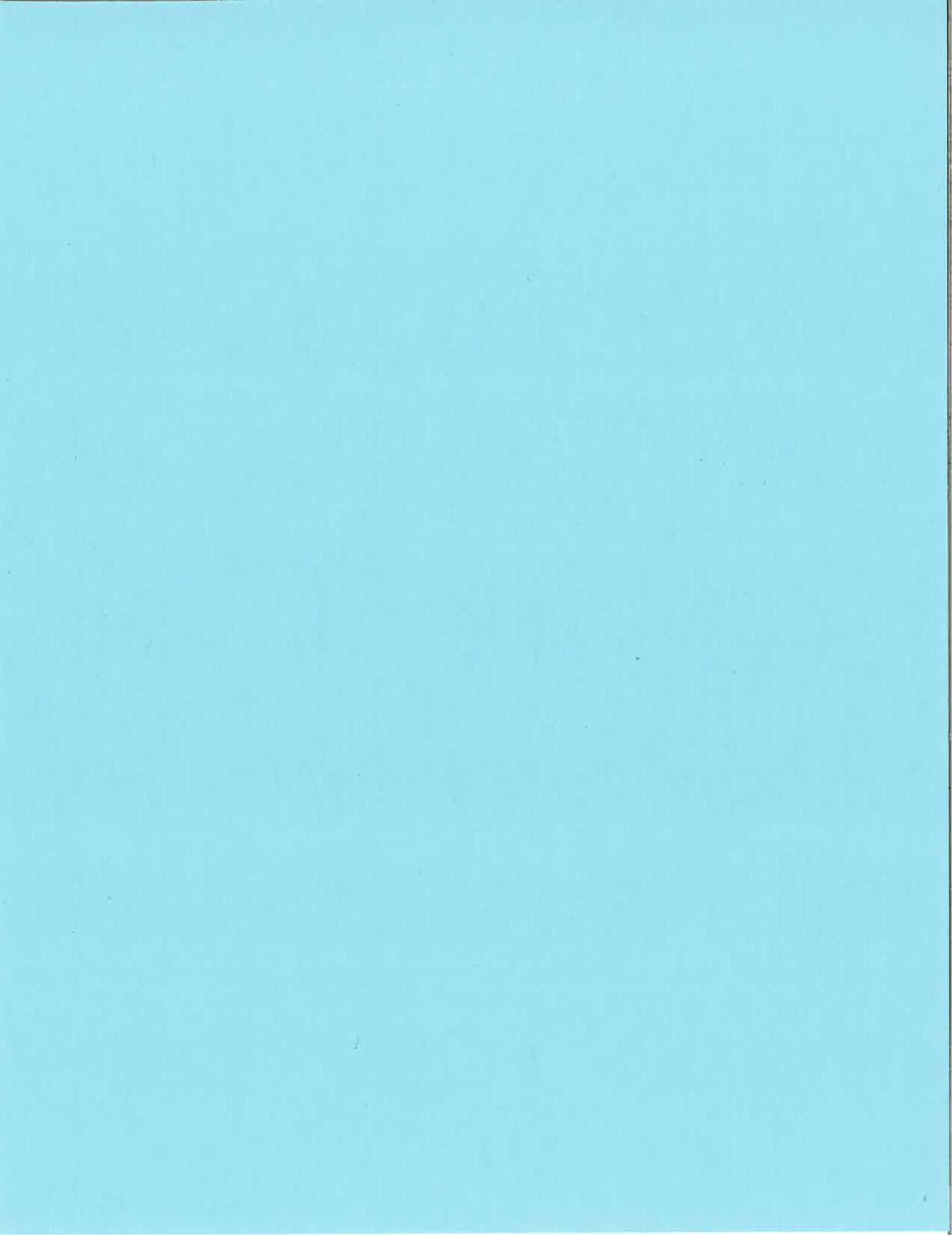
Client Eastern Water Solutions  
 Received By SA Date 11/11 Time 1422  
 How were the samples received? In Cooler T No Cooler \_\_\_\_\_ On Ice T No Ice \_\_\_\_\_  
 Direct from Sampling \_\_\_\_\_ Ambient \_\_\_\_\_ Melted Ice \_\_\_\_\_  
 Were samples within Temperature? 2-6°C \_\_\_\_\_ By Gun # 5 Actual Temp - 2.8  
 By Blank # \_\_\_\_\_ Actual Temp - \_\_\_\_\_  
 Was Custody Seal Intact? NA Were Samples Tampered with? NA  
 Was COC Relinquished? T Does Chain Agree With Samples? T  
 Are there broken/leaking/loose caps on any samples? F  
 Is COC in ink/ Legible? \_\_\_\_\_ Were samples received within holding time? T  
 Did COC include all pertinent information? Client T Analysis T Sampler Name T  
 Project T ID's T Collection Dates/Times T  
 Are Sample labels filled out and legible? T  
 Are there Lab to Filters? F Who was notified? \_\_\_\_\_  
 Are there Rushes? F Who was notified? \_\_\_\_\_  
 Are there Short Holds? F Who was notified? \_\_\_\_\_  
 Is there enough Volume? T  
 Is there Headspace where applicable? NA MS/MSD? F  
 Proper Media/Containers Used? T Is splitting samples required? F  
 Were trip blanks received? F On COC? F  
 Do all samples have the proper pH? Acid NA Base NA

Vials	#	Containers:	#	#	#
Unp-		1 Liter Amb.		1 Liter Plastic	16 oz Amb.
HCL-		500 mL Amb.		500 mL Plastic	8oz Amb/Clear
Meoh-		250 mL Amb.		250 mL Plastic	4oz Amb/Clear
Bisulfate-		Flashpoint		Col./Bacteria	2oz Amb/Clear
DI-		Other Glass		Other Plastic	Encore
Thiosulfate-		SOC Kit		Plastic Bag	Frozen:
Sulfuric-		Perchlorate		Ziplock	

**Unused Media**

Vials	#	Containers:	#	#	#
Unp-		1 Liter Amb.		1 Liter Plastic	16 oz Amb.
HCL-		500 mL Amb.		500 mL Plastic	8oz Amb/Clear
Meoh-		250 mL Amb.		250 mL Plastic	4oz Amb/Clear
Bisulfate-		Col./Bacteria		Flashpoint	2oz Amb/Clear
DI-		Other Plastic		Other Glass	Encore
Thiosulfate-		SOC Kit		Plastic Bag	Frozen:
Sulfuric-		Perchlorate		Ziplock	

Comments:





39 Spruce Street \* East Longmeadow, MA 01028 \* FAX 413/525-6405 \* TEL. 413/525-2332

November 27, 2019

Shane Grant  
Eastern Water Solutions  
5 Benson Road  
Oxford, CT 06478

Project Location: 4 Barbourtown Rd. Canton, CT  
Client Job Number:  
Project Number: WELL #2, Y2hp CT 0230392  
Laboratory Work Order Number: 19K0629

Enclosed are results of analyses for samples received by the laboratory on November 11, 2019. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

A handwritten signature in cursive script that reads "Michelle Koch". The signature is written in black ink and is positioned above the typed name and title.

Michelle M. Koch  
Project Manager

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39 Spruce Street \* East Longmeadow, MA 01028 \* FAX 413/525-6405 \* TEL. 413/525-2332

Eastern Water Solutions  
5 Benson Road  
Oxford, CT 06478  
ATTN: Shane Grant

REPORT DATE: 11/27/2019

PURCHASE ORDER NUMBER:

PROJECT NUMBER: WELL #2, Y2hp CT 0230392

**ANALYTICAL SUMMARY**

WORK ORDER NUMBER: 19K0629

The results of analyses performed on the following samples submitted to the CON-TEST Analytical Laboratory are found in this report.

PROJECT LOCATION: 4 Barbourtown Rd. Canton, CT

FIELD SAMPLE #	LAB ID:	MATRIX	SAMPLE DESCRIPTION	TEST	SUB LAB
Well #2 3/4 Field Blank	19K0629-01	Drinking Water		EPA 537.1	
Well #2 3/4	19K0629-02	Drinking Water		EPA 537.1	



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#### CASE NARRATIVE SUMMARY

All reported results are within defined laboratory quality control objectives unless listed below or otherwise qualified in this report.

#### EPA 537.1

#### Qualifications:

---

##### PF-01

Surrogate recovery is outside of control limits. Sample not re-extracted past holding time per method.

#### Analyte & Samples(s) Qualified:

13C-PFDA

19K0629-01[Well #2 3/4 Field Blank]

The results of analyses reported only relate to samples submitted to the Con-Test Analytical Laboratory for testing.

I certify that the analyses listed above, unless specifically listed as subcontracted, if any, were performed under my direction according to the approved methodologies listed in this document, and that based upon my inquiry of those individuals immediately responsible for obtaining the information, the material contained in this report is, to the best of my knowledge and belief, accurate and complete.

A handwritten signature in black ink that reads "Tod Kopycinski". The signature is written in a cursive, somewhat stylized script.

Tod E. Kopycinski  
Laboratory Director

39 Spruce Street \* East Longmeadow, MA 01028 \* FAX 413/525-6405 \* TEL. 413/525-2332

Project Location: 4 Barbourtown Rd. Canton, CT

Sample Description:

Work Order: 19K0629

Date Received: 11/11/2019

Field Sample #: Well #2 3/4 Field Blank

Sampled: 11/11/2019 12:20

Sample ID: 19K0629-01

Sample Matrix: Drinkine Water

Semivolatile Organic Compounds by - LC/MS-MS

Analyte	Results	MCL/SMCL		Units	Dilution	Flag/Qual	Method	Date	Date/Time	Analyst
		RL	MA ORSG					Prepared	Analyzed	
Perfluorobutanesulfonic acid (PFBS)	ND	2.0		ng/L	1		EPA 537.1	11/22/19	11/27/19 3:19	BLM
Perfluorohexanoic acid (PFHxA)	ND	2.0		ng/L	1		EPA 537.1	11/22/19	11/27/19 3:19	BLM
Perfluorohexanesulfonic acid (PFHxS)	ND	2.0		ng/L	1		EPA 537.1	11/22/19	11/27/19 3:19	BLM
Perfluoroheptanoic acid (PFHpA)	ND	2.0		ng/L	1		EPA 537.1	11/22/19	11/27/19 3:19	BLM
Perfluorooctanoic acid (PFOA)	ND	2.0		ng/L	1		EPA 537.1	11/22/19	11/27/19 3:19	BLM
Perfluorooctanesulfonic acid (PFOS)	ND	2.0		ng/L	1		EPA 537.1	11/22/19	11/27/19 3:19	BLM
Perfluorononanoic acid (PFNA)	ND	2.0		ng/L	1		EPA 537.1	11/22/19	11/27/19 3:19	BLM
Perfluorodecanoic acid (PFDA)	ND	2.0		ng/L	1		EPA 537.1	11/22/19	11/27/19 3:19	BLM
N-EtFOSAA	ND	2.0		ng/L	1		EPA 537.1	11/22/19	11/27/19 3:19	BLM
Perfluoroundecanoic acid (PFUnA)	ND	2.0		ng/L	1		EPA 537.1	11/22/19	11/27/19 3:19	BLM
N-MeFOSAA	ND	2.0		ng/L	1		EPA 537.1	11/22/19	11/27/19 3:19	BLM
Perfluorododecanoic acid (PFDoA)	ND	2.0		ng/L	1		EPA 537.1	11/22/19	11/27/19 3:19	BLM
Perfluorotridecanoic acid (PFTTrDA)	ND	2.0		ng/L	1		EPA 537.1	11/22/19	11/27/19 3:19	BLM
Perfluorotetradecanoic acid (PFTA)	ND	2.0		ng/L	1		EPA 537.1	11/22/19	11/27/19 3:19	BLM
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND	2.0		ng/L	1		EPA 537.1	11/22/19	11/27/19 3:19	BLM
11Cl-PF3OUdS (F53B Major)	ND	2.0		ng/L	1		EPA 537.1	11/22/19	11/27/19 3:19	BLM
9Cl-PF3ONS (F53B Minor)	ND	2.0		ng/L	1		EPA 537.1	11/22/19	11/27/19 3:19	BLM
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	ND	2.0		ng/L	1		EPA 537.1	11/22/19	11/27/19 3:19	BLM

Surrogates	% Recovery	Recovery Limits	Flag/Qual	Date/Time
13C-PFHxA	124	70-130		11/27/19 3:19
M3HFPO-DA	116	70-130		11/27/19 3:19
13C-PFDA	132 *	70-130	PF-01	11/27/19 3:19
d5-NEtFOSAA	128	70-130		11/27/19 3:19



39 Spruce Street \* East Longmeadow, MA 01028 \* FAX 413/525-6405 \* TEL. 413/525-2332

Project Location: 4 Barbourtown Rd. Canton, CT

Sample Description:

Work Order: 19K0629

Date Received: 11/11/2019

Field Sample #: Well #2 3/4

Sample ID: 19K0629-02

Start Date/Time: 11/11/2019 12:26:00PM

Sample Matrix: Drinking Water

Stop Date/Time: 11/11/2019 12:30:00PM

## Semivolatile Organic Compounds by - LC/MS-MS

Analyte	Results	MCL/SMCL		Units	Dilution	Flag/Qual	Method	Date	Date/Time	Analyst
		RL	MA ORSG					Prepared	Analyzed	
Perfluorobutanesulfonic acid (PFBS)	ND	2.0		ng/L	1		EPA 537.1	11/22/19	11/27/19 3:41	BLM
Perfluorohexanoic acid (PFHxA)	ND	2.0		ng/L	1		EPA 537.1	11/22/19	11/27/19 3:41	BLM
Perfluorohexanesulfonic acid (PFHxS)	ND	2.0		ng/L	1		EPA 537.1	11/22/19	11/27/19 3:41	BLM
Perfluoroheptanoic acid (PFHpA)	ND	2.0		ng/L	1		EPA 537.1	11/22/19	11/27/19 3:41	BLM
Perfluorooctanoic acid (PFOA)	ND	2.0		ng/L	1		EPA 537.1	11/22/19	11/27/19 3:41	BLM
Perfluorooctanesulfonic acid (PFOS)	ND	2.0		ng/L	1		EPA 537.1	11/22/19	11/27/19 3:41	BLM
Perfluorononanoic acid (PFNA)	ND	2.0		ng/L	1		EPA 537.1	11/22/19	11/27/19 3:41	BLM
Perfluorodecanoic acid (PFDA)	ND	2.0		ng/L	1		EPA 537.1	11/22/19	11/27/19 3:41	BLM
N-EtFOSAA	ND	2.0		ng/L	1		EPA 537.1	11/22/19	11/27/19 3:41	BLM
Perfluoroundecanoic acid (PFUnA)	ND	2.0		ng/L	1		EPA 537.1	11/22/19	11/27/19 3:41	BLM
N-MeFOSAA	ND	2.0		ng/L	1		EPA 537.1	11/22/19	11/27/19 3:41	BLM
Perfluorododecanoic acid (PFDoA)	ND	2.0		ng/L	1		EPA 537.1	11/22/19	11/27/19 3:41	BLM
Perfluorotridecanoic acid (PFTrDA)	ND	2.0		ng/L	1		EPA 537.1	11/22/19	11/27/19 3:41	BLM
Perfluorotetradecanoic acid (PFTA)	ND	2.0		ng/L	1		EPA 537.1	11/22/19	11/27/19 3:41	BLM
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND	2.0		ng/L	1		EPA 537.1	11/22/19	11/27/19 3:41	BLM
11Cl-PF3OUdS (F53B Major)	ND	2.0		ng/L	1		EPA 537.1	11/22/19	11/27/19 3:41	BLM
9Cl-PF3ONS (F53B Minor)	ND	2.0		ng/L	1		EPA 537.1	11/22/19	11/27/19 3:41	BLM
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	ND	2.0		ng/L	1		EPA 537.1	11/22/19	11/27/19 3:41	BLM
Surrogates		% Recovery		Recovery Limits		Flag/Qual				
13C-PFHxA		130		70-130				11/27/19	3:41	
M3HFPO-DA		122		70-130				11/27/19	3:41	
13C-PFDA		125		70-130				11/27/19	3:41	
d5-NEtFOSAA		125		70-130				11/27/19	3:41	



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### Sample Extraction Data

Prep Method: EPA 537-EPA 537.1

Lab Number [Field ID]	Batch	Initial [mL]	Final [mL]	Date
19K0629-01 [Well #2 3/4 Field Blank]	B246729	250	1.00	11/22/19
19K0629-02 [Well #2 3/4]	B246729	250	1.00	11/22/19

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39 Spruce Street \* East Longmeadow, MA 01028 \* FAX 413/525-6405 \* TEL. 413/525-2332

## QUALITY CONTROL

## Semivolatile Organic Compounds by - LC/MS-MS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>Batch B246729 - EPA 537</b>										
<b>Blank (B246729-BLK1)</b>										
Prepared: 11/22/19 Analyzed: 11/27/19										
Perfluorobutanesulfonic acid (PFBS)	ND	2.0	ng/L							
Perfluorohexanoic acid (PFHxA)	ND	2.0	ng/L							
Perfluorohexanesulfonic acid (PFHxS)	ND	2.0	ng/L							
Perfluoroheptanoic acid (PFHpA)	ND	2.0	ng/L							
Perfluorooctanoic acid (PFOA)	ND	2.0	ng/L							
Perfluorooctanesulfonic acid (PFOS)	ND	2.0	ng/L							
Perfluorononanoic acid (PFNA)	ND	2.0	ng/L							
Perfluorodecanoic acid (PFDA)	ND	2.0	ng/L							
N-EtFOSAA	ND	2.0	ng/L							
Perfluoroundecanoic acid (PFUnA)	ND	2.0	ng/L							
N-MeFOSAA	ND	2.0	ng/L							
Perfluorododecanoic acid (PFDoA)	ND	2.0	ng/L							
Perfluorotridecanoic acid (PFTTrDA)	ND	2.0	ng/L							
Perfluorotetradecanoic acid (PFTA)	ND	2.0	ng/L							
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND	2.0	ng/L							
11Cl-PF3OUdS (F53B Major)	ND	2.0	ng/L							
9Cl-PF3ONS (F53B Minor)	ND	2.0	ng/L							
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	ND	2.0	ng/L							
Surrogate: 13C-PFHxA	45.8		ng/L	40.0		115	70-130			
Surrogate: M3HFPO-DA	45.4		ng/L	40.0		114	70-130			
Surrogate: 13C-PFDA	43.7		ng/L	40.0		109	70-130			
Surrogate: d5-NEtFOSAA	167		ng/L	160		104	70-130			
<b>LCS (B246729-BS1)</b>										
Prepared: 11/22/19 Analyzed: 11/27/19										
Perfluorobutanesulfonic acid (PFBS)	9.44	2.0	ng/L	10.0		94.4	70-130			
Perfluorohexanoic acid (PFHxA)	10.3	2.0	ng/L	10.0		103	70-130			
Perfluorohexanesulfonic acid (PFHxS)	9.89	2.0	ng/L	9.10		109	70-130			
Perfluoroheptanoic acid (PFHpA)	10.3	2.0	ng/L	10.0		103	70-130			
Perfluorooctanoic acid (PFOA)	10.9	2.0	ng/L	10.0		109	70-130			
Perfluorooctanesulfonic acid (PFOS)	10.2	2.0	ng/L	9.25		110	70-130			
Perfluorononanoic acid (PFNA)	11.5	2.0	ng/L	10.0		115	70-130			
Perfluorodecanoic acid (PFDA)	12.0	2.0	ng/L	10.0		120	70-130			
N-EtFOSAA	12.1	2.0	ng/L	10.0		121	70-130			
Perfluoroundecanoic acid (PFUnA)	11.6	2.0	ng/L	10.0		116	70-130			
N-MeFOSAA	9.95	2.0	ng/L	10.0		99.5	70-130			
Perfluorododecanoic acid (PFDoA)	10.8	2.0	ng/L	10.0		108	70-130			
Perfluorotridecanoic acid (PFTTrDA)	10.8	2.0	ng/L	10.0		108	70-130			
Perfluorotetradecanoic acid (PFTA)	10.4	2.0	ng/L	10.0		104	70-130			
11Cl-PF3OUdS (F53B Major)	8.73	2.0	ng/L	9.40		92.9	70-130			
9Cl-PF3ONS (F53B Minor)	8.88	2.0	ng/L	9.30		95.5	70-130			
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	9.94	2.0	ng/L	10.0		99.4	70-130			
Surrogate: 13C-PFHxA	40.7		ng/L	40.0		102	70-130			
Surrogate: M3HFPO-DA	39.6		ng/L	40.0		99.0	70-130			
Surrogate: 13C-PFDA	45.2		ng/L	40.0		113	70-130			
Surrogate: d5-NEtFOSAA	174		ng/L	160		109	70-130			

**FLAG/QUALIFIER SUMMARY**

*	QC result is outside of established limits.
†	Wide recovery limits established for difficult compound.
‡	Wide RPD limits established for difficult compound.
#	Data exceeded client recommended or regulatory level
ND	Not Detected
RL	Reporting Limit is at the level of quantitation (LOQ)
DL	Detection Limit is the lower limit of detection determined by the MDL study
MCL	Maximum Contaminant Level
	Percent recoveries and relative percent differences (RPDs) are determined by the software using values in the calculation which have not been rounded.
	No results have been blank subtracted unless specified in the case narrative section.
PF-01	Surrogate recovery is outside of control limits. Sample not re-extracted past holding time per method.

## CERTIFICATIONS

## Certified Analyses included in this Report

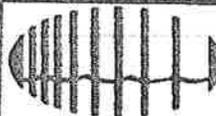
Analyte	Certifications
<i>EPA 537.1 in Drinking Water</i>	
Perfluorobutanesulfonic acid (PFBS)	NH-P,VT-DW,NJ,CT
Perfluorohexanoic acid (PFHxA)	NH-P,VT-DW,NJ,CT
Perfluorohexanesulfonic acid (PFHxS)	NH-P,VT-DW,NJ,CT
Perfluoroheptanoic acid (PFHpA)	NH-P,VT-DW,NJ,CT
Perfluorooctanoic acid (PFOA)	VT-DW,NJ,NY,NH,CT
Perfluorooctanesulfonic acid (PFOS)	VT-DW,NJ,NY,NH,CT
Perfluorononanoic acid (PFNA)	NH-P,VT-DW,NJ,CT
Perfluorodecanoic acid (PFDA)	NH-P,VT-DW,NJ,CT
N-EtFOSAA	NH-P,VT-DW,NJ,CT
Perfluoroundecanoic acid (PFUnA)	NH-P,VT-DW,NJ,CT
N-MeFOSAA	NH-P,VT-DW,NJ,CT
Perfluorododecanoic acid (PFDoA)	NH-P,VT-DW,NJ,CT
Perfluorotridecanoic acid (PFTrDA)	NH-P,VT-DW,NJ,CT
Perfluorotetradecanoic acid (PFTA)	NH-P,VT-DW,NJ,CT
Hexafluoropropylene oxide dimer acid (HFPO-DA)	NH-P,VT-DW,NJ,CT
11Cl-PF3OUdS (F53B Major)	NH-P,VT-DW,NJ,CT
9Cl-PF3ONS (F53B Minor)	NH-P,VT-DW,NJ,CT
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	NH-P,VT-DW,NJ,CT

The CON-TEST Environmental Laboratory operates under the following certifications and accreditations:

Code	Description	Number	Expires
AIHA	AIHA-LAP, LLC - ISO17025:2017	100033	03/1/2020
MA	Massachusetts DEP	M-MA100	06/30/2020
CT	Connecticut Department of Public Health	PH-0567	09/30/2021
NY	New York State Department of Health	10899 NELAP	04/1/2020
NH-S	New Hampshire Environmental Lab	2516 NELAP	02/5/2020
RI	Rhode Island Department of Health	LAO00112	12/30/2019
NC	North Carolina Div. of Water Quality	652	12/31/2019
NJ	New Jersey DEP	MA007 NELAP	06/30/2020
FL	Florida Department of Health	E871027 NELAP	06/30/2020
VT	Vermont Department of Health Lead Laboratory	LL015036	07/30/2020
ME	State of Maine	2011028	06/9/2021
VA	Commonwealth of Virginia	460217	12/14/2019
NH-P	New Hampshire Environmental Lab	2557 NELAP	09/6/2020
VT-DW	Vermont Department of Health Drinking Water	VT-255716	06/12/2020
NC-DW	North Carolina Department of Health	25703	07/31/2020
PA	Commonwealth of Pennsylvania DEP	68-05812	06/30/2020



I Have Not Confirmed Sample Container Numbers With Lab Staff Before Relinquishing Over Samples \_\_\_\_\_



**con-test**  
ANALYTICAL LABORATORY

Doc# 277 Rev 5 2017

**Login Sample Receipt Checklist - (Rejection Criteria Listing - Using Acceptance Policy) Any False Statement will be brought to the attention of the Client - State True or False**

Client Eastern Water Solutions

Received By SA Date 11/11 Time 1422

How were the samples received? In Cooler T No Cooler \_\_\_\_\_ On Ice T No Ice \_\_\_\_\_  
Direct from Sampling \_\_\_\_\_ Ambient \_\_\_\_\_ Melted Ice \_\_\_\_\_

Were samples within Temperature? 2-6°C T By Gun # 5 Actual Temp - 2.8  
By Blank # \_\_\_\_\_ Actual Temp - \_\_\_\_\_

Was Custody Seal Intact? NA Were Samples Tampered with? NA  
Was COC Relinquished? T Does Chain Agree With Samples? T

Are there broken/leaking/loose caps on any samples? F

Is COC in ink/ Legible? T Were samples received within holding time? T  
Did COC include all pertinent Information? Client T Analysis T Sampler Name T  
Project T ID's T Collection Dates/Times T

Are Sample labels filled out and legible? T  
Are there Lab to Filters? F Who was notified? \_\_\_\_\_  
Are there Rushes? F Who was notified? \_\_\_\_\_  
Are there Short Holds? F Who was notified? \_\_\_\_\_

Is there enough Volume? T  
Is there Headspace where applicable? NA MS/MSD? F  
Proper Media/Containers Used? T Is splitting samples required? F  
Were trip blanks received? F On COC? F

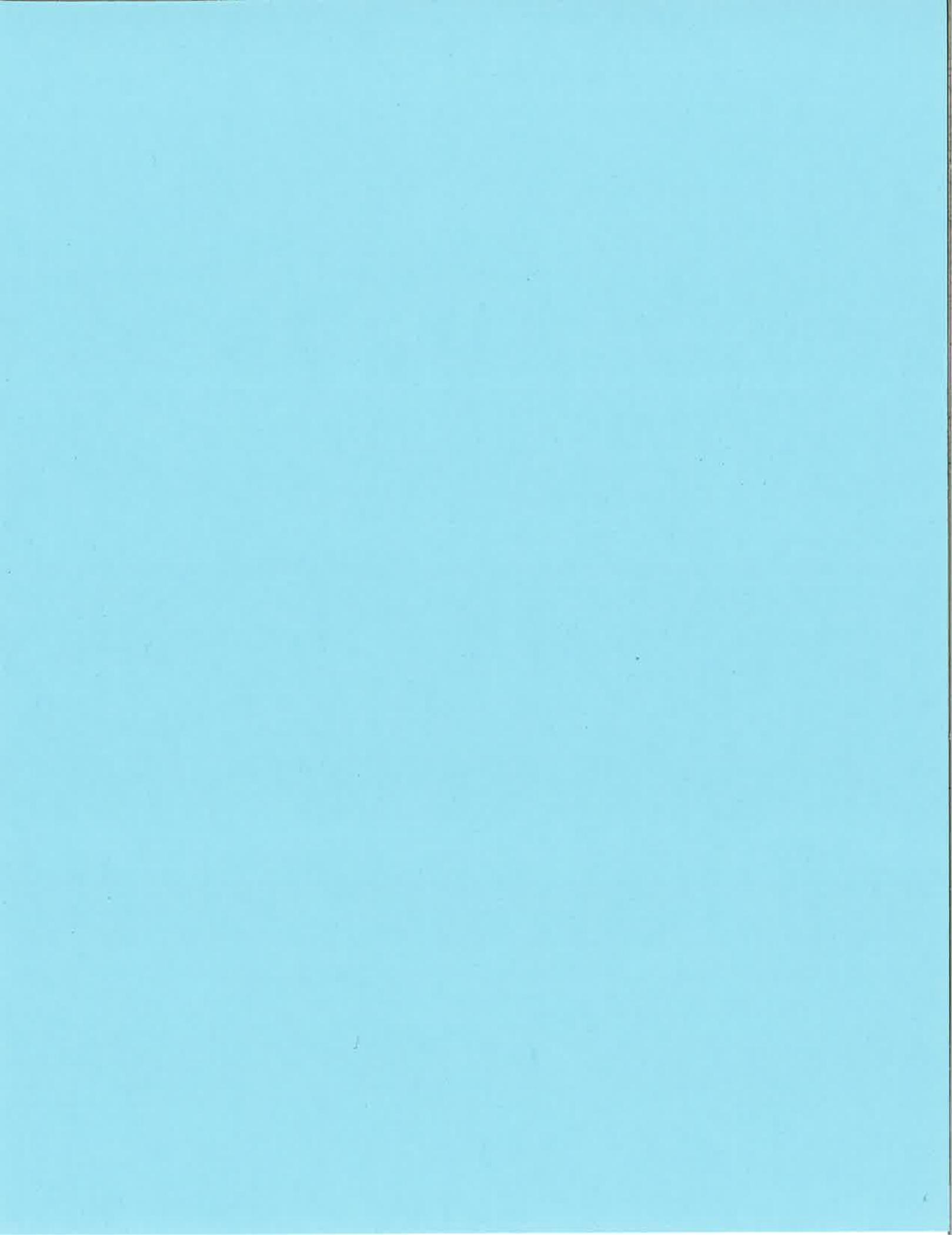
Do all samples have the proper pH? Acid NA Base NA

Vials	#	Containers:	#		#		#
Unp-		1 Liter Amb.		1 Liter Plastic		16 oz Amb.	
HCL-		500 mL Amb.		500 mL Plastic		8oz Amb/Clear	
Meoh-		250 mL Amb.		250 mL Plastic	<u>3</u>	4oz Amb/Clear	
Bisulfate-		Flashpoint		Col./Bacteria		2oz Amb/Clear	
DI-		Other Glass		Other Plastic		Encore	
Thiosulfate-		SOC Kit		Plastic Bag		Frozen:	
Sulfuric-		Perchlorate		Ziplock			

**Unused Media**

Vials	#	Containers:	#		#		#
Unp-		1 Liter Amb.		1 Liter Plastic		16 oz Amb.	
HCL-		500 mL Amb.		500 mL Plastic		8oz Amb/Clear	
Meoh-		250 mL Amb.		250 mL Plastic		4oz Amb/Clear	
Bisulfate-		Col./Bacteria		Flashpoint		2oz Amb/Clear	
DI-		Other Plastic		Other Glass		Encore	
Thiosulfate-		SOC Kit		Plastic Bag		Frozen:	
Sulfuric-		Perchlorate		Ziplock			

Comments:





Wednesday, November 27, 2019

Attn: Alicia Griffin  
Eastern Water Solutions  
5 Benson Road  
Oxford, CT 06478

Project ID: 4 BARBOURTOWN RD., CANTON  
SDG ID: GCE55987  
Sample ID#s: CE55987, CE56052

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.

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.

Sincerely yours,

A handwritten signature in cursive script that reads "Phyllis Shiller".

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  
UT Lab Registration #CT00007  
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

November 27, 2019

SDG I.D.: GCE55987

Project ID: 4 BARBOURTOWN RD., CANTON

---

Client Id	Lab Id	Matrix
WELL # 1 & 2 BLENDED	CE55987	RAW WATER
FIELD BLANK	CE56052	WATER



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

**Analysis Report**  
 November 27, 2019

FOR: Attn: Alicia Griffin  
 Eastern Water Solutions  
 5 Benson Road  
 Oxford, CT 06478

Sample Information

Matrix: RAW WATER  
 Location Code: EASTERN-WS  
 Rush Request: Standard  
 P.O.#:

Custody Information

Collected by:  
 Received by: LB  
 Analyzed by: see "By" below

Date

11/06/19  
 11/07/19

Time

13:30  
 11:30

Laboratory Data

SDG ID: GCE55987  
 Phoenix ID: CE55987

Project ID: 4 BARBOURTOWN RD., CANTON  
 Client ID: WELL # 1 & 2 BLENDED

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
PFAS	Completed				11/19/19	*	E537

C = This parameter is subcontracted.

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

**Comments:**

\*See attached

PFAS (E537) was analyzed by CT certified lab #PH-0411.

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

November 27, 2019

Reviewed and Released by: Helen Geoghegan, Project Manager



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

**Analysis Report**  
 November 27, 2019

FOR: Attn: Alicia Griffin  
 Eastern Water Solutions  
 5 Benson Road  
 Oxford, CT 06478

Sample Information

Matrix: WATER  
 Location Code: EASTERN-WS  
 Rush Request: Standard  
 P.O.#:

Custody Information

Collected by:  
 Received by: LB  
 Analyzed by: see "By" below

Date      Time  
 11/06/19      13:30  
 11/07/19      11:30

Laboratory Data

SDG ID: GCE55987  
 Phoenix ID: CE56052

Project ID: 4 BARBOURTOWN RD., CANTON  
 Client ID: FIELD BLANK

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
PFAS	Completed				11/19/19	*	E537

C = This parameter is subcontracted.

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

**Comments:**

\*See attached

PFAS (E537) was analyzed by CT certified lab #PH-0411.

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

November 27, 2019

Reviewed and Released by: Helen Geoghegan, Project Manager

Wednesday, November 27, 2019

# Sample Criteria Exceedances Report

Criteria: None

GCE55987 - EASTERN-WS

State: CT

Sample No	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 exceedances. All efforts are made to ensure the accuracy of the data (obtained from appropriate agencies). A lack of exceedance 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



## Analysis Comments

November 27, 2019

SDG I.D.: GCE55987

---

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



WC  
JPK  
3.1

Customer Name: Cherry Brook School

Customer Address: 4 Barbourtown Rd - Canton

Sample Type:  Raw  Treated Other: 56052 (Field Blank)

Sample Point Description: Well #1 + Well #2 blended

Sample Date: 11 / 6 / 19 Sample Time: 1:30 AM or PM

Sampler Name: Alicia Griffin Signature: Alicia Griffin

- Bacteria
- Physicals
- Uranium
- Radon (water)
- Radon (air)
- Lead & Copper
- Manganese
- Arsenic
- IOC's
- SOC's
- VOC's (Field Blank)
- NOX (nitrate/nitrite)
- Health Check
- Treatment Check
- CT. Private Well

Other: PFAS Full Sweet EPA method 537 Revision 1.1 - requested by D.P.H.  Chlorine Residual:     

"Special Sample"

5 Benson Road Oxford, CT. 06478 [www.easternwater.com](http://www.easternwater.com) 1-800-243-9326  
CT. Lic. W1-115, J1-208952, HIC 05 47744

Relinquished: 2 Pay 11/7/19  
Kristal Hall 11/7/19 11:30  
RCVD 5-250 mL  (KT)





**FINAL REPORT**

Report Date: 26-NOV-2019 06:05 PM

Sample Number: 200656885

Subm #: 100161416

Type : -FEE- MISC OTHER

Customer : PHEONIX ENVIRONMENTAL LAB

Study : FEE SERVICE -  
MISCELLANEOUS

(Loca) : -LOGIN

Attn : n/a

Logged : 08-Nov-2019 12:43 am

ID : FB - PHEONIX - CE56052

Samp Addr: FB - CE56052

By : GIGLIETTI

Samp City : FB - CE56052

Categ. : FEE - MISC

Collected : 11/08/19 13:30

FEE - MISC.

Loca Desc : FB - CE56052

PARAMETER	RESULT	UNITS	RL	METHOD	COMMENTS
PFBS PerFluoroButaneSulfonic acid	<2	ng/L	2	EPA 537	
PFHxA PerFluoroHexanoic Acid	<2	ng/L	2	EPA 537	
PFHpA PerFluoroHeptanoic Acid	<2	ng/L	2	EPA 537	
PFHxS PerFluoroHexaneSulfonic acid	<2	ng/L	2	EPA 537	
PFOA PerFluoroOctanoic Acid	<2	ng/L	2	EPA 537	
PFOS PerFluoroOctaneSulfonic acid	<2	ng/L	2	EPA 537	
PFNA PerFluoroNonanoic Acid	<2	ng/L	2	EPA 537	
PFDA PerFluoroDecanoic Acid	<2	ng/L	2	EPA 537	
PFTrA PerFluoroUndecanoic Acid	<2	ng/L	2	EPA 537	
NMeFCSAA N-Methyl perFluoroOctaneSulfonamideAcetic Acid	<2	ng/L	2	EPA 537	
NEFCSAA N-Ethyl perFluoroOctaneSulfonamideAcetic Acid	<2	ng/L	2	EPA 537	
PFDecA PerFluoroDodecanoic Acid	<2	ng/L	2	EPA 537	
PFTrDA PerFluoroTridecanoic Acid	<2	ng/L	2	EPA 537	
PFTeA PerFluoroTetradecanoic Acid	<2	ng/L	2	EPA 537	
DATE OF ANALYSIS REQUIRED	11/19/19	MM/DD/YY			
DATE OF EXTRACTION REQUIRED	11/12/19	MM/DD/YY			

All parameters were analyzed in accordance with EPA approved methods EXCEPT where noted in 'COMMENTS' column or in the discussion below. This report is not valid without the cover sheet.

Please note that not all the analytes listed above are NELAP certified. For identification of specific analytes maintaining this certification please contact the Laboratory Manager.

Perfluorinated compounds performed by isotope dilution (PFC Isotops) are not certified and New York NELAP only provides certification for PFOA and PFOS by method 537. RWA does maintain certifications in other states for perfluorinated compounds encompassing the entire list found in EPA method 537 and 537.1.

RL - Reporting Limits

< - The reported result is an estimate. The value is less than the minimum calibration level but greater than the calculated method detection limit (MDL)

Approved by and Date : \_\_\_\_\_



NOV 26 2019



**APPENDIX B**  
**A POTABLE WATER SUPPLY SUMMARY INFORMATION**

The Assessor's office is responsible for the maintenance of records on the ownership of properties. Assessments are computed at 70% of the estimated market value of real property at the time of the last revaluation which was 2018.



# TOWN OF CANTON CT

Information on the Property Records for the Municipality of Canton was last updated on 11/21/2019.

## Property Summary Information

Parcel Data And Values    Building ▾    Outbuildings    Sales

### Parcel Information

Location:	18 BARBOURTOWN ROAD	Property Use:	Church	Primary Use:	Church - Sanctuary (Chapel)
Unique ID:	1190018	Map Block Lot:	18/119/0018	Acres:	2.31
490 Acres:	0.00	Zone:	R-3	Volume / Page:	341 /203
Developers Map / Lot:		Census:			

### Value Information

	Appraised Value	Assessed Value
Land	173,250	121,270
Buildings	934,322	654,030
Detached Outbuildings	9,520	6,660
Total	1,117,092	781,960

### Owner's Information

#### Owner's Data

CANTON CONGREGATION OF JEHOVAH'S  
P O BOX 119  
CANTON CENTER CT 06020

[Back To Search \(JavaScript>window.history.back\(1\);\)](#)

[Print View \(PrintPage.aspx?towncode=023&uniqueid=1190018\)](#)

Information Published With Permission From The Assessor

**WELL COMPLETION REPORT**

CPR-9 REV. 9-79

STATE OF CONNECTICUT  
**DEPARTMENT OF CONSUMER PROTECTION**  
**WELL DRILLING BOARD**

20 GRAND STREET  
 HARTFORD, CONNECTICUT 06106

Do NOT fill in  
 STATE WELL NO.  
 OTHER NO.

*Canton Corporation of*

OWNER NAME: *Johanna Wilner* ADDRESS: *Barbourtown Rd, Canton, Ct*

LOCATION OF WELL: 18 *Barbourtown Rd* (No. & Street) *CANTON* (Town) (Lot Number)

PROPOSED USE OF WELL:  
 DOMESTIC  BUSINESS ESTABLISHMENT  FARM  TEST WELL  
 PUBLIC SUPPLY  INDUSTRIAL  AIR CONDITIONING  OTHER (Specify) *Church*

DRILLING EQUIPMENT:  
 ROTARY  COMPRESSED AIR PERCUSSION  CABLE PERCUSSION  OTHER (Specify)

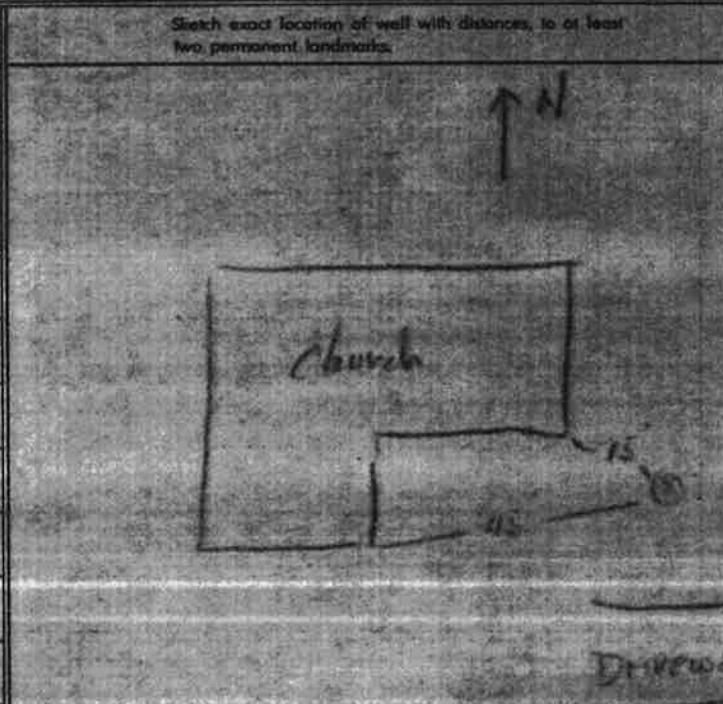
CASING DETAILS: LENGTH (feet) *40* DIAMETER (inches) *6* WEIGHT PER FOOT *17*  
 THREADED  WELDED DRIVE SPOKE:  YES  NO WAS CASING GROUTED?:  YES  NO

YIELD TEST:  BAILED  PUMPED  COMPRESSED AIR HOURS: *2* YIELD (G.P.M.): *2.6*

WATER LEVEL: MEASURE FROM LAND SURFACE - STATIC (Specify feet) *17* DURING YIELD TEST (feet) *195* Depth of Completed Well in feet below Land surface: *200*

SCREEN DETAILS: MAKE: \_\_\_\_\_ LENGTH OPEN TO AQUIFER (feet): \_\_\_\_\_  
 SLOT SIZE: \_\_\_\_\_ DIAMETER (inches): \_\_\_\_\_ IF GRAVEL PACKED: \_\_\_\_\_ Diameter of well including gravel pack (inches): \_\_\_\_\_ GRAVEL SIZE (inches) FROM (feet) \_\_\_\_\_ TO (feet) \_\_\_\_\_

DEPTH FROM LAND SURFACE FEET TO FEET		FORMATION DESCRIPTION
0	32	Sand & Gravel
32	200	Schist / Gravel inter mixed



If yield was tested at different depths during drilling, list below

FEET	GALLONS PER MINUTE

DATE WELL COMPLETED: *2-5-82* PERMIT NO.: *19724* REGISTRATION NO.: *69* DATE OF REPORT: *2-9-82* WELL DRILLER (Signature): *Proctor Drilling Inc.*



The Assessor's office is responsible for the maintenance of records on the ownership of properties. Assessments are computed at 70% of the estimated market value of real property at the time of the last revaluation which was 2018.



# TOWN OF CANTON CT

Information on the Property Records for the Municipality of Canton was last updated on 11/21/2019.

## Property Summary Information

Parcel Data And Values    Building ▾    Outbuildings    Sales

### Parcel Information

Location:	22 BARBOURTOWN ROAD	Property Use:	Residential	Primary Use:	Residential
Unique ID:	1190022	Map Block Lot:	18/119/0022	Acres:	163.19
490 Acres:	161.19	Zone:	R-3	Volume / Page:	158 /942
Developers Map / Lot:		Census:			

## Value Information

	Appraised Value	Assessed Value
Land	555,213	103,590
Buildings	297,972	208,580
Detached Outbuildings	66,596	46,620
Total	919,781	358,790

## Owner's Information

### Owner's Data

PERRY BROTHERS PARTNERSHIP  
P O BOX 1  
CANTON CENTER, CT 06020

[Back To Search \(JavaScript:window.history.back\(1\);\)](#)

[Print View \(PrintPage.aspx?towncode=023&uniqueid=1190022\)](#)

Information Published With Permission From The Assessor

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# TOWN OF CANTON CT

Information on the Property Records for the Municipality of Canton was last updated on 11/21/2019.

## Property Summary Information

Parcel Data And Values    Building ▾    Outbuildings    Sales

### Parcel Information

Location:	<b>4 WEST MOUNTAIN ROAD</b>	Property Use:	Residential	Primary Use:	Residential
Unique ID:	5600004	Map Block Lot:	18/560/0004	Acres:	5.50
490 Acres:	3.50	Zone:	R-3	Volume / Page:	183/ 525
Developers Map / Lot:		Census:			

### Value Information

	Appraised Value	Assessed Value
Land	102,395	64,990
Buildings	155,331	108,730
Detached Outbuildings	30,197	21,140
Total	287,923	194,860

### Owner's Information

#### Owner's Data

SULAVIK BARBARA ESTATE OF (ALIVE)  
ADAMS ANN CONSERVATOR  
78 DUCK POND ROAD  
GLASTONBURY CT 06033

[Back To Search \(JavaScript:window.history.back\(1\);\)](#)

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The Assessor's office is responsible for the maintenance of records on the ownership of properties. Assessments are computed at 70% of the estimated market value of real property at the time of the last revaluation which was 2018.



# TOWN OF CANTON CT

Information on the Property Records for the Municipality of Canton was last updated on 11/21/2019.

## Property Summary Information

Parcel Data And Values    Building ▾    Outbuildings    Sales

### Parcel Information

Location:	7 WEST MOUNTAIN ROAD	Property Use:	Residential	Primary Use:	Residential
Unique ID:	5600007	Map Block Lot:	18/560/0007	Acres:	80.42
490 Acres:	78.42	Zone:	R-3	Volume / Page:	208 /640
Developers Map / Lot:		Census:			

### Value Information

	Appraised Value	Assessed Value
Land	306,087	72,960
Buildings	176,362	123,450
Detached Outbuildings	16,025	11,220
Total	498,474	207,630

### Owner's Information

#### Owner's Data

PERRY LANSFORD W  
P O BOX 1  
CANTON CENTER, CT 06020

[Back To Search \(JavaScript:window.history.back\(1\);\)](#)

[Print View \(PrintPage.aspx?towncode=023&uniqueid=5600007\)](#)

Information Published With Permission From The Assessor

# WELL COMPLETION REPORT

CPR-9 REV. 11-82

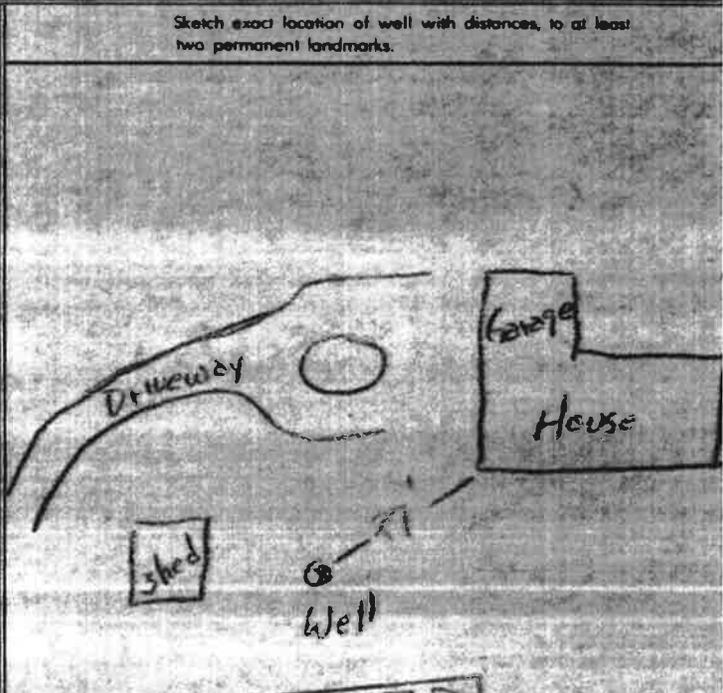
## STATE OF CONNECTICUT DEPARTMENT OF CONSUMER PROTECTION

WELL DRILLING BOARD  
165 CAPITOL AVE.  
HARTFORD, CONNECTICUT 06106

Do NOT fill in  
STATE WELL NO.  
OTHER NO.

OWNER	NAME <i>Hector Rudhomme</i> <small>(No. &amp; Street)</small>		ADDRESS <i>7 West Mountain Rd, Canton Center, Ct</i> <small>(Town) (Lot Number)</small>	
LOCATION OF WELL	<i>7 West Mountain Rd</i>		<i>CANTON</i>	
PROPOSED USE OF WELL	<input checked="" type="checkbox"/> DOMESTIC	<input type="checkbox"/> BUSINESS ESTABLISHMENT	<input type="checkbox"/> FARM	<input type="checkbox"/> TEST WELL
	<input type="checkbox"/> PUBLIC SUPPLY	<input type="checkbox"/> INDUSTRIAL	<input type="checkbox"/> AIR CONDITIONING	<input type="checkbox"/> OTHER (Specify)
DRILLING EQUIPMENT	<input type="checkbox"/> ROTARY	<input checked="" type="checkbox"/> COMPRESSED AIR PERCUSSION	<input type="checkbox"/> CABLE PERCUSSION	<input type="checkbox"/> OTHER (Specify)
	CASING DETAILS	LENGTH (feet) <i>20</i>	DIAMETER (inches) <i>6</i>	WEIGHT PER FOOT <i>17</i>
YIELD TEST	<input type="checkbox"/> BAILED	<input type="checkbox"/> PUMPED	<input checked="" type="checkbox"/> COMPRESSED AIR	HOURS <i>1</i> YIELD (G.P.M.) <i>20+</i>
WATER LEVEL	MEASURE FROM LAND SURFACE—STATIC (Specify feet) <i>12</i>		DURING YIELD TEST (feet) <i>100/200</i>	
SCREEN DETAILS	MAKE			LENGTH OPEN TO AQUIFER (feet)
	SLOT SIZE	DIAMETER (inches)	IF GRAVEL PACKED:	Diameter of well including gravel pack (inches):

DEPTH FROM LAND SURFACE FEET TO FEET		FORMATION DESCRIPTION
<i>0</i>	<i>7</i>	<i>Top Soil &amp; Clay</i>
<i>7</i>	<i>200</i>	<i>Gray Mica Schist.</i>



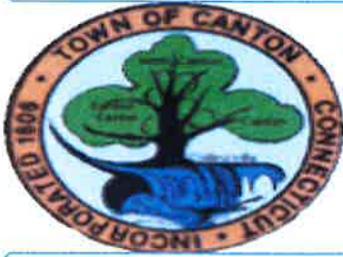
If yield was tested at different depths during drilling, list below

FEET	GALLONS PER MINUTE



DATE WELL COMPLETED <i>8-16-89</i>	PERMIT NO. <i>139957</i>	REGISTRATION NO. <i>69</i>	DATE OF REPORT <i>8-17-89</i>	WELL DRILLER (Signature) <i>Provac. Well &amp; Pump Co. Inc.</i>
---------------------------------------	-----------------------------	-------------------------------	----------------------------------	---

The Assessor's office is responsible for the maintenance of records on the ownership of properties. Assessments are computed at 70% of the estimated market value of real property at the time of the last revaluation which was 2018.



# TOWN OF CANTON CT

Information on the Property Records for the Municipality of Canton was last updated on 11/21/2019.

## Property Summary Information

Parcel Data And Values    Building ▾    Outbuildings    Sales

### Parcel Information

Location:	190 CHERRY BROOK ROAD	Property Use:	Residential	Primary Use:	Residential
Unique ID:	1850190	Map Block Lot:	18/185/0190	Acres:	0.33
490 Acres:	0.00	Zone:	R-2	Volume / Page:	416/ 183
Developers Map / Lot:		Census:			

### Value Information

	Appraised Value	Assessed Value
Land	85,560	59,890
Buildings	123,614	86,530
Detached Outbuildings	1,512	1,060
Total	210,686	147,480

### Owner's Information

#### Owner's Data

SPENCER JEREMY CHRISTOPHER &  
SPENCER MARY E  
190 CHERRY BROOK ROAD  
CANTON, CT 06019

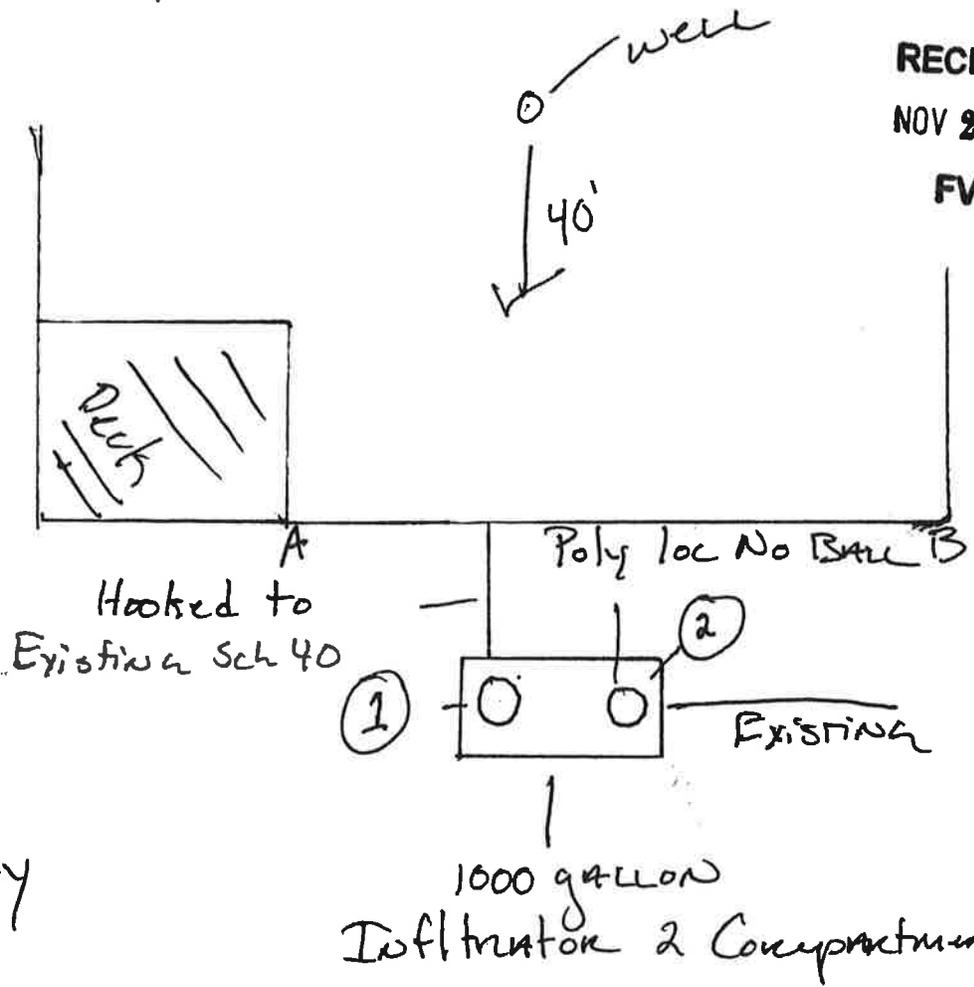
[Back To Search \(JavaScript>window.history.back\(1\);\)](#)

[Print View \(PrintPage.aspx?towncode=023&uniqueid=1850190\)](#)

Information Published With Permission From The Assessor

190 Cherry Brook Rd Canton

RECEIVED  
NOV 26 2014  
FVHD

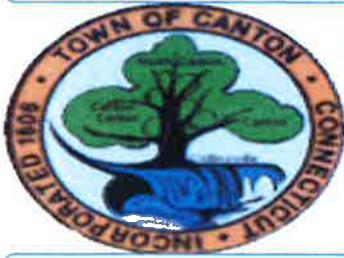


Tanks only

POINT	#1	#2	#3	#4	#5	#6	#7	#8	#9	#10
Distance from corner A	25'	30'								
Distance from corner B	23'	23'								
Distance from corner C										
Distance from corner D										

AS-BUILT DIMENSIONS PROVIDED BY: Small Town Septic Date: 11-21-14

The Assessor's office is responsible for the maintenance of records on the ownership of properties. Assessments are computed at 70% of the estimated market value of real property at the time of the last revaluation which was 2018.



# TOWN OF CANTON CT

Information on the Property Records for the Municipality of Canton was last updated on 11/21/2019.

## Property Summary Information

Parcel Data And Values    Building ▾    Outbuildings    Sales

### Parcel Information

Location:	197 x 199 CHERRY BROOK ROAD	Property Use:	Residential	Primary Use:	Residential
Unique ID:	1850199	Map Block Lot:	19/185/0199	Acres:	26.58
490 Acres:	25.58	Zone:	R-3	Volume / Page:	223 /1000
Developers Map / Lot:		Census:			

### Value Information

	Appraised Value	Assessed Value
Land	158,616	65,580
Buildings	274,148	191,900
Detached Outbuildings	39,834	27,880
Total	472,598	285,360

**Owner's Information**

**Owner's Data**

GUILMETTE PAUL L &  
BANKS CHRISTINE G  
BOX 13  
CANTON CENTER CT 06020

[Back To Search \(JavaScript:window.history.back\(1\);\)](#)

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Information Published With Permission From The Assessor



The Assessor's office is responsible for the maintenance of records on the ownership of properties. Assessments are computed at 70% of the estimated market value of real property at the time of the last revaluation which was 2018.



# TOWN OF CANTON CT

Information on the Property Records for the Municipality of Canton was last updated on 11/21/2019.

## Property Summary Information

Parcel Data And Values    Building ▾    Outbuildings    Sales

### Parcel Information

Location:	<b>203 CHERRY BROOK ROAD</b>	Property Use:	Residential	Primary Use:	Residential
Unique ID:	1850203	Map Block Lot:	18/185/0203	Acres:	1.60
490 Acres:	0.00	Zone:	R-3	Volume / Page:	271/903
Developers Map / Lot:		Census:			

### Value Information

	Appraised Value	Assessed Value
Land	89,240	62,470
Buildings	140,897	98,630
Detached Outbuildings	23,048	16,130
Total	253,185	177,230

**Owner's Information**

Owner's Data
KOLDING ELIZABETH G 203 CHERRY BROOK RD CANTON, CT 06019

[Back To Search \(JavaScript:window.history.back\(1\);\)](#)

[Print View \(PrintPage.aspx?towncode=023&uniqueid=1850203\)](#)

Information Published With Permission From The Assessor



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# TOWN OF CANTON CT

Information on the Property Records for the Municipality of Canton was last updated on 11/21/2019.

## Property Summary Information

Parcel Data And Values    Building ▾    Outbuildings    Sales

### Parcel Information

Location:	<b>210 CHERRY BROOK ROAD</b>	Property Use:	Residential	Primary Use:	Residential
Unique ID:	1850210	Map Block Lot:	18/185/0210	Acres:	2.20
490 Acres:	0.00	Zone:	R-3	Volume / Page:	334 / 50
Developers Map / Lot:		Census:			

### Value Information

	Appraised Value	Assessed Value
Land	92,600	64,820
Buildings	161,311	112,920
Detached Outbuildings	5,316	3,720
Total	259,227	181,460

### Owner's Information

#### Owner's Data

LINN LISA A &  
WILLIAMS DOUGLAS D  
210 CHERRY BROOK RD  
CANTON, CT 06019

[Back To Search \(JavaScript:window.history.back\(1\);\)](#)

[Print View \(PrintPage.aspx?towncode=023&uniqueid=1850210\)](#)

Information Published With Permission From The Assessor

**TEST DATA**

TH#1

DEPTH	SOIL TYPE	PERC. RATE
0-7"	TOPSOIL	2.7 MIN./IN. @ 23"
7-32"	LIGHT BROWN BONEY LOAM, COARSE SAND & GRAVEL.	
32-46"	COARSE SAND & GRAVEL	
46-87"	COMPACT BONEY COARSE SAND & GRAVEL.	

MOTTLES @ 27"  
ROOTS TO 35"  
NO GROUND WATER

TH#2

DEPTH	SOIL TYPE	PERC. RATE
0-9"	BONEY TOPSOIL	2.0 MIN./IN. @ 25"
9-40"	BONEY LOAMY SAND & GRAVEL	
40-60"	MEDIUM SAND	
60-78"	COARSE SAND & GRAVEL	

GROUNDWATER @ 62"  
ROOTS TO 44" STREET LINE WLD  
MOTTLES @ 40" 25' @ OF ROAD

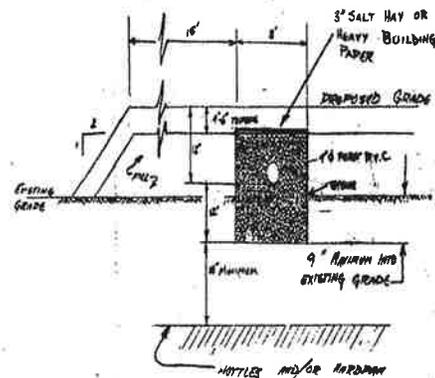
**SEPTIC SYSTEM DESIGN**

4 BEDROOM HOUSE  
DESIGN RATE = 2.7 MIN./IN.  
LEACHING AREA REQUIRED = 600 SQ. FT.  
AREA PROVIDED = 671 SQ. FT.

**NOTES**

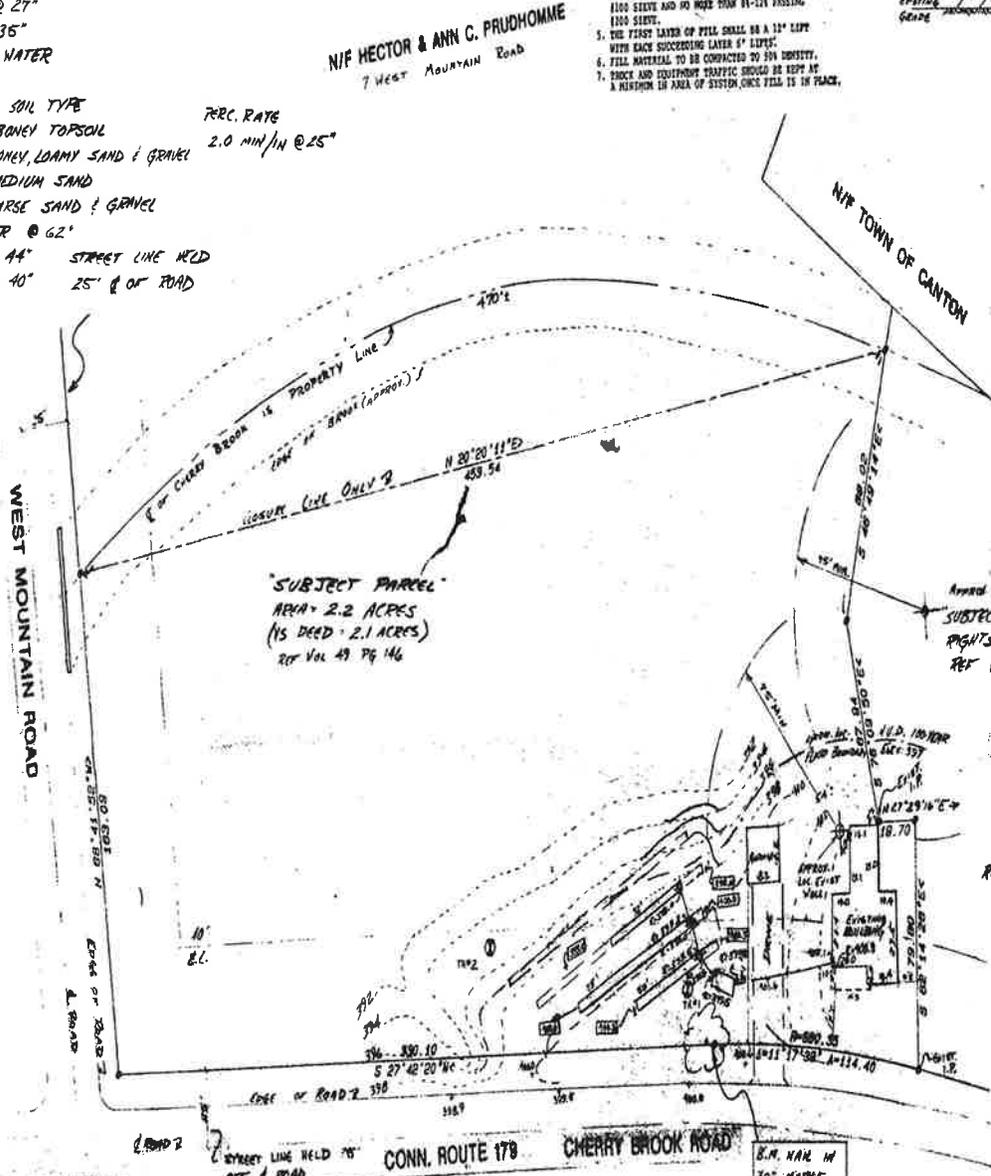
1. TO BE FIELD APPROVED TO MAINTAIN BOTTOM OF SYSTEM 9" AHEAD INTO EXISTING GRADE.
2. TRENCHES TO BE 18" DEEP.
3. SYSTEM IS HIGH LEVEL OVER FLOW RESTRICTION.
4. FILL FOR SEPTIC SYSTEM TO BE CLEAN, WASH GRADED SAND WITH RESPECTIVE SIEVE BETWEEN 10 & 100 SIEVE AND 90 MORE THAN 81-124 PASSING 100 SIEVE.
5. THE FIRST LAYER OF FILL SHALL BE A 1" LAYER WITH EACH SUCCEEDING LAYER 5" THICK.
6. FILL MATERIAL TO BE COMPACTED TO 90% DENSITY.
7. TRUCK AND EQUIPMENT TRAFFIC SHOULD BE KEPT AS A MINIMUM IN AREA OF SYSTEM, ONCE FILL IS IN PLACE.

**SEPTIC TRENCH DETAIL (N.T.S.)**



**NOTES:**

1. BUILDINGS ARE ABOVE THE A.O. 100-YEAR FLOOD LEVEL: 397
2. ZONE: AR-3
3. BUILDINGS LOCATED SUBSTANTIAL AS SHOWN.
4. NON-CORPORATING TO FRONT YARD: 15' VS 40' REQ'D. SIDE YARD: 2' VS 20' REQ'D.
5. NO ZONING VIOLATIONS.



**SUBJECT PARCEL**  
AREA: 2.2 ACRES  
(VS DEED: 2.1 ACRES)  
REF VOL 49, PG 146

APPROX LOC EXIST. WELL  
SUBJECT PARCEL HAS RIGHTS TO USE.  
REF VOL: 13, PG: 248

**MR PAUL L. GUILMETTE**  
REF. VOL. 125 PG 903

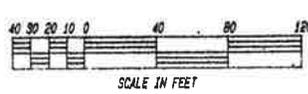
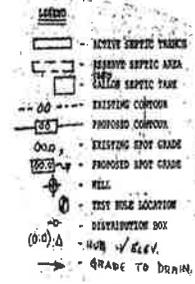
REF. MAP: FEASIBILITY SITE PLAN FOR PAUL GUILMETTE, RTE 179 CANTON, CONNECTICUT. ROGER A. WHITNEY, INC. CONSULTING ENGINEER. CANTON COMMONS, 140 ALBANY TURN (ROUTE 4A) CANTON, CONNECTICUT 06019-0595, DATE, MARCH 3, 1987 SCALE 1"=20' SHEET 1 OF 2



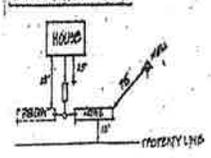
**SPECIAL NOTES:**

1. PENETRATION TESTS AND TEST PIT LOCATIONS ARE APPROXIMATE ONLY.
2. DO NOT STAMP ANY TYPICAL OFF-SITE UNLESS ORDERED BY THE ENGINEER OR INDICATED ON THE PLANS.
3. THIS DESIGN IS SCHEMATIC; ADJUSTMENTS OF LOCATIONS, DIMENSIONS, AND ELEVATIONS OF SEPTIC TANK AND LEACHING SYSTEM MAY BE NECESSARY TO CONFORM TO FIELD CONDITIONS. CHANGES IN THE DESIGN SHALL BE APPROVED BY THE TOWN OF F.V.W. (AND/OR THE CONSTRUCTION STATE DEPARTMENT OF HIGHWAYS) ON THE ENGINEER OR DATE.
4. MATERIALS USED FOR THE JOB AND CONSTRUCTION PRACTICES SHALL BE IN ACCORDANCE WITH THE REQUIREMENTS OF THE TOWN OF F.V.W. (AND/OR THE CONSTRUCTION STATE DEPARTMENT OF HIGHWAYS).
5. PROVIDE AN EXIST. AREA FOR FUTURE EXPANSION OF SANITARY SYSTEM AS INDICATED ON PLAN.
6. PROVIDE A DRAIN, EITHER ON BUILD-UP EMBANKMENT TO DIVERSE SURFACE FROM UNDER RUCKY AREAS FROM THE SANITARY SYSTEM.
7. IF IMPROVED OR PLAN, INSTALL AN INTERCEPTING UNDERDRAIN SYSTEM OF 4" AND IS FEET AWAY FROM THE SANITARY SYSTEM TO LOWER THE GROUNDWATER TABLE.
8. THE DEVELOPER OR OWNER OR BOTH SHALL BE RESPONSIBLE FOR ALL RIGHTS OF WAY AND RIGHTS TO DRAIN.
9. NO SUBSURFACE INVESTIGATIONS WERE MADE OTHER THAN THOSE INDICATED. SUBSURFACE PROBLEMS ARE THE RESPONSIBILITY OF THE OWNER. THE EXACT LOCATION OF ANY UNDERGROUND UTILITIES AND TRENCH ARE THE RESPONSIBILITY OF THE OWNER. RECORD ARE NOT ENCOURAGED DURING THE INSTALLATION OF THE SANITARY SYSTEM.
10. THE SEPTIC SYSTEM IS FOR SANITARY PURPOSES ONLY. ALL STORM WATER, COOLING WATER, FUSEBOX DRAINAGE AND CONDUCTIBLE INDUSTRIAL WASTES ARE TO BE EXCLUDED FROM THE SYSTEM.

11. FIELD TESTING BY Land Associates
12. IT IS THE RESPONSIBILITY OF THE INSTALLER, (LIC. UNDER SALES) TO CONDUCT THE FIELD APPROVED PLAN WITHOUT REVISION, UNLESS PRIOR APPROVAL HAS BEEN OBTAINED.
13. IF THE INSTALLER FINDS ANY HOUSING, WATER OR OTHER CONDITIONS WHEAT THEM GROW ON THE PLAN, HE SHALL IMMEDIATELY STOP WORK AND CONTACT THE HEALTH AGENCY AND THE ENGINEER FOR REVISIONS.
14. THE DESIGN IS BASED UPON FIELD TESTING BY TRENCH LOGS IN THIS AREA, AND IT IS POSSIBLE THAT CONDITIONS MAY BE FOUND DURING CONSTRUCTION THAT WILL INCREASE THE SYSTEM COST TO THE OWNER.
15. ALL DISTURBED AREAS SHALL BE LOWERED AND RESEED AS SOON AS POSSIBLE AFTER SYSTEM CONSTRUCTION. ALL AREAS TO BE PROTECTED AGAINST EROSION DURING CONSTRUCTION, USING BAY BAGS AS REQUIRED.



**MINIMUM CLEARANCES**



9-23-87	REV. PER FVHD COMMENTS		I HEREBY CERTIFY THAT THIS MAP COMPLIES WITH A-2 CLASSIFICATION AS DEFINED BY CONNECTICUT ASSOCIATION OF LAND SURVEYORS  Wilson L. Alfred  CIVIL ENGINEER, WINDSOR, CONN.  WILSON L. ALFORD, SA, P. WILSON M. ALFORD, IL, P.
9-9-87	REV. SAN SYS. ADDED WELL LOCATION.		
DATE	REVISION	SCALE: 1 IN. = 40 FT.	DATE: 2/7/87



PREPARED FOR  
**CONGREGATIONAL CHURCH OF CANTON CENTER**  
210 Cherry Brook  
210 CHERRY BROOK ROAD CANTON, CT

The Assessor's office is responsible for the maintenance of records on the ownership of properties. Assessments are computed at 70% of the estimated market value of real property at the time of the last revaluation which was 2018.



# TOWN OF CANTON CT

Information on the Property Records for the Municipality of Canton was last updated on 11/21/2019.

## Property Summary Information

Parcel Data And Values    Building ▾    Sales

### Parcel Information

Location:	<b>214 CHERRY BROOK ROAD</b>	Property Use:	Residential	Primary Use:	Residential
Unique ID:	1850214	Map Block Lot:	18/185/0214	Acres:	1.00
490 Acres:	0.00	Zone:	R-3	Volume / Page:	361 /658
Developers Map / Lot:		Census:			

### Value Information

	Appraised Value	Assessed Value
Land	86,480	60,530
Buildings	219,052	153,340
Detached Outbuildings	0	0
Total	305,532	213,870

**Owner's Information**

**Owner's Data**

COZ CHRISTINE M  
214 CHERRY BROOK ROAD  
CANTON, CT 06019

[Back To Search \(JavaScript:window.history.back\(1\);\)](JavaScript:window.history.back(1);)

[Print View \(PrintPage.aspx?towncode=023&uniqueid=1850214\)](PrintPage.aspx?towncode=023&uniqueid=1850214)

Information Published With Permission From The Assessor

**WELL COMPLETION REPORT**

CPR-9 REV. 11-82

STATE OF CONNECTICUT  
**DEPARTMENT OF CONSUMER PROTECTION**  
**WELL DRILLING BOARD**  
 165 CAPITOL AVE.  
 HARTFORD, CONNECTICUT 06106

Do NOT fill in  
 STATE WELL NO.  
 OTHER NO.

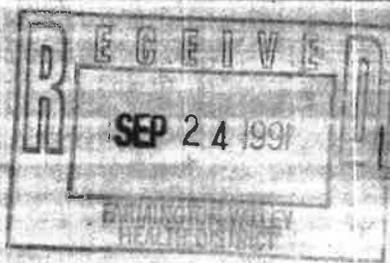
<b>OWNER</b>	NAME <b>Paul Guilmette</b>		ADDRESS <b>Cherry Brook Rd., Canton Center, Conn. 06020</b>			
<b>LOCATION OF WELL</b>	(No. & Street) <b>214 Cherry Brook Rd.</b>		(Town) <b>Canton Center</b>		(Lot Number)	
<b>PROPOSED USE OF WELL</b>	<input checked="" type="checkbox"/> DOMESTIC	<input type="checkbox"/> BUSINESS ESTABLISHMENT	<input type="checkbox"/> FARM	<input type="checkbox"/> TEST WELL		
	<input type="checkbox"/> PUBLIC SUPPLY	<input type="checkbox"/> INDUSTRIAL	<input type="checkbox"/> AIR CONDITIONING	<input type="checkbox"/> OTHER (Specify)		
<b>DRILLING EQUIPMENT</b>	<input type="checkbox"/> ROTARY	<input checked="" type="checkbox"/> COMPRESSED AIR PERCUSSION	<input type="checkbox"/> CABLE PERCUSSION	<input type="checkbox"/> OTHER (Specify)		
<b>CASING DETAILS</b>	LENGTH (feet) <b>42</b>	DIAMETER (inches) <b>6</b>	WEIGHT PER FOOT <b>19</b>	<input checked="" type="checkbox"/> THREADED	<input type="checkbox"/> WELDED	
				DRIVE SHOE <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO	WAS CASING GROUNDED? <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO	
<b>YIELD TEST</b>	<input type="checkbox"/> BAILED	<input type="checkbox"/> PUMPED	<input checked="" type="checkbox"/> COMPRESSED AIR	HOURS <b>1</b>	YIELD (G.P.M.) <b>2 1/2</b>	
<b>WATER LEVEL</b>	MEASURE FROM LAND SURFACE—STATIC (Specify feet) <b>25</b>		DURING YIELD TEST (feet)		Depth of Completed Well in feet below land surface: <b>250</b>	
	MAKE				LENGTH OPEN TO AQUIFER (feet)	
<b>SCREEN DETAILS</b>	SLOT SIZE	DIAMETER (inches)	IF GRAVEL PACKED:	Diameter of well including gravel pack (inches):	GRAVEL SIZE (inches) FROM (feet) TO (feet)	

DEPTH FROM LAND SURFACE FEET TO FEET		FORMATION DESCRIPTION
0	25	Sand, Clay Boulders
25	250	Mica Schist

Sketch exact location of well with distances, to at least two permanent landmarks.

If yield was tested at different depths during drilling, list below

FEET	GALLONS PER MINUTE



DATE WELL COMPLETED <b>9/11/91</b>	PERMIT NO. <b>148703</b>	REGISTRATION NO. <b>251</b>	DATE OF REPORT <b>9/11/91</b>	WELL DRILLER (Signature) <i>[Signature]</i>
---------------------------------------	-----------------------------	--------------------------------	----------------------------------	--

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# TOWN OF CANTON CT

Information on the Property Records for the Municipality of Canton was last updated on 11/21/2019.

## Property Summary Information

Parcel Data And Values    Building ▾    Outbuildings    Sales

### Parcel Information

Location:	207 CHERRY BROOK ROAD	Property Use:	Residential	Primary Use:	Residential
Unique ID:	1850207	Map Block Lot:	18/185/0207	Acres:	0.80
490 Acres:	0.00	Zone:	R-3	Volume / Page:	347 /899
Developers Map / Lot:		Census:			

### Value Information

	Appraised Value	Assessed Value
Land	86,480	60,530
Buildings	88,268	61,790
Detached Outbuildings	6,912	4,840
Total	181,660	127,160

### Owner's Information

#### Owner's Data

JENKINS GARY L  
207 CHERRY BROOK ROAD  
CANTON, CT 06019

[Back To Search \(JavaScript:window.history.back\(1\);\)](javascript:window.history.back(1);)

[Print View \(PrintPage.aspx?towncode=023&uniqueid=1850207\)](PrintPage.aspx?towncode=023&uniqueid=1850207)

Information Published With Permission From The Assessor

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# TOWN OF CANTON CT

Information on the Property Records for the Municipality of Canton was last updated on 11/21/2019.

## Property Summary Information

Parcel Data And Values    Building ▾    Outbuildings    Sales

### Parcel Information

Location:	221 CHERRY BROOK ROAD	Property Use:	Residential	Primary Use:	Residential
Unique ID:	1850221	Map Block Lot:	19/185/0221	Acres:	2.68
490 Acres:	0.00	Zone:	R-3	Volume / Page:	366 /368
Developers Map / Lot:		Census:			

### Value Information

	Appraised Value	Assessed Value
Land	94,040	65,830
Buildings	227,287	159,100
Detached Outbuildings	62,996	44,100
Total	384,323	269,030

### Owner's Information

#### Owner's Data

JOHNSON STEPHEN W &  
JOHNSON KIMBERLY A  
221 CHERRY BROOK ROAD  
CANTON, CT 06019

[Back To Search \(JavaScript>window.history.back\(1\);\)](#)

[Print View \(PrintPage.aspx?towncode=023&uniqueid=1850221\)](#)

Information Published With Permission From The Assessor

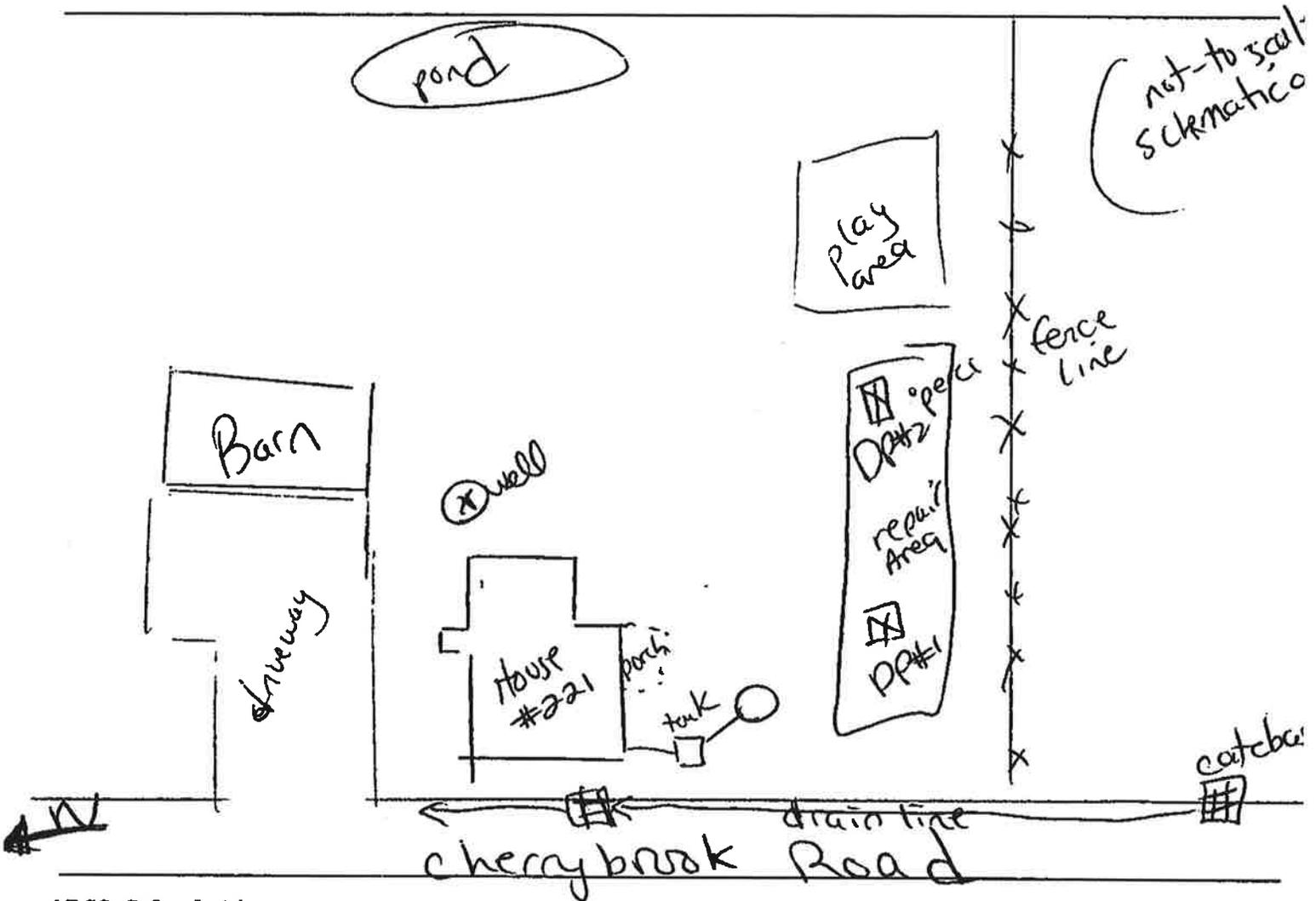
Inspection by Dianne Harding

Location 221 Cherry Brook Road

Town

Canton

Sketch house, road, driveway, well and water supply lines, property lines, groundwater control drains (including basement drains), road drains. Show test hole locations, indicate any prominent landmarks, approximate contours, existing system area and the approximate location of the proposed repair (note a minimum of two spot grades must be provided approximately 25 to 50 feet apart through proposed septic area).



**MLSS Calculations**

1) Hydraulic factor

Slope \_\_\_\_\_ Depth to restrictive layer \_\_\_\_\_

2) Percolation factor \_\_\_\_\_

3) Flow factor \_\_\_\_\_

4) HF x PF x FF = \_\_\_\_\_

DP#1

0-8 Topsoil  
 8-31 v. br. silt loam  
 31-54 sand + gravel  
 54-84 fine sand  
 r = 31"

DP#2

0-6 Topsoil  
 6-21 sandy loam  
 21-72 sand + gravel + cobbles  
 note det

~~perc~~ perc

32" deep  
 presoak 11-5-02  
 perc 11-6-02

Time	measure	Rad
1225	24	
1231	26	
1236	27.5	
1246		

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# TOWN OF CANTON CT

Information on the Property Records for the Municipality of Canton was last updated on 11/21/2019.

## Property Summary Information

Parcel Data And Values    Building ▾    Outbuildings    Sales

### Parcel Information

Location:	225 CHERRY BROOK ROAD	Property Use:	Residential	Primary Use:	Residential
Unique ID:	1850225	Map Block Lot:	19/185/0225	Acres:	56.13
490 Acres:	54.13	Zone:	R-3	Volume / Page:	362 /673
Developers Map / Lot:		Census:			

### Value Information

225 Cherry Brook Rd, Canton



STATE OF CONNECTICUT  
 DEPARTMENT OF CONSUMER PROTECTION  
 REAL ESTATE & PROFESSIONAL TRADES DIVISION  
**WELL DRILLING COMPLETION REPORT**  
 165 Capitol Avenue, Hartford, Connecticut 06106

Do NOT fill in
STATE WELL NO.
OTHER NO.

OWNER	NAME		ADDRESS				
LOCATION OF WELL	(No. & Street)	(Town)	(Lot Number)				
PROPOSED USE OF WELL	<input checked="" type="checkbox"/> DOMESTIC	<input type="checkbox"/> BUSINESS ESTABLISHMENT	<input type="checkbox"/> FARM	<input type="checkbox"/> TEST WELL			
	<input type="checkbox"/> PUBLIC SUPPLY	<input type="checkbox"/> INDUSTRIAL	<input type="checkbox"/> AIR CONDITIONING	<input type="checkbox"/> OTHER (Specify)			
DRILLING EQUIPMENT	<input checked="" type="checkbox"/> ROTARY	<input checked="" type="checkbox"/> COMPRESSED AIR PERCUSSION	<input type="checkbox"/> CABLE PERCUSSION	<input type="checkbox"/> OTHER (Specify)			
	CASING DETAILS	LENGTH (feet)	DIAMETER (inches)	WEIGHT PER FOOT	<input type="checkbox"/> THREADED <input type="checkbox"/> WELDED	DRIVE SHOE	WAS CASING GROUT
YIELD TEST	<input type="checkbox"/> BAILED	<input type="checkbox"/> PUMPED	<input type="checkbox"/> COMPRESSED AIR	HOURS	YIELD (GPM)	Depth of Completed Well in feet	
SCREEN DETAILS	MEASURE FROM LAND SURFACE - STATIC (Specify feet)		DURING YIELD TEST (feet)		LENGTH OPEN TO AQUIFER (feet)		
	SLOT SIZE	DIAMETER (inches)	IF GRAVEL PACKED	Diameter of well including gravel pack (inches)	GRAVEL SIZE (inches)	FROM (feet)	TO (feet)

DEPTH FROM LAND TO SURFACE FEET TO FEET	FORMATION DESCRIPTION
0 - 26'	Topsoil
26 - 300'	Blue Clay

Received  
 JUN 14 2010  
 Farmington Valley Health District

WELL \* 75'

126'

Cherry Brook Rd

If yield was tested at different depths during drilling, list below

FEET	GALLONS PER MINUTE

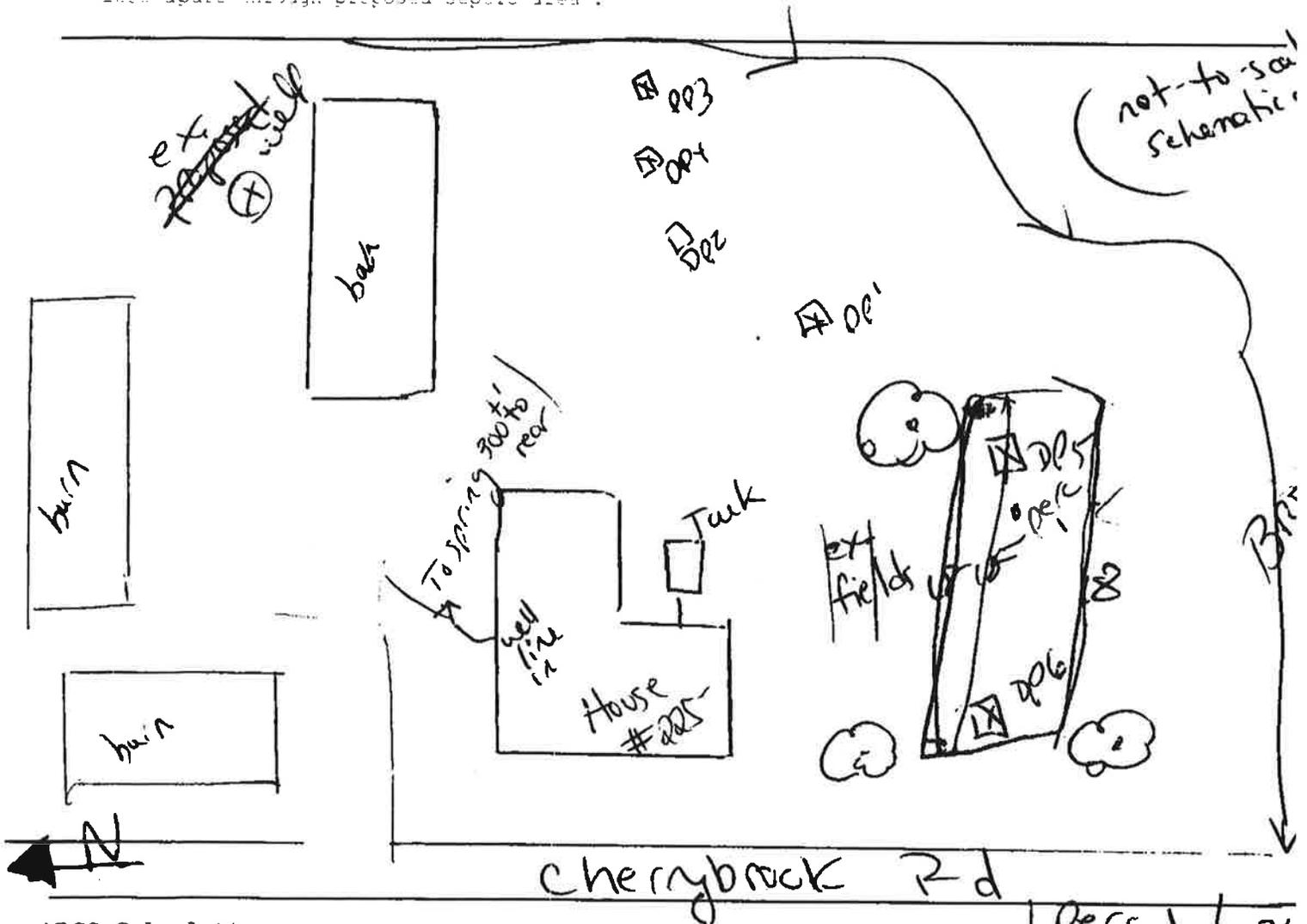
DATE WELL COMPLETED	PERMIT NO.	REGISTRATION NO.	DATE OF REPORT	WELL DRILLER (Signature)
5-27-10	3-1-02	64-170	6-1-10	<i>[Signature]</i>

Inspection by Dianne Harding

Location 225 Cherry Brook Road

Town \_\_\_\_\_ Canton \_\_\_\_\_

Sketch house, road, driveway, well and water supply lines, property lines, groundwater control drains (including basement drains), road drains. Show test hole locations, indicate any prominent landmarks, approximate contours, existing system area and the approximate location of the proposed repair. Note a minimum of two spot grades must be provided approximately 25 to 50 feet apart through proposed septic area.



**MLSS Calculations**

1) Hydraulic factor

Slope > 30% Depth to restrictive layer \_\_\_\_\_

2) Percolation factor 1.2

3) Flow factor 2

4) HF x PF x FF = 1.2 x 2 x 30

Time	Measure	R
9:06	12.5	—
9:09	7.5	2
9:11	5.5	1
9:15	3	2
9:17	2.5	4

DP1	DP2	DP3	DP4	DP5	DP6

...48



**APPENDIX C**  
**GZA STANDARD OPERATING PROCEDURES**

## **SAMPLING FOR PER- & POLYFLUOROALKYL SUBSTANCES**

### **1.0 PURPOSE, BACKGROUND AND OBJECTIVES**

#### **1.1 PURPOSE**

The purpose of This Standard Operating Procedure (SOP) is designed to provide guidance for collection and analysis of per- and polyfluoroalkyl substances (PFAS). Please note that PFAS are defined as emerging contaminants; therefore, this SOP may be modified as new information becomes available. However, as of the date of issuance of this SOP, these are the current procedures.

Given the ubiquitous nature of PFAS in the environment, these compounds are known to be present in many common consumer products and in sampling equipment typically used to collect groundwater samples. Therefore, special handling and care must be taken when collecting PFAS samples to reduce the potential for false positives. Following these procedures is critically important because the detection limits can be as low as 2 parts per trillion (ng/L) (i.e., drinking water samples).

This SOP outlines general practices for the collection of PFAS samples and provides a summary of non-acceptable field and sampling materials (likely to contain PFAS) and acceptable alternatives (Tables 1.0 and 2.0).

Any modifications to this SOP shall be approved in advance by GZA's PFAS Technical Team. It is recommended that site-specific procedures be incorporated within a site-specific Work Plan.

#### **1.2 BACKGROUND AND RESOURCES**

The U.S. Environmental Protection Agency (USEPA)<sup>1</sup> and the Interstate Technical and Regulatory Counsel (ITRC) have issued guidance on the nomenclature for "per- and polyfluoroalkyl substances (PFAS)." PFAS is the preferred term to refer to this class of chemicals, although the general public and others may also refer to them as "perfluorinated chemicals (PFCs)" or "perfluorinated compounds (PFCs)."

PFAS are a family of man-made compounds that do not naturally occur in the environment. They have a large number of industrial uses and are found in many commercial products because of their properties to resist heat, oil, grease and water. Once released to the environment, PFAS are persistent and do not readily biodegrade or break down. These compounds are also known to be potentially present in firefighting foam (Aqueous Film Forming Foams - AFFF), leachate from landfills, wastewater treatment plant discharges, biosolids, leaching fields and atmospheric discharges from manufacturing facilities. As a result, PFAS compounds are being detected in

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<sup>1</sup> <https://www.epa.gov/pfas/what-are-pfcs-and-how-do-they-relate-and-polyfluoroalkyl-substances-pfas>

various media such as drinking water supplies (public and private) soil, surface water sediment, groundwater and air.

The USEPA issued drinking water lifetime health advisories for two PFAS, perfluorooctanoic acid (PFOA) and perfluorooctane sulfonic acid (PFOS) on May 19, 2016 at 70 ng/L for PFOA and PFOS. Individual states have established Maximum Contaminant Levels (MCL), health advisories or action levels for these and other PFAS compounds. practitioners should refer to site-specific state information to determine the appropriate criteria as more information becomes available. Frequently asked questions, fact sheets and additional information concerning PFAS can be found on many of the state's and EPA websites. Additional resources can be found from The Northeast Waste Management Officials Association (NEWMOA) five-part webinar 2016 training<sup>2</sup> series, Interstate Technology & Regulatory Council (ITRC)<sup>3</sup>, National Ground Water Association<sup>4</sup> and ASTM International<sup>5</sup>. The practitioner should become familiar not only with this SOP but other resources available online prior to conducting any PFAS sampling to reduce the potential for false positives.

### 1.3 OBJECTIVE

The details within this SOP shall be used in conjunction with other approved SOPs or a project-specific approved Work Plan and Quality Assurance Project (QAPP). This SOP is intended to provide procedures for the collection of samples that maybe contaminated with PFAS compounds. The Work Plan will provide the details such as:

- Sample collection objectives;
- Locations to be sampled;
- Number and volume of samples to be collected at each location;
- Types of chemical analyses to be conducted for the samples;
- Specific quality control procedures and sampling required;
- Personnel responsibilities;
- Site-specific Health and Safety Plan; and
- Any additional sampling requirements or procedures beyond those covered in this SOP, as necessary.

### 1.4 ADDITIONAL CONSIDERATIONS

- No food or drink shall be brought on-site, with the exception of bottled water and hydration drinks (i.e., Gatorade® and Powerade®) available for consumption only outside of the exclusion zone.

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<sup>2</sup> <http://www.newmoa.org/cleanup/workshops.cfm>

<sup>3</sup> <http://www.itrcweb.org>

<sup>4</sup> <http://www.ngwa.org>

<sup>5</sup> <http://www.astm.org>

- When field personnel require a break to eat or drink, they should remove their gloves and coveralls (if used) and move to an appropriate (downwind) location. When finished, field personnel should then wash with approved materials and put their coveralls (if used) and gloves back on prior to returning to the exclusion zone.
- Visitors to the site are asked to remain outside of the exclusion zone. Visitors wishing to enter the exclusion zone must have appropriate PPE, be trained on applicable portions of this SOP, and will be subject to GZA's health and safety plan.
- Note that "PFAS-free" water may contain other contaminants (such as VOCs); therefore, equipment blanks collected for PFAS should utilize "PFAS-free" water while those collected for other analytes should use laboratory-provided water or commercial deionized water depending on the site-specific QAPP requirements.
- Collect a field blank from each batch of PFAS-free DI water while in the field by pouring an aliquot of the water into the appropriate PFAS sample container. Leaving the lid off of the PFAS-free water container and submitting that container to the laboratory is not acceptable.
- Refer to the site-specific QAPP and Section 4.2 for the quantity of field blanks to be collected. At a minimum, field blanks must be collected by the person (clean hands) collecting PFAS samples. Consideration should also be given to when the field blank should be collected so that it is representative of the conditions most likely to influence the sample.

All field personnel must confer with their Principal-in-Charge Project Manager or Field Lead before deviating from approved procedures, and as previously stated, any modifications to this SOP shall be approved in advance by the GZA's PFAS Technical Group. All deviations must be documented in the field logbook and presented in the final sampling report.

## **2.0 PROCEDURES**

### **2.1 PRE-SAMPLING GUIDELINES**

#### **2.1.1 Personal Precautionary Measures**

Because PFAS are ubiquitous and present in many of our daily products, samplers must take precautions at least 48-hours prior to any PFAS sampling event (see Table 1.0). Again, these measures are required to reduce false positive from cross contamination of known products containing PFAS. These precautions may include:

- Do not consume pre-packaged food products which may have come into contact with PFAS. Avoid wrappers (fast food), containers (foodware packaging containing PFAS), oil resistant sheets (pizza boxes) or use of non-stick cookware/containers, etc.
- Clothing to be worn in conjunction with sampling shall not contain PFAS such as Gore-Tex™ or other waterproof/resistant and/or stain resistant materials. Clothing shall be cotton that has been washed greater than 6 times without fabric sheets or softeners.
- Personal care products should not be used, including cosmetics, moisturizers, hand cream, antiperspirant/deodorant, scented body wash/shampoo/conditioner and other related products. Avoid dental floss and plaque removers.

Practitioners should refer to Table 1.0 for additional exclusions and appropriate substitutions.

### 2.12 Sampling Protective Equipment

In addition to Section 2.1.1, disposable nitrile gloves must always be worn . Further, a new pair of nitrile gloves shall be donned prior to the following activities at each sample location:

1. Decontamination of re-usable sampling equipment.
2. Contact with sample bottles or water containers.
3. Insertion of anything into the well (e.g., tubing, pump, bailer, water level meter).
4. Insertion of silicon tubing into the peristaltic pump.
5. Sample collection upon completion of monitoring well purging.
6. Handling of any quality assurance/quality control samples including field blanks and equipment blanks.

New gloves shall also be donned after the handling of any non-dedicated sampling equipment, contact with non-decontaminated surfaces, or when judged necessary by field personnel.

The use of a different colored glove (e.g., bright orange) for the collection of PFAS samples can help provide a visual reminder to prevent cross-contamination.

Typically, 3 pairs of gloves are required at each PFAS sample collection location. Gloves may be worn in layers so that gloves are removed between tasks revealing a set of clean gloves. If multiple gloves are worn, care must be made when removing the outer layer to prevent cross-contamination of the underlying glove. Gloves shall be worn as follows:

- One pair of gloves is used for sample preparation (exclusion zone setup, transporting coolers to the sample site, preparing field documentation);
- A new pair is donned for labeling sample bottles; and
- A new pair is donned for the sample collection. The use of a different colored glove (e.g., bright orange) for the collection of PFAS samples can help provide a visual reminder to prevent cross-contamination.

Note that field blanks and equipment blanks require a clean set of gloves to avoid cross-contamination with the field samples. Once PFAS samples are collected, then bottles for other analytes may be filled if required.

### 2.13 Site Control

Strict site controls must be maintained to reduce the potential for cross-contamination that could result in false positives. The field team shall clearly demarcate an exclusion zone during site setup using stakes, cones, flags, caution tape, or equivalent visual markings. The exclusion zone will differ based upon site sampling conditions. Examples:

- Where feasible the exclusion zone should be approximately 30 feet from the sampling location.
- In areas such as residential homes, the exclusion zone shall a great as possible understanding that consumer products may be present. In these cases where the exclusion zone is less than 30-feet, the practitioners shall note any material that might have PFAS present.

Regardless of the size of the exclusion zone, visitors (non-GZA personal including contractors, facility managers, regulators, residents, and the public) must remain outside of the exclusion zone while sampling, investigation or remedial activities are on-going. If an individual requests access to the exclusion zone, they must be pre-approved by GZA Health and Safety officer and present property training (OSHA Hazwoper, and site-specific requirements including this SOP). Any non-GZA personnel entering the exclusion zone shall be noted in the daily field summary and on the field sample data sheet.

#### 2.1.4 Sampling Bottleware

PFAS-free bottleware is provided by the laboratory and should arrive onsite or at the staging area in coolers separate from other (non-PFAS sample) bottleware. The PFAS bottleware should arrive packaged in Ziploc® brand or equivalent LDPE resealable bags. These bags are used to re-package the PFAS samples following collection. The laboratory should provide PFAS deionized (DI) water to be used for QA/QC purposes. All PFAS samples are returned to the laboratory in separate coolers from other sample bottles to reduce the likelihood of cross-contamination.

## 2.2 SAMPLING PROCEDURES

This SOP provides for the flexibility of collecting PFAS samples using either one or two people. In general, when sampling drinking water supplies, a two-person team should be used because of the low detection limits (2 ng/L) and concerns for public health. An exception to the two-person sampling team for drinking water is when there are sufficient samples collected documenting historic trends. However, if a sample comes back outside the historic trend, then a re-sample should be collected to determine if the sample is an outlier.

A single person could be used to collect PFAS samples for other media (i.e., groundwater, surface water, air and/or sediment) provided that regulatory criteria are reviewed prior to sampling, that the project manager and principal-in-charge agree that a single person will provide sufficient quality control to prevent false positives, the sampling procedures/quality control measures used will reduce the potential for cross-contamination and that all procedures are well document. The field notes should clearly identify the sampling team and quality controls used to reduce the potential for false positives.

Table 2.0 provides examples of approved and non-approved equipment.

### 2.2.1 Sample Collection Objectives, and Chemical Analyses

When developing a site-specific Work Plan, the scope of the investigation shall consider whether the site history includes, or has the potential to include, activities such as industrial processes that manufactured or used PFAS, solid waste management (e.g., landfilling), fire training and/or response with storage or use of Class B Foam (e.g., aqueous film forming foam [AFFF]), wastewater management (e.g., on-site septic or disposal, treatment facilities, sludge and/or biosolids management). It is appropriate to consider the wide-ranging use of PFAS in commercial and industrial applications, as summarized, but not limited to, the uses shown in the table below.

Sample locations, media (e.g., soil, groundwater, drinking water, surface water), and number of samples shall be selected based on the professional judgement of the Professional Engineer and/or Geologist directing the sampling effort in consideration of previous and current uses of the site, site hydrogeology, proximity to sensitive receptors, and other known releases. The sampling approach shall be described in the Work Plan. Note that samples collected from water supply wells must be collected from a point in the plumbing system that is prior to treatment.

The need for future assessment will be evaluated following review of the PFAS data collected, consistent to the approach taken for other site contaminants of concern. Site-specific considerations will be given to the concentrations, types, and distribution of PFAS, the site remedial status, and the proximity to sensitive receptors.

### 2.2.2 Single-Person Sampling Methodology

For sampling media other than drinking water samples, the following procedure shall be implemented to reduce the likelihood of cross-contamination:

1. The sampler must put on a clean pair of gloves during equipment set-up, purging, and data monitoring (if applicable).
2. When it is time for sample collection, the sampler must first dispose of the pair of gloves used for Step 1 and wash their hands with approved soap and distilled or deionized water thoroughly.
3. The sampler must put on a new, clean pair of gloves before each of the following:
  - Labelling bottles with information for the laboratory.
  - Sample collection for PFAS **first**, prior to collecting samples for any other parameters into any other containers. The individual shall remove the bottles (one at a time) from the plastic bag, remove the cap and obtain the sample.
4. Do not place the sample bottle cap on any surface when collecting the sample and avoid all contact with the inside of the sample bottle or its cap including the sample ports, spigots, and tubes.
5. Once samples are collected, bottleware is to be placed back in the Ziploc® bag provided by the laboratory and placed in a designated cooler.

6. At no point in steps 2 and 3 shall the individual contact anything (equipment, skin, hair, other sample bottles, etc.) other than the PFAS sample bottles.

### 2.2.3 Two-Person Sampling Methodology

A two-person sampling team shall be used when samples are collected from a drinking water source. Each person has a unique role that need to be followed during the sampling event. One person (referred to as “Clean Hands”) is responsible for handling and labelling the sample bottles along with the physical collection of the sample. The other person (referred to as “Dirty Hands”) is responsible for purging and disposing of purge water and handling all non-dedicated equipment. The typical sampling procedure is:

1. Clean Hands puts on a new pair of gloves and labels the bottles with information for the lab.
2. Clean Hands then places the bottle back in the Ziploc® bag provided by the laboratory.
3. After donning a new pair of nitrile gloves, Clean Hands collects the sample for PFAS *first*, prior to collecting samples for any other parameters into any other containers; this avoids contact with any other type of sample container, bottles or packaging materials that may have PFAS-related content. Clean Hands shall remove the bottles (one at a time) from the plastic bag, remove the cap and obtain the sample. Gloves are removed after each sample and clean gloves are donned for subsequent PFAS samples.
4. Clean Hands does not place the sample bottle cap on any surface and will avoid all contact with the inside of the sample bottle or its cap including with sample ports, spigots, and any sampling tubing when the sample is collected.
5. Once the sample is collected, capped and labeled, Clean Hands places the sample bottle(s) in the laboratory-provided Ziploc® bag and will place the PFAS sample directly into a dedicated cooler packed only with double-bagged ice.

### 2.2.4 Decontamination

Decontamination fluids have been viewed as a possible source of equipment cross contamination. Therefore, more frequent changes of decontamination liquids may be warranted. Refer to the Equipment and Materials Table below for prohibited and acceptable decontamination liquids.

A final rinse with PFAS free DI water is required.

## **3.0 TYPES OF PFAS SAMPLING MEDIA**

### 3.1 SAMPLES COLLECTED FROM DRINKING WATER SUPPLY WELLS

1. Contact the owner to get permission to sample their drinking water supply well (an access agreement is preferred).
2. Collect as much data about the well as possible, such as: the well depth, type of well (e.g., deep

bedrock or shallow dug well) and type of treatment system, if any (e.g., a cartridge filter, a water softener, pH adjuster, point of entry, radon, carbon or an ultra violet system).

3. The sample must be collected from a point in the plumbing system that is prior to any type of water treatment system, preferably from the closest spigot to the holding tank in the plumbing system, or the treatment system must be bypassed. For convenience and to prevent unnecessary loading of the septic system, an outside spigot is preferable to an inside faucet. If samples are collected under winter conditions, exterior spigots may be closed.
4. The cold water is purged at a high rate of flow for 10-15 minutes (a minimum of 10 minutes).
5. Once the well has been purged, reduce the rate of flow to a rate slow enough to allow water to run gently down the inside of the bottle without splashing.
6. As described above in the **Sample Collection Method/Sequence** section, don a new pair of nitrile gloves and collect PFAS samples *first*, prior to collecting samples for any other parameters. The PFAS sample must be collected directly from the spigot or sampling port.
7. Do not place the sample bottle cap on any surface when collecting the sample and avoid all contact with the inside of the sample bottle or its cap.
8. Once the sample is collected, capped, and labeled place the sample in an individual re-sealable plastic bag and then into loose ice (preferably from a verifiable PFAS-free source) within the cooler.
9. Once the PFAS samples have been collected, samples for other parameters (if required) may be collected. Once sampling is complete, shut the water off.
10. Collect remaining samples as required. Refer to the site-specific **Drinking Water SOP**.
11. Samples should be submitted for PFAS analysis using EPA Method 537, Revision 1.0 (or the most current revision number).

### 3.2 SAMPLES COLLECTED FROM MONITORING WELLS

1. If collecting field parameters using a multiparameter meter, samples for laboratory analyses must be collected before the flow-through cell and the three-way stopcock. This will be done by disconnecting the three-way stopcock from the pump discharge tubing so that the samples are collected directly from the pump tubing.
2. When feasible, use dedicated single-use or disposable polyethylene or silicone materials (tubing, bailers, etc.) for monitoring well purging and sampling equipment.
3. When reuse of materials or sampling equipment across multiple sampling locations is necessary, follow project decontamination protocols with allowed materials identified in the table below and incorporate collection of equipment blanks into the sampling program, as appropriate.
4. When using positive displacement/submersible pump or bladder pump sampling equipment, familiarize yourself with the sampling pump/accessory equipment specifications to confirm that device components are not made of nor contain polytetrafluoroethylene (PTFE, a.k.a. Teflon®) or other PFAS-containing components.
5. Samples should be submitted to an approved laboratory for analysis for PFAS by an isotope dilution method. Note, that there are no EPA Methods for any media other than drinking

water. Please refer to GZA's list of approved laboratories and certifications where appropriate.

### 3.3 SAMPLES COLLECTED DURING PRODUCTION WELL PUMPING TESTS

1. If feasible, do not use tape or pipe thread sealant containing Teflon on pipe fittings or sampling tap threads on the pump discharge pipe.
2. As with all other sample parameters, the sample for PFAS will be collected at the last hour (or hours) of the pumping portion of the testing program, but before the collection of other sample parameters.
3. Discharge water will be purged through the sampling tap on the discharge pipe for a minimum of 20 minutes prior to collection of samples.
4. Production well samples should be submitted for analysis for PFAS by EPA Method 537, Revision 1.0 (or the most current revision number). Non-drinking water samples should be submitted for analysis for PFAS by an isotope dilution method.

### 3.4 SAMPLES COLLECTED FROM ACTIVE PRODUCTION WELLS

1. If feasible, avoid contact with any tape or pipe thread paste containing Teflon on pipe fittings or sampling tap threads that may be present on the water supply discharge pipe.
2. The sample for PFAS will be collected while the production well pump is operating, and, preferably, has been operating for at least one hour.
3. Discharge water will be purged through the sampling tap on the discharge pipe for a minimum of 20 minutes prior to collection of samples.
4. Samples should be submitted for PFAS analysis using EPA Method 537.1, Revision 1.0 and/or EPA Method 533 (or the most current revision number) as applicable.

### 3.5 SAMPLES COLLECTED FROM SOIL BORINGS, TEST PITS, SURFACE WATER, OR SHALLOW SOIL/SEDIMENT

1. Don't use detergent to decontaminate drilling or excavation equipment unless otherwise specified in the QAPP, scrub with a plastic brush and rinse thoroughly in approved tap water, then triple-rinse in distilled or deionized water.
2. Use PFAS-free drilling fluids; collect representative water sample used during drilling activities (refer to site-specific Work Plan and QAPP).
3. Don't re-use PVC materials.
4. Surface water must be collected by inserting a capped sampling container (polypropylene or HDPE) with the opening pointing down to avoid the collection of surface films. The bottle shall be re-capped below the water surface (refer to site-specific Work Plan and QAPP). Soil and sediment core samples must be collected directly from single-use PVC liners that must not be decontaminated or reused at different locations.
5. Samples should be submitted for analysis for PFAS using an isotope dilution method.

## 4.0 CHEMICAL ANALYSES

### 4.1 GENERAL

Prior to sampling, consult the appropriate state agency for PFAS accredited laboratories, regulated PFAS compounds or required analyte lists, and state-specific sampling requirements. In many cases, a state accreditation program is not yet in place, or the accreditation program for PFAS analysis is under development but is not yet in place. In the meantime, laboratory selection should include consideration for DoD and/or NELAP certifications for PFAS analysis.

Note: The laboratory used for analysis of other site samples does not need to be the same as the laboratory that analyzes the PFAS samples.

The EPA-approved method for PFAS in drinking water is 537.1 Version 1.0. The associated analyte list of 18 compounds is listed below. New EPA Method 533 (December 2019) can be used to assess a total of 29 compounds.

Analysis by a method that uses isotope dilution techniques is required for all other non-drinking water matrices, unless otherwise specified in the Work Plan. Both linear and branched isomers shall be reported, consistent with USEPA's September 2016 Technical Advisory: <https://www.epa.gov/sites/production/files/2016-09/documents/pfoa-technical-advisory.pdf>

As of the date of this document, there is no standardized isotope dilution method for PFAS analysis in matrices other than drinking water. Therefore, individual laboratories have developed their own methods using the USEPA Method 537 as a basis. USEPA is developing a standardized method for analysis of samples from groundwater and other media; however, at this time EPA has only developed a Method for drinking water.

*The analytical reporting detection limit (RDL) of analyses for each contaminant shall be no greater than 5 nanograms per liter (ng/l, equivalent to ppt) for aqueous samples; however, available RDL from some laboratories for compounds other than PFOA and PFOS may be slightly higher (e.g., 10 ng/l), and may be acceptable. Refer to the approved Work Plan for specific Site reporting requirements.*

The laboratory must report the results to the RDL. In some cases, it is preferable to report results below the RDL and above the MDL and flag any results between the MDL and the RDL as estimated ("J") on the report.

Compound Name (Method 537.1 Revision 1.0 List, only)	CAS #
Perfluorobutanesulfonic acid (PFBS)	375-73-5
Perfluorodecanoic acid (PFDA)	335-76-2
Perfluorododecanoic acid (PFDoA)	307-55-1
Perfluoroheptanoic acid (PFHpA)	375-85-9
Perfluorohexanesulfonic acid (PFHxS)	355-46-4
Perfluorohexanoic acid (PFHxA)	307-24-4
Perfluorononanoic acid (PFNA)	375-95-1
Perfluorotetradecanoic acid (PFTeDA)	376-06-7
Perfluoro-tridecanoic acid (PFTrDA)	72629-94-8
Perfluorooctanesulfonic acid (PFOS)	1763-23-1
Perfluorooctanoic acid (PFOA)	335-67-1
Perfluoroundecanoic acid (PFUnA)	2058-94-8
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6 6
Hexafluoropropylene oxide dimer acid (HFPO-DA)(GenX) (HFPO-DA)	13252-13-6
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	763051-92-9
9-Chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4

Refer to the Work Plan for the specific analytes required. Modifications may be requested on a site by site basis. The requested analyte list will change based on matrix, method, site history and previous environmental data. Also, be sure that the laboratory reported the CAS#.

#### 4.2 QUALITY ASSURANCE QUALITY CONTROL

Many clothing items and types of field equipment may contain PFAS, which increases the potential for inadvertent contamination of the samples. In order to evaluate the potential impact these, as well as laboratory-provided materials, might have on our PFAS samples, various Quality Assurance Quality Control (QA/QC) samples are to be considered in the PFAS sampling and analysis plan.

Refer to the site-specific Work Plan for specific information on QA/QC samples to be collected. QA/QC requirements may vary for initial screening and assessment, and site investigations.

To support the validity of the data, the following QA/QC is suggested:

- Trip Blanks
  - Trip blanks for PFAS samples shall be prepared by the laboratory prior to the sampling event using PFAS-free DI water.
  - Only one PFAS trip blank per chain-of-custody, per cooler is acceptable.

- Field Duplicates
  - Duplicate samples shall be collected by filling a separate container for each analysis immediately following the collection of the primary sample (e.g., PFAS sample, PFAS duplicate sample; VOC sample, VOC duplicate sample).
  - Duplicate samples are typically collected at a frequency of one duplicate sample per twenty field samples (1:20), with a minimum of one field duplicate per sampling event.
  - The duplicates may be Blind Duplicates.
- Equipment Blanks - for all non-dedicated equipment used to collect samples
  - Equipment blanks shall be prepared using PFAS-free laboratory grade DI water provided by the laboratory.
  - Equipment blanks consist of a sample of PFAS-free laboratory grade DI water which has been poured around and through sample collection equipment to evaluate the equipment decontamination procedures and the potential for cross-contamination between sample locations.
  - One equipment blank per type of non-dedicated equipment is typically collected per sampling event (e.g., water level meter, bailer, submersible pump, bladder pump) to evaluate the decontamination procedure.
  - A second equipment blank on certain types of equipment (e.g., bladder pump) may be useful in order to evaluate the potential influence of components within the piece of equipment.
- Field Blanks
  - Collect a field blank from each batch of PFAS-free DI water while in the field by pouring an aliquot of the water into the appropriate PFAS sample container.
  - Refer to the site-specific Work Plan for the quantity of field blanks to be collected. At a minimum, field blanks must be collected by each person collecting PFAS samples. Consideration should also be given to when the field blank should be collected so that it is representative of the conditions most likely to influence the sample.
  - MS/MSD samples are designed to evaluate matrix sample issues. MS/MSD samples should be collected at the rate of 1 per 20 samples for all non-drinking water samples.
  - These samples will be co-located with the actual sample and will require an individual sample each for the MS and MSD analysis.

The site QC Manager will be responsible for conducting field audits during selected sampling activities. During these audits, the QC Manager will ensure that field crews are adhering to this SOP for PFAS sampling, the site-specific Work Plan and if a requirement of the project, a Quality Assurance Project Plan or QAPP Addendum. These audits will include but are not limited to, sampling techniques, field documentation, decontamination, sample packaging, chain of custody sample handling and shipping documentation procedures, and equipment calibration. Refer to GZA's *Chain of Custody Sample Handling & Shipping* and *Calibration of Field Instruments* SOPs.

### 5.0 EQUIPMENT AND MATERIALS

Tables 1.0 and 2.0 provides a summary of items that are likely to contain PFAS (i.e., prohibited items) and that are not be used by the sampling team at the site, along with acceptable alternatives. This list may change as new information becomes available.

**Table 1.0 Personal Equipment**

Category	Prohibited Items	Allowable Items
Clothing/ laundrying	Clothing or boots made of or with Gore-Tex™ or other synthetic waterproof/ resistant and/or stain resistant materials, coated Tyvek® material that may contain PFAS; fabric softener	Synthetic or cotton material, previously laundered clothing (preferably previously washed greater than six times) without the use of fabric softeners. Polyurethane and wax coated materials. Boots made with polyurethane and PVC, well-worn or untreated leather boots Tyvek material that is PFAS free (e.g., uncoated)
Personal Care Products (for day of sample collection)	Cosmetics, moisturizers, hand cream and other related products	<b>Sunscreens:</b> Alba Organics Natural Yes to Cucumbers Aubrey Organics Jason Natural Sun Block Kiss My Face Baby-safe sunscreens ('free' or 'natural') <b>Insect Repellents:</b> Jason Natural Quit Bugging Me Repel Lemon Eucalyptus Herbal Armor California Baby Natural Bug Spray BabyGanics <b>Sunscreen and Insect Repellents:</b> Avon Skin So Soft Bug Guard-SPF 30
Food and Beverage	Pre-packaged food, fast food wrappers or containers	Bottled water or hydration drinks (i.e., Gatorade® and Powerade®)

**Table 2.0 (Field Equipment)**

Category	Prohibited Items	Allowable Items
Field Equipment  Including: <ul style="list-style-type: none"> <li>• Pumps</li> <li>• Tubing</li> <li>• Bailers</li> </ul>	Teflon and other fluoropolymer-containing materials  (e.g., Teflon tubing, bailers, tape; Teflon-containing plumbing paste, or other Teflon materials)  <b>Note:</b> The Grundfos Redi-Flow Submersible Pump is a submersible pump which, as of this revision, has a Teflon impeller and is not recommended for collecting PFAS samples.	High-density polyethylene (HDPE) - <i>preferred</i> , low density polyethylene (LDPE), or silicone tubing HDPE/LDPE or stainless steel bailers Peristaltic pumps Stainless steel submersible pumps (e.g., ProActive stainless steel pumps with PVC [polyvinyl chloride]) leads and Geotech Stainless Steel Geosub pumps) Bladder pumps with polyethylene bladders and tubing need to be evaluated on a case by case basis because the gaskets and O-rings may contain PFAS. Equipment with Viton components needs to be evaluated on a case by case basis. Viton contains PTFE, but may be acceptable if used in gaskets or O-rings that are sealed away and will not come into contact with sample or sampling equipment.)
Decontamination	Decon 90	Alconox® or Liquinox® <sup>1</sup> , potable water followed by laboratory “PFAS-free” DI water rinse.
Sample Storage and Preservation	LDPE or glass bottles, PTFE-or Teflon-lined caps, chemical ice packs <sup>2</sup>	Laboratory-provided sample container - <i>preferred</i> ; or, HDPE or polypropylene bottles with an unlined plastic screw cap, as specified by the laboratory doing the analysis, regular loose ice (preferably from a known PFAS-free source).
Field Documentation	Waterproof/treated paper or field books, plastic clipboards, non-Sharpie® markers, Post-It® and other adhesive paper products.	Plain Paper, metal clipboard, Sharpies <sup>3</sup> , ballpoint pens

<sup>1</sup>. While Alconox and Liquinox soap is acceptable for use for PFAS decontamination, they may contain 1,4-dioxane. If Alconox and Liquinox soap is used at sites where 1,4-dioxane is a contaminant of concern/interest, then equipment blanks analyzed for 1,4-dioxane will be required. Refer to the GZA’s Equipment Decontamination SOP for required decontamination procedures.

<sup>2</sup>. All samples requiring cooling must be placed in loose ice within a cooler; the use of bagged ice, block ice and ice packs is not acceptable.

<sup>3</sup>. Sharpies may be used if necessary; however, they are not recommended as they can bleed through pages and smudge, making the documentation hard to read.



GZA GeoEnvironmental, Inc.