TOWN OF LEDYARD / WATER POLLUTION CONTROL AUTHORITY

WATER SUPPLY PLAN

2016 UPDATE

VOLUME I

PREPARED FOR

CONNECTICUT DEPARTMENT OF PUBLIC HEALTH

AND

CONNECTICUT DEPARTMENT OF ENERGY & ENVIRONMENTAL PROTECTION

LEDYARD, CONNECTICUT

FINAL

DRAFT

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I. Introduction

The most recent Water Supply Plan for the Town of Ledyard's Water Pollution Control Authority was prepared and submitted to the State of Connecticut Department of Public Health in September of 2005 by AJS Engineering of Ledyard, Connecticut. Subsequent to a review by the Department of Public Health, an updated submittal with responses to comments was presented to them on October 31, 2006.

The current plan, mandated by Connecticut State Regulations, includes relevant data on the makeup of the existing supply and distribution systems, current and future system demands and projections, alternative sources of supply, emergency and conservation plans, planned system improvements and financial standing, the status of land holdings, groundwater monitoring programs, and source water protection efforts.

The Ledyard Water System is currently dependent on Groton Utilities as its supply source, delivered at its boundaries with Groton through two interconnections, one on Route 12 and the other on Route 117. There are, therefore, two separated distribution systems with the Route 12 interconnection supplying the Gales Ferry and Avery Hill areas, and the Route 117 interconnection supplying the Ledyard Center area and its immediate environs. The combined systems have about 1,320 metered service connections and two storage tanks, partially dependent on two booster pump stations in both Groton and Ledyard to provide adequate supplies and pressure. In addition, the Gales Ferry system includes an interconnection for the supply of water beneath the Thames River to the Town of Montville.

The areas of Ledyard Center presently served by a source of supply from the Groton Utilities system were historically supplied by individual wells(at the Loftus and Highlands well fields), still permitted through 2020 but disconnected and decommissioned when the supply changeover to Ledyard Center occurred in 2010. While the buildings at the Loftus well field are to remain for the foreseeable future, those at the Highlands are to be abandoned and removed.

II. Existing Water Supply System

A. Water System Structure and Assets

1. Legislative Authority for Water System Distribution Areas

Water distribution for the Town of Ledyard comes under the purview of the Water Pollution Control Authority (WPCA). The WPCA derives its authority from Town Ordinance No. 134, which is entitled "AN ORDINANCE AMENDING AN ORDINANCE CREATING A WATER POLLUTION CONTROL AUTHORITY FOR THE TOWN OF LEDYARD". This ordinance was promulgated on June 25, 2014, supersedes prior Ordinances establishing the WPCA, and bases the Town's authority to establish the WPCA pursuant to Connecticut General Statutes Section 7-246(a)[1]. It included provisions and authority for expending Town funds for capital improvements, customer service and billing, maintenance of accounting and financial records, review and recommendations to the Town Council for setting rates, solicitation of assistance from federal, State and regional agencies, advisement to the Town Council on ordinance revisions enabling the WPCA to adequately serve the Town and to oversee the operation and employees of the WPCA with respect to matters of policy.

In addition to the establishment of the WPCA, a Water and Sewer Department was set up under Ordinance No. 106, entitled "AN ORDINANCE ESTABLISHING A TOWN OF LEDYARD WATER AND SEWER DEPARTMENT"[2], adopted by the Ledyard Town Council and dated December 13, 2006. This ordinance provided for the

[1] A copy of Ordinance 134 is included in the Appendices attached to this plan.
[2] A copy of Ordinance 106 is included in the Appendices attached to this plan.

daily operation and maintenance of the WPCA and assigned operational authority to the Mayor's office.

On June 9, 2010, the Ledyard Town Council also adopted Ordinance No. 123, "AN ORDINANCE CREATING A WATER AND SEWER ADVISORY BOARD FOR THE TOWN OF LEDYARD"[3]. This board was to serve as an advisory committee to the Town with regard to the water and sewer system, with duties to include interviewing and recommending engineering and architectural consultants for water and sewer system projects, the execution of contracts to expend funds toward that purpose, reviewing appropriation and status reports, providing technical support (e.g., reviewing construction plans), and review and recommend project budgets, estimated expenses and projected revenues.

2. Ownership

The water distribution system within the boundaries of the Town of Ledyard is wholly owned by the Town of Ledyard. This system includes water mains (See listing in Section II.J, Table 3, and maps in the Appendix), two water storage tanks (at Holmberg Orchards and Center Ledyard), a hydro-pneumatic pump station (situated adjacent to the Holmberg Orchards Tank and supplying Avery Hill), two meter pits (at the Route 12 and 117 Town Line crossings), and older assets from the water well system used prior to the full interconnection with finished water supplied by Groton Utilities. Assets associated with the older WPCA system have been decommissioned but not yet fully disposed of. These and a fuller accounting

[3] A copy of Ordinance 123 is included in the Appendices attached to this plan.

of assets will be further discussed in other sections of this report. Water main ownership includes, in addition to the piping, all appurtenances such as valves, hydrants and pressure reducing stations.

3. Organizational Structure

The Ledyard Water System is operated under the auspices of the Town’s Water Pollution Control Authority (WPCA). The day to day operations are, however, operated under contract by Groton Utilities. The following chart represents the full management of the system and includes operational responsibilities by Groton Utilities. Legislative authority was previously discussed under Section II.A.1.

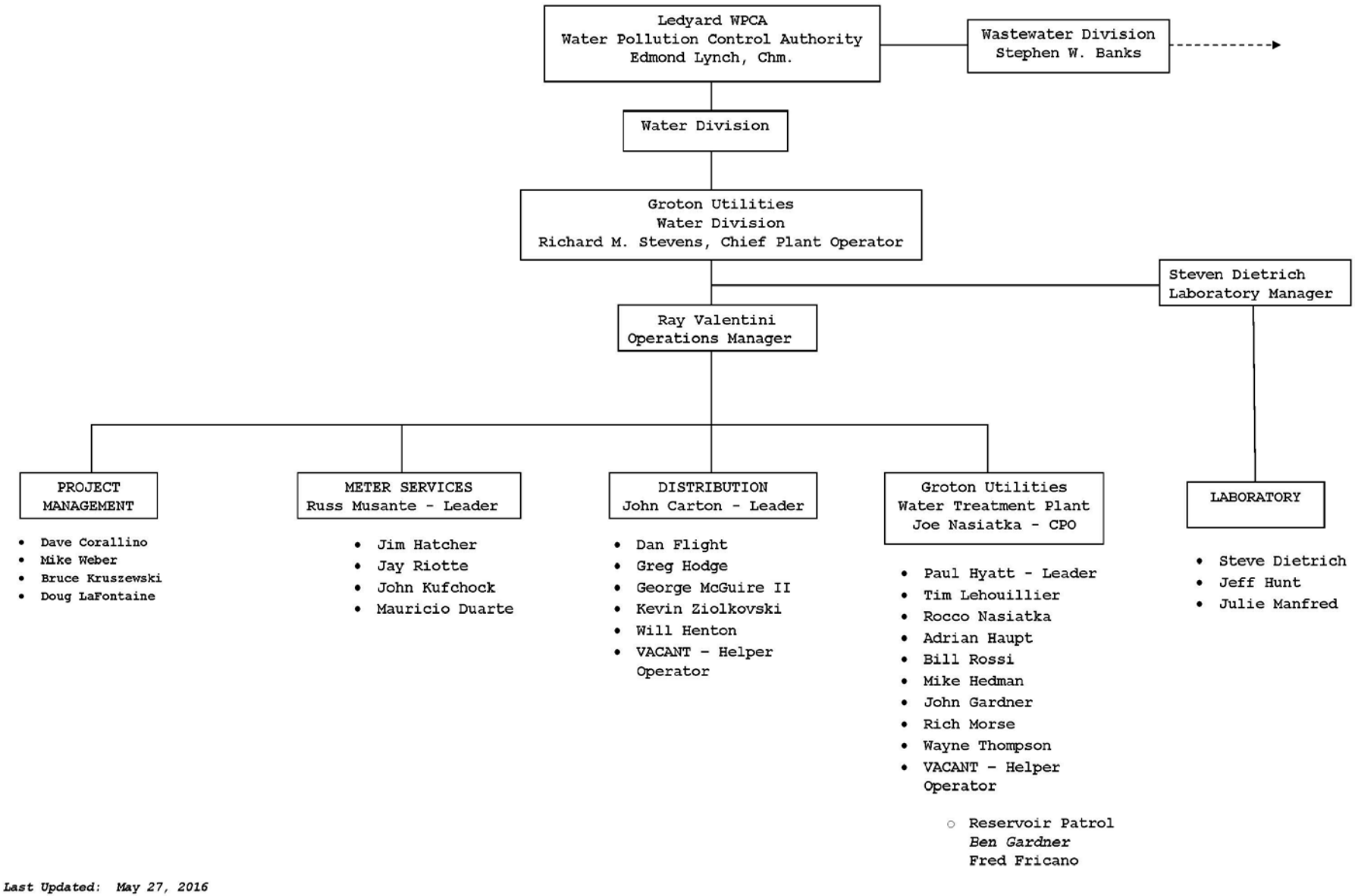

Ledyard WPCA
Water Pollution Control Authority
Edmond Lynch, Chm.
Wastewater Division
Stephen W. Banks
Water Division
Groton Utilities
Water Division
Richard M. Stevens, Chief Plant Operator
Steven Dietrich
Laboratory Manager
Ray Valentini
Operations Manager
PROJECT MANAGEMENT
Dave Corallino
Mike Weber
Bruce Kruszewski
Doug LaFontaine
METER SERVICES
Russ Musante - Leader
Jim Hatcher
Jay Riotte
John Kufchock
Mauricio Duarte
DISTRIBUTION
John Carton - Leader
Dan Flight
Greg Hodge
George McGuire II
Kevin Ziolkovski
Will Henton
VACANT - Helper Operator
Groton Utilities
Water Treatment Plant
Joe Nasiatka - CPO
Paul Hyatt - Leader
Tim Lehouillier
Rocco Nasiatka
Adrian Haupt
Bill Rossi
Mike Hedman
John Gardner
Rich Morse
Wayne Thompson
VACANT - Helper Operator
Reservoir Patrol
Ben Gardner
Fred Fricano
LABORATORY
Steve Dietrich
Jeff Hunt
Julie Manfred
Last Updated: May 27, 2016

FIGURE 1

4. Operator Certification

Because the Ledyard Water System receives treated water from Groton Utilities and no longer is involved in the treatment process, the following information relates to operational certifications held by Groton Utilities personnel who are qualified to work on both treatment of water and distribution system maintenance for the Ledyard Water System. The Public Health Code requires all community water systems with treatment to have certified treatment plant operators. The Code also requires all community systems, which serve 1,000 or more people, to have a certified distribution system operator. Groton Utilities has both certified treatment plant operators and certified distribution system operators.[4]

Treatment plant operators are as follows:

Name	**Grade No.**
Joseph Nasiatka	4
Paul Hyatt	4
Rocco Nasiatka	4
Adrian Haupt	4
Timothy Lehouillier	4
William Rossi	4
Michael Hedman	4
John Gardner	4
Steven Dietrich	4
Jeffrey Hunt	4
Richard Morse	4

[4] Note that several operators have multiple certifications.

Distribution system operators are as follows:

Name	Grade No.
John Carton	2
Daniel Flight	2
Gregory Hodge	2
George McGuire, II	2
Kevin Ziolkovski	2
Russell W. Musante	2
James Hatcher	2
J. Jay Riotte	2
Paul Hyatt	2
Joseph Nasiatka	2
Rocco Nasiatka	2
Adrian Haupt	2
Timothy Lehoullier	2
William Rossi	2
Michael Hedman	2
John Gardner	3
Mauricio Duarte	2

In addition, Groton Utilities has the following certified back-flow tester and cross-connection survey operators:

Name
Russell W. Musante
James H. Hatcher
J. Jay Riotte
Mauricio Duarte

5. Phone Numbers for Key Personnel

Ledyard WPCA Chairman	Edmond Lynch	860-440-9994
Chief Plant Operator	Richard M. Stevens	860-446-4079
Operations Manager	Raymond L. Valentini	860-446-4032
Water Emergency	Groton Utilities	860-446-4000

6. Training of Personnel

Properly trained personnel are essential to any water utility operation. Groton Utilities, which operates the Ledyard Water System, participates in training regimens for all personnel that work on the Ledyard distribution system and within the Groton Utilities Treatment Plant which provides treated or finished water to the system. In addition to treatment and distribution training, several Groton Utilities personnel are also trained and certified for backflow and cross connection surveys. Laboratory staff is also available through Groton Utilities for the proper collection and testing of distribution system samples to adhere to State DPH regulated standards.

Areas of training include safety in handling of chemicals, containment of hazardous spills, U.S. Department of Labor OSHA Regulations, water main and service-leak detection and repair, driver safety, operation of pumping and other mechanical equipment, laboratory procedures, backflow control, new water treatment equipment and confined entry procedures. Groton Utilities consults and works diligently with the Connecticut Department of Public Health to provide all customers with quality water and to provide its operators with ap-

propriate training for the latest technical innovations and regulatory updates.

7. Adequacy of Staff

As noted above, the Groton Utilities staff is dedicated to the Ledyard Water System as equally as it is to its core base in the Groton area and to its interconnections to other regional systems. There are a sufficient number of personnel to handle both regular maintenance activities and to be available for emergency situations, in full compliance with staffing requirements as set forth by all applicable regulatory agencies.

8. Contracts and Permitting

There are two contracts between Groton Utilities and the Ledyard WPCA, one for the supply of water through the two interconnection points at the Town Line and a second one for the operation and management of the distribution system itself. As well, there are two diversion permits from the Department of Energy and Environmental Protection (DEEP) and two sale of excess water permits issued by the Department of Public Health, for the same two interconnection points noted at the Town Line crossings of Route 12 and Route 117.

Table 1 – Contracts and Permits

Contract / Permit Description	Permit Number or Contract Number[5]	Diversion Limitations (Not to Exceed)	Issue Date or Agreement Date	Expiration Date
Water Supply Contract Town of Ledyard & Groton Utilities Gales Ferry System	N/A	250,000 GPD	09-08-1992	None
Water Supply Contract Town of Ledyard & Groton Utilities Center Ledyard System	N/A (Note that this agreement is Amendment No. 1 to the Gales Ferry Agreement)	350,000 GPD	08-15-2007	None
Diversion Permit[6] Diversion of Potable Water from Groton Utilities to the Town of Ledyard Along Route 117 to Ledyard Center	CT DEEP DIV-200600038	Amount 350,000 GPD ---------- Rate 700 GPM	08-22-2006	08-10-2021
Diversion Permit[6] Diversion of Potable Water from Groton Utilities to the Town of Ledyard Along Route 12 to Gales Ferry	CT DEEP DIV-200701742GP	Amount 250,000 GPD	07-12-2007	03-15-2017
Diversion Permit Water Supply Wells PW-1 & PW-2 Loftus Site Wellfield	CT DEEP DIV-200802557	Amount 250,000 GPD	09-21-2010	07-14-2020
Operations & Management Contract for Water Supply & Distribution System Town of Ledyard & Groton Utilities	N/A	N/A	07-01-2016	06-30-2017

[5] Note that Groton Utilities also holds two "Sale of Excess Water Permits" issued by the Department of Health to sell water to the Town of Ledyard, one for Route 12 and one for Route 117. They are not listed here because they were issued to Groton Utilities.

[6] Joint permit between Groton Utilities and Town of Ledyard.

9. Assets and Financial Status

As noted under the previous Ownership section of this Water Supply Plan, the water distribution system within the boundaries of the Town of Ledyard is wholly owned by the Town of Ledyard. This system includes water mains, two water storage tanks, a hydro-pneumatic pump station, two meter pits, and older assets from the water well system used prior to the full interconnection with finished water supplied by Groton Utilities. Assets associated with the older WPCA system have been decommissioned but not yet fully disposed of. Water main ownership includes, in addition to the piping, all appurtenances such as valves, hydrants and pressure reducing stations.

The past financial status of the WPCA, including the Water Pollution Control Authority as a whole with water and sewer systems combined, is as follows for the three latest fiscal years:

WPCA TOWN OF LEDYARD CT
HISTORIC REVENUE, EXPENSES AND CAPITAL CONTRIBUTIONS & TRANSFERS

COMBINED WATER & SEWER FUNDS	FY 2013	FY 2014	FY 2015
OPERATING REVENUES	1,386,969.00	1,392,387.00	1,460,330.00
OPERATING EXPENSES	1,705,415.00	1,716,766.00	1,467,686.00
OPERATING LOSS	(318,446.00)	(324,379.00)	(7,356.00)
NON OPERATING REVENUES/(EXPENSES)	(190,355.00)	(855,340.00)	(208,505.00)
LOSS BEFORE CAPITAL/TRANS	(508,801.00)	(1,179,719.00)	(215,861.00)
CAPITAL CONTRIBUTIONS AND NET TRANS	625,249.00	5,332,406.00	(2,060,884.00)
CHANGE IN NET POSITION	116,448.00	4,152,687.00	(2,276,745.00)

B. Service Areas

Service Areas within the Town of Ledyard are divided into three basic sectors, separated essentially by differences in pressure. These include Ledyard Center, Gales Ferry and Avery Hill areas, located respectively in the center of Town, the western perimeter along the east side of the Thames River and the northwest corner of Ledyard along the top of Avery Hill Road[7].

1. Ledyard Center

This area encompasses water distribution mains along Route 117 from the Groton – Ledyard Town Line north to Village Drive (north of Iron Street / Route 214), and east along Colonel Ledyard Highway, Gallup Hill Road and Shewville Road. Its pressures are set by the elevation of an elevated water tank set in Ledyard Center (Elev. 420 ft.), receiving its supply from the Center Groton Pump Station in Groton at the intersection of Route 117 and Route 184. Water pumped to this tank and the Ledyard Center area is supplied by Groton Utilities and metered through a pit situated on the east side of Route 117 at the Groton – Ledyard Town Line.

Supply from Groton Utilities to the Ledyard Center area first started up in June of 2009 and by September of 2010 included all of the areas previously supplied by wells at the Highlands system, at the Sablewoods Subdivision, at Ledyard High School and Ledyard Center School, at Ledyard Center, and at Ledyard Village. All these well sites have now been abandoned and associated pumping and treatment equip-

[7] See Distribution System Map in the Appendices attached to this plan.

ment has been shut down and decommissioned. Wells at one of the locations, the Avery Hill area, were abandoned in accordance with Public Health Department regulations and all responsibilities for supply have been transferred to Groton Utilities.

2. Gales Ferry

The Gales Ferry distribution area begins on Route 12 at the Groton – Ledyard Town Line and runs northerly from that point to the Ledyard – Preston Town Line on Route 12 at Poquetanuck Cove. Along the way it serves residential, commercial and industrial customers situated mostly along the west side of the Route 12 corridor until it reaches the center of Gales Ferry, after which it serves mostly areas along the east side of Route 12 until it reaches the Orchard Lane area just south of Poquetanuck Cove. A storage tank at Holmberg Orchards is located at the east end of Orchard Lane. At this point the Gales Ferry system splits off to the east side of the Avery Hill area to serve the Aljen Heights housing area at the northerly base of Avery Hill adjacent to Poquetanuck Cove, as well as residential housing along Avery Hill Road.

Just south of Gales Ferry Center, distribution mains include a 16-inch line that runs westerly to the Thames River, passes underneath the river and then continues westerly to supply regional customers in the Montville area. Through added interconnections, this supply can also be used in emergencies to provide water (on a regional two-way basis) to New London, Waterford, Norwich and East Lyme.

East of the Holmberg Orchards Tank, there is a 16-inch water main crossing the top of the hill after which it reduces to a 10-inch main running downslope along Avery Hill Road to Aljen Heights. On the east side of the tank there is also a separate hydro-pneumatic system using the tank for suction, serving the top of Avery Hill (see following discussion for a description of this area).

Two meters serve this area, one situated at the Groton – Ledyard Town Line on Route 12 that measures total flow to Gales Ferry and the Thames River Interconnection, and the second meter, situated at Bluff Road, that measures flow to Montville beneath the Thames River. It should be noted that the usage measured for Gales Ferry includes the hydro-pneumatic system at the top of Avery Hill Road and the gravity flow mains to the Aljen Heights subdivision. These two areas were added in 2013; the top of Avery Hill will be discussed under the next section, since it is separated from the rest of the Gales Ferry distribution area by a booster pump station and hydro-pneumatic system.

Pressures in the Gales Ferry and Aljen Heights areas are set by the tank level at Holmberg Orchards (Elev. 310 ft.). This is the same elevation as the Bailey Hill Tank situated in the Groton High Pressure System just south of the Ledyard – Groton Town Line. Water pumped to this area is supplied from the Groton Utilities system and is boosted in pressure to the 310 ft. elevation by two pump stations, one at the east end of Gungywamp Road and the other on the east side of Long Hill Road (Route 12) approximately one mile south of Interstate Route 95, both in Groton.

3. Avery Hill

Although the flow to this area is included in master meter usage reads for Gales Ferry, the top of Avery Hill is physically separated from the Holmberg Orchards Tank by a booster pump station with a hydro-pneumatic system, necessitated by the need to push water over Avery Hill to elevations higher than those available by gravity flow from the Holmberg Orchards Tank. As such it is being treated as its own distribution service area and includes the top of Avery Hill, residential areas along Avery Hill Road between Marlene Drive and Tuckers Run.

The suction pressure at the pump station (approximate Elev. 254 ft.) is set by the water elevation at the Holmberg Orchards Tank, which normally fluctuates between 304 and 290 ft. from shutoff to turn on levels, with an overflow level of 310 ft. Suction pressure at the pump station is, under normal conditions, in the range of 15 psi. On the discharge side of the station, the hydro-pneumatic system is set for a maximum hydraulic gradient of 68 psi (shut-off) and a base turn-on pressure of 60 psi. A separate description of the pump station will follow under a separate section, but its design includes a future capability of serving additional areas east of Avery Hill to a potential tie-in to the Ledyard Center system.

C. Active Sources of Supply

Distribution systems previously supplied, under ownership and management by the Town of Ledyard, are now served or supplied by Groton Utilities through two interconnection points, situated at the Town Line on Route 12 and Route 117. These interconnections replaced individual well fields which supplied the following areas: Highlands Subdivision (Loftus wellfield), Sablewoods Subdivision, Ledyard Center and Ledyard High School (Highlands / Loftus), Ledyard Village, Avery Hill Trailer Park, and the Pfizer wells supplying homes near an old landfill in the vicinity of Avery Hill Road and Route 214. These supply locations have been decommissioned and are now inactive for drinking water purposes.

The Groton Utilities sources of supply encompass several reservoirs, including Billings – Avery Diversion Reservoir, Morgan Reservoir, Ledyard Reservoir, Poheganut Reservoir, Smith Lake and Poquonnock Reservoir[8]. Reservoirs are listed in order from north to south in a downstream direction along the Great Brook Watershed. Poheganut Reservoir and Smith Lake feed in to Poquonnock Reservoir from the Hatching House Brook watershed.

There are also three groundwater supply wells located near the terminal reservoir system in the area of Smith Lake and Poquonnock Reservoir. One of the wells is currently used to augment supplies in Poquonnock Reservoir, while the other two are inac-

[8] Billings – Avery Diversion Reservoir, Morgan Reservoir and Ledyard Reservoir are located within the Town of Ledyard. Poheganut Reservoir, Smith Lake and Poquonnock Reservoirs are situated in the Town of Groton. Poquonnock Reservoir is the terminal reservoir from which an intake provides raw water to the Water Treatment Plant located on the western shore of the impoundment.

tive. Additional information on these sources of supply is contained in the Groton Utilities Water Supply Plan 2012 Update.

1. Groton Utilities / Route 12 Interconnection

The Route 12 interconnection is situated on the east side of Route 12 and just north of the Town Line between Groton and Ledyard. At this location, there is a meter pit and a small building housing standby chemical feed pumps and SCADA Systems. The chemical feed pumps (not currently in use) were originally intended to boost chlorine levels as required in the event of low chlorine residual measurements in the Gales Ferry system (i.e., a re-chlorination facility). It is now used solely for analyzing equipment and a SCADA system to report data analysis[9] back to the Groton Utilities Water Treatment Plant Operations Center. The distribution main for this interconnection is a 16-inch ductile iron pipe that supplies areas previously noted, namely the Route 12 corridor, Aljen Heights and Avery Hill in Ledyard, as well as Montville and other localities west of the Thames River. The source point of this treated water is the Groton Utilities Water Treatment Plant and the Bailey Hill storage tank in the Town of Groton. Pressures, as previously noted, are set by the level in the Bailey Hill tank (Elev. 310 ft.).

2. Groton Utilities / Route 117 Interconnection

The second interconnection is situated on the east side of Route 117, again just north of the Town Line between Groton and Ledyard. This facility consists of a double meter pit,

[9] Data sent to the Operations Center includes chlorine residual, conductivity, pH, temperature, turbidity, pressure and flow rates (instantaneous and cumulative).

one measuring flows from Groton to the storage tank in Ledyard Center and the other measuring flows back to the Center Groton area when the Center Groton Pump Station is shut down. The Center Groton area combined with the Ledyard storage tank represents a separate pressure zone from that in the lower Groton area (i.e., the two areas are based on the level of the Ledyard tank set at Elev. 410 ft.). Metering data[10] is sent by SCADA to the Groton Utilities Water Treatment Plant Operations Center. The distribution main for this interconnection is a 16-inch ductile iron pipe that supplies Ledyard Center, the Highlands area and the Sablewoods subdivision, areas previously served by their own well and treatment and distribution systems. As with the Route 12 interconnection, the source point of this treated water is the Groton Utilities Water Treatment Plant and the Center Groton Pump Station situated near the intersection of Routes 184 and 117 in the Town of Groton.

3. Inactive Sources of Supply

In the transition to use of treated water from the Groton Utilities system, several individual water sources in the Town of Ledyard have been deactivated, including some during the period since the preparation of the last Water Supply Plan in 2005. These included the Loftus and Highlands well fields used to supply the Highlands area and, through the Gallup Hill Booster Pump Station, the area in the vicinity of Ledyard High School. While deactivated, both well sites, treatment equipment and buildings remain in place. It should be noted, however, that the Highlands Water Treatment Plant

[10] Includes pressure and both instantaneous and cumulative flow rates.

has been slated for demolition and the project is currently out to bid (as of the preparation of this plan update).

Supplies also included the wells and treatment facilities for the Sablewoods Subdivision which, although deactivated, remain in place.

Subsequent to the installation of the hydro-pneumatic pump station for the Avery Hill area, its system was also deactivated. Its well, treatment facilities and building have been recently abandoned and removed.

In and near the center of Ledyard, wells supplying the Ledyard High School and Center School, as well as the Town Hall, were originally replaced by an extension of the Highlands system through the Gallup Hill Booster Pump Station. After the installation of a new water main from Groton Utilities and the Ledyard Center storage tank, these facilities were deactivated along with the Loftus and Highlands wellfields. Just north of Ledyard Center on the east side of Route 117, a small subdivision system at Ledyard Village consisting of a well and treatment equipment, has also been deactivated and tied into the Ledyard Center distribution system supplied by Groton Utilities.

Wells formerly installed by Pfizer, Inc. due to mandated hazardous waste remedial actions in the vicinity of Avery Hill Road and Route 214 were deactivated for domestic water consumption at the time of the upgraded Gales Ferry system in the late 1990 period. The wells, originally owned by Pfizer, were then transferred to the Town of Ledyard which currently uses them for non-potable purposes. They have not

been and are currently not under the auspices of the Ledyard WPCA.

None of the deactivated well systems is currently being used for drinking water purposes. Some are used, as noted, for non-potable purposes such as Public Works usage and irrigation of fields at the schools. All areas previously served by individual or community well systems noted above have been fully integrated into the Groton Utilities supply and distribution system.

D. Pump Stations

1. Aljen Heights Booster Pump Station

Within the three current service areas, there is one pump station owned by the Town of Ledyard and operated through the WPCA. This is the hydro-pneumatic pump station situated on the east side of the Holmberg Orchards storage tank which supplies water to a separate pressure zone atop Avery Hill. This pump station was constructed in 2013 using the Holmberg Orchards storage tank as its suction supply and replaced the individual water system previously operated along Avery Hill Road between Marlene Drive and Tuckers Run. Statistics for this station are as follows:

Hydro-Pneumatic Tank	5,000 Gallons
Duty Rating (Pressure)	100 psi
Test Rating (Pressure)	150 psi
Number of Pumps at Station	3
Suction Pressure (Min.)	10 psi

Booster Pumps:

Pump No.	Flow (gpm)	TDH[11] (ft.)	RPM	HP
1	250	145	3550	15
2	250	145	3550	15
3	750	140	1750	50

[11] TDH = Total Dynamic Head

2. Groton Utilities Pump Stations Serving Ledyard

Pump stations owned and operated by the Groton Utilities serving Ledyard interconnection points previously noted include the Center Groton Pump Station which supplies the Route 117 corridor to the Ledyard Center storage tank and Gungywamp and Long Hill Pump Stations which supply the Bailey Hill and Holmberg Orchards tanks serving the Route 12 corridor as well as Avery Hill and Aljen Heights.

E. Storage Facilities

The Town of Ledyard owns two water storage tanks, one an elevated tank east of Route 117 in Ledyard Center and the other a standpipe situated at Holmberg Orchards east of Route 12 and just south of Poquetanuck Cove. These two tanks supply water to all of Ledyard's customers. In addition, because the system is integrated with Groton Utilities, part of the supply along Route 12 also comes from Bailey Hill Tank, owned by Groton Utilities.

1. Ledyard Center Tank

This is an elevated tank holding 750,000 gallons of water set at an overflow elevation of 420 feet; it is supplied by the Center Groton Pump Station. The storage tank is located at 11 Fairway Drive on property of the Town of Ledyard Fire Department. Because of its distance from the Groton Utilities system, low chlorine residual has been an occasional problem. As such, a portable sodium hypochlorite injection system was installed on the east side of the storage tank to augment chlorine levels when necessary. The tank is sized to supply both domestic needs and fire flow capacity for the service area previously described for Ledyard Center.

The tank was originally constructed in 2007 along with the water main from Groton northward along Route 117 from the Center Groton area near the intersection of Routes 117 and 184. Startup of operations, including initial flow and filling of the tank, occurred in April of 2009. During that year, usage was limited to the Ledyard Center area and totaled an average of approximately 23,000 gallons per day. By

late 2010, usage increased substantially, stabilizing at an average of 200,000 gallons per day, as major well fields were decommissioned and more areas were tied in to the supply system using treated water from the Groton Utilities system. For the Ledyard Center Tank, this meant better water quality as more flow was passed through storage. Because exchange was still limited, however, low chlorine residual continued to be an issue that was subsequently addressed with the addition of a small chemical station adding sodium hypochlorite when need to maintain a proper Cl_2 residual. The tank is monitored on a 24-hour basis, by SCADA, at the Groton Utilities Water Treatment Plant[12].

2. Holmberg Orchards Tank

The Holmberg Orchards storage tank is a pre-stressed concrete tank located at the easterly end of Orchards Lane in the northwesterly section of the Town of Ledyard. It holds 1,000,000 gallons and is set at an overflow elevation of 310 feet. The hydraulic gradient of this tank (i.e., 310 ft.) is set at the same elevation as Bailey Hill Tank in the Town of Groton. Both tanks are supplied by two pump stations, Gungywamp Pump Station and Long Hill Pump Station, both situated in the Town of Groton.

Holmberg Tank provides water to the Aljen Heights service area, to the hydro-pneumatic pump station serving the top of Avery Hill, to the Route 12 corridor and, in conjunction with the Bailey Hill Tank, it supplies water through the Thames River Interconnection to the Town of Montville on the

[12] Monitoring includes intrusion alarms, normal water levels, high and low water alarms, and Cl_2 residual levels.

west side of the Thames River. The tank was originally constructed in 2005, in conjunction with the river crossing to Montville, and served primarily to set the hydraulic gradient for use in the Route 12 corridor and the west side of the Thames. In 2013, its service area also encompassed the newly established mains and pump station serving Aljen Heights and Avery Hill. The tank is tied in to the Groton Utilities SCADA system monitored on a 24-hour basis by personnel at the Water Treatment Plant[13].

3. Bailey Hill Tank

Owned by Groton Utilities, this tank supplies water along the Route 12 corridor to both the Holmberg Orchards Tank and the regional interconnection beneath the Thames River to service areas to the west. The overflow elevation of 310 feet is set equal to that of the Holmberg Orchards Tank, thereby providing a consistent supply without significant pressure fluctuations along its route. This tank is a steel standpipe constructed in 1975, with a total capacity of 2,300,000 gallons. As with the Ledyard tanks, this storage facility is also tied in to the Groton Utilities SCADA system monitored on a 24-hour basis by personnel at the Water Treatment Plant.

[13] As with the Ledyard Center Tank, monitoring includes intrusion alarms, normal water levels, high and low water alarms, and Cl_2 residual levels.

Table 2 - Water Storage Tanks Serving the Town of Ledyard

Tank Name ---------- Year Constructed	Overflow Elevation (in ft. / USGS NAVD 88)	Tank Height ---------- Tank Dia.	Useable Storage Capacity (in Gallons)	Tank Type ---------- Tank Owner	Top of Tank Elevation (ft.)
Ledyard Center ---------- 2007	420	135 ft. ---------- 62 ft.	750,000	Elevated Steel ---------- Ledyard WPCA	431
Holmberg Orchards[14] ---------- 2005	310	60 ft. ---------- 60 ft.	1,000,000	Concrete Standpipe ---------- Ledyard WPCA	316
Bailey Hill (1)[15] ---------- 1975	310	91 ft. ---------- 70 ft.	2,300,000	Steel Standpipe ---------- Groton Utilities	319

[14] In addition to supplying the Gales Ferry area of Ledyard, this tank also supplies flow through a regional meter to service areas on the west side of the Thames River.

[15] The tanks at Bailey Hill are included because the overflow elevations are tied to the functionality of the Holmberg Orchards Tank. Although separated by some distance, the tanks are set along the same hydraulic gradient or profile. There is a second smaller steel standpipe tank at Bailey Hill, currently out of service.

F. Treatment Facilities

Since the preparation of the last Water Supply Plan prepared for the Town of Ledyard in 2005, the Town has decommissioned all its remaining well fields and treatment facilities. All service areas previously described in this document are now supplied by treated water delivered across the Town Line through two interconnections from the Groton Utilities Water Treatment Plant, which is located at 1260 Poquonnock Road in the Town of Groton.

The following is a short synopsis of the treatment facilities at the Water Treatment Plant. Additional or more detailed information may be found in the Groton Utilities Water Supply Plan Update prepared in 2012. *"The Groton Utilities Water Treatment Plant includes a low-lift pumping station (with intakes at Poquonnock Reservoir), chemical treatment, coagulation, flocculation and settling basins, filters, filtered-water reservoirs (clearwells), high-lift pumps, residuals pumping station, lagoons and drying beds. The Water Treatment Plant is protected, for emergency situations, with three standby generators adjacent to the low lift pump station. Polyaluminum chloride is used for coagulation and flocculation, hydrofluosilicic acid for fluoridation, chlorine for disinfection and lime and polyphosphate for corrosion control. Chlorine dioxide, when necessary, is used as treatment for manganese removal. Rated capacity of the treatment plant is 14 mgd; maximum treatment capacity is 20 mgd, and firm pumping capacity is 19 mgd."* Groton Utilities is currently in the final stages of design and financing preparation for an upgrade to its treatment facilities, expected to go to construction in mid-2016.

G. Water Company Owned Lands and Other Protected Lands

Former Ledyard WPCA water supply and distribution system infrastructure such as wellfields, storage tanks, treatment systems and pumping equipment[16] are currently in the process of being decommissioned, disassembled and abandoned. Once completed, these properties will be conveyed to the Town for either conservation and / or recreational purposes.

With respect to Groton Utilities, the current purveyor of water supply to the Town of Ledyard's distribution system, water company owned lands encompass a total of 4.9 square miles within the watershed, of which 2.6 square miles is located within the Town of Ledyard. These water company owned lands lie within a total of 15.6 square miles of watershed, of which 7.5 square miles are in the Town of Ledyard. Both water company owned lands and watershed areas are patrolled on a regular basis by Groton Utilities' reservoir patrolmen who are also instrumental in conducting an annual sanitary survey to ensure that properties lying within the watershed are in compliance with Connecticut Health Department regulations and safeguards for a clean and healthy water supply.

[16] As previously described under Inactive Sources of Supply.

H. Pressure Zones

As previously described, there are three distribution service areas within the Town of Ledyard. They include (1) Ledyard Center, which serves the area in the center of Town at the intersection of Routes 117 and 214, the Village Drive area just north of the Town Center, the areas east of Town including the Highlands, and the areas south of Town along Route 117 to the Ledyard / Groton Town Line; (2) the Route 12 corridor and Aljen Heights,; and (3) the Avery Hill area just east of the Holmberg Orchards Tank which is served by a small hydro-pneumatic system at a booster pump station.

1. Ledyard Center Pressure Zone

Ledyard Center pressures are established by the elevation of the water storage tank situated on the Fire Department property; it has an overflow elevation of 420 feet. This provides approximately 50 psi in the vicinity of the tank and, by the time it drops to the lower elevations at the Highlands, reaches a pressure of greater than 100 psi. This has, therefore, necessitated a reduced pressure zone at the lower portion of the Highlands, separated or isolated by two pressure reducing stations, one at the intersection of Blacksmith Drive and Meeting House Lane and the other at the intersection of Cartridge Terrace and Highland Drive. At these points, the upstream pressures are respectively about 100 psi and 105 psi, while pressures on the downstream side are in the range of 40 to 80 psi, again respectively.

Table 3 - Pressure Reducing Valve Stations at the Highlands

Station Name	Valve Size	Upstream Pressure	Downstream Pressure
Highland Drive at Cartridge Terrace	8″ 3″	105 psi	35 psi 50 psi
Meeting House Lane at Blacksmith Drive	6″ 2″	100 psi	42 psi 52 psi

2. Route 12 Corridor and Aljen Heights Pressure Zone

Pressures in these areas are established by the overflow level in the Holmberg Orchards Tank which is set at 310 feet. At the base of the tank there are several hydrants with an average pressure of about 20 psi. The nearest residence served by gravity flow from the tank would experience a pressure of about 65 psi, while highest pressures are found in the Gales Ferry area near the Thames River where static pressures in several hydrants range from 115 to 122 psi. Although this area is not served by pressure reducing stations, individual pressure reducing valves have been installed at several service connections in the lower Gales Ferry and Aljen Heights areas.

3. Avery Hill Pressure Zone

This pressure zone was necessitated by the fact that the ground elevations at the top of Avery Hill were too close to the water level in the Holmberg Orchards Tank. Based on these circumstances, a booster pump station was constructed just east of the tank to provide a separate zone for those residences situated at and near the top of the hill. The

station is set at an elevation of 253 feet; with the total head on the pumps, the hydraulic grade line for this area is set for approximately 400 feet, resulting in pressures in the Avery Hill area in the range of 35 to 70 psi between high and low points.

I. Source Water Protection

A source water protection plan was prepared for the Town of Ledyard by the Atlantic States Rural Water and Wastewater Association in 2008 and adopted by the Ledyard Planning Commission in February of 2009[17]. At that time, the Route 12 corridor was supplied by Groton Utilities, while the Ledyard Center and Highlands areas were still served by individual well supplies. The plan, thus, included source water protection for the Groton Utilities sources located in the Town of Ledyard, as well as the wellheads supplying various sections within the Town. Since that time, the smaller water systems have been incorporated into the distribution areas served by the Groton Utilities system while well supplies were decommissioned.

The portion of the plan which addressed the major Groton Utilities sources continues to be valid since they are now used to supply drinking water to the Town of Ledyard. It includes protective measures within the various watersheds and potential improvements to drainage facilities, particularly along the causeway passing through Morgan Reservoir along Sandy Hollow Road. In addition, it includes assessments of and recommendations for point and non-point discharge areas and addresses stormwater management and road ordinances that could be enacted by the Town.

The Town’s source water protection plan is also supplemented by that adopted by Groton Utilities, to which reference is hereby made as discussed in their update of 2012.

[17] This plan is available online at the Town of Ledyard’s website under the Forms & Documents Library.

J. Transmission and Distribution Facilities

The Town is served by two major transmission lines from Groton Utilities, both 16-inch ductile iron mains, one along the Route 12 corridor serving the Gales Ferry area as well as the Town of Montville through the Thames River interconnection, and the other along the Route 117 corridor serving Ledyard Center, services along Route 117 and areas to the east, such as the Highlands. The 16-inch main along Route 12 runs northerly to the Holmberg Orchards storage tank and another 16-inch spur heads west from the center of Gales Ferry to the river crossing at Bluff Road. On Route 117, the 16-inch main extends from the Groton Town Line northerly to the Ledyard Center storage tank. From these two transmission lines, the distribution system spreads out to lines ranging from 12 inches down to 2 inches in size.

For the calendar year ending 2015, the Town of Ledyard had a total of 244,171 feet of water main in its distribution system. These mains included ductile iron, cast iron and PVC piping of various sizes as detailed on the following table.

Table 4 – Transmission & Distribution Pipe Inventory 2015

TYPE OF PIPE	DIAMETER (In.)	LENGTH (Ft.)
Ductile Iron	16″	55,690
Ductile Iron	12″	31,762
Cast Iron	12″	8,570
Ductile Iron	10″	6,843
Cast Iron	10″	13,750
PVC[18]	10″	3,250
Ductile Iron	8″	92,714
Cast Iron	8″	2,650
PVC	8″	1,100
Ductile Iron	6″	357
Cast Iron	6″	17,551
Ductile Iron	4″	1,903
Cast Iron	4″	7,701
PVC	2″	330
TOTAL		**244,171**

[18] Polyvinyl chloride

K. Metering Program

Meters serving the Town of Ledyard include:

(1) There are two master meters for supplies from Groton Utilities to the Town of Ledyard, one situated at the Town Line along Route 12 and the other at the Town Line along Route 117. The Town of Ledyard owns the meter pits; Groton Utilities owns the meters.

Location	Meter Size	Average Annual Flow[20] (Gallons / Day)
Route 12 @ Town Line	10″ x 2″ Compound	142,249
Route 117 @ Town Line	10″ x 2″ Compound[19]	144,282

(2) One master meter measuring flow to the region west of Ledyard through the Thames River interconnection. Again, the Town of Ledyard owns the meter pit and Groton Utilities owns the meter. For Ledyard's usage in the Gales Ferry system, water passing through the meter at Bluff Road is subtracted from the meter at Route 12.

Location	Meter Size	Average Annual Flow[20] (Gallons / Day)
Thames Crossing Bluff Road Meter	10″ x 2″ Compound	648,458

[19] Note that there are 2 compound meter setups at this site, one to measure flows to Ledyard Center from the Center Groton Pump Station and one to measure flows back to the distribution system for Center Groton.
[20] For latest data year: 2015

(3) 83 meters serving commercial customers, ranging in size from 5/8″ (58 meters) to 8″ (25 meters ranging from 1″ to 8″ in size).

(4) 1,270 residential meters, 5/8″ in size. Other than the residential meters, the master meters and large customer meters are tested annually by Groton Utilities which now maintains and administers the Ledyard Water System. Since assuming responsibility for maintenance, Groton Utilities has replaced some old meters with new and will continue on a replacement program as the need arises and a testing program that will adhere to a 10-year schedule.

L. System Hydraulics

Hydraulic grade lines throughout Ledyard are, for the most part, determined or set by storage tank elevations at the Ledyard Center Tank (Elev. 420 ft.), the Holmberg Orchards Tank (310 ft.) and the Bailey Hill Tank (310 ft.)[21]. An area just east of the Holmberg Orchard Tank is served by a small hydro-pneumatic system which sets a separate gradient line of approximately 400 ft. Because the volume of water in the storage tanks needs to be exchanged or turned over on a consistent basis to maintain water quality in the overall system, tank fluctuations will normally vary the elevations within a range of about 10 feet from those stated above, resulting in a normal pressure variation within each zone of about 4 – 5 psi, depending on daily demand or usage. The elevations noted are maximum or overflow levels; fluctuations would thus be lower than those noted, 410 ft. for the Ledyard Center Tank and 300 ft. respectively for the Holmberg and Bailey Hill Tanks.

For the Gales Ferry / Aljen Heights system area, pressures range from a low of 30 – 35 psi in the vicinity of the storage tank[22] to a high of about 120 psi[23] along the lower elevation areas near the Thames River and Poquetanuck Cove. For the hydro-pneumatic system just east of the Holmberg Tank, pressures are set in the range of 30 to 40 psi. In the Ledyard Center system, pressures range from a low of 55 psi at the base of the storage tank adjacent to the Fire Station to a high of about 100 psi in the Highlands area. It should be noted that the system in the vicinity of the Highlands extends to even lower elevations that

[21] See Table I, Page II-16, Water Storage Tanks.
[22] Based on ground elevations in the vicinity of the tank.
[23] This pressure is based on hydrant information in the vicinity of Bluff and Hurlbutt Roads.

would normally experience pressures higher than the 100 psi noted, except that pressure reducing valves have been installed at two locations to alleviate pressures to a manageable number (see Section H, Pressure Zones for additional information).

M. System Fire Flow Capabilities

Hydrants are flushed on an annual basis, and flows are tested and measured throughout the system on a biennial basis (once every two years). The last flow testing of hydrants within the Ledyard distribution system was completed in 2015; flushing, as usual, will again be conducted in 2016. Results of the 2015 testing are included herewith in the appendix of this plan.

N. System Safe Yield

As previously noted in this Water Supply Plan, the water supply for all service connections through the Town of Ledyard WPCA is supplied by Groton Utilities. Water supply well sites enumerated in the previous version of this plan have been decommissioned and abandoned and are, in most cases, in the process of being demolished and cleared of their former facilities. As such, safe yield is now a function of the water supplied by Groton Utilities.

Groton Utilities maintains a system of reservoirs on which it is dependent for the majority of its safe yield. Only one well is occasionally pumped to supplement the water supply for the purpose of blending some groundwater with surface water to reduce manganese levels prior to treatment of raw water. Of the surface water reservoirs, Morgan and Ledyard Reservoirs, both located in the Town of Ledyard, account for approximately 65% of supply. Specific operational procedures are described in the Groton Utilities Water Supply Plan, but in essence, as much storage as possible is maintained in these two reservoirs without creating excessive drawdown in the downstream reservoirs.

Groton Utilities' active supply facilities have a safe yield of 12.6 mgd, based on calculations provided in their 1999 Water System Master Plan Update. Since that time, there have been no changes to storage facilities or the operational modes for the reservoir system and, as such, the yield is still considered valid.

Should additional augmentation of this safe yield be required, Groton Utilities has three options which could be developed to supplement the current supply sources. These include (1) potentially raising Ledyard Reservoir and its dam by 2 – 3 feet, (2) developing the Haleys Brook Watershed for which Groton Utilities has obtained a permanent easement to withdraw water from a property situated at the terminal point of the brook near the Mystic River, and (3) developing additional groundwater supplies in the vicinity of the current terminal reservoir system. Each of these options has the potential to add 1 – 2 mgd to the safe yield.

O. System Production and Demands

The Town of Ledyard WPCA no longer produces finished drinking water through the well fields and treatment facilities in existence at the time of the last Water Supply Plan. All its water is distributed to Ledyard through two connections, along the Town Line between Ledyard and Groton at Route 12 and at Route 117. Groton Utilities currently produces water for distribution to supply an average use of approximately 5.6 – 5.8 mgd to all of its customers (range over the last three years). Its committed customers include the City and Town of Groton, the Town of Ledyard (two separate connections which include Gales Ferry along Route 12 and Center Groton along Route 117), Aquarion Water Company (supplying the Mystic sections of Groton and Stonington through a connection on Route 1), and the Town of Montville via a crossing beneath the Thames River (a connection in the Bluff Road area of the Town of Ledyard on the east side of the river, supplying also the Mohegan Tribe of Indians through the Montville distribution system). Together with its base or core system in the City and Town sections of Groton and the outlying service connections to adjacent towns, actual total usage for all areas has been in the range of 5.6 mgd, leaving a significant margin of safety both to supply the Town of Ledyard and the other communities.

Demand projections, based on current economic trends and population forecasts from the University of Connecticut’s State Data Center, for both the Town of Ledyard and the supply region, indicate a slight downward trend over the next 20 years. Based on these projections and trends, Groton Utilities, in its most recent Water Supply Plan Update of 2012, projected a relatively flat water usage over approximately the same time period.

The following graphs depict both total Groton Utilities system output and usage by the Town of Ledyard through the two interconnections previously noted. As can be seen on these graphs, usage along the Route 12 corridor to the Gales Ferry and Avery Hill / Aljen Heights areas has risen only minimally over the last several years, due most likely to the continuing addition of customers or service connections in the two service areas noted. In the absence of any anticipated and significant changes with respect to industrial or commercial development, residential usage is only expected to add minimal increases over the projection period available from the University of Connecticut's State Data Center.

FIGURE 2

DEEP DIVERSION PERMIT NO. DIV-200600038 / TOWN OF LEDYARD ROUTE 117 INTERCONNECTION

ANNUAL TRENDS - AVERAGE & MAXIMUM DAYS / 2009 - 2015

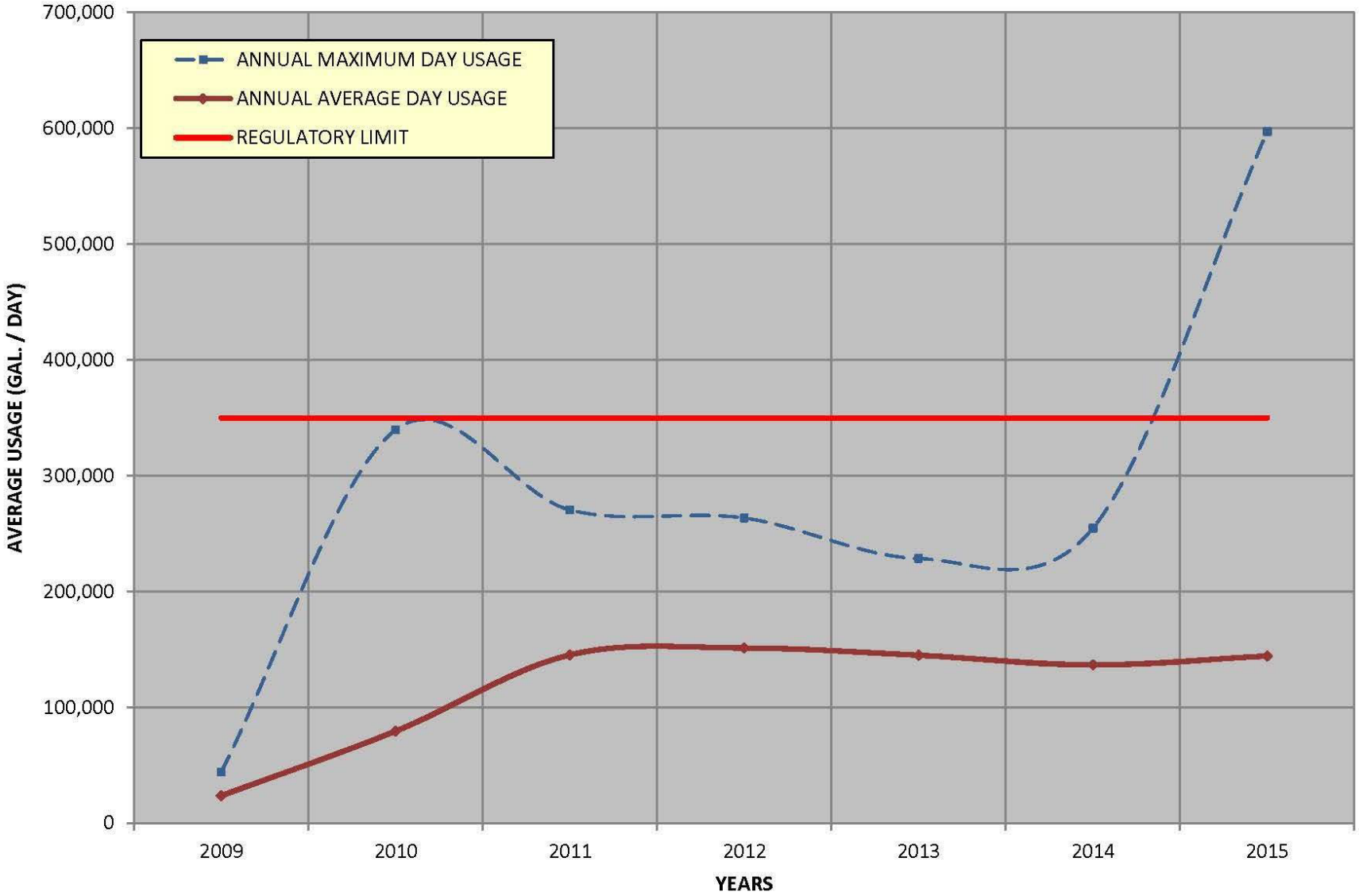
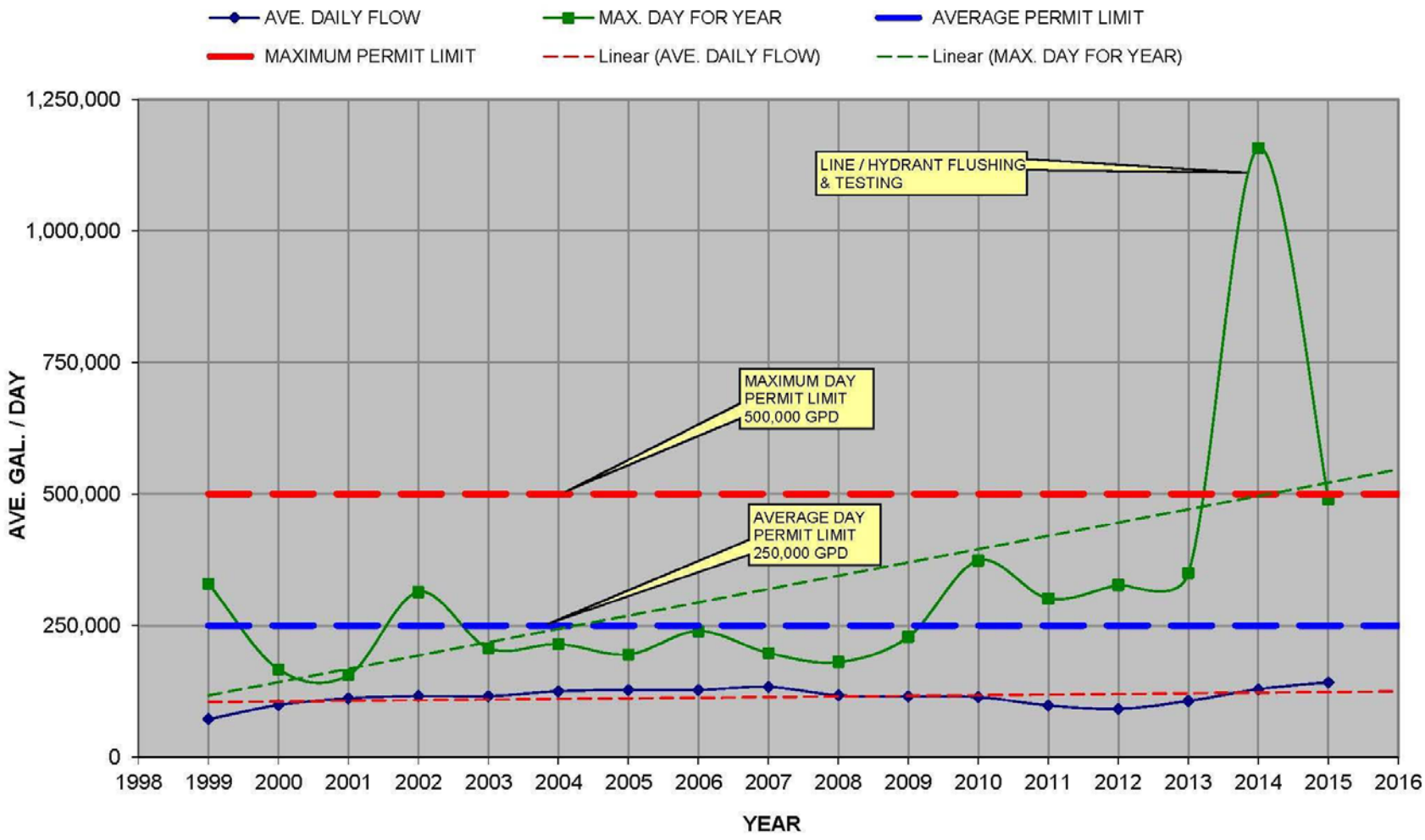


FIGURE 3

WATER USAGE - SALE OF WATER TO LEDYARD - ROUTE 12 CORRIDOR
DEEP DIVERSION PERMIT #DIV-201103692GP [EXPIRATION DATE 03-29-2017]
DPH SEW PERMIT #01-02 [EXPIRATION DATE 05-03-2021]



K.A. - LEDYARD DIVERSION PERMIT *THE DEEP AND DPH PERMITS WERE BOTH REISSUED IN 2011* *02-03-2016*

FIGURE 4

LEDYARD WPCA ROUTE 12 & 117 - AVERAGE DAY WATER USE 2005 - 2013

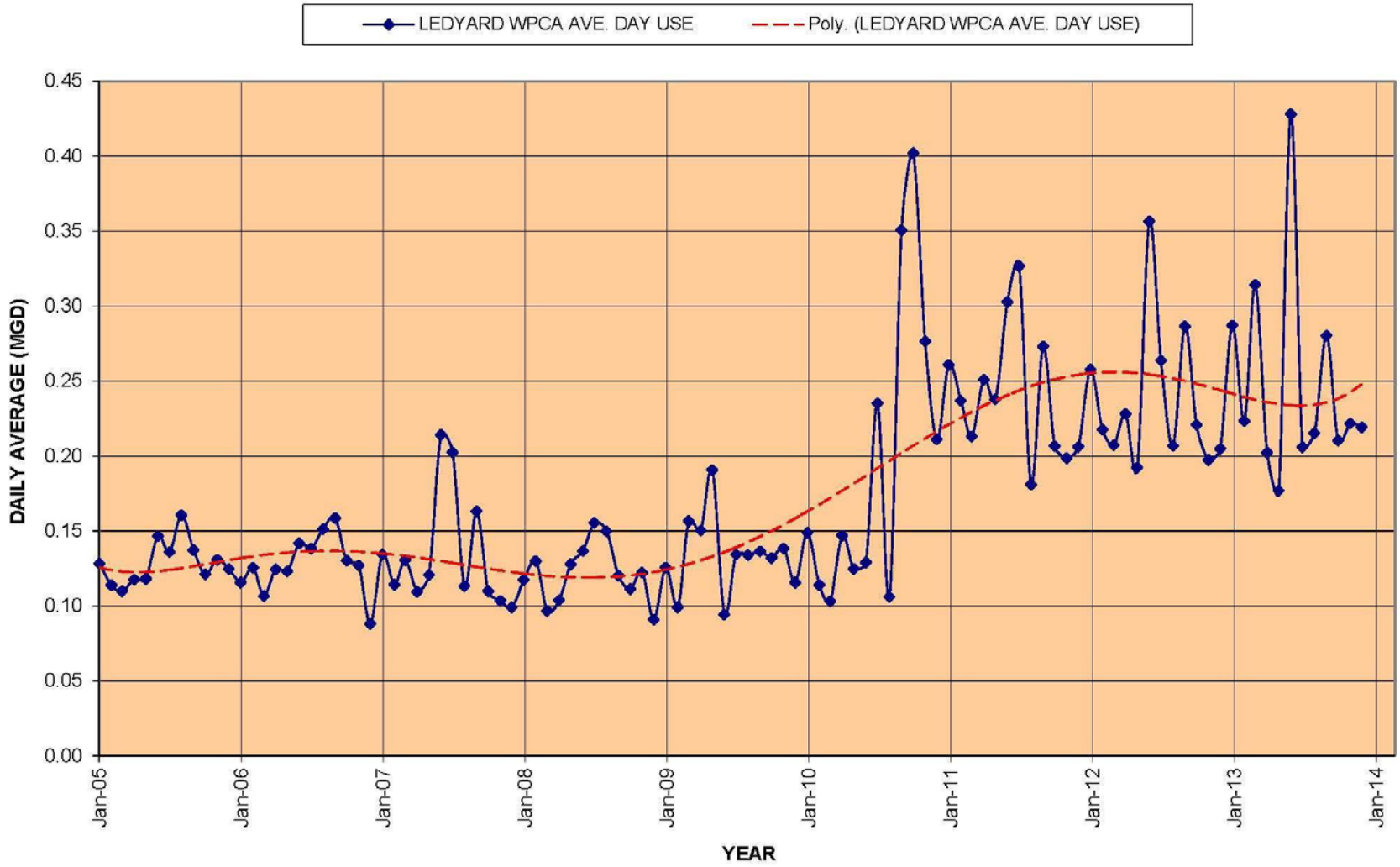
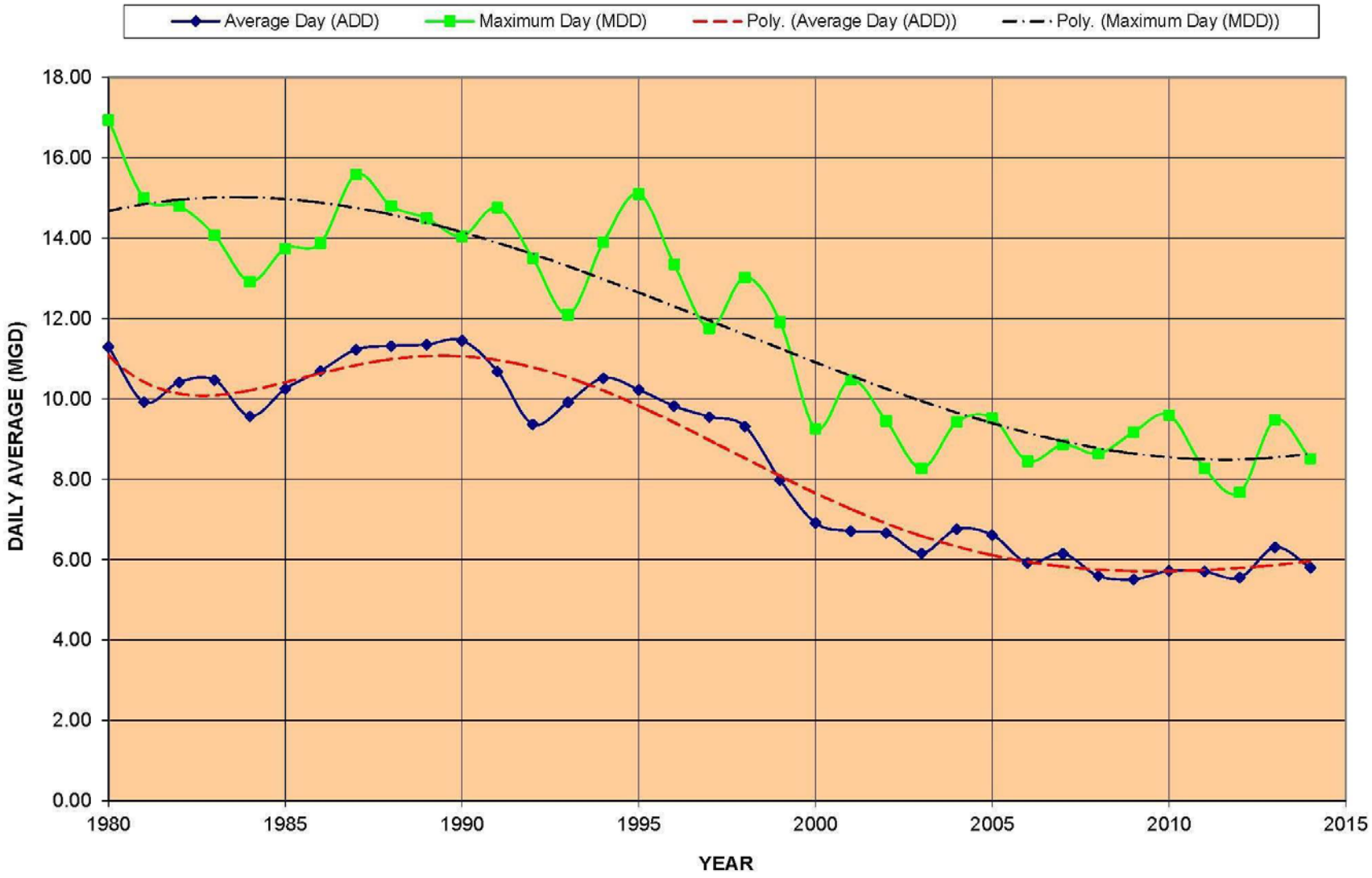


FIGURE 5

GU SYSTEM - AVERAGE DAY WATER USE 1980 - 2014



P. Water Quality

1. History of Violations

Since the supply of water was first initiated from Groton Utilities to the Ledyard distribution system at both interconnection points, and since Groton Utilities undertook the maintenance and operation of all distribution areas throughout the Town that were previously operated and supplied by the Ledyard WPCA, there have been no violations of water quality as regulated through DPH and EPA standards. In a review of the previous water supply plan (2005), at which time water was supplied through well systems as previously discussed in this document, there was no indication of water quality issues which required further action. Current water quality is tested on the same schedule and to the same standards as is done through all parts of the Groton Utilities system and as required by the DPH. Monthly data on testing is sent to the DPH; testing locations for parameters such as lead, copper, coliform and other physical parameters are shown on two plans attached to the appendix of this report, one for the Gales Ferry system and one for the Ledyard Center system. A sample of the monthly water quality testing data is included in the appendix of this document.

2. Trend Analysis

Both raw water sources and treated water distributed to the Ledyard system are controlled by Groton Utilities. Water quality, both raw and treated, has been tested over many decades. During that period, there have been no major changes, except for recent trends found in raw water testing in

the lower reservoir system in which there have been slow increases in both sodium and chlorides, due most likely to the start of the State Department of Transportation (DOT) changing its winter operations to the use of sodium in treatment for roads and the fact that Interstate 95 runs through the reservoir area. Talks have been initiated with the DOT with regard to this issue and additional raw water sampling points have been set up to monitor any trends in the raw water supply into the foreseeable future.

Q. Watershed Protection

1. Sanitary Surveys

Sanitary surveys of the watershed areas are conducted annually by Groton Utilities and full reports of findings are provided to the DPH. As pointed out previously, the watershed areas, even with large portions in the Town of Ledyard, are inspected by Groton Utilities. Results of the latest survey conducted for the Ledyard portion of the watershed found a notice of violation (NOV) issued by the State Department of Health to Sauchuck Realty Holdings, located at the end of the Lorenz Parkway Industrial area, on November 24, 2015. The status of this violation is currently under review and has, apparently, not yet been resolved.

Other than the watershed, sanitary surveys are also conducted in conjunction with DPH staff of the two distinct service areas, Gales Ferry and Ledyard Center. For 2015, the Gales Ferry System was clear of any significant or even minor deficiencies. A request was made, however, for the inspection of the Holmberg Orchards Tank to be completed by 2017. The Ledyard Center System was also clear of any significant or minor deficiencies. Recommendations were, however, made to update contact information, to maintain the area at the base of the tank clear of vegetation, and to prepare a standard operating procedure to maintain a healthy disinfectant residual within the storage tank, particularly during low usage periods in the summer.

2. Security

Security for the watershed areas is handled by Groton Utilities reservoir patrolmen. Within Ledyard, watershed areas patrolled include property owned by Groton Utilities around the perimeter of Billings Avery Reservoir, Morgan Reservoir and Ledyard Reservoir. Other areas not directly owned by Groton Utilities, but within the watershed contributing to the water supply, are checked on an annual basis through the sanitary surveys previously mentioned.

As for the distribution system facilities (e.g., Holmberg Tank, the hydro-pneumatic pump station serving Avery Hill, the Ledyard Center Tank, and the metering stations along Routes 12 and 117), these are protected by lock systems and inspected on a regular basis by GU maintenance crews. In addition, all of these facilities are also protected by intrusion alarms tied directly into the SCADA system at the Groton Utilities Water Treatment Plant, a location which is manned and monitored on a 24-hour basis. Should an alarm be sensed, the call person is notified and sent to inspect the site and take all necessary safety or precautionary actions.

R. Cross Connection Inspection Program

Within the operations and management contract for running the Ledyard Water System, Groton Utilities conducts annual cross connection surveys for the Ledyard Center Division and the Gales Ferry Division. These surveys are conducted in accordance with Section 19-13-B102 (f) of the Public Health Code of the State of Connecticut and, in addition to the cross connection survey, Reduced Pressure Principle Backflow Preventer Device Tests are also conducted, in accordance with Section 19-13-B38g (e) of the Public Health Code of the State of Connecticut.

Results of tests conducted in 2015 are included in the appendix of this report. Of the 16 cross connection locations tested in the Ledyard Center System, 9 cross connection violations were found; all were corrected. Of the 33 cross connection locations tested on an annual basis in the Gales Ferry System, 9 cross connection violations were found; all were corrected. Of the 247 cross connection locations tested on a 5-year cycle in the Gales Ferry System, 57 were tested and 1 cross connection violation was found; this violation was corrected.

Testing in 2015 also included backflow prevention devices. For the Ledyard Center System, 24 backflow preventers were tested; of these 4 failed, but were repaired prior to the end of the year. For the Gales Ferry System, 60 backflow preventers were tested; of these 9 failed, but all were repaired prior to the end of the year.

III. Present and Future Demands

A. Current and Future Population Trends

The population of the Town of Ledyard, as recorded in the last Federal Census conducted in 2010, was 15,051. Since 2000 this represented an increase (in the official census) of 364 people. During the preparation of the Groton Utilities Water Supply Plan Update prepared in 2012, population projections for Ledyard indicated a slight increase through 2020, with a minor decrease for 2025. Since that time (i.e., 2012), population projections[1] have been revised to show a fairly steady decrease by about 600 people through 2025 (see following chart).

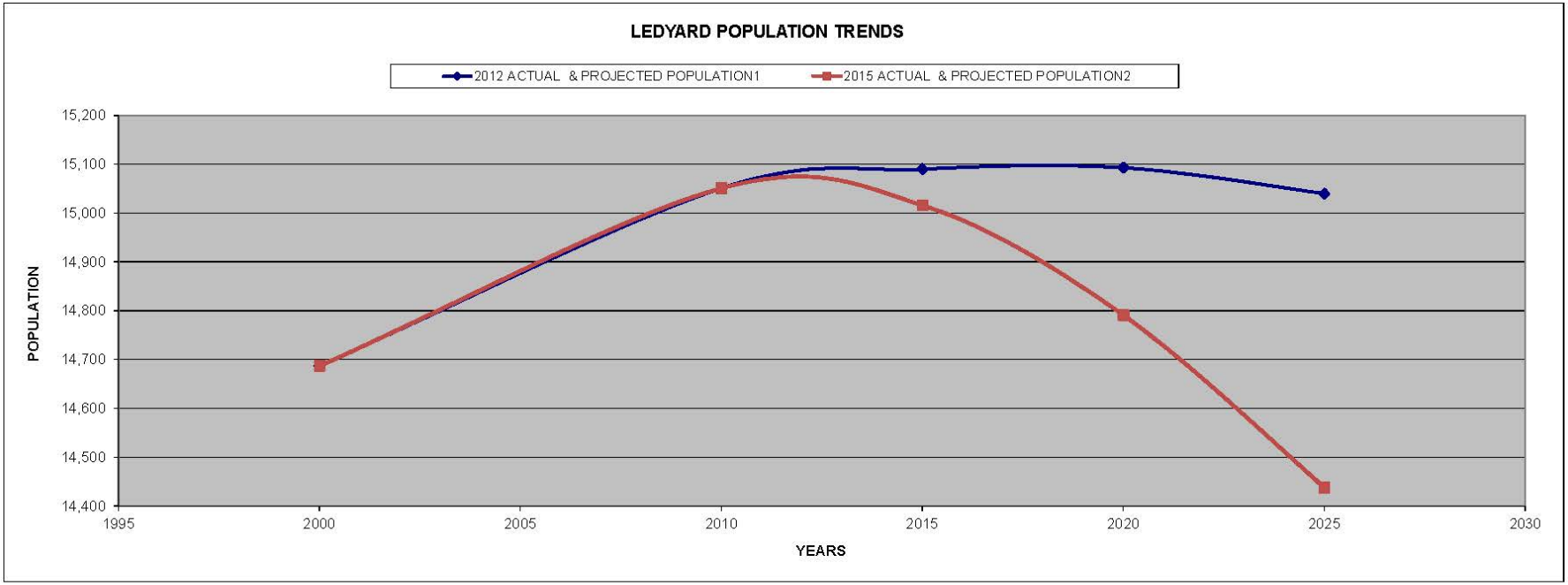
In the southeastern Connecticut area, population growth (which would translate into increased water usage) was based on the job opportunities and growth provided by the U.S. Naval Submarine Base, General Dynamics Electric Boat and Pfizer Corporation's manufacturing and research facilities. Over the last decade, these three facilities have seen a steady decrease in employment, particularly with Pfizer moving out its production facilities and decreasing its water usage by over 85%. Based on the population projections of the State Data Center and on the substantial decrease in water usage of the three largest facility users in the area, we do not, at this time, see any justification for any potential increase in water usage for the Ledyard area.

[1] Note that in the current document, we are using projection data from the Connecticut State Data Center (CtSDC), which is a collaboration between the University of Connecticut and various State agencies. Specifically, it is supported by the Office of Policy and Management, which served as the prior lead agency for population trends and projections.

As of the preparation of this plan, indications were that Electric Boat may see increased production for the next 10 years and that this will translate into hiring several hundred new employees. Should this occur, we would expect that potential employees would come from several different communities in the southeastern part of Connecticut. We would further expect that some of them would either come from the existing Ledyard population or that a small number could settle in Ledyard for the purpose of employment. In either case, since additional residential water usage is a fairly small number, we would not expect any significant increase in Ledyard’s overall water use.

FIGURE 6 – LEDYARD POPULATION TRENDS AND PROJECTIONS

YEAR	2012 ACTUAL & PROJECTED POPULATION[1]	2015 ACTUAL & PROJECTED POPULATION[2]	
2000	14,687	14,687	*(Actual Census Number)*
2010	15,051	15,051	*(Actual Census Number)*
2015	15,090	15,016	*0.49% (Decrease from Previous Projection)*
2020	15,093	14,791	*2.00% (Decrease from Previous Projection)*
2025	15,040	14,438	*4.00% (Decrease from Previous Projection)*



FROM UNIVERSITY OF CONNECTICUT STATE DATA CENTER

NOTES:

(1) CT STATE DATA CENTER PROJECTION VALUES DEVELOPED NOVEMBER 1, 2012
(2) CT STATE DATA CENTER PROJECTION VALUES DEVELOPED 2015

B. Current and Future System Demands

Current system demand patterns for usage in the two Ledyard system areas is relatively steady, with only minor yearly fluctuations (see Figures 2 and 3, pages II-42 and II-43 for the Route 12 and Route 117 connections). Based on the population trends and projections previously noted, demands on the water systems are expected to be either minimal or may in fact decline. The figures noted track both average day and maximum day use over the historic periods since system tie-ins to the Groton Utilities system began.

Plans in progress call for a slight increase in residential development, but none that would produce a substantial growth in water consumption. Usage in the Gales Ferry System, after initial startup in 1999, has stabilized over the last 15 years at approximately 115,000 gpd (gallons per day). This system, by DEEP permit, is limited to an average of 250,000 gpd and a maximum daily limit of 500,000 gpd.

In the Center Ledyard System, since initial startup in 2009, the system has now (i.e., through 2015) stabilized at about 145,000 gpd, with a maximum daily transfer by permit of 350,000 gpd. Because both systems are using approximately 40% - 45% of their allotted regulatory limits, and have been in that range for some time, no significant changes are currently anticipated.

C. Local, State and Regional Impacts

In the process of developing this plan, we have reviewed documentation from local, State and regional planning agencies. None of these have yielded any significant changes in zoning, policies or development plans for use of lands within Ledyard or its immediate surrounding communities that would have any substantial effect on future water use by this Town. The Ledyard Planning Department, based on current plans under consideration, estimates that there may be proposals for approximately 50 housing units per year, either single or multi-family.

Conversely, regional water priority planning impacting a portion of Ledyard includes an emergency connection in the Poquetanuck Cove area (i.e., across the Poquetanuck Cove Bridge on Route 12) that would connect the southern end of the Norwich Water System with the northerly end of the Ledyard Gales Ferry System, thereby providing an emergency tie-in should either system be impacted by a shutdown. Recent water system expansion since the last Ledyard Water Supply Plan Update in 2005 has included extension of water mains to Avery Hill and Aljen Heights, located on the southerly side of Poquetanuck Cove. This water main, which currently ends at the Preston Town Line just south of Joe Clark Brook, could if required, be extended to Poquetanuck Cove area section of Preston, although no such plans are currently under consideration.

D. Future Sources of Supply

1. Sources to be Acquired

There are currently no plans for source acquisition by the Town of Ledyard. Since the Town relinquished its well supplies and now receives water from Groton Utilities, any new sources would be under the auspices of the regional planning group and the current water supplier (i.e., Groton Utilities).

2. Sources to be Abandoned

Wells previously used, prior to the purchase of water from Groton Utilities, have been decommissioned and are currently in the process of being abandoned. As noted under Section II.C.3 Inactive Sources of Supply, these well fields included the Highlands Subdivision (Loftus wellfield), Sablewoods Subdivision, Ledyard Center and Ledyard High School (Highlands / Loftus), Ledyard Village, Avery Hill Trailer Park, and the Pfizer wells supplying homes near an old landfill in the vicinity of Avery Hill Road and Route 214.

Because of the deterioration of some of the buildings at these sites and the fact that signs of trespass and unauthorized entry and use have been observed, the Town is currently in the process of scheduling building demolitions as a first step in the abandonment. As of the preparation of this Water Supply Plan Update, the building and associated water supply facilities at the Highlands Subdivision are being demolished and debris is being removed from the site.

Future plans call for the phased demolition of other sites and their associated facilities as funding becomes available. Subsequently, the wells themselves will be abandoned in conformance with regulatory requirements and approved protocol as prescribed by the Department of Public Health.

E. Margin of Safety

1. Relationship of Available Water to Current Demand

Groton Utilities currently has a safe yield of 12.6 mgd, with the option to add additional yield should the need arise. The safe yield and potential additional sources were previously discussed under Section II.N System Safe Yield, of this report. Of this safe yield, Groton Utilities currently produces water for distribution to supply an average use of approximately 5.6 – 5.8 mgd to all of its customers, including the Town of Ledyard, surrounding communities and regional consumers.

As noted under Section III.B Current and Future System Demands, the Town of Ledyard, in its two system areas, is using a combined total of approximately 260,000 gallons per day on an annual (long term) average out of an allotted amount, by permit, of 600,000 gallons per day. This current usage represents about 43% of the maximum available usage under current permits[2]. Because of an overall downward trend in usage in the southeastern part of the State in general, Groton Utilities would still maintain a significant margin of safety in its overall supply even if each of its connected customer areas were to use their fully allotted amounts.

[2] See also charts of trends for both system areas in Section II of this Water Supply Plan Update.

2. Relationship of Available Water to Future Demand

Current population trends and water usage trends, along with projections noted above, portend a minimal increase in any future water demands. As pointed out, Groton Utilities has a significant margin of safety with respect to its safe yield and the Town of Ledyard uses less than half its allotted amount by permit. Though the Electric Boat Division of General Dynamics does plan to hire additional personnel, this is expected to translate to a small potential increase in residential use. This increase can be easily absorbed within current permit limits should it come about.

The Groton Utilities Water Supply Plan Update of 2012 projected a 0.5% increase in usage over the three 5-year planning periods through 2025. Since this applied to total usage (including sales to Ledyard), the Town of Ledyard is projected to still be using less than half its permit limit by 2025.

F. Treatment Limitations, Water Quality and Distribution Limitations

Currently, because the Town of Ledyard purchases its drinking water wholesale from Groton Utilities, it is not concerned with either treatment or water quality. As such, there are no limitations which it needs to address with respect to these considerations. As regards distribution, while there are currently no supply volume or water quality limitations, there are concerns with regard to aging infrastructure - specifically piping. For this reason, a pipe replacement program will be necessary to forestall future issues with respect to potential water main breaks which could occur on a more frequent basis. This program will be addressed in the next section of this report.

IV. Alternative Sources of Supply

A. Inactive and Emergency Sources

The previous Town of Ledyard Water Supply Plan was prepared in 2005, at a time when the Town was reliant on water wells concentrated in several subdivision areas throughout Town. These were owned, operated and maintained by the Water Pollution Control Authority (WPCA). Since the switch to purchase of finished / treated drinking water from Groton Utilities, these wells have been deactivated[1] and are in the process of being phased out through demolition of site facilities and eventual abandonment of the wells in conformance with DPH protocols.

With respect to emergencies, the worst case scenario would be a shutdown of supplies from Groton Utilities for one or both system areas. Because of the safeguards in place to avoid this type of situation, it is not considered a likely occurrence. SCADA systems at critical locations (specifically, interconnection points, pump stations and storage tanks) are constantly monitored at the Groton Utilities Water Treatment Plant which is manned on a 24-hour basis; thus, most facilities would show impending and potential problems prior to their occurrence.

Such situations could, however, manifest themselves in the event of (1) a catastrophic shutdown of the water treatment plant, or a loss of power affecting all facilities; or (2) a major water main break along either the Route 117 or the

[1] See previous discussions regarding deactivated wells under Section II.C.3.

Route 12 interconnection corridors. Should the treatment plant be affected, a source of water would be the regional interconnections beneath the Thames River from the west and the Mystic / Aquarion connection to the east. Through these interconnections, water transfers could flow from the west through various systems, including New London, Norwich, East Lyme, Montville and Waterford, or from the Mystic / Aquarion system to the east. A general diversion permit issued through the Connecticut DEEP allows for such emergency transfers of up to 1,000,000 gallons per day. Should a major water main break occur along either of the interconnections, emergency pumping could be set up through hydrant transfers around the break area until repairs are made.

Two inactive wells at Loftus, deactivated but not yet abandoned, continue to have valid diversion permits that do not expire until 2020 (see Table 1). These could not, however, be reestablished for use within any reasonable period of time for a variety of reasons, including the fact that treatment facilities are planned for near future demolition. Consideration is being given to the premise that, even if abandoned, it may be prudent to maintain this site as an aquifer protection area, through permitting, for a future emergency supply source.

For short term emergencies, such as those noted above for water main breaks, bottled drinking water could be provided for limited consumptive use, but not for other daily activities. Because The Town of Ledyard WPCA receives its water from Groton Utilities, such situations will be covered by their Water Emergency Contingency Plan.

In summary, inactive wells would not be a reasonable option, but regional emergency transfers could be a viable alternative supply source over short periods.

B. New Sources of Supply

Because of its interconnections to the Groton Utilities system, the Town of Ledyard does not have any new potential water sources. It is, however, a member of the Southeastern Connecticut Council of Governments (SCCOG) through which it also participates in discussion of regional water issues, including the search for or acquisition of new supplies as may be needed for the region.

Groton Utilities recently acquired rights to a new source at the terminus point of Haleys Brook in the Mystic section of Groton, just prior to the Brook's intersection with the Mystic River. This source encompasses all of the Haleys Brook watershed, as well as that of Red Brook, portions of which lie within the Town of Ledyard. Should the need arise, this source would benefit Groton Utilities as well as Ledyard and other connected users.

C. Impact of Historic or Potential Pollution Sources

Although the Town of Ledyard is not currently involved in the search for new sources of supply, it will assist Groton Utilities and regional agencies in the protection of existing and potential new sources. Much of the watershed area for Groton Utilities source water lies within the Town of Ledyard. Historically, there have been no significant or long standing issues with respect to pollution of this watershed area.

The Town of Ledyard has also participated with Groton Utilities in the establishment of a Drinking Water Quality Management Plan for the protection of current regional watershed areas and prepared its own Source Water Protection Plan in 2008, in conjunction with the Atlantic States Rural Water and Wastewater Association. Both of these plans addressed potential threats to water quality and provided protective strategies to drinking water professionals, planning groups and other concerned stakeholders for the protection of future drinking water.

In 2015, the Department of Health served a notice of violation with respect to potential pollution of source water to a property in an industrial park area within the Town of Ledyard and within the watershed of Ledyard Reservoir near the Ledyard – Groton Town Line. The Town is currently investigating this situation and working with the property owner to correct onsite violations. Watershed sanitary surveys covering watershed areas within Ledyard are conducted on an annual basis by Groton Utilities reservoir patrolmen to inspect potential sources of pollution.

D. Conceptual Implementation of Source Alternatives

While the responsibility for implementation of new source alternatives lies with Groton Utilities and regional agencies, the Town of Ledyard is prepared to assist these groups, particularly with respect to potential sources which may be located within its borders. The Town of Ledyard's present water usage is at less than 50% levels of its allotted and permitted amounts and, under current circumstances, it appears that no increase in supply will be necessary for the Town of Ledyard for the foreseeable future, based on past usage, projected population increases and current local and regional development. Should circumstances warrant an increase, Ledyard will work with Groton Utilities to prepare necessary DEEP and DPH permit modifications required for such an event.

V. Water Supply Emergency Contingency Plan

The Town of Ledyard WPCA receives its drinking water from interconnections to Groton Utilities. As such, should a water supply emergency be declared, it will be bound by the same rules and restrictions as all Groton Utilities customers. Therefore, reference is hereby made to the GU Water Supply Emergency Contingency Plan, which plan is currently on file with Groton Utilities and the Department of Public Health.

VI. System Improvements

A. Plan to Meet Current and Projected Needs

While there are no current or projected needs with respect to water treatment and water quality for the Town of Ledyard, future planning will take into consideration three major items, (1) the abandonment of past well supply facilities, (2) upgrading of distribution infrastructure and (3) upcoming maintenance of the two water storage tanks.

1. Old Wells & Treatment Facilities – As noted in previous sections of this plan, work is currently underway to abandon wells and demolish pumping and treatment facilities at the Highlands Well Field. Subsequently, several other structures situated at old well fields located throughout Town will also be abandoned and demolished. These include (in order of priority) facilities at Ledyard Village, Sablewoods, the Loftus Well Field and the Pfizer Well House, and take into account both pumping and treatment equipment as well as the buildings.

2. Distribution System – Large scale (ductile iron) supply mains along major roads (Route 12 and Route 117) were installed within the last 10 - 20 years and are expected to last well into the future, particularly given the maintenance performed on them on an annual basis. Smaller, older and undersized mains do, however, exist within many residential areas served previously by the well fields and associated treatment facilities noted. The WPCA is currently preparing a schedule of phased replacements, starting with the oldest section at the Highlands, where service mains are

sized from 2″ to 10″. The intent is to upgrade water mains by replacing aging piping currently in use and increase main sizes to allow for better fire protection. Funds have been set aside for this purpose and will continue to be set aside to allow for an orderly replacement program. Based on needs and level of funding, bond funds may be set up to ease budgetary allocations, although none are planned for the next 5-year planning period.

Another priority for the WPCA is to tie in to the areas currently being supplied and managed by SCWA (Southeastern Connecticut Water Authority). This would include new water mains to be extended to the following SCWA areas of service in Town for emergency connections and redundancy:

Tower Division
Gray Farms Division
Ledyard (Center) Division
Chriswood Division
Barrett Park Division
Ferry View Division
Vality Division

3. Storage Facilities – The Holmberg Orchards and Ledyard Center Storage Tanks were constructed, respectively, in 2005 and 2007. While they are both currently in good condition, both will need to be recoated in the near future. Thus, their maintenance is scheduled for the coming 5-year planning period and funds are being set aside, partially through an increase in rates, to finance this work.

B. Planning Periods and Implementation

Because of the abandonment of prior well systems throughout the Town and the turnover in water system management, the WPCA is currently working to establish a firm 5-year plan through 2021 for short term needs and will, during that 5-year period, also establish a longer term planning schedule for continued and future infrastructure improvements. As noted in Section A above, there are several current needs that require fulfillment and, as additional revenue from the rate increase is realized, projects will be prepared for construction.

In addition, current system management contracts with Groton Utilities are on a one-year renewal basis. The WPCA would like to enter into a longer extension period in order to simplify and streamline the operation of the system without annual renewals.

VII. Land Holdings and Land Sales

A. Current Ownership

As noted under Section II.A, all parts of the water distribution system previous supplied by well fields located at the Highlands / Loftus system, at the Sablewoods Subdivision, at Ledyard Village, at Avery Hill Trailer Park and at the Pfizer wells, were owned by the Town and its WPCA. This included both facility assets and the underlying land. The following table lists these properties which, even though most are decommissioned and abandoned for water supply and distribution purposes, are still owned by the Town of Ledyard. Note that land holdings with active facilities are limited to the two storage tanks at Ledyard Center and Holmberg Orchards.

It should also be noted that there are several facilities which are active parts of the current water distribution system, but which have not been included on this list because they are located either within road right-of-ways or on property belonging to entities other than the Town of Ledyard. These include the following:

- PRV (Pressure Relief Valve) Stations (2) at the Highlands
- Chemical Building and Meter Pit at Town Line / Route 12
- Meter Pit at Town Line / Route 117
- Meter Pit at Bluff Road, Gales Ferry

TABLE 5

TOWN OF LEDYARD / WPCA LAND HOLDINGS

LAND ASSET DESCRIPTION (WELL FIELD, PUMP STATION, TREATMENT FACILITIES)	STATUS A=ACTIVE X=ABANDONED	LAND AREA (AC.)	MAP-BLOCK-LOT NUMBER
Loftus Wellfield Buildings & Treatment Facilities[1]	X	11.46	102-2210-480R
Highlands Wellfield Buildings & Treatment Facilities[2]	X	5.39 5.30 0.40 3.64	86-560-36 86-365-16 71-2210-639 71-2210-631
Highlands Storage Tank & Hydropneumatic Pump Facilities	X	2.93	101-810-158
Gallup Hill Booster Pump Station[3]	X	69.84	85-810-90
Ledyard Center Storage Tank[4]	A	2.40	67-710-11
Holmberg Orchards[1] Storage Tank and Hydropneumatic Pump Station	A	1.50	24-1790-12R
Avery Hill Well Site, Building & Treatment Facilities	X	0.33	25-1670-1
Sablewoods Well Site & Treatment Facilities	X	18.17	98-785-7
Pfizer[1] Well Site & Treatment Facilities	X	5.36	50-2360-154R
Ledyard Village Well Site & Treatment Facilities	X	2.88	53-2530-8

[1] No road frontage; comes with access easement.
[2] Note that some of these parcels are for protective well radii, as well as for the wells and the building or facility locations.
[3] Located on School Property
[4] Situated on Fire Station property.

B. Future Plans and Potential Sales

The Town of Ledyard currently has no plans to sell any of the land holdings noted in the prior section, particularly those with active facilities situated thereon. Abandoned properties, as of the preparation of this water supply plan update, still contain buildings, wells, and treatment equipment which require removal and, in some cases, active distribution mains which need to be disconnected. Because these facilities are in the process of being fully decommissioned and demolished and, because funding must be appropriated therefor, any potential plans for the properties, including sales, will not be considered during the current 5-year planning period.

VIII. Groundwater Monitoring Program

A. Aquifer Protection Areas

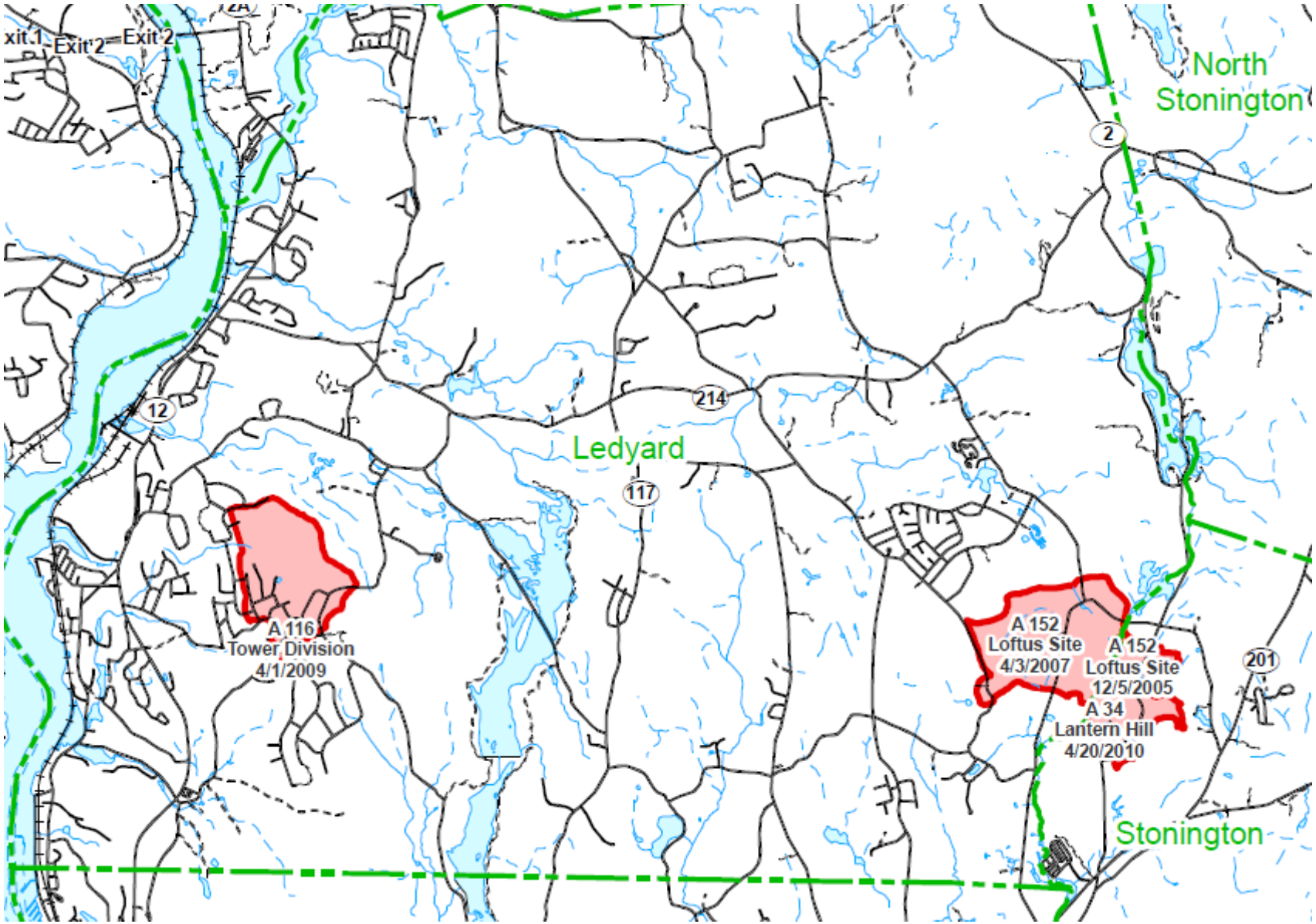
There are currently (as of December 28, 2015) two Level A Aquifer Protection Areas[1] within the Town of Ledyard, one at the Loftus Wellfield site and one at the Southeast Connecticut Water Authority's Tower Division. The Loftus Wellfield, as previously mentioned, is now out of service, but has active diversion permits from the DEEP, valid through 2020. The WPCA will allow these permits to remain active during the intervening time to expiration in the event that it may become necessary to reactivate the supply and to allow consideration for potentially extending the diversion permit thereafter to allow for an emergency backup supply for future Town needs.

Because the protective area for the Tower Division aquifer is under the auspices of SCWA, the Town assumes that the Authority will maintain necessary permitting and / or regulatory requirements applicable thereto. Should assistance be required from the Town or the WPCA, they stand ready to cooperate in any necessary assistance to maintain water quality for all residents within the Town.

[1] From State of Connecticut DEEP Aquifer Protection Area Mapping.

FIGURE 7

AQUIFER PROTECTION AREAS WITHIN THE TOWN OF LEDYARD



B. Future Protective Zones

Because of the Town’s current position as a water purchaser from Groton Utilities, there are no immediate plans for setting up future water sources (surface or groundwater) with their contingent protective zones. It will, however, endeavor to maintain the aquifer area and its protective zone around the decommissioned Loftus Wellfield in the event of a need for a future alternate supply area.

IX. Water Conservation Plan

The Town of Ledyard WPCA receives its drinking water from interconnections to Groton Utilities. As such, all conservation measures will be in keeping with the same guidelines as Groton Utilities customers. Therefore, reference is hereby made to the GU Water Conservation Plan, which plan is currently on file with Groton Utilities and the Department of Public Health.

X. Source Water Protection

In 2006, Groton Utilities received support from State and regional agencies to prepare a Drinking Water Quality Management Plan for protection of both existing and potential future water supply watershed areas. As part of that process, it engaged with neighboring and regional stakeholders to discuss the health of the watershed and future issues for the water quality management of the watershed. The Town of Ledyard participated in that process and in 2008 produced, concurrently, its own Source Water Protection Plan to assist in protecting not only its own wellfield areas, but also the significant watershed land holdings for the Groton Utilities source waters within the boundaries of the Town.

Reference is hereby made to the GU Drinking Water Quality Management Plan and the Town of Ledyard’s Source Water Protection Plan, both of which were finalized in 2008. These plans are currently on file with Groton Utilities, the Town of Ledyard and the Department of Public Health.

Contents of the Appendix

X. Appendix

A. Town WPCA Ordinances Dealing with Water Supply

B. Water Supply Agreement with Groton Utilities

C. Operations Contract with Groton Utilities

D. Environmental & Regulatory Permits

E. Hydrant Testing Results

F. Hydraulic Profiles

G. Finished & Raw Water Quality Laboratory Analyses

H. Water Service Rate Structure

I. Mapping (See Appendix Section K for individual plans)

APPENDIX A

Town WPCA Ordinances Dealing with Water Supply

RECEIVED FOR RECORD
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VOL. PAGE
Carl K. Rennie

Ordinance # 106

AN ORDINANCE ESTABLISHING A
TOWN OF LEDYARD
WATER AND SEWER DEPARTMENT

Be it ordained by the Town Council of the Town of Ledyard:

Section 1. Purpose and Authority

Where as the water and sewer system of the Town of Ledyard is expanding, and the need for additional infrastructure is increasing, this system requires a greater degree of daily management, project support, and coordination with other Town departments. Accordingly, the Town has evolved to the point where a separate department is justified to support the Town of Ledyard Water Pollution Control Authority (WPCA). The purpose of this ordinance is to establish a Town of Ledyard Water and Sewer Department. Chapter III, Section 4 of the Town Charter provides the Town Council the power to enact ordinances to create departments.

Section 2. Duties

Consistent with direction provided by the WPCA, the Department shall operate, and maintain the Town's water and sewer system, wastewater treatment plants, and all facilities and supporting infrastructure owned and operated by the Town of Ledyard for the supply and distribution of water to its residents and property owners; and for the collection and treatment of sewerage and commercial industrial wastes.

Consistent with direction provided by the WPCA, the Department shall be responsible for implementing the policies and procedures, billing, fees and assessments established by the WPCA and Town Council. Water and sewer rates will be proposed by the Department and presented to the WPCA for approval in accordance with Ordinance # 105, "An Ordinance Creating A Water Pollution Control Authority For The Town Of Ledyard" (water rates approved by the Town Council and sewer rates by the WPCA).

Consistent with direction provided by the WPCA, the Department shall conduct strategic planning to address the Town's water and sewer infrastructure needs, including fire protection, and review and approve all plans and specifications for any community water supply (more than one service per well) within the Ledyard WPCA exclusive service area or sewage disposal system proposed for construction within the Town of Ledyard. Any community water system shall be reviewed by the Town Engineer, Building Official, Fire Marshal and Town Planner prior to approval by the WPCA.

Consistent with direction provided by the WPCA, the Department shall prepare Requests for Proposals and recommend to the Mayor the selection and execution of such contracts necessary for the operations of the Department.

The Department shall keep the WPCA fully informed on each project, and on the operations of the Department, and on the operations of the water and sewer system. The Department Director, or when not available his/her designee, shall attend all WPCA meetings.

Section 3. Personnel/Hiring Authority

In accordance with Chapter V, Section 2 of the Town Charter, the Mayor will be directly responsible for the administration of the Department and will be the hiring authority for the Department.

Section 4. Fiscal Responsibilities

The Water and Sewer Department shall annually prepare a budget containing its estimate of expenses and its anticipated revenues (including grant funding, etc.) to carry out the operations of the Department, water and sewer facilities, and its programs, and submit the same to the WPCA.

The Water and Sewer Department shall annually prepare a capital budget for capital costs and infrastructure improvements to the Town's water and sewer system and related infrastructure and submit the same to the WPCA.

The anticipated revenues shall include just and equitable rates or charges for the water and sewer system that will be sufficient for the payment of the operation, maintenance, and foreseeable capital expenses of such system.

Section 5. Finances. Funding and Accounting

A separate account shall be kept by the Town Treasurer on behalf of the Water and Sewer Department for all funds derived from the sewer system, which account shall in all respects comply with the requirements of Connecticut General Statute Section 7- 267 and 7-268 and first applied to defray the current expenses of said sewer system.

A separate account shall be kept by the Town Treasurer on behalf of the Water and Sewer Department for all funds derived from the water system, which account shall in all respects comply with the requirements of the Connecticut General Statute Section 7-240 and first applied to defray the current expenses of said water system.

A separate Capital Non-Recurring Fund shall be established and maintained, into which a percentage of the Department's revenues would be deposited, for capital costs and infrastructure improvements to the Town's water and sewer system and related infrastructure.

Adopted by the Ledyard Town Council on: December 13, 2006

Fred Allyn, Jr. Chairman

Approved/Disapproved on: 12/14/06

Susan B. Mendenhall, Mayor

PUBLISHED: December 20, 2006

EFFECTIVE: January 10, 2007

Ordinance #: 123

AN ORDINANCE
CREATING A WATER AND SEWER ADVISORY BOARD
FOR THE TOWN OF LEDYARD

Be it ordained by the Ledyard Town Council that there is an Ordinance Creating a Water and Sewer Advisory Board for the Town of Ledyard.

Section 1. Authority

In accordance with Town of Ledyard, Chapter III, Section 4 the Water and Sewer Advisory Board for the Town of Ledyard is hereby designated and develop and recommend a comprehensive program to maintain and promote water and sewer systems in the Town of Ledyard.

Section 2. Purpose

The Water and Sewer Advisory Board shall advise the Town regarding the water and sewer system.

The Water and Sewer Advisory Board shall assist with water supply and sewer system projects as assigned by the Town Council. The Board shall review and provide recommendations in the awarding of bids for such projects.

The Water and Sewer Advisory Board shall act, if appointed by the Town Council, as the Building Committee for new water and sewer system projects. The Water and Sewer Advisory Board shall keep the Town Council fully informed on each project.

Section 3 Duties

The Water and Sewer Advisory Board shall interview architects and/or engineers for the purpose of planning and execution of projects assigned to the Board, and based on said interviews recommend suitable candidates.

The Water and Sewer Advisory Board shall recommend to the Town Council and Mayor the execution of contracts to expend such funds as may be authorized and appropriated for the projects assigned to the Board.

The Water and Sewer Advisory Board shall receive and review appropriation reports and prepare status reports regarding projects at their monthly meetings.

The Water and Sewer Advisory Board shall provide technical and historical support to the Town Council. The Board shall also provide support in reviewing construction plans and grant applications and other technical matters related to the Town's water and sewer infrastructure. The Board may provide recommendations on infrastructure maintenance, long rang planning and on other matters that may improve the water and sewer capabilities and services for the community.

The Water and Sewer Board shall review and make recommendations annually on projects' budgets containing its estimate of expenses and its anticipated projected revenues (including grant funding etc.) to execute projects and its programs.

Section 4. Membership

The Water and Sewer Board shall be appointed by the Town Council and shall consist of three (3) regular and one (1) alternate members who are electors of the town, each of whom shall serve for a term of three (3) years, or until a successor shall be appointed.

Any vacancy on the Water and Sewer Advisory Board shall be filled for the unexpired portion of the term by the Town Council. Members shall serve on the Water and Sewer Advisory Board without compensation but may be reimbursed for expenses incurred in the furtherance of town initiatives.

The Water and Sewer Board shall elect from its members a Chairman and Vice Chairman and shall establish Rules of Procedure.

Any member or alternate member may be removed from the Water and Sewer Advisory Board by the Town Council for good cause. Good cause shall include, but is not limited to, unexcused absence from three (3) consecutive regular meetings and any intervening duly called special meeting. It shall be the responsibility of the Chairman of the Water and Sewer Board to notify the Town Council when a member has not properly performed his duties. Removal of a member for cause by the Town Council shall be conducted pursuant to the provisions of Chapter IV, Section 6 of the Ledyard Town Charter.

Adopted by the Ledyard Town Council on: June 9, 2010

William Saums, Chairman Pro-tem

Approve / Disapprove on: 6/14/10

Fred Allyn, Mayor

Published: July 1, 2010

Effective: July 22, 2010

Ordinance: # 134

AN ORDINANCE AMENDING AN ORDINANCE CREATING A WATER POLLUTION CONTROL AUTHORITY FOR THE TOWN OF LEDYARD

Be it ordained by the Ledyard Town Council that there is an Ordinance Creating a Water Pollution Control Authority (WPCA) for the Town of Ledyard.

Section 1. Authority

Pursuant to Connecticut General Statues Section 7-246(a) the Town Council hereby designates the Water Pollution Control Authority for the Town of Ledyard.

The WPCA shall have the authority to plan and direct the development, construction and operation of such community water and sewage supply, disposal and distribution facilities, and to recommend financing, as may be required to properly serve the water and sewer needs of the town.

When requested, and at least annually, no later than the end of the calendar year the WPCA shall make reports to the Town Council including Financial Reports and regarding the development, financing, construction and operation of such community water and sewage systems.

The WPCA shall also review and approve all plans and specifications for any community water supply (more than one service per well) within its exclusive service area or community sewage disposal systems proposed for construction within the Town of Ledyard.

Any such community water system shall be reviewed by the Ledyard Town Engineer, Building Official, Fire Marshal and Town Planner and shall include fire protection capabilities as specified by the WPCA. Existing systems requiring repair will only have to meet the standards in effect at the time such system was constructed and not need to be upgraded to the current standards.

Section 2. Membership

The WPCA shall consist of five (5) regular and three (3) alternate members who are electors of the town, each of whom shall serve for a term of three (3) years or until a successor is appointed.

Appointment of terms shall be established such that not more than half the appointed members terms shall expire in a calendar year; in accordance with Section 7-246a.

As the terms of the members expire, the Town Council will appoint a successor for each, each of whom shall serve a term of three (3) years. Any vacancy in the WPCA shall be filled for the unexpired portion of the term by the Town Council.

Members shall serve without compensation but may be reimbursed for expenses incurred in the furtherance of business of the WPCA.

Annually, the WPCA shall elect from its members a Chairman, Vice Chairman and Secretary and shall establish Rules of Procedure.

RECEIVED FOR RECORD
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LEDYARD TOWN CLERK

Any member or alternate member may be removed from office by the Town Council for good cause. Good cause shall include, but is not limited to, unexcused absence from three (3) consecutive regular meetings and any intervening duly called special meeting. It shall be the responsibility of the Chairman of the WPCA to notify the Town Council when a member has not properly performed his duties. Removal of a member for cause by the Town Council shall be conducted pursuant to the provisions of Chapter IV, Section 9 of the Ledyard Town Charter.

Section 3. Appropriation of Town Funds for Capital Improvements

After approval by the Town Council, the WPCA shall have the authority to expend such appropriation of town funds for the investigation and preliminary study work, including contracting for services and materials.

Section 4. Billing, Accounting and Financial Records

The WPCA customer service/billing contractor is hereby designated as the collector of water and sewage connection and user fee charges pursuant to the Connecticut General Statutes

The WPCA shall maintain proper accounting and financial records. The WPCA shall provide, by the fourth Monday in March a budget of estimated revenues, expenditures and capital improvements for the ensuing fiscal year for inclusion as an appendix in the Town annual budget. The Town Council shall approve the water system budget. This shall be provided to the residents at the Annual Town Meeting on the budget.

The WPCA shall prepare and periodically update a Water Pollution Control Plan, including capital improvements, for the Town of Ledyard in the manner provided by Section 7-246(b) of the Connecticut General Statutes. Such periodic updating shall be accomplished not less frequently then every five years after the completion of the initial plan, an in addition to the filing requirements of said statute, the WPCA Shall file a copy of said plan and any periodic update with the Town Clerk. The WPCA shall be guided by the Town Plan of Development.

Revenues and expenditures, of the WPCA may be supplemented through the General Fund if approved by the Town Council and the Town Meeting in accordance with the Town's normal budgeting process and the provisions of law as govern the same. . The WPCA shall reimburse the General Fund budget for all supplemental appropriations received from the General Fund during the subsequent fiscal year.

The WPCA, before making application for any state or federal funds, must obtain approval of the application from the Town Council.

All revenues from benefit assessments, connection fees, and user fee charges, and the proceeds of the sale of notes and bonds, shall be held and accounted separately from the other funds of the town. A separate account shall be kept by the Town of Ledyard of the funds derived from such water works system and of their disposition which account shall be audited annually by a competent auditor and a report of such audit shall be open to public inspection. The treasurer of the Town of Ledyard shall be the custodian of such funds and shall give bond to the satisfaction of the Ledyard Town Council for the faithful discharge of his duties. Such funds shall be kept separate from other funds of such municipality and shall be used for such water works systems and for no other purpose.

All benefit assessments charged for connection with or use of the sewerage system, whether pledged for payment of bonds or notes or otherwise, shall be kept separate from other funds of the municipalities and shall be used for the sewerage system, including the payment of debt incurred for the sewerage system and interest thereon, and for no other purpose.

It is intended that the WPCA shall be financially self-sufficient.

Section 5. Establishing Benefit Assessments and Setting Rates

The WPCA shall review and recommend rates for use and shall be responsible for holding a public hearing at which all the users of the water system and the owners of the property served or to be served and others interested shall have an opportunity to be heard concerning such proposed rate or charge. Notice of such hearing shall be given, at least ten days before the date set therefore, in a newspaper having a circulation in such Town of Ledyard. Such notice shall set forth a schedule of rates or charges, and a copy of the schedule of rates or charges established shall be kept on file in the office of the WPCA administrative staff and in the office of the town clerk of the Town of Ledyard, and shall be open to inspection by the public.

Upon completion of the process to establish user rates, as set forth in CGS Chapter 102, Section 7-239, the Town Council shall set just and equitable rates or charges of the water system that shall be sufficient for the payment of expense of operation, repair, replacement and maintenance and foreseeable capital expenses of such system. Benefit assessments; and connection fees shall be established by the WPCA and approved by the Town Council.

Sewer usage fees are established by the WPCA in accordance with the Connecticut General Statutes Chapter 103 Section 7-256.

Section 6. Federal, State and Regional Assistance

The WPCA shall solicit and obtain assistance from the appropriate Federal, State, and Regional agencies regarding the construction, funding and operation of a community water and/or sewer project or issues.

Section 7. Advisement Regarding Establishment of Ordinances, State Legislation and Other Procedural Matters

The WPCA shall advise the Town Council concerning requirements for or revision to Town Ordinances or other actions which may be required to enable the WPCA to more adequately serve the Town.

Section 8. Operation/Employees

The WPCA shall have all the rights powers, duties and obligations conferred and imposed by Chapters 102 and 103 of the Connecticut General Statutes , as amended, and by Special Act 284, of January 1959, Connecticut Legislature, entitled: "An Act Authorizing the Town of Ledyard to Acquire and Operate a Water System." The WPCA shall have the authority to request to employ personnel, as may be required to carry out the purposes to this ordinance. WPCA employees shall abide by the Personnel Rules established by the Mayor and approved by the Town Council and those regulations established by the appropriate Collective Bargaining Unit. WPCA employees shall receive supervision from the Mayor on administrative matters and from the WPCA on matters of policy.

Section 9. Conflict with Other Laws or Regulations

If any section of this ordinance shall be declared invalid by a court of competent jurisdiction, such invalidity shall not affect the entire ordinance.

Section 10. Cancellation of Previous Ordinances

This Ordinance cancels and supersedes Ordinance #105 *"An Ordinance Creating a Water Pollution Control Authority for the Town of Ledyard"* adopted on March 28, 2012.

Adopted by the Ledyard Town Council on June 25, 2014

Linda C. Davis

Linda C. Davis, Chairman

Approved/ Disapproved on: 6-26-2014

John A. Rodolico, Mayor

APPENDIX B

Water Supply Agreement with Groton Utilities

Appendix B - Water Supply Agreements & Permits

(1) Town of Ledyard / Route 12 Interconnection

An agreement between the Town of Ledyard and Groton Utilities, negotiated and agreed upon in 1992, has no termination date and thus remains in effect. A Sale of Excess Water Permit from the Connecticut Department of Public Health was first issued May 29, 1996, renewed on May 18, 2001 and lastly renewed on May 4, 2011. This permit will expire on May 3, 2021.

A diversion permit from the Connecticut Department of Energy and Environmental Protection for this interconnection was first issued as an individual permit on May 7, 1997, and renewed as a general permit on June 19, 2007 – set to expire on March 15, 2017.

A general condition for the diversion permits includes preparation of annual reports to the DEEP outlining specific daily flows and their adherence to the permit conditions. These are typically due in January of each year, between the middle and end of the month.

The permit renewal process should start approximately 6 months prior to the termination dates noted above, or December 2020 and October 2016, respectively for the DPH Sale of Excess Water Permit and the DEEP Diversion Permit. Because these permits are jointly held by Groton Utilities and the Town of Ledyard, this permitting process must be coordinated between the two parties.

(2) Town of Ledyard / Route 117 Interconnection

The agreement with the Town of Ledyard for the Route 117 Interconnection, signed on August 15, 2007, came as an amended version of the original Route 12 interconnection agreement. In fact, the document starts with an “Amendment No. 1 to Agreement”, followed by the attachment of the original 1992 version.

A sale of excess water permit (SEW #07-02 for 0.35 mgd) through the Route 117 corridor, from Center Groton to Ledyard Center, was issued by the Connecticut Department of Public Health on August 31, 2007 for a term of 10 years, expiring on November 1, 2017. A DEEP diversion permit for the same transfer (of 350,000 gpd) was issued on August 22, 2006 for a period of 15 years, due to expire on August 10, 2021.

Again, the permit renewal process should start approximately 6 months prior to the termination dates noted above, or April 2017 and February 2021, respectively for the DPH Sale of Excess Water Permit and the DEEP Diversion Permit. As noted for the Route 12 permit, these permits are again jointly held by Groton Utilities and the Town of Ledyard, requiring that the permitting process be coordinated between the two parties.

AGREEMENT

The City of Groton and its Utility Commission and City Council (collectively, "Groton") own and manage a water supply system. Groton and the Town of Ledyard ("Ledyard") hereby agree to the following matters related to Groton's water supply system:

Access to Property

1. Groton shall grant Ledyard residents the opportunity to participate in environmental or public health education courses taught by professional instructors acceptable to Groton on the property owned by Groton that includes Morgan Pond Reservoir, the general limits of which are delineated on Exhibit A attached hereto and made a part hereof ("the property"), for five (5) mutually agreeable and scheduled days per calendar year.

2. Groton shall grant Ledyard residents the opportunity to hike on preexisting and predefined trails on the property for three (3) mutually agreeable and scheduled days per calendar year.

3. In conjunction with the activities described in paragraphs 1 and 2 above, swimming, fishing, boating, or other activities in, on, or in any way involving water shall not be allowed.

4. Groton shall have the right to establish reasonable terms and conditions of access for conducting the activities described in paragraphs 1 and 2 above including, but not limited to, liability insurance, numbers of people on the property,

prohibition of pets and special constraints related to sensitive areas. The parties acknowledge that this is not intended to be a complete list of terms and conditions.

5. Groton shall have the right to suspend any and all of the activities described in paragraphs 1 and 2 above and to require that the property be evacuated at any time that participants on the property fail to obey the terms and conditions established by Groton. In the event of a suspension of the privileges or evacuation of the premises contained in paragraphs 1 or 2, it is understood that Groton shall not be responsible for any damages arising out of such suspension or evacuation.

6. Groton shall have the right to suspend any and all of the activities described in paragraphs 1 and 2 above and to require that the property be evacuated at any time that the activities present any potential to impair the water quality of the Groton water supply system or the environment of the property. In the event of a suspension of the privileges or evacuation of the premises contained in paragraphs 1 or 2, it is understood that Groton shall not be responsible for any damages arising out of such suspension or evacuation.

7. Ledyard shall pay Groton for any and all actual costs incurred by Groton to organize, administer, police, or clean the property in conjunction with the activities described in paragraphs 1 and 2, to the full extent that such costs exceed Groton's normal and reasonable costs to operate and maintain the property. Ledyard shall pay Groton in advance of Groton

incurring such costs. In arranging any of the activities described in paragraphs 1 or 2, Ledyard shall provide Groton with a detailed description of such activities at least one month in advance of the scheduled date. Groton shall provide Ledyard with the estimated costs for the same activities within two weeks of receiving Ledyard's description.

8. Ledyard shall hold harmless and indemnify Groton for any damages including damages to persons, property, or natural resources, that may occur on the property or in any way related to activities initiated by Ledyard. Groton shall be named as an additional insured on any and all liability insurance policies in effect at the time of the events described in paragraphs 1 and 2.

9. Representatives of Ledyard and the City of Groton shall meet annually, or more frequently, to evaluate the past year's public access program and to plan future access programs.

Water Supply Issues

10. By July, 1995, Groton shall fund the design and construction of a 16-inch water main from a location on the existing Groton system, as determined by Groton, north along the Route 12 corridor to the Ledyard Town line. Groton shall start design and construction of the water main no later than May, 1994, in accordance with standard engineering and safety practices and the requirements of Groton's Department of Utilities for similar projects.

11. By July, 1995, Ledyard shall fund the design and construction of a meter pit at the terminus of the new water main at the municipal boundary between the Town of Groton and the Town of Ledyard. Upon receipt of all necessary funds from Ledyard, Groton shall design and construct the meter pit within two (2) months in accordance with standard engineering and safety practices and the requirements of Groton's Department of Utilities for similar projects.

12. Within one month of the completion of the improvements described in paragraphs 10 and 11 above, Groton shall install a water meter in the meter pit.

13. Upon installation of the water meter described in paragraph 12 above, Groton shall make available for Ledyard's purchase, subject to any necessary governmental approvals, a maximum of 250,000 gallons per day, subject to paragraphs 14 through 17 below.

14. Groton shall bill Ledyard for water at the same rate and in the same manner that it bills other wholesale water customers, such as Noank Fire District and Groton Long Point.

15. Upon commencement of delivery of water to Ledyard, or July 1, 1995, whichever is earlier, and providing that Groton has made water available at the meter pit by that date, Ledyard shall pay Groton monthly
principal and interest needed to retire the debt incurred for the cost of designing and constructing the improvements described in paragraph 10 above. By the way of example, this monthly amount

would be equal to the numbers in the column marked "Cash Paid" on Exhibit D, divided by 12. To the extent that the actual amount borrowed, or the terms of the debt varied from those used in Exhibit D, the actual payment by Ledyard would vary.

16. After completion of the improvements identified in paragraphs 10 through 12 Ledyard shall enjoy the same status as other customers within Groton's wholesale customer class, including the following:

(a) In the event of drought or other emergency conditions, Ledyard shall be subject to the same water conservation and water supply restrictions imposed on other wholesale customers.

(b) In the event that water is available in the Groton water supply system in excess of the then existing total demand on the Groton water supply system, Ledyard may purchase as much water from Groton as is consistent with an approved regional water supply master plan that includes Ledyard, and as is available within the Department of Health Services recommended margin of safety for the Groton system, and subject to any necessary government approvals.

(c) Groton and Ledyard agree to conduct joint resource planning studies to ensure the adequacy of long term water resources for the region. All studies will be reviewed annually and copies will be submitted to the appropriate State agencies.

(d) The City of Groton, Department of Utilities, agrees to work with Ledyard in development of a Business Plan and to assist in the necessary engineering for development and operation of their water system, and to coordinate bidding and construction activities for the water main extension to the Ledyard Town line with the construction of Ledyard's water system.

17. This agreement shall not be construed to confer upon Ledyard any rights to water from the Groton water supply system or any rights of access to the property other than the specific terms and conditions of this agreement.

18. The affirmative obligations of Groton and Ledyard expressed in paragraphs 1-17 of this Agreement do not apply until a final water diversion permit consistent with the draft water diversion permit prepared by the Department of Environmental Protection ("DEP") and attached hereto as Exhibit B is issued and all rights to appeal have lapsed without an appeal having been docketed. In the event that an appeal is docketed, the aforementioned affirmative obligations do not apply until such appeal is fully and finally resolved and the permit is issued.

19. This Agreement shall be a nullity if a final water diversion permit consistent with the draft water diversion permit prepared by DEP and attached hereto as Exhibit B is not issued to Groton within 130 days of the close of the hearing in the water diversion permit proceeding presently pending before DEP (DIV-90-36) ("pending proceeding"), or within an extension of time

requested by the Commissioner of the DEP in this proceeding and approved by Groton, and all rights to appeal have lapsed without an appeal having been docketed.

20. Groton and Ledyard agree to proceed expeditiously and in good faith to advance the purposes embodied by this Agreement.

21. The Mayor of the Town of Ledyard shall express Ledyard's full support for Groton's application in the pending proceeding in a letter that shall be placed in the record of the proceeding.

22. But for the terms and conditions of paragraphs 10 through 21, this agreement and its terms shall not be introduced in the pending proceeding or in any other proceeding, except in a proceeding to enforce the agreement.

23. This agreement may only be modified with the written consent of both parties.

24. IN WITNESS WHEREOF, each of Groton and Ledyard has hereunto caused to be set its hand and seal this 8th day of September, 1992.

CITY OF GROTON

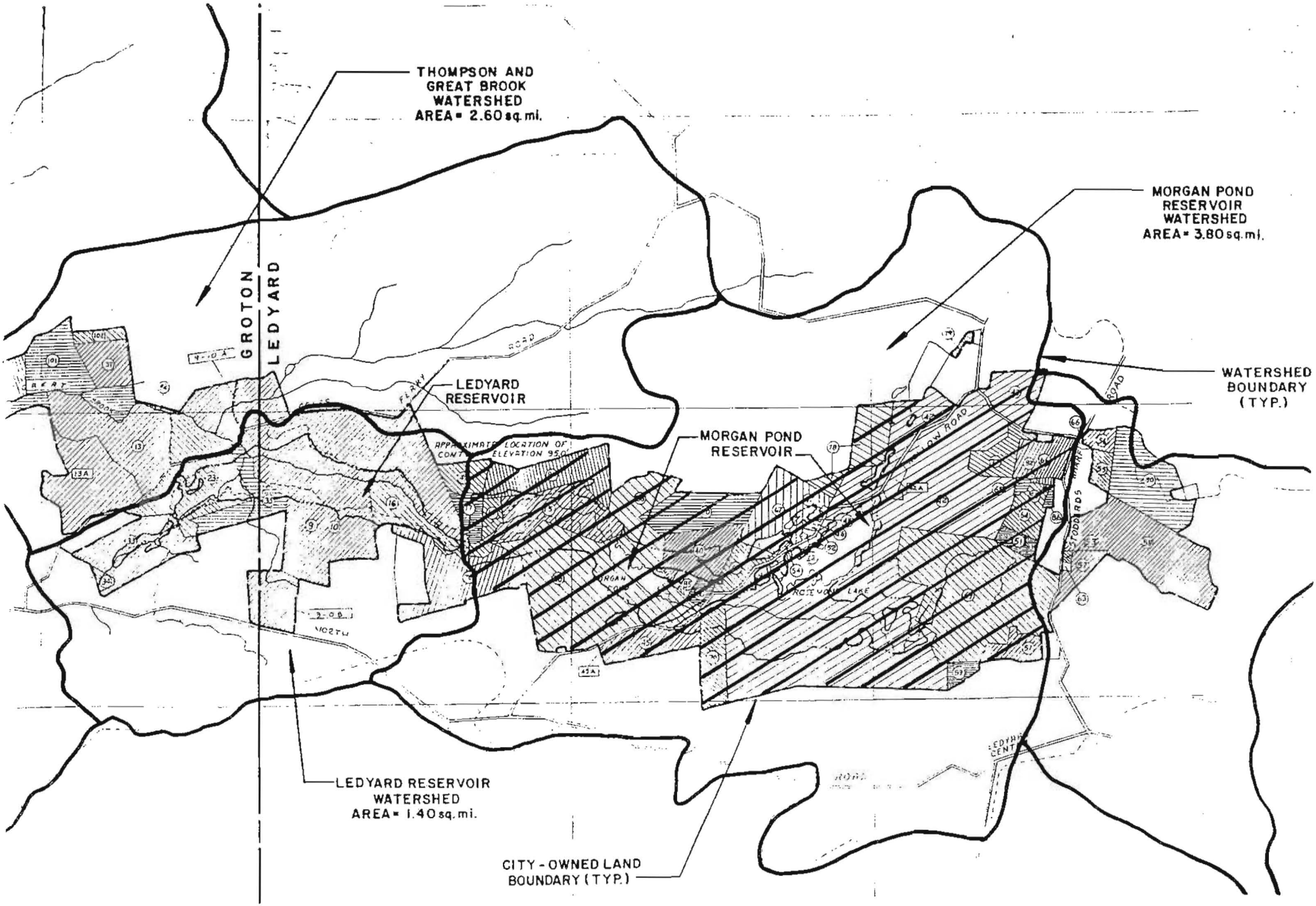
By: Catherine J. Kobaski

Witnessed by:

TOWN OF LEDYARD

By:

Witness by:



Property as identified in Agreement

EXHIBIT A

DRAFT

EXHIBIT B

PERMITTEE: City of Groton, Department of Utilities
295 Meridian Street
PO Box 820
Groton, CT 06340

PERMIT NO.: DIV-90-36
TOWN: Ledyard
WATERS: Morgan Pond Reservoir

Pursuant to Connecticut General Statutes section 22a-368 and the Commissioner's Final Decision in this matter dated _____, you (the "permittee") are hereby authorized to divert the waters of the State at Morgan Pond Dam, Town of Ledyard, (the "site") in accordance with your application dated September 20, 1990, filed with this Department on October 4, 1990 and described herein. The purpose of the diversion is to increase the safe yield of the public water supply system by providing additional storage capacity at Morgan Pond Reservoir. Specifically, the permittee is authorized to install a crest gate at Morgan Pond Dam in accordance with plans entitled "MORGAN POND DAM CREST GATE INSTALLATION" (Drawing Nos. D1456 and D1457), dated 6/8/88, and submitted as a part of the above referenced application.

Terms and Conditions:

1. The permittee shall notify the Commissioner in writing two weeks prior to: (A) commencing construction or modification of structures or facilities authorized herein; and (B) initiating the diversion authorized herein.

2. The permittee may not make any alterations, except de minimis alterations, to any structure, facility, or activity authorized by this permit unless the permittee applies for and receives a modification of this permit in accordance with the provisions of section 22a-377(c)-2 of the Regulations of Connecticut State Agencies. Except as authorized by subdivision (5) of section 22a-377(b)-1(a) of the Regulations of Connecticut State Agencies, the permittee may not make any de minimis alterations to any structure, facility, or activity authorized by this permit without written permission from the Commissioner. A de minimis alteration means an alteration which does not significantly increase the quantity of water diverted or significantly change the capacity to divert water.

DRAFT

3. All structures, facilities, or activities constructed, maintained, or conducted pursuant hereto shall be consistent with the terms and conditions of this permit, and any structure, facility or activity not specifically authorized by this permit, or exempted pursuant to section 22a-377 of the General Statutes or section 22a-377(b)-1 of the Regulations of Connecticut State Agencies, shall constitute a violation hereof which may result in modification, revocation or suspension of this permit or in the institution of other legal proceedings to enforce its terms and conditions.

4. Unless the permittee maintains in optimal condition any structures or facilities authorized by this permit, the permittee shall remove such structures and facilities and restore the affected waters to their condition prior to construction of such structures or facilities.

5. In issuing this permit, the Commissioner has relied on information provided by the permittee. If such information was false, incomplete, or misleading, this permit may be modified, suspended or revoked and the permittee may be subject to any other remedies or penalties provided by law.

6. If construction of any structures or facilities authorized herein is not completed within three years of issuance of this permit or within such other time as may be provided by this permit, or if any activity authorized herein is not commenced within three years of issuance of this permit or within such other time as may be provided by this permit, this permit shall expire three years after issuance or at the end of such other time.

7. This permit is subject to and does not derogate any rights or powers of the State of Connecticut, conveys no property rights or exclusive privileges, and is subject to all public and private rights and to all applicable federal, state, and local law. In constructing or maintaining any structure or facility or conducting any activity authorized herein, the permittee may not cause pollution, impairment, or destruction of the air, water, or other natural resources of this State. The issuance of this permit shall not create any presumption that this permit should be renewed.

8. In constructing or maintaining any structure or facility or conducting any activity authorized herein, or in removing any such structure or facility under paragraph 4 hereof, the permittee shall employ best management practices to control storm water discharges, to prevent erosion and sedimentation, and to otherwise prevent pollution of wetlands and other waters of the State. The permittee shall immediately inform the Commissioner of any adverse impact or hazard to the environment which occurs or is likely to occur as the direct result of the construction, maintenance, or conduct of structures, facilities, or activities authorized herein.

9. This permit is not transferable without the prior written consent of the Commissioner.

10. This permit shall expire on (ten years from date of issuance).

11. Any document, including but not limited to any notice, which is required to be submitted to the Commissioner under this permit shall be signed by the permittee, a responsible corporate officer of the permittee, a general partner of the permittee, and by the individual or individuals responsible for actually preparing such document, each of whom shall certify in writing as follows:

    "I have personally examined and am familiar with the information submitted in this document and all attachments and certify that based on reasonable investigation, including my inquiry of those individuals responsible for obtaining the information, the submitted information is true, accurate and complete to the best of my knowledge and belief, and I understand that any false statement made in this document or its attachment may be punishable as a criminal offense in accordance with Section 22a-376 under 53a-157 of the Connecticut General Statutes."

12. Any document or notice required to be submitted to the Commissioner under this permit shall, unless otherwise specified in writing by the Commissioner, be directed to:

    Director, DEP/Inland Water Resources Division
    165 Capitol Avenue, Rm. 207
    Hartford, CT 06106

DRAFT.

13. The date of submission to the Commissioner of any document required by this permit shall be the date such document is received by the Commissioner. The date of any notice by the Commissioner under this permit, including but not limited to notice of approval or disapproval on any document or other action, shall be the date such notice is personally delivered or the date three days after it is mailed by the Commissioner, whichever is earlier. Except as otherwise specified in this permit, the word "day" as used in this permit means any calendar day. Any document or action which is required by this permit to be submitted or performed by a date which falls on a Saturday, Sunday or legal holiday shall be submitted or performed by the nest business day thereafter.

14. A minimum instantaneous flow release in the amount of 2.6 cfs (cubic feet of water per second) shall be provided to Great Brook from July 1 through October 31 of each year for the purpose of protecting and maintaining existing fish populations. The minimum instantaneous flow release to Great Brook is to be made at the existing outlet control structure of Ledyard Reservoir.

15. A staff gauge shall be installed in Great Brook at the point of release of the minimum stream flows required in condition no. 14 and a rating curve shall be developed for the staff gauge no later than 90 days after the date of issuance of the permit. A copy of the rating curve shall be provided to the Commissioner no later than 95 days after the date of issuance of this permit.

This authorization constitutes the permit required by section 22a-368(b) of the Connecticut General Statutes.

Issued as a permit of the Commissioner of Environmental Protection on _____.

_____
Robert E. Moore
Deputy Commissioner

STATE OF CONNECTICUT
DEPARTMENT OF ENVIRONMENTAL PROTECTION

In Re: Application No. DIV-90-36 by the City of Groton, Department of Utilities for Water Diversion Permit Related to Crest Gate Installation at Morgan Pond Dam	:	September 8, 1992

STIPULATIONS

The City of Groton, Department of Utilities ("Groton") has applied for a water diversion permit to construct a crest gate at the existing spillway to Morgan Pond dam (the "application"). The Town of Ledyard's ("Ledyard") intervention petition in this matter dated December 5, 1990, was granted by Commissioner Carothers on December 21, 1990.

The Inland Water Resources Division of the Department of Environmental Protection ("DEP") has reviewed Groton's application pursuant to section 22a-371 of the Connecticut General Statutes and determined that it is complete. A public hearing on this matter was opened on May 13, 1992, continued to June 3, 1992, continued to August 6, 1992, continued to August 8, 1992, and continued to September 11, 1992.

Based on a review of the application and supporting information, as well as other information of record, Groton and Ledyard stipulate to the following:

1. The draft agreement/proposed decision regarding this application, executed by and between Groton and the Inland Water Resources Division of the DEP, dated the ____ day of September, 1992.

2. Nothing within the Agreement executed by and between Groton and Ledyard dated September 8, 1992, shall in any way affect or control the rights or obligations of either Ledyard or Groton to participate, intervene or to express any particular position in any new water diversion permit application proceeding other than the pending application submitted by Groton to construct a crest gate at the spillway to Morgan Pond Dam.

3. Groton and Ledyard agree that the term of the permit in the pending application should be twenty-five (25) years.

4. Groton and Ledyard further agree to support the additional permit condition attached hereto and made a part hereof as Exhibit C.

CITY OF GROTON

By: Catherine Kolnaski — Sept 8, 1992
Catherine Kolnaski, Mayor — Date

TOWN OF LEDYARD

By: Joseph Lozier, Mayor — 9/8/92
Joseph Lozier, Mayor — Date

EXHIBIT C

Water Supply Issues

1. By July, 1995, Groton shall fund the design and construction of a 16-inch water main from a location on the existing Groton system, as determined by Groton, north along the Route 12 corridor to the Ledyard Town line. Groton shall start design and construction of the water main no later than May, 1994, in accordance with standard engineering and safety practices and the requirements of Groton's Department of Utilities for similar projects.

2. By July, 1995, Ledyard shall fund the design and construction of a meter pit at the terminus of the new water main at the municipal boundary between the Town of Groton and the Town of Ledyard. Upon receipt of all necessary funds from Ledyard, Groton shall design and construct the meter pit within two months in accordance with standard engineering and safety practices and the requirements of Groton's Department of Utilities for similar projects.

3. Within one month of the completion of the improvements described in paragraphs 1 and 2 above, Groton shall install a water meter in the meter pit.

4. Upon installation of the water meter described in paragraph 3 above, Groton shall make available for Ledyard's purchase, subject to any necessary governmental approvals, a maximum of 250,000 gallons per day, subject to paragraphs 5

through 9 below.

5. Groton shall bill Ledyard for water at the same rate and in the same manner that it bills other wholesale water customers, such as Noank Fire District and Groton Long Point.

6. Upon commencement of delivery of water to Ledyard, or July 1, 1995, whichever is earlier, and providing that Groton has made water available at the meter pit by that date, Ledyard shall pay Groton monthly an amount equal to the monthly principal and interest needed to retire the debt incurred to pay for the cost of designing and constructing the improvements described in paragraph 1 above. By way of example, this monthly amount would be equal to the numbers in the column marked "Cash Paid" on Exhibit D, divided by 12. To the extent that the actual amount borrowed, or the terms of the debt, varied from those used in Exhibit D, the actual payment by Ledyard would vary.

7. After completion of the improvements identified in paragraphs 1 through 3, Ledyard shall enjoy the same status as other customers within Groton's wholesale customer class, including the following:

(a) In the event of drought or other emergency conditions, Ledyard shall be subject to the same water conservation and water supply restrictions imposed on other wholesale customers.

(b) In the event that water is available in the Groton water supply system in excess of the then existing total demand on the Groton water supply system, Ledyard may

purchase as much water from Groton as is consistent with an approved regional water supply master plan that includes Ledyard, and as is available within the Department of Health Services recommended margin of safety for the Groton system, and subject to any necessary government approvals.

(c) Groton and Ledyard agree to conduct joint resource planning studies to ensure the adequacy of long term water resources for the region. All studies will be reviewed annually and copies will be submitted to the appropriate State agencies.

(d) The City of Groton Department of Utilities agrees to work with Ledyard in development of a Business Plan and to assist in the necessary engineering for development and operation of their water system, and to coordinate bidding and construction activities for the water main extension to the Ledyard Town line with the construction of Ledyard's water system.

8. This agreement shall not be construed to confer upon Ledyard any rights to water from the Groton water supply system other than the specific terms and conditions of this agreement.

Term of Permit

9. This permit shall expire twenty-five (25) years from the date of issuance.

EXHIBIT D

BOND AMORTIZATION SCHEDULE

Water Division - Ledyard Line Construction
1992 Bond Issue

Description

Scenario #1 -	Construction
Present Value	$800,000
Interest Rate	7.00%
Years to Pay	20
Annual Payments	19
Principal Payment	$42,105.26

LEVEL PAYMENTS

Payment #	Cash Paid	Interest	Principal	Balance Due
0				$800,000.00
1	$56,000.00	$56,000.00	$ 0.00	$800,000.00
2	77,402.41	56,000.00	21,402.41	778,597.59
3	77,402.41	54,501.83	22,900.58	755,697.01
4	77,402.41	52,898.79	24,503.62	731,193.39
5	77,402.41	51,183.54	26,218.87	704,974.51
6	77,402.41	49,348.22	28,054.20	676,920.32
7	77,402.41	47,384.42	30,017.99	646,902.33
8	77,402.41	45,283.16	32,119.25	614,783.06
9	77,402.41	43,034.82	34,367.60	580,415.48
10	77,402.41	40,629.08	36,773.33	543,642.15
11	77,402.41	38,054.95	39,347.46	504,294.69
12	77,402.41	35,300.63	42,101.78	462,192.91
13	77,402.41	32,353.50	45,048.91	417,144.00
14	77,402.41	29,200.08	48,202.33	368,941.67
15	77,402.41	25,825.92	51,576.50	317,365.17
16	77,402.41	22,215.56	55,186.85	262,178.32
17	77,402.41	18,352.48	59,049.93	203,128.39
18	77,402.41	14,218.99	63,183.42	139,944.97
19	77,402.41	9,796.15	67,606.26	72,338.70
20	77,402.41	5,063.71	72,338.70	0.00
TOTALS	$1,470,645.83	$726,645.83	$800,000.00	

AMENDMENT NO. 1 TO AGREEMENT

THIS AMENDMENT made this 15th day of August, 2007, by and among the City of Groton, Connecticut, the City of Groton Utilities Commission and the City of Groton Council (collectively, "Groton") and the Town of Ledyard, Connecticut and the Ledyard Water Pollution Control Authority (collectively, "Ledyard").

WHEREAS, Groton and the Town of Ledyard entered into an Agreement dated September 8, 1992 (the "Agreement") to construct a water main and related improvements along the Route 12 corridor to the Ledyard Town line and to make up to 250,000 gallons per day of water available for purchase by the Town of Ledyard pursuant to a Diversion Permit (DIV-94-20) issued by the State of Connecticut Department of Environmental Protection to the City of Groton Department of Utilities as permittee on or about May 7, 1997 (the "1994 Diversion Permit");

WHEREAS, the Town of Ledyard agreed to pay Groton monthly principal and interest needed to retire the debt incurred for the cost of designing and constructing certain of the improvements described in the Agreement and has been making such payments since 1995;

WHEREAS, the Town of Ledyard, by ordinance adopted after the date of the Agreement, has established a Water Pollution Control Authority to plan and direct the development, financing, construction and operation of water supply and distribution needs of the Town of Ledyard;

WHEREAS, Groton, the Town of Ledyard and the Ledyard Water Pollution Control Authority have agreed to include the Ledyard Water Pollution Control Authority as a party to this Amendment No. 1;

WHEREAS, Ledyard has agreed to purchase from Groton and Groton has agreed to sell to Ledyard a maximum of three hundred fifty thousand (350,000) gallons of water per day pursuant to a Diversion Permit issued by the State of Connecticut Department of Environmental Protection to the City of Groton Utilities Department and the Town of Ledyard Water Pollution Control Authority (Permit No.: DIV-200600038) dated August 10,2006, 2006 (the "2006 Diversion Permit");

WHEREAS, the water to be provided to Ledyard by Groton pursuant to the 2006 Diversion Permit shall be in addition to the water it has been and shall continue to provide to Ledyard pursuant to the 1994 Diversion Permit, and the terms of the Agreement pertaining to the 1994 Diversion Permit shall remain in full force and effect except as modified by this Amendment;

WHEREAS, the provision of water by Groton to Ledyard pursuant to the 2006 Diversion Permit requires the construction of a pump station, piping and related appurtenances along Route 117 at its intersection with Candlewood Road and two meter pits on the east side of Route 117 near Groton / Ledyard town line; and

WHEREAS, Groton and Ledyard wish to memorialize their rights and obligations with regard to the design and construction of said facilities along Route 117 and the payment therefor by adding to and modifying certain terms, conditions and provisions of the Agreement to accomplish said purposes

NOW, THEREFORE, in consideration of the sum of ONE DOLLAR ($1.00) and other valuable considerations, it is agreed that said Agreement be modified as follows:

1. The Ledyard Water Pollution Control Authority shall be an additional party to this Amendment No. 1, but shall not be a party to or under any obligation for the costs of the Rte. 12 facilities

constructed pursuant to the Agreement.

2. The following shall be added to the Agreement immediately following the signatures on Page 7:

"Water Supply Issues - Route 117

25. Groton and Ledyard shall fund the design and construction of a pump station, piping and related appurtenances located along Route 117 at the intersection of Route 117 and Candlewood Road. Groton shall initially fund the cost of the design and construction of the pump station and related appurtenances. Ledyard shall reimburse Groton for part of the costs of the design and construction of said pump station and related appurtenances. Ledyard's share of the cost of said facilities is $300,586.00, as stated on the "Draft Cost Estimate" June 26, 2006, Center Groton Pump Station Piping and Appurtenances, dated June 26, 2006, a copy of which is attached hereto and marked Exhibit F. Groton shall design and construct the pump station, piping and appurtenances in accordance with standard engineering and safety practices and the requirements of Groton's Department of Utilities for similar projects.

26. Ledyard designed and is building two meter pits at the Groton/Ledyard town line on Route 117. The meter pits are items #3 and #7 on Exhibit F. Groton shall reimburse Ledyard one-half of the actual cost of design and construction of said meter pits within a reasonable time of completion, not to exceed sixty (60) days.

26(a). Each party shall indemnify and hold harmless the other for and against all claims of any nature for property damage and/or personal injury (including death) and for costs associated therewith, including without limitation attorneys fees, litigation cost, court costs, expert fees, judgments and costs of settlements, arising out of and/or relating to and/or

claimed to have arisen out of said party's design and/or construction of the facilities described in paragraphs 25 and 26 of this Amendment.

27. Within one (1) month of the completion of the improvements described in paragraphs 25 and 26 above, Groton shall purchase and install water meters in the meter pits.

28. Upon installation of the water meters described in paragraph 27 above, Groton shall make available for Ledyard's purchase, subject to any necessary governmental approvals, a maximum of three hundred fifty thousand (350,000) gallons per day per the 2006 Diversion Permit, subject to paragraphs 29 through 32 below.

29. Groton shall bill Ledyard for water at the same rate and in the same manner that it bills other wholesale water customers. Notwithstanding any other provision of this Agreement, or the Amendments thereto, Groton shall be entitled to increase or decrease its wholesale rates at any time upon at least sixty (60) days prior written notice to Ledyard, subject to the limitation set forth in the preceding sentence; provided, however, that the price shall not be increased more than once during any calendar year, except in emergency situations.

30. Effective August 1, 2007, Ledyard shall begin making monthly principal and interest payments needed to retire the debt incurred for the cost of designing and constructing the improvements described in Paragraph 25 above and shall continue to pay Groton monthly principal and interest payments needed to retire the debt incurred for the cost of designing and constructing the improvements described in Paragraph 10 of the Agreement. The interest rate for the financing of the design and construction costs of the facilities described in paragraph 25 hereof shall be one percent (1%) above the Groton Bond Rate. By way of example, the monthly payment amount would be equal to the numbers in the column marked "Cash Paid" on Amended Exhibit D, divided by 12. To the extent that the actual amount borrowed, or the

terms of the debt varied from those used in the Amended Exhibit D, the actual payment by Ledyard would vary.

31. After completion of the improvements identified in paragraphs 25 through 27 above, Ledyard shall continue to enjoy the same status as other customers within Groton's wholesale customer class, including the following:

(a) If Groton implements any water conservation measures applicable to Groton's customers as a result of any emergency situation, Ledyard shall implement the same water conservation measures for its customers and Ledyard shall keep such water conservation measures in effect for as long as the water conservation measures implemented by Groton remain in effect.

(b) In the event that water is available in the Groton water supply system in excess of the then existing total demand on the Groton water supply system, and at Groton's sole discretion, Ledyard may purchase as much water from Groton as is consistent with an approved regional water supply master plan that includes Ledyard, and as is available within the Department of Public Health recommended margin of safety for the Groton system, and subject to any necessary government approvals.

(c) Groton and Ledyard agree to conduct joint resource Planning studies to ensure the adequacy of long term water resources for the region. All studies will be reviewed annually and copies will be submitted to the appropriate State of Connecticut agencies.

(d) Groton agrees to work with Ledyard in the development of a business plan and to assist in the necessary engineering for development and operation of the Ledyard water system, and to coordinate bidding and construction activities for the pump station and related appurtenances to the Ledyard Town line with the construction of Ledyard's water system.

32. This amendment to the Agreement shall not be construed to confer upon Ledyard any rights to water from the Groton water supply system other than the specific terms and conditions of this amendment and those conferred under the original agreement.

33. The 2006 water diversion permit is attached hereto and marked Exhibit E. This permit shall expire on August 10, 2021.

34. Ledyard shall pay all costs associated with the issuance of the 2006 Diversion Permit and any future renewals thereof. Groton shall pay all costs associated with the issuance of a State of Connecticut Department of Public Health Sale of Excess Water permit necessary for the sale of water authorized by the 2006 Diversion Permit. The rights and obligations of the parties under this Amendment are expressly contingent on the issuance of a final Sale of Excess Water Permit by the Department of Public Health

Water Quality and Quantity

35. Groton and Ledyard acknowledge that the potable water to be delivered pursuant to this Agreement must meet the standards for quality of public drinking water established by the State of Connecticut, Department of Public Health pursuant to Section 19a-36 of the Connecticut General Statutes, as amended, as currently set forth in Section 19-13-B102 of the Regulations of Connecticut State Agencies, and all other applicable Department of Public Health requirements, rules and regulations (the "Water Specifications"). Groton and Ledyard desire to allocate responsibility for maintaining the quality and quantity of such potable water as it travels throughout the water supply systems of Groton and Ledyard. Accordingly, Groton shall be responsible for ensuring that all potable water delivered pursuant to this Agreement meets the quantities requested by Ledyard (up to the maximum allowable quantity) and the

Water Specifications when it reaches the Groton/Ledyard town line.

3. The Amended Exhibit D, attached hereto, is substituted for the current Exhibit D Bond Amortization Schedule, which current Exhibit D is declared null and void.

4. All other terms and conditions of said Agreement, to the extent that they do not conflict with this Amendment, shall continue to remain in full force and effect.

(The remained of this page intentionally left blank)

IN WITNESS WHEREOF, the undersigned have hereunto set their hands and seals this 15th day of August, 2007.

Signed, Sealed and Delivered
in the Presence of:

Heidi Comeau

Debra Patrick

Debra Patrick

Deborah Gaudette

Michael E. Stubelick

Calvin K. Brunner

Elaine A. Henschel

Calvin K. Brunner

Elaine A. Henschel

CITY OF GROTON

By:
Name: DENNIS L. PAPP
Title: MAYOR

CITY OF GROTON UTILITIES COMMISSION

By:
Name: Terry H. Eames
Title: Secretary

TOWN OF LEDYARD

By:
Name: SUSAN B. MENDENHALL
Title: Mayor

LEDYARD WATER POLLUTION CONTROL AUTHORITY

By:
Name: ANDREW STACKPOLE
Title: WPCA CHAIRMAN

AMENDED EXHIBIT D

BOND AMORTIZATION SCHEDULE

Water Division - Ledyard Line Construction
1992 Bond Issue

Description

Route 12 -	Construction	Center Groton -	Construction
1995 Value	$800,000	Present Value	$300,586
Interest Rate	7.00%	Interest	7.00%
Years to Pay	20	Years to Pay	10
Annual Payments	19	Annual Payments	9
Principal Payment	$42,105.26	Principal Payment	$33,398.44

					Balance Due		
Year	#	Cash Paid	Interest	Principal	Route 12	Center Groton	Total
	0				$800,000.00	$0.00	$800,000.00
1995	1	$56,000.00	$56,000.00	$0.00	$800,000.00	$0.00	$800,000.00
1996	2	$77,402.41	$56,000.00	$21,402.41	$778,597.59	$0.00	$778,597.59
1997	3	$77,402.41	$54,501.83	$22,900.58	$755,697.01	$0.00	$755,697.01
1998	4	$77,402.41	$52,898.79	$24,503.62	$731,193.39	$0.00	$731,193.39
1999	5	$77,402.41	$51,183.54	$26,218.87	$704,974.51	$0.00	$704,974.51
2000	6	$77,402.41	$49,348.22	$28,054.20	$676,920.32	$0.00	$676,920.32
2001	7	$77,402.41	$47,384.42	$30,017.99	$646,902.33	$0.00	$646,902.33
2002	8	$77,402.41	$45,283.16	$32,119.25	$614,783.06	$0.00	$614,783.06
2003	9	$77,402.41	$43,034.82	$34,367.60	$580,415.48	$0.00	$580,415.48
2004	10	$77,402.41	$40,629.08	$36,773.33	$543,642.15	$0.00	$543,642.15
2005	11	$77,402.41	$38,054.95	$39,347.46	$504,294.69	$0.00	$504,294.69
2006	12	$77,402.41	$35,300.63	$42,101.78	$462,192.91	$300,586.00	$762,778.91
2007	13	$98,443.43	$53,394.52	$45,048.91	$417,144.00	$300,586.00	$717,730.00
2008	14	$123,538.29	$50,241.10	$73,297.19	$368,941.67	$275,491.14	$644,432.81
2009	15	$123,538.29	$45,110.29	$78,428.00	$317,365.17	$248,639.64	$566,004.81
2010	16	$123,538.29	$39,620.33	$83,917.96	$262,178.32	$219,908.53	$482,086.85
2011	17	$123,538.29	$33,746.08	$89,792.21	$203,128.39	$189,166.25	$392,294.64
2012	18	$123,538.29	$27,460.63	$96,077.66	$139,944.97	$156,272.01	$296,216.98
2013	19	$123,538.29	$20,735.19	$102,803.10	$72,338.70	$121,075.17	$193,413.87
2014	20	$123,538.29	$13,538.97	$109,999.32	$0.00	$83,414.55	$83,414.55
2015	21	$46,135.88	$5,839.02	$40,296.86	$0.00	$43,117.69	$43,117.69
2016	22	$46,135.93	$3,018.24	$43,117.69	$0.00	$0.00	$0.00

STATE OF CONNECTICUT
DEPARTMENT OF ENVIRONMENTAL PROTECTION

PERMIT

EXHIBIT E

PERMITTEES: City of Groton
Groton Utilities Department,
295 Meridian Street, Groton, CT 06340
Attn: Glenn M. Wilson

Town of Ledyard
Water Pollution Control Authority
Town Hall
741 Colonel Ledyard Highway, Ledyard, CT 06339-1541
Attn: Donald Cameron-Chairman

PERMIT NO.: DIV-200600038
TOWN: City of Groton, Town of Groton & Ledyard
WATERS: Groton Reservoir System, Great Brook & Poquonnock River

Pursuant to Connecticut General Statutes section 22a-368, the City of Groton and the Town of Ledyard (the "permittees") are hereby authorized to divert the waters of the state at an interconnection located along Route 117 at the Groton/Ledyard town line (the "site") in accordance with permittees' application dated January 9, 2006, filed with this Department on January 10, 2006 and described herein. The purpose of the diversion is to provide a source of potable water to meet the demands of the Town of Ledyard public water supply system.

AUTHORIZED ACTIVITY

The permittees are authorized to divert a maximum of 0.350 million gallons per day at a maximum rate of 700 gallons per minute from the City of Groton water supply system to the Ledyard water supply system via a new watermain interconnection along Route 117 in Ledyard. The withdrawal of water shall be conducted in accordance with plans entitled "Construction of Watermains and Appurtenant Work at Center Groton Road (Connecticut Route 117) –Phase 1, Water Pollution Control Authority, Ledyard, Connecticut," dated 12/19/05 and "Construction of Watermains and Appurtenant Work at Center Groton Road (Connecticut Route 117) –Phase 2A, Water Pollution Control Authority, Ledyard, Connecticut," dated 12/19/05, both plans prepared by Amory Engineers, P.C., and in accordance with documentation submitted in the application.

PERMITTEE'S FAILURE TO COMPLY WITH THE TERMS AND CONDITIONS OF THIS PERMIT SHALL SUBJECT PERMITTEE AND PERMITTEE'S CONTRACTOR(S) TO ENFORCEMENT ACTIONS AND PENALTIES AS PROVIDED BY LAW.

SPECIAL CONDITIONS

1. **Metering of Withdrawals.** The permittees shall maintain a totalizing flow meter to measure the total amount of water transferred each day from the Groton water supply system to the Ledyard water supply system via the interconnection located along Route 117 at the Groton/Ledyard town line, and shall for the duration of this authorization continuously operate and maintain such meter in good working order. In the event of meter malfunction or breakage, the permittees shall repair or replace such meter within 72 hours.

2. **Daily Withdrawal Record.** The permittees shall maintain a daily record of the meter readings indicating the total volume of water in gallons transferred from the Groton water supply system to the Ledyard water supply system via the interconnection located along Route 117 at the Groton/Ledyard town line that day. The daily record shall also record the hours of operation, the time of meter readings, and denote and explain any instances in which the diversion of water exceeded the authorized withdrawal limitation(s) specified in this permit. A copy of the daily record of withdrawals shall be included in the Annual Report to the Commissioner required by Special Condition No. 8 of this permit.

3. **Leak Detection.** Every five years, based upon the schedule below, the permittees shall conduct a system wide comprehensive leak detection survey of the Groton and Ledyard water distribution system and repair any leaks found. The leak detection survey shall follow standards and criteria contained within AWWA Manual M36 as may be amended or revised. No later than January 15, of the following year, the permittees shall report to the Commissioner of all actions taken pursuant to the leak detection survey, including the number of mile of main surveyed, survey techniques and methodology, leaks found and repairs made. A copy of this record shall be included in the Annual Report to the Commissioner required by Special Condition No. 8 of this permit. The permittees shall undertake such leak detection surveys on or before November 1, 2010, November 1, 2015 and November 1, 2020.

4. **Meter Calibration and Reporting.** The permittees shall biennially beginning in the year following the issuance of the permit test and calibrate the interconnection meter within two percent accuracy as shown through a post-calibration test. The permittees shall maintain a record of the accuracy and calibration test(s) along with supporting documentation and certifications. The permittees shall make a copy of said records available to the Commissioner or the Commissioner's designee immediately upon request.

5. **Long-range Water Conservation Plan.** The permittees shall implement its Long-range Water Conservation Plan, as described in the permittees' application, and in accordance with the permittees' Water Supply Plan as approved pursuant to CGS Section 25-32d and any amendments or updates thereto. The permittees shall maintain a summary of all actions taken each year pursuant to the Long-range Water Conservation Plan and a description of the estimated or actual water savings achieved. A copy of this summary shall be included in the Annual Report to the Commissioner required by Special Condition No. 8 of this permit.

6. **Record Keeping Requirements.** Except as provided below, or as otherwise specified in writing by the commissioner, all information required under this permit shall be retained at the subject site, or be readily available on request. The permittees shall maintain a copy of this permit on site at all times. The permittees shall retain copies of all records and reports required by this permit; and records of all data used to compile these reports for a period of at least ten years from the date such data was generated or report created, whichever is later.

7. **Recording and Reporting Violations.** Within 48 hours after the permittees learns of a violation of this permit, the permittees shall submit in writing a report of the violation to the Commissioner. Such report shall be certified in accordance with General Condition #11 and shall include the following information:

   a. The provision(s) of this permit that has been violated;
   b. The date and time the violation(s) was first discovered and by whom;
   c. The cause of the violation(s), if known;
   d. If the violation(s) has ceased, the duration of the violation(s) and the exact date(s) and time(s) it was corrected;
   e. If the violation(s) has not ceased, the anticipated date when it will be corrected; and
   f. Actions taken and actions planned to prevent a reoccurrence of the violation(s) and the date(s) such actions were implemented or will be implemented.

8. **Annual Reporting.** The permittees shall submit by January 15 of each year, for the duration of this authorization, an Annual Report for the preceding calendar year. The Annual Report shall be certified in accordance with General Condition #11 of this permit and shall contain the following:

   a. A copy of the record of daily withdrawals and hours operated as required by Special Condition Nos. 1 and 2 of this permit;
   b. Denotation and explanation of any instances of violation of the authorized

withdrawal limitation(s) or any other condition of this authorization;

c. Summary report of all the actions taken pursuant to the Long-Range Water Conservation Plan and Water Conservation Plan and description of actual or estimated water savings achieved, as required by Special Condition No. 3 of this permit;

d. A copy of the leak detection report as required by Special Condition No. 6 of this permit.

GENERAL CONDITIONS

1. The permittees shall notify the Commissioner in writing two weeks prior to: (A) commencing construction or modification of structures or facilities authorized herein; and (B) initiating the diversion authorized herein.

2. The permittees may not make any alterations, except de minimis alterations, to any structure, facility, or activity authorized by this permit unless the permittees applies for and receives a modification of this permit in accordance with the provisions of section 22a-377(c)-2 of the Regulations of Connecticut State Agencies. Except as authorized by subdivision (5) of section 22a-377(b)-1(a) of the Regulations of Connecticut State Agencies, the permittees may not make any de minimis alterations to any structure, facility, or activity authorized by this permit without written permission from the Commissioner. A de minimis alteration means an alteration which does not significantly increase the quantity of water diverted or significantly change the capacity to divert water.

3. All structures, facilities, or activities constructed, maintained, or conducted pursuant hereto shall be consistent with the terms and conditions of this permit, and any structure, facility or activity not specifically authorized by this permit, or exempted pursuant to section 22a-377 of the General Statutes or section 22a-377(b)-1 of the Regulations of Connecticut State Agencies, shall constitute a violation hereof which may result in modification, revocation or suspension of this permit or in the institution of other legal proceedings to enforce its terms and conditions.

4. Unless the permittees maintain in optimal condition any structures or facilities authorized by this permit, the permittees shall remove such structures and facilities and restore the affected waters to their condition prior to construction of such structures or facilities.

5. In issuing this permit, the Commissioner has relied on information provided by the permittees. If such information was false, incomplete, or misleading, this permit may be modified, suspended or revoked and the permittees may be subject to any other remedies or penalties provided by law.

6. If construction of any structures or facilities authorized herein is not completed within three years of issuance of this permit or within such other time as may be provided by this permit, or if any activity authorized herein is not commenced within three years of issuance of this permit or within such other time as may be provided by this permit, this permit shall expire three years after issuance or at the end of such other time.

7. This permit is subject to and does not derogate any rights or powers of the State of Connecticut, conveys no property rights or exclusive privileges, and is subject to all public and private rights and to all applicable federal, state, and local law. In constructing or maintaining any structure or facility or conducting any activity authorized herein, the permittees may not cause pollution, impairment, or destruction of the air, water, or other natural resources of this State. The issuance of this permit shall not create any presumption that this permit should be renewed.

8. In constructing or maintaining any structure or facility or conducting any activity authorized herein, or in removing any such structure or facility under paragraph 4 hereof, the permittees shall employ best management practices to control storm water discharges, to prevent erosion and sedimentation, and to otherwise prevent pollution of wetlands and other waters of the State. The permittees shall immediately inform the Commissioner of any adverse impact or hazard to the environment which occurs or is likely to occur as the direct result of the construction, maintenance, or conduct of structures, facilities, or activities authorized herein.

9. This permit is not transferable without the prior written consent of the Commissioner.

10. This permit shall expire on August 10, 2021.

11. **Certification of Documents**. Any document, including but not limited to any notice, which is required to be submitted to the Commissioner under this permit shall be signed by the permittees or a responsible corporate officer of the permittees, a general partner of the permittees, and by the individual or individuals responsible for actually preparing such document, each of whom shall certify in writing as follows:

"I have personally examined and am familiar with the information submitted in this document and all attachments and certify that based on reasonable investigation, including my inquiry of those individuals responsible for obtaining the information, the submitted information is true, accurate and complete to the best of my knowledge and belief, and I understand that any false statement made in this document or its attachment may be punishable as a criminal offense in accordance with Section 22a-376 under 53a-157 of the Connecticut General Statutes."

12. **Submission of Documents.** Any document or notice required to be submitted to the Commissioner under this permit shall, unless otherwise specified in writing by the Commissioner, be directed to:

Director
DEP/Inland Water Resources Division
79 Elm Street
Hartford, CT 06106-5127

The date of submission to the Commissioner of any document required by this permit shall be the date such document is received by the Commissioner. The date of any notice by the Commissioner under this permit, including but not limited to notice of approval or disapproval on any document or other action, shall be the date such notice is personally delivered or the date three days after it is mailed by the Commissioner, whichever is earlier. Except as otherwise specified in this permit, the word "day" as used in this permit means any calendar day. Any document or action which is required by this permit to be submitted or performed by a date which falls on a Saturday, Sunday or legal holiday shall be submitted or performed by the next business day thereafter.

This authorization constitutes the permit required by section 22a-368(b) of the Connecticut General Statutes.

Issued as a permit of the Commissioner of Environmental Protection on [illegible].

Gina McCarthy
Commissioner

AGREEMENT

The City of Groton and its Utility Commission and City Council (collectively, "Groton") own and manage a water supply system. Groton and the Town of Ledyard ("Ledyard") hereby agree to the following matters related to Groton's water supply system:

Access to Property

1. Groton shall grant Ledyard residents the opportunity to participate in environmental or public health education courses taught by professional instructors acceptable to Groton on the property owned by Groton that includes Morgan Pond Reservoir, the general limits of which are delineated on Exhibit A attached hereto and made a part hereof ("the property"), for five (5) mutually agreeable and scheduled days per calendar year.

2. Groton shall grant Ledyard residents the opportunity to hike on preexisting and predefined trails on the property for three (3) mutually agreeable and scheduled days per calendar year.

3. In conjunction with the activities described in paragraphs 1 and 2 above, swimming, fishing, boating, or other activities in, on, or in any way involving water shall not be allowed.

4. Groton shall have the right to establish reasonable terms and conditions of access for conducting the activities described in paragraphs 1 and 2 above including, but not limited to, liability insurance, numbers of people on the property,

prohibition of pets and special constraints related to sensitive areas. The parties acknowledge that this is not intended to be a complete list of terms and conditions.

5. Groton shall have the right to suspend any and all of the activities described in paragraphs 1 and 2 above and to require that the property be evacuated at any time that participants on the property fail to obey the terms and conditions established by Groton. In the event of a suspension of the privileges or evacuation of the premises contained in paragraphs 1 or 2, it is understood that Groton shall not be responsible for any damages arising out of such suspension or evacuation.

6. Groton shall have the right to suspend any and all of the activities described in paragraphs 1 and 2 above and to require that the property be evacuated at any time that the activities present any potential to impair the water quality of the Groton water supply system or the environment of the property. In the event of a suspension of the privileges or evacuation of the premises contained in paragraphs 1 or 2, it is understood that Groton shall not be responsible for any damages arising out of such suspension or evacuation.

7. Ledyard shall pay Groton for any and all actual costs incurred by Groton to organize, administer, police, or clean the property in conjunction with the activities described in paragraphs 1 and 2, to the full extent that such costs exceed Groton's normal and reasonable costs to operate and maintain the property. Ledyard shall pay Groton in advance of Groton

incurring such costs. In arranging any of the activities described in paragraphs 1 or 2, Ledyard shall provide Groton with a detailed description of such activities at least one month in advance of the scheduled date. Groton shall provide Ledyard with the estimated costs for the same activities within two weeks of receiving Ledyard's description.

8. Ledyard shall hold harmless and indemnify Groton for any damages including damages to persons, property, or natural resources, that may occur on the property or in any way related to activities initiated by Ledyard. Groton shall be named as an additional insured on any and all liability insurance policies in effect at the time of the events described in paragraphs 1 and 2.

9. Representatives of Ledyard and the City of Groton shall meet annually, or more frequently, to evaluate the past year's public access program and to plan future access programs.

Water Supply Issues

10. By July, 1995, Groton shall fund the design and construction of a 16-inch water main from a location on the existing Groton system, as determined by Groton, north along the Route 12 corridor to the Ledyard Town line. Groton shall start design and construction of the water main no later than May, 1994, in accordance with standard engineering and safety practices and the requirements of Groton's Department of Utilities for similar projects.

11. By July, 1995, Ledyard shall fund the design and construction of a meter pit at the terminus of the new water main at the municipal boundary between the Town of Groton and the Town of Ledyard. Upon receipt of all necessary funds from Ledyard, Groton shall design and construct the meter pit within two (2) months in accordance with standard engineering and safety practices and the requirements of Groton's Department of Utilities for similar projects.

12. Within one month of the completion of the improvements described in paragraphs 10 and 11 above, Groton shall install a water meter in the meter pit.

13. Upon installation of the water meter described in paragraph 12 above, Groton shall make available for Ledyard's purchase, subject to any necessary governmental approvals, a maximum of 250,000 gallons per day, subject to paragraphs 14 through 17 below.

14. Groton shall bill Ledyard for water at the same rate and in the same manner that it bills other wholesale water customers, such as Noank Fire District and Groton Long Point.

15. Upon commencement of delivery of water to Ledyard, or July 1, 1995, whichever is earlier, and providing that Groton has made water available at the meter pit by that date, Ledyard shall pay Groton monthly
principal and interest needed to retire the debt incurred for the cost of designing and constructing the improvements described in paragraph 10 above. By the way of example, this monthly amount

would be equal to the numbers in the column marked "Cash Paid" on Exhibit D, divided by 12. To the extent that the actual amount borrowed, or the terms of the debt varied from those used in Exhibit D, the actual payment by Ledyard would vary.

16. After completion of the improvements identified in paragraphs 10 through 12 Ledyard shall enjoy the same status as other customers within Groton's wholesale customer class, including the following:

(a) In the event of drought or other emergency conditions, Ledyard shall be subject to the same water conservation and water supply restrictions imposed on other wholesale customers.

(b) In the event that water is available in the Groton water supply system in excess of the then existing total demand on the Groton water supply system, Ledyard may purchase as much water from Groton as is consistent with an approved regional water supply master plan that includes Ledyard, and as is available within the Department of Health Services recommended margin of safety for the Groton system, and subject to any necessary government approvals.

(c) Groton and Ledyard agree to conduct joint resource planning studies to ensure the adequacy of long term water resources for the region. All studies will be reviewed annually and copies will be submitted to the appropriate State agencies.

(d) The City of Groton, Department of Utilities, agrees to work with Ledyard in development of a Business Plan and to assist in the necessary engineering for development and operation of their water system, and to coordinate bidding and construction activities for the water main extension to the Ledyard Town line with the construction of Ledyard's water system.

17. This agreement shall not be construed to confer upon Ledyard any rights to water from the Groton water supply system or any rights of access to the property other than the specific terms and conditions of this agreement.

18. The affirmative obligations of Groton and Ledyard expressed in paragraphs 1-17 of this Agreement do not apply until a final water diversion permit consistent with the draft water diversion permit prepared by the Department of Environmental Protection ("DEP") and attached hereto as Exhibit B is issued and all rights to appeal have lapsed without an appeal having been docketed. In the event that an appeal is docketed, the aforementioned affirmative obligations do not apply until such appeal is fully and finally resolved and the permit is issued.

19. This Agreement shall be a nullity if a final water diversion permit consistent with the draft water diversion permit prepared by DEP and attached hereto as Exhibit B is not issued to Groton within 130 days of the close of the hearing in the water diversion permit proceeding presently pending before DEP (DIV-90-36) ("pending proceeding"), or within an extension of time

requested by the Commissioner of the DEP in this proceeding and approved by Groton, and all rights to appeal have lapsed without an appeal having been docketed.

20. Groton and Ledyard agree to proceed expeditiously and in good faith to advance the purposes embodied by this Agreement.

21. The Mayor of the Town of Ledyard shall express Ledyard's full support for Groton's application in the pending proceeding in a letter that shall be placed in the record of the proceeding.

22. But for the terms and conditions of paragraphs 10 through 21, this agreement and its terms shall not be introduced in the pending proceeding or in any other proceeding, except in a proceeding to enforce the agreement.

23. This agreement may only be modified with the written consent of both parties.

24. IN WITNESS WHEREOF, each of Groton and Ledyard has hereunto caused to be set its hand and seal this 8th day of September, 1992.

CITY OF GROTON

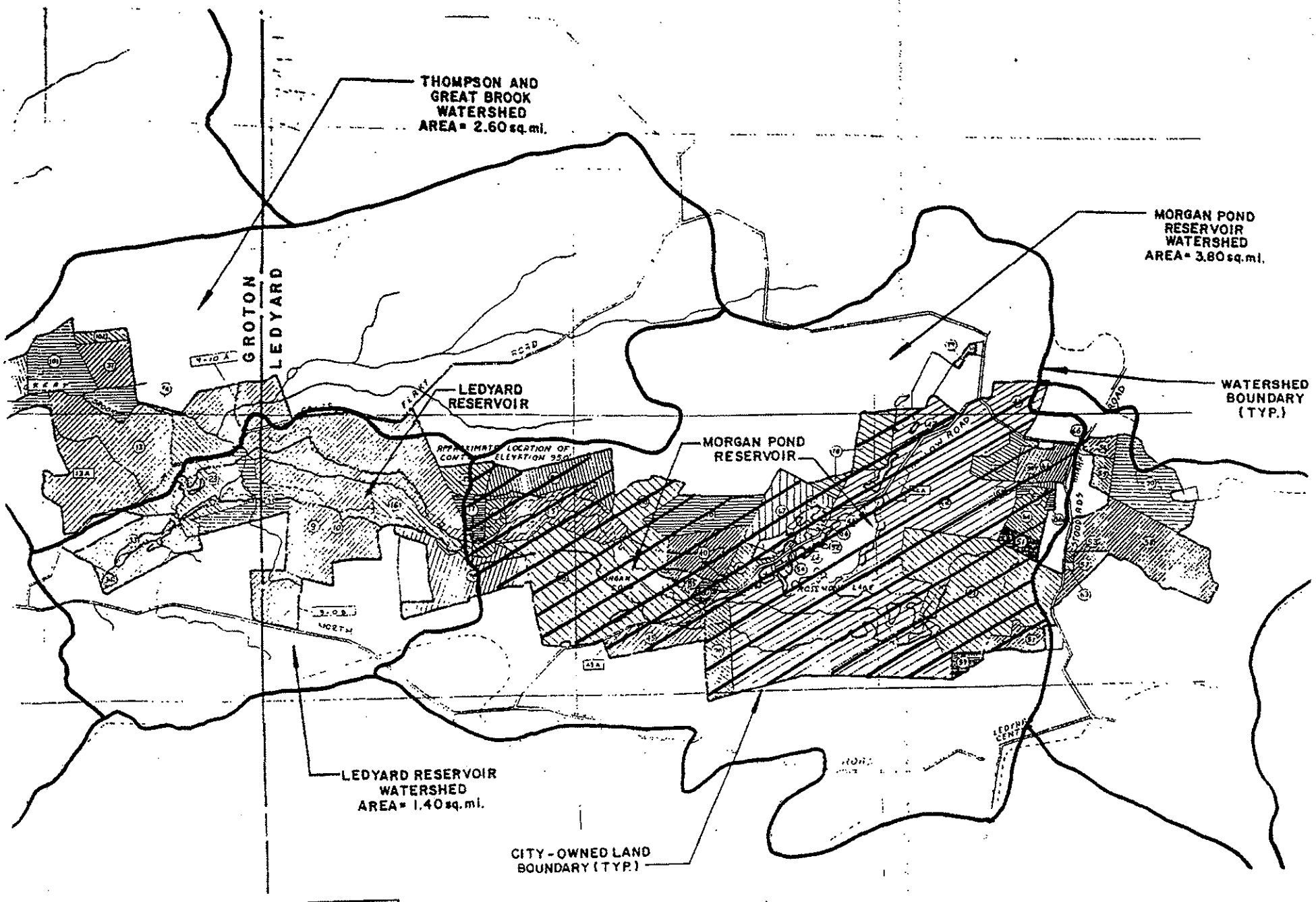
By: Catherine J. Kolnaski

Witnessed by:

TOWN OF LEDYARD

By:

Witness by:



Property as identified in Agreement

EXHIBIT A

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EXHIBIT B

PERMITTEE: City of Groton, Department of Utilities
295 Meridian Street
PO Box 820
Groton, CT 06340

PERMIT NO.: DIV-90-36
TOWN: Ledyard
WATERS: Morgan Pond Reservoir

Pursuant to Connecticut General Statutes section 22a-368 and the Commissioner's Final Decision in this matter dated _____, you (the "permittee") are hereby authorized to divert the waters of the State at Morgan Pond Dam, Town of Ledyard, (the "site") in accordance with your application dated September 20, 1990, filed with this Department on October 4, 1990 and described herein. The purpose of the diversion is to increase the safe yield of the public water supply system by providing additional storage capacity at Morgan Pond Reservoir. Specifically, the permittee is authorized to install a crest gate at Morgan Pond Dam in accordance with plans entitled "MORGAN POND DAM CREST GATE INSTALLATION" (Drawing Nos. D1456 and D1457), dated 6/8/88, and submitted as a part of the above referenced application.

Terms and Conditions:

1. The permittee shall notify the Commissioner in writing two weeks prior to: (A) commencing construction or modification of structures or facilities authorized herein; and (B) initiating the diversion authorized herein.

2. The permittee may not make any alterations, except de minimis alterations, to any structure, facility, or activity authorized by this permit unless the permittee applies for and receives a modification of this permit in accordance with the provisions of section 22a-377(c)-2 of the Regulations of Connecticut State Agencies. Except as authorized by subdivision (5) of section 22a-377(b)-1(a) of the Regulations of Connecticut State Agencies, the permittee may not make any de minimis alterations to any structure, facility, or activity authorized by this permit without written permission from the Commissioner. A de minimis alteration means an alteration which does not significantly increase the quantity of water diverted or significantly change the capacity to divert water.

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3. All structures, facilities, or activities constructed, maintained, or conducted pursuant hereto shall be consistent with the terms and conditions of this permit, and any structure, facility or activity not specifically authorized by this permit, or exempted pursuant to section 22a-377 of the General Statutes or section 22a-377(b)-1 of the Regulations of Connecticut State Agencies, shall constitute a violation hereof which may result in modification, revocation or suspension of this permit or in the institution of other legal proceedings to enforce its terms and conditions.

4. Unless the permittee maintains in optimal condition any structures or facilities authorized by this permit, the permittee shall remove such structures and facilities and restore the affected waters to their condition prior to construction of such structures or facilities.

5. In issuing this permit, the Commissioner has relied on information provided by the permittee. If such information was false, incomplete, or misleading, this permit may be modified, suspended or revoked and the permittee may be subject to any other remedies or penalties provided by law.

6. If construction of any structures or facilities authorized herein is not completed within three years of issuance of this permit or within such other time as may be provided by this permit, or if any activity authorized herein is not commenced within three years of issuance of this permit or within such other time as may be provided by this permit, this permit shall expire three years after issuance or at the end of such other time.

7. This permit is subject to and does not derogate any rights or powers of the State of Connecticut, conveys no property rights or exclusive privileges, and is subject to all public and private rights and to all applicable federal, state, and local law. In constructing or maintaining any structure or facility or conducting any activity authorized herein, the permittee may not cause pollution, impairment, or destruction of the air, water, or other natural resources of this State. The issuance of this permit shall not create any presumption that this permit should be renewed.

8. In constructing or maintaining any structure or facility or conducting any activity authorized herein, or in removing any such structure or facility under paragraph 4 hereof, the permittee shall employ best management practices to control storm water discharges, to prevent erosion and sedimentation, and to otherwise prevent pollution of wetlands and other waters of the State. The permittee shall immediately inform the Commissioner of any adverse impact or hazard to the environment which occurs or is likely to occur as the direct result of the construction, maintenance, or conduct of structures, facilities, or activities authorized herein.

9. This permit is not transferable without the prior written consent of the Commissioner.

10. This permit shall expire on (ten years from date of issuance).

11. Any document, including but not limited to any notice, which is required to be submitted to the Commissioner under this permit shall be signed by the permittee, a responsible corporate officer of the permittee, a general partner of the permittee, and by the individual or individuals responsible for actually preparing such document, each of whom shall certify in writing as follows:

    "I have personally examined and am familiar with the information submitted in this document and all attachments and certify that based on reasonable investigation, including my inquiry of those individuals responsible for obtaining the information, the submitted information is true, accurate and complete to the best of my knowledge and belief, and I understand that any false statement made in this document or its attachment may be punishable as a criminal offense in accordance with Section 22a-376 under 53a-157 of the Connecticut General Statutes."

12. Any document or notice required to be submitted to the Commissioner under this permit shall, unless otherwise specified in writing by the Commissioner, be directed to:

    Director, DEP/Inland Water Resources Division
    165 Capitol Avenue, Rm. 207
    Hartford, CT 06106

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13. The date of submission to the Commissioner of any document required by this permit shall be the date such document is received by the Commissioner. The date of any notice by the Commissioner under this permit, including but not limited to notice of approval or disapproval on any document or other action, shall be the date such notice is personally delivered or the date three days after it is mailed by the Commissioner, whichever is earlier. Except as otherwise specified in this permit, the word "day" as used in this permit means any calendar day. Any document or action which is required by this permit to be submitted or performed by a date which falls on a Saturday, Sunday or legal holiday shall be submitted or performed by the nest business day thereafter.

14. A minimum instantaneous flow release in the amount of 2.6 cfs (cubic feet of water per second) shall be provided to Great Brook from July 1 through October 31 of each year for the purpose of protecting and maintaining existing fish populations. The minimum instantaneous flow release to Great Brook is to be made at the existing outlet control structure of Ledyard Reservoir.

15. A staff gauge shall be installed in Great Brook at the point of release of the minimum stream flows required in condition no. 14 and a rating curve shall be developed for the staff gauge no later than 90 days after the date of issuance of the permit. A copy of the rating curve shall be provided to the Commissioner no later than 95 days after the date of issuance of this permit.

This authorization constitutes the permit required by section 22a-368(b) of the Connecticut General Statutes.

Issued as a permit of the Commissioner of Environmental Protection on _____.

_____
Robert E. Moore
Deputy Commissioner

STATE OF CONNECTICUT
DEPARTMENT OF ENVIRONMENTAL PROTECTION

In Re: Application No. DIV-90-36 by the City of Groton, Department of Utilities for Water Diversion Permit Related to Crest Gate Installation at Morgan Pond Dam	:	September 8, 1992

STIPULATIONS

The City of Groton, Department of Utilities ("Groton") has applied for a water diversion permit to construct a crest gate at the existing spillway to Morgan Pond dam (the "application"). The Town of Ledyard's ("Ledyard") intervention petition in this matter dated December 5, 1990, was granted by Commissioner Carothers on December 21, 1990.

The Inland Water Resources Division of the Department of Environmental Protection ("DEP") has reviewed Groton's application pursuant to section 22a-371 of the Connecticut General Statutes and determined that it is complete. A public hearing on this matter was opened on May 13, 1992, continued to June 3, 1992, continued to August 6, 1992, continued to August 8, 1992, and continued to September 11, 1992.

Based on a review of the application and supporting information, as well as other information of record, Groton and Ledyard stipulate to the following:

1. The draft agreement/proposed decision regarding this application, executed by and between Groton and the Inland Water Resources Division of the DEP, dated the _____ day of September, 1992.

2. Nothing within the Agreement executed by and between Groton and Ledyard dated September 8, 1992, shall in any way affect or control the rights or obligations of either Ledyard or Groton to participate, intervene or to express any particular position in any new water diversion permit application proceeding other than the pending application submitted by Groton to construct a crest gate at the spillway to Morgan Pond Dam.

3. Groton and Ledyard agree that the term of the permit in the pending application should be twenty-five (25) years.

4. Groton and Ledyard further agree to support the additional permit condition attached hereto and made a part hereof as Exhibit C.

CITY OF GROTON

By: Catherine Kolnaski — Sept 8, 1992
Catherine Kolnaski, Mayor — Date

TOWN OF LEDYARD

By: Joseph Lozier, Mayor — 9/8/92
Joseph Lozier, Mayor — Date

EXHIBIT C

Water Supply Issues

1. By July, 1995, Groton shall fund the design and construction of a 16-inch water main from a location on the existing Groton system, as determined by Groton, north along the Route 12 corridor to the Ledyard Town line. Groton shall start design and construction of the water main no later than May, 1994, in accordance with standard engineering and safety practices and the requirements of Groton's Department of Utilities for similar projects.

2. By July, 1995, Ledyard shall fund the design and construction of a meter pit at the terminus of the new water main at the municipal boundary between the Town of Groton and the Town of Ledyard. Upon receipt of all necessary funds from Ledyard, Groton shall design and construct the meter pit within two months in accordance with standard engineering and safety practices and the requirements of Groton's Department of Utilities for similar projects.

3. Within one month of the completion of the improvements described in paragraphs 1 and 2 above, Groton shall install a water meter in the meter pit.

4. Upon installation of the water meter described in paragraph 3 above, Groton shall make available for Ledyard's purchase, subject to any necessary governmental approvals, a maximum of 250,000 gallons per day, subject to paragraphs 5

through 9 below.

5. Groton shall bill Ledyard for water at the same rate and in the same manner that it bills other wholesale water customers, such as Noank Fire District and Groton Long Point.

6. Upon commencement of delivery of water to Ledyard, or July 1, 1995, whichever is earlier, and providing that Groton has made water available at the meter pit by that date, Ledyard shall pay Groton monthly an amount equal to the monthly principal and interest needed to retire the debt incurred to pay for the cost of designing and constructing the improvements described in paragraph 1 above. By way of example, this monthly amount would be equal to the numbers in the column marked "Cash Paid" on Exhibit D, divided by 12. To the extent that the actual amount borrowed, or the terms of the debt, varied from those used in Exhibit D, the actual payment by Ledyard would vary.

7. After completion of the improvements identified in paragraphs 1 through 3, Ledyard shall enjoy the same status as other customers within Groton's wholesale customer class, including the following:

(a) In the event of drought or other emergency conditions, Ledyard shall be subject to the same water conservation and water supply restrictions imposed on other wholesale customers.

(b) In the event that water is available in the Groton water supply system in excess of the then existing total demand on the Groton water supply system, Ledyard may

purchase as much water from Groton as is consistent with an approved regional water supply master plan that includes Ledyard, and as is available within the Department of Health Services recommended margin of safety for the Groton system, and subject to any necessary government approvals.

(c) Groton and Ledyard agree to conduct joint resource planning studies to ensure the adequacy of long term water resources for the region. All studies will be reviewed annually and copies will be submitted to the appropriate State agencies.

(d) The City of Groton Department of Utilities agrees to work with Ledyard in development of a Business Plan and to assist in the necessary engineering for development and operation of their water system, and to coordinate bidding and construction activities for the water main extension to the Ledyard Town line with the construction of Ledyard's water system.

8. This agreement shall not be construed to confer upon Ledyard any rights to water from the Groton water supply system other than the specific terms and conditions of this agreement.

Term of Permit

9. This permit shall expire twenty-five (25) years from the date of issuance.

EXHIBIT D

BOND AMORTIZATION SCHEDULE

Water Division - Ledyard Line Construction
1992 Bond Issue

Description

Scenario #1 -	Construction
Present Value	$800,000
Interest Rate	7.00%
Years to Pay	20
Annual Payments	19
Principal Payment	$42,105.26

LEVEL PAYMENTS

Payment #	Cash Paid	Interest	Principal	Balance Due
0				$800,000.00
1	$56,000.00	$56,000.00	$ 0.00	$800,000.00
2	77,402.41	56,000.00	21,402.41	778,597.59
3	77,402.41	54,501.83	22,900.58	755,697.01
4	77,402.41	52,898.79	24,503.62	731,193.39
5	77,402.41	51,183.54	26,218.87	704,974.51
6	77,402.41	49,348.22	28,054.20	676,920.32
7	77,402.41	47,384.42	30,017.99	646,902.33
8	77,402.41	45,283.16	32,119.25	614,783.06
9	77,402.41	43,034.82	34,367.60	580,415.48
10	77,402.41	40,629.08	36,773.33	543,642.15
11	77,402.41	38,054.95	39,347.46	504,294.69
12	77,402.41	35,300.63	42,101.78	462,192.91
13	77,402.41	32,353.50	45,048.91	417,144.00
14	77,402.41	29,200.08	48,202.33	368,941.67
15	77,402.41	25,825.92	51,576.50	317,365.17
16	77,402.41	22,215.56	55,186.85	262,178.32
17	77,402.41	18,352.48	59,049.93	203,128.39
18	77,402.41	14,218.99	63,183.42	139,944.97
19	77,402.41	9,796.15	67,606.26	72,338.70
20	77,402.41	5,063.71	72,338.70	0.00
TOTALS	$1,470,645.83	$726,645.83	$800,000.00	

EXHIBIT F

June 26, 2006

"DRAFT COST ESTIMATE"

CENTER GROTON PUMP STATION PIPING AND APPURTENANCES

Item Description	Cost Estimate	Groton Cost	Groton Cost	Ledyard Cost
		2000 Bond Fund $500,000	2000 Bond Fund $236,000	
		Booster Station	Water Main	
1. Package Pump Station	$ 325,000			
Installation and Sitework	$ 150,000			
	$ 475,000	$ 237,500		$ 237,500
2. Center Groton Distribution Piping Modifications for Center Groton High Service Area	$ 122,500		$ 122,500	
3. Groton Utilities Reverse Service Meter Pit at Ledyard Town Line Route 117	$ 70,000		$ 70,000	
4. Installation of Individual Cost Pressure Reducers Center Groton Customers	$ 24,000	$ 12,000	$ 12,000	
5. Engineering / Inspection	$ 75,000	$ 32,500	$ 10,000	$ 32,500
	$ 766,500	$ 282,000	$ 214,500	$ 270,000
6. Contingency 10%	$ 74,150	$ 26,950	$ 20,250	$ 26,950
	$ 840,650	$ 308,950	$ 234,750	$ 296,950
7. Ledyard Meter Pit	$ 70,000			$ 70,000
8. Eng. Services 2002	$ 3,636			$ 3,636
9. Ledyard Diversion Permit	NA			NA
10. Sale of Excess Water Permit	$ 10,000	$ 10,000		
Total	$ 924,286	$ 318,950	$ 234,750	$ 370,586

APPENDIX C

Operations Contract with Groton Utilities

Operations Contract

Groton Utilities and Town of Ledyard

for

Town of Ledyard Water System

July 1, 2016 – June 30, 2017

This AGREEMENT is made and entered into as of April 5, 2016 for the period of one (1) year, July 1, 2016 through June 30, 2017 by and among the City of Groton (hereinafter the "City") and Groton Utilities (hereinafter "GU"), a municipal corporation located within the State of Connecticut, (hereinafter collectively "Groton") and, the Town of Ledyard (hereinafter "Ledyard"). The City, GU and Ledyard are hereinafter sometimes referred to individually as the "Party" and collectively the "Parties".

RECITALS

WHEREAS, Groton owns and operates a municipal water supply system pursuant to Chapter 102 of the Connecticut General Statutes, as amended, for the handling, treatment and supply of water and is in the business of selling and supplying water to individuals and entities in the State of Connecticut; and

WHEREAS, Groton has agreed to provide potable water to the Town of Ledyard (hereinafter "Ledyard"); and

WHEREAS, the Parties have entered into an Interim Operating Agreement pursuant to which GU shall provide potable water and various water utility services to Ledyard.

NOW THEREFORE, in consideration of the mutual promises, undertakings, and covenants hereinafter contained, and other good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, the Parties hereto intending to be legally bound agree as follows:

SECTION 1. REPRESENTATIONS, WARRANTIES, COVENANTS AND CONDITIONS

1.1 Representations, Warranties and Covenants of the Parties. Each of the parties represents, warrants and covenants to the other Party as follows:

(a) Organization. Groton is a municipal corporation which operates under the Constitution and the laws of the State of Connecticut. The Town of Ledyard also is a municipal corporation which operates under the Constitution and the laws of the State of Connecticut. Each Party has all requisite power and authority to own those properties and conduct those businesses presently owned or conducted by it.

(b) GU agrees to operate the water system including all water mains and appurtenant structures in Ledyard as owned by Ledyard in accordance with Contract.

SECTION 2. COST OF OPERATION AND MAINTENANCE

The Town of Ledyard will provide an approved purchase order by the Ledyard Water Pollution Control Authority for the contract amount to be disbursed in monthly installments to Groton Utilities on the 1st day of each month for all of these services.

- Rates per Attachment 1:
    - July 1, 2016 through June 30, 2017
        - $300,000 per year / $25,000.00 per month;

SECTION 3 TERM

The term of this Agreement shall be one (1) year in duration beginning July 1, 2016 and ending June 30, 2017.

SECTION 4. INDEMNIFICATION

4.1 Indemnification.

(a) To the extent allowed by applicable laws, Ledyard shall defend, indemnify and hold harmless Groton and their respective affiliates and their respective officers, officials, directors, shareholders, members, agents and employees and their transferees, successors and assigns (individually, an "Indemnitee" and collectively the "Indemnitees") from and against any and all claims, losses, deficiencies, liabilities, obligations, damages, penalties, judgments, costs, awards, expenses (including, without limitation, legal, accounting and consulting fees) and other liabilities of every kind (collectively, "Losses") incurred by Groton arising out of, related to, or resulting from, directly or indirectly, any inaccuracy or misrepresentation in or breach of any of the representations, warranties, covenants or agreements made by Ledyard in this Agreement or in any document, or certificate or affidavit delivered by Ledyard pursuant to the provisions of this Agreement, or out of any aspect of Ledyard's obligations hereunder, notwithstanding the fact that any such inaccuracy, misrepresentation or breach has been cured by Ledyard and regardless of whether or not such inaccuracy, misrepresentation or breach constitutes an Event of Default under Section 8. Ledyard shall defend, indemnify and hold harmless Groton and their respective affiliates and their respective officers, officials, directors, shareholders, members, agents and employees and their transferees, successors and assigns (individually, an "Indemnitee" and collectively the "Indemnitees") from and against any and all claims, losses, deficiencies, liabilities, obligations, damages, penalties, judgments, costs, awards, expenses (including, without limitation, legal, accounting and consulting fees) and other liabilities of every kind (collectively, "Losses") incurred by Groton arising out of, related to, or resulting from, directly or indirectly, any substandard quality water due to the failure of any part of the operating system facilities, pipes or equipment.

(b) To the extent allowed by applicable laws, GU shall defend, indemnify and hold harmless Ledyard and their respective affiliates and their respective officers, officials, directors, shareholders, members, agents and employees and their transferees, successors and assigns (individually, an "Indemnitee" and collectively the "Indemnitees") from and against any and all claims, losses, deficiencies, liabilities, obligations, damages, penalties, judgments, costs, awards, expenses (including, without limitation, legal, accounting and consulting fees) and other liabilities of every kind (collectively, "Losses") incurred by Ledyard arising out of, related to, or resulting from, directly or indirectly, GU's failure to maintain the water quality of the water provided for pursuant to the provisions in this Agreement. GU shall not be liable for any claims,

losses, deficiencies, liabilities, obligations, damages, penalties, judgments, costs, awards, expenses (including, without limitation, legal, accounting and consulting fees) and other liabilities of every kind incurred by Ledyard arising out of, related to, or resulting from, directly or indirectly, below standard water quality, if the water quality was standard or above at the time it entered Ledyard's facilities, and was reduced to sub-standard quality as a result of entering Ledyard's facilities, unless such reduction to sub-standard quality results from an error or omission by GU in the operation of said facility.

4.2 Indemnification Payments; Insurance; Certain Losses.

(a) All indemnity payments to be made under this Agreement shall be made in immediately available funds.

(b) The amount of any Party's Losses payable pursuant to this Section 5 shall be reduced by amounts actually recovered from third parties, including amounts recovered under insurance policies, with respect to such Losses. To the extent that insurance or other recovery or reimbursement from a third party is available to a Party to cover any item for which indemnification may be sought hereunder, such Party shall take all action, including filing final notices and proofs of claims to recover the amount of its claim as may be available from such other party and, shall only seek indemnification against another Party in the event that it fails to obtain such coverage or reimbursement or if such coverage or reimbursement is insufficient to satisfy the claim. In the event that any claim for insurance or reimbursement is denied, then to the extent the indemnified Party notifies the indemnifying Party of its intent to seek indemnification, then the indemnified Party shall assign to the indemnifying Party, to the fullest extent allowable, their claim against such insurer or other party, or in the event assignment is not permissible, the indemnifying Party shall be allowed to pursue such claim in the name of the indemnified Party at the indemnifying Party's expense. The indemnifying Party shall be entitled to retain all recoveries made as a result of any such action. The indemnified Party shall make its books and records relating to such claim reasonably available to the indemnifying Party and shall make its employees reasonably available for interviews and similar matters to assist the indemnifying Party in prosecuting such claim.

(c) Notwithstanding any other provision of this Section 5, in no event shall a Party be liable for consequential, incidental, indirect or punitive damages or losses under this Agreement.

4.3 Procedure in Event of Indemnity.

(a) Notice to the indemnifying party shall be given promptly after receipt by any Indemnitee of actual knowledge of the commencement of any action or the assertion of any claim that will likely result in a claim for indemnity pursuant to this Agreement. Such notice shall be in writing and shall set forth in reasonable detail the nature of such action or claim to the extent known, and include copies of any written correspondence from the Person asserting such claim or initiating such action. The indemnifying party shall be entitled, at its own expense, to assume or participate in the defense of such action or claim. In the event that the indemnifying party assumes the defense of such action or claim, the defense shall be conducted by counsel

chosen by such indemnifying party and approved by the party seeking indemnification, which approval shall not be unreasonably withheld.

(b) With respect to actions as to which the indemnifying party does not exercise its right to assume the defense, the party seeking indemnification shall assume and control the defense of and contest such action with counsel chosen by it and approved by the indemnifying party, which approval shall not be unreasonably withheld. The indemnifying party shall be entitled to participate in the defense of such action, the cost of such participation to be at its own expense. The indemnifying party shall be obligated to pay the reasonable attorneys' fees and expenses of the party seeking indemnification to the extent that such fees and expenses related to claims as to which indemnification is payable under Section 5.1 as such expenses are incurred. The party seeking indemnification shall have full rights to dispose of such action and enter into any monetary compromise or settlement.

(c) Both the indemnifying party and the party seeking indemnification shall cooperate fully with one another in connection with the defense, compromise, or settlement of any such claim or action, including, without limitation, by making available to the other all pertinent information and witnesses within its control.

(d) If, at the conclusion of any action relating to a party's obligation to indemnify pursuant to this Agreement, it is determined that the Losses for which indemnification was claimed is not one which the indemnifying party was required to indemnify against or over, then the indemnified party shall reimburse to the indemnifying party all costs and expenses of defending such action incurred by the indemnifying party.

4.4 Exclusive Remedies.

The remedies provided for in this Agreement shall be cumulative and shall be the exclusive remedies of a Party for any inaccuracy or misrepresentation in or breach of any of the representations, warranties, covenants or agreements made by any other Party in this Agreement or in any document, certificate or affidavit delivered by such other Party pursuant to the provisions of this Agreement.

4.5 Survival.

This Section 4 shall survive any termination of this Agreement.

SECTION 5. FORCE MAJEURE.

5.1 Force Majeure Event.

If any Party is prevented from performing any of its obligations hereunder, for reasons beyond its reasonable control, including, but not limited to, the shortage (whether actual or threatened) of, or the failure of common carriers to deliver, necessary raw materials or supplies; embargoes, epidemics, quarantines; unusually severe weather conditions; fires, explosions, floods or other acts of God or the elements; water main breaks; acts of terrorism, war (declared or undeclared) or of a public enemy or other acts of hostility; civil disturbances, insurrections, riots or labor unrest; the threat or actual existence of a condition that may affect the integrity of the supply of any service; the necessity of making repairs to or reconditioning or periodically flushing or cleaning wells, pipelines, transmission lines and other equipment; or the legal requirement or order of any governmental authority, provided, however, that any Party subject to the legal requirement or order of any governmental authority shall use reasonable efforts to defend and take all appeals in opposition to such actions (each of the foregoing, a "Force Majeure Event"), such non-performing party shall not be liable for breach of this Agreement with respect to such non-performance to the extent any such non-performance is due to a Force Majeure Event. Such non-performing party shall exercise reasonable efforts to eliminate the Force Majeure Event and to resume performance of its obligations as soon as practicable.

SECTION 6. INSURANCE.

6.1 Insurance.

(a) Each of the Parties shall maintain at its expense a policy or policies of property insurance and comprehensive general commercial liability including premises liability, product liability, completed operations and contractual liability coverage for bodily injury and property damage, on an occurrence basis with agreed upon coverage limits. In addition, each of the Parties shall for itself and any installation activities and any installation contractor, provide like coverage and limits, as well as coverage for workers compensation and public liability and property damage coverage for any motor vehicles or equipment used in conjunction with any installation, service or other activity contemplated hereunder, whether the same be considered under the ownership, control, operation and/or lease of a Party or its installation contractor. Each of the Parties agrees that any and all such policies shall provide continuous and uninterrupted coverage with respect to all of the insured Party's water supply system.

(b) Each of the Parties shall furnish upon request certificates of insurance to the other Parties as evidence of compliance with this provision.

SECTION 7. CONFIDENTIALITY

7.1 Confidential Information.

(a) Each of the Parties acknowledges that it may receive, during the Term of this Agreement, confidential information belonging to another Party including, without limitation, information relating to methods, processes, formulas, designs, inventions, manufacturing techniques, computer programs, testing data, research information, customer lists, financial information, marketing information, internal procedures, forms, manuals, and all other information relating to any Party, its businesses, or its products that is not generally known to the public (collectively, the "Confidential Information"). Each of the Parties and their respective directors, officers, officials, employees, members, shareholders and agents shall maintain in strict confidence all Confidential Information whatsoever disclosed to it and shall not disclose such information to any other Person. The provisions of this Section 7.1 shall not apply to the following:

(i) information known to a Party prior to the date of disclosure by the other Party, as evidenced by the written records of the other Party;

(ii) information which either prior or subsequent to the date of such disclosure is lawfully disclosed to a party by anyone else rightfully in possession of such information and who is not in a confidential relationship with the other party; and

(iii) information which, without violating any legal rights of any of the Parties, became or becomes generally known to and used by others who are not in a confidential relationship with the Parties.

(b) No Party shall be prohibited hereunder from disclosing to any governmental authority or other person any Confidential Information required by law to be disclosed by it, but such disclosing Party shall take all reasonable steps to endeavor to preserve the confidentiality of such Confidential Information.

SECTION 8. EVENTS OF DEFAULT.

8.1 Events of Default.

The occurrence of any of the events set forth below, in each case unless caused by a Force Majeure Event, shall constitute an event of default of this Agreement by a Party (an "Event of Default"):

(a) Entry into bankruptcy, reorganization or similar proceeding by the Party or its successors for the readjustment, arrangement, composition or adjustment of any debts under the United States Bankruptcy Code, as amended, or any part thereof, or under any other laws, for the release of debtors, now or hereafter existing; or the general assignment by the Party or its successors for the benefit of any of its creditors.

(b) If any representation or warranty made in writing by or on behalf of the Party in this Agreement or in any certificate or other document delivered pursuant hereto or otherwise in connection with any of the transactions contemplated hereby, shall prove to have been false, misleading or incorrect in any material respect when made or deemed made.

(c) The sale or lease by the Party of all or substantially all of the assets relating to its water supply system.

(d) The failure to comply with any of the other obligations, covenants, agreements or provisions of this Agreement.

8.2 Default Notice; Cure Rights; Remedies.

(a) Upon the occurrence of an Event of Default, any Party shall provide oral notice followed by written notice of such Event of Default (a "Default Notice") to the defaulting Party (the "Defaulting Party") and each of the other Parties, identifying the specific nature of such Event of Default.

(b) Upon the occurrence of an Event of Default, subject to applicable cure periods, the non-defaulting Parties shall have all those rights and remedies allowed pursuant to this Agreement, provided, however, that no Party shall have the right to terminate this Agreement other than pursuant to Section 8.2(c).

(c) Notwithstanding any other provision of this Agreement, if, upon the occurrence of an Event of Default a Party desires to terminate this Agreement, such Party shall, within ten business days after the occurrence of such Event of Default, send a written notice (a "Termination Notice") to the other Parties requesting that the Agreement be terminated as a result of such Event of Default. Upon receipt of a Termination Notice, the Parties shall negotiate in good faith and use reasonable efforts to determine if this Agreement should be terminated as a result of such Event of Default, considering the circumstances existing at the time of such determination.

SECTION 9. GENERAL PROVISIONS.

9.1 Relationship between the Parties.

None of the Parties and none of the agents, employees, representatives, or independent contractors of any of the Parties shall (i) be considered an agent, employee or representative of any other Party for any purpose whatsoever; provided, however, that consistent with rulings of the Department of Revenue Services, to the extent a Party is able to purchase materials on behalf of another Party, the foregoing clause (i) shall not apply; (ii) have any authority to make any agreement or commitment for any other Party or to incur any liability or obligation in any other Party's name or on its behalf; or (iii) represent to any other Person that any of them has any right so to bind any other Party hereto. Nothing contained in this Agreement shall be construed or interpreted as creating an agency, partnership, or joint venture relationship between the Parties.

9.2 Notices.

Any notice, report, demand, waiver, consent or other communication given by a party under this Agreement (each a "notice") shall be in writing, may be given by a party or its legal counsel, and shall deemed to be duly given (i) when personally delivered, or (ii) upon delivery by United States Express Mail or similar overnight courier service which provides evidence of delivery, or (iii) when five days have elapsed after its transmittal by registered or certified mail, postage prepaid, return receipt requested, addressed to the party to whom directed at that party's address as it appears below or another address of which that party has given notice, or (iv) when delivered by facsimile transmission if a copy thereof is also delivered in person or by overnight courier within two days of such facsimile transmission. Notices of address change shall be effective only upon compliance with the provisions of the foregoing sentence.

Notice to Groton shall be sufficient if given to:

City of Groton Department of Utilities
295 Meridian Street
Groton, CT 06340
Attn: Ronald A. Gaudet
Director of Department of Utilities
Facsimile: (860) 446-4025

with a copy to: Richard M. Stevens
Manager Water Division & PAF

Notice to Ledyard shall be sufficient if given to:

Town of Ledyard
741 Colonel Ledyard Highway
Ledyard, CT 06339-1511
Attn: Michael Finkelstein, Mayor
Facsimile: (860) 464-8455

with a copy to: Ledyard WPCA Chairman

9.3 Entire Agreement.

This Agreement including (Attachment 1) constitutes the entire agreement between the Parties pertaining to its subject matter, and it supersedes any and all written or oral agreements previously existing between the Parties with respect to such subject matter.

9.4 Amendment and Modification.

If any Party desires to supplement, modify or amend this Agreement, such Party shall send written notice to each of the other Parties describing the proposed supplement, modification

or amendment. Upon receipt of such notice, the Parties shall use commercially reasonable efforts to determine if any such supplement, modification or amendment is necessary or desirable. No supplement, modification or amendment of this Agreement shall be binding unless it refers specifically to this Agreement and is executed in writing by all Parties.

9.5 Waiver.

Any party's failure to insist on strict performance of any provision of this Agreement shall not be deemed a waiver of any of its rights or remedies, nor shall it relieve any other party from performing any subsequent obligation strictly in accordance with the terms of this Agreement. No waiver shall be effective unless it is in writing and signed by the party against whom enforcement is sought. Such waiver shall be limited to provisions of this Agreement specifically referred to therein and shall not be deemed a waiver of any other provision. No waiver shall constitute a continuing waiver unless the writing states otherwise.

9.6 Assignment; Successors and Assigns.

(a) This Agreement may not be assigned by any Party without the prior written consent of all of the other Parties. Any assignment in violation of this Agreement shall be null and void.

(b) This Agreement shall inure to the benefit of, and shall be binding upon, the respective successors and permitted assigns of each of the Parties.

9.7 Miscellaneous.

The Section headings of this Agreement are for convenience of reference only and do not form a part hereof and do not in any way modify, interpret, or construe the intentions of the Parties. This Agreement may be executed in two or more counterparts and all such counterparts shall constitute one and the same instrument. Delivery of an executed signature page to this Agreement by facsimile transmission shall be as effective as delivery of a manually signed counterpart of this Agreement. This Agreement shall be governed by and construed in accordance with the laws of the State of Connecticut; without giving effect to the conflict of laws principles thereof. The term "including" is by way of example and not limitation.

9.8 Severability.

If any term or provision of this Agreement shall be held to be invalid or unenforceable for any reason, such term or provision shall be ineffective to the extent of such invalidity or unenforceability without invalidating the remaining terms and provisions hereof, and this Agreement shall be construed as if such invalid or unenforceable term or provisions had not been contained herein.

9.9 Parties in Interest.

Except as specifically contemplated hereby, nothing in this Agreement is intended to confer any rights or remedies on any persons other than the Parties. This Agreement shall not be construed to relieve or discharge any obligations or liabilities of third persons

IN WITNESS of the foregoing, the Parties have executed this Agreement by their duly authorized officers as of the date first set forth above.

THE CITY OF GROTON

By: _____

Name: Marian K. Gailbraith
Title: Mayor duly appointed

THE CITY OF GROTON UTILITIES COMMISSION

By: _____

Name: Marian K. Gailbraith
Title: Mayor duly appointed

Town of Ledyard

By: _____

Name: Michael Finkelstein

Title: Mayor duly appointed

APPENDIX D

Environmental & Regulatory Permits

STATE OF CONNECTICUT

DEPARTMENT OF PUBLIC HEALTH

RECEIVED
MAY 10 2011
GROTON UTILITIES

PY	✓	DLL	
HDC		JAB	
RMS	✓	TC	
RLV	✓	KLC	
DLC		KFA	✓
MSW		RDB	

LWRCA

Permit File

May 03, 2011

Richard M. Stevens
General Manager, Water Division
Groton Utilities
295 Meridian Street
Groton, CT 06340

Re: Permit #2011-03; DWS Project # 2011-0035
Renewal of Sale of Excess Water by Groton Utilities (PWS CT0590011) to the Town of Ledyard-Gales Ferry System (PWS CT0727051)

Mr. ~~Stevens:~~ Rick

Enclosed please find a copy of the authorized permit for the sale of excess water to the Town of Ledyard-Gales Ferry System. This permit will expire on May 03, 2021.

Groton Utilities is responsible for obtaining any other necessary permits for its diversions.

Please submit a permit renewal request at least ninety (90) days prior to the May 03, 2021 expiration date to ensure completeness of the renewal application for proper processing and approval prior to this permit expiration.

Sincerely,

Lori Mathieu
Public Health Section Chief
Drinking Water Section

cc: Frederic B. Allyn, Jr., Mayor, 741 Colonel Ledyard Hwy., Ledyard, CT 06339
Dennis Ruzicka, DEP

Phone: (860) 509-7333
Telephone Device for the Deaf (860) 509-7191
410 Capitol Avenue - MS # 51WAT
P.O. Box 340308 Hartford, CT 06134
Affirmative Action / An Equal Opportunity Employer

PERMIT # SEW2011-03

SALE OF EXCESS WATER PERMIT

In accordance with the application received March 02, 2011 and the provisions of Section 22a-358 of the Connecticut General Statutes, Groton Utilities is authorized to sell excess water to the Gales Ferry system of the Town of Ledyard, on a daily basis up to a maximum of 250,000 gallons per day. The calculations based on Groton Utilities' 2006 water supply plan show the average daily demand (ADD) margin of safety (MOS) of Groton Utilities, based on available water of 12.6 million gallons per day (MGD) for current, 5, 20 and 50 years to be 1.57, 1.41, 1.22, and 1.17 respectively. These MOS values reflect Groton Utilities' non-revenue water as well as the full commitment by Groton Utilities to its water sales contracts. This permit constitutes the approval required by Section 22a-358 of the Connecticut General Statutes and shall expire and be null and void May 03, 2021, unless specifically renewed and extended by the Commissioner. This approval is issued because Groton Utilities has clearly established to the satisfaction of the Commissioner of Public Health that water reserves in excess of those required to maintain an abundant supply of water to inhabitants of its service area are in existence and will continue to be for the duration of this permit.

Per its letter of April 13, 2011, Groton Utilities has indicated that it has entered an agreement to manage the water supply plan and distribution system for the Town of Ledyard. All water for to the Town of Ledyard is being supplied by Groton Utilities. Therefore, the supply to the Town of Ledyard is managed under the same controls, contingenices and/or restrictions as those noted in the Groton Utilities water supply plan's emergency plans

The Groton Utilities and the Town of Ledyard Gales Ferry system are required to meter and report all water use in accordance with Sections 19-13-B102(n) and 25-32d-3(b)4 of the Regulations of Connecticut State Agencies. Both Groton Utilities and the Town of Ledyard should work to minimize its non-revenue water. Groton Utilities is responsible for obtaining any other necessary permits for this diversion.

This permit is subject to, and does not derogate, any present or future property rights or other rights or powers of the State Connecticut; and conveys no property rights in real estate, material, or water, nor any exclusive privileges. This permit is further subject to any and all public and private rights and to any federal, state or local laws or regulations pertinent to the property or activity affected thereby.

The Commissioner may suspend or revoke this permit at any time if it is found that any condition of this permit has been violated, or if such action is necessary to maintain the purity and adequacy of the water supply.

May 4, 2011
Date

Lori Mathieu, Public Health Section Chief
Drinking Water Section

To: Lori Mathieu
Steve Messer
Drinking Water Section

FROM: Ahmadali Alex Tabatabai, Ph.D., P.E.
Drinking Water Section

SUBJECT: Permit #2011-03; DWS Project # 2011-0035
Renewal of Sale of Excess Water by Groton Utilities (PWS CT0590011) to the Town of Ledyard-Gales Ferry System (PWS CT0727051)

DATE: May 03, 2011

I have reviewed the subject application and offer the following comments:

1. Groton Utilities (GU) proposes to renew a sale of excess water permit to sell on a daily basis up to a maximum of 250,000 gallons per day of excess water to the Town of Ledyard-Gales Ferry System. The attached spreadsheet shows Groton Utilities' safe yield, available water, treatment capacity, current demand as well as 5, 20 and 50 year demand, including projected commitments. The calculations based on Groton Utilities' 2006 water supply plan show the average daily demand (ADD) margin of safety (MOS) of GU, based on available water of 12.6 million gallons per day (MGD) for current, 5, 20 and 50 years to be 1.57, 1.41, 1.22 and 1.17 respectively. These MOS values reflect GU's non-revenue water as well as the full commitment by GU to its water sales contracts.

2) Per its letter of April 13, 2011, Groton Utilities has indicated that it has entered an agreement to manage the water supply plan and distribution system for the Town of Ledyard. All water for to the Town of Ledyard is being supplied by Groton Utilities. Therefore, the supply to the Town of Ledyard is managed under the same controls, contingenices and/or restrictions as those noted in the Groton Utilities water supply plan's emergency plans

3) Per items #1 and #2 above, the applicant has met the requirements of Section 22a-358 which require the applicant to verify to the satisfaction of the DPH Commissioner that an abundant supplies are in existence and will continue to be in existence for ten years and the purchasing PWS has agreed to restrict usage in the same manner as the applicant.

4) The projected sale of water to the Town of Ledyard Gales Ferry System for the 5, 20, and 50 year planning periods is consistent with the Groton Utilities' individual water supply plan.

5) Groton Utilities is responsible for obtaining any other necessary permits for their diversions.

RECOMMENDATION: Based on the above information, and the information provided by Groton Utilities, the requested permit is recommended with an expiration of May 03, 2021.

GROTON UTILITIES

At Your Service

April 13, 2011

RECEIVED
DRINKING WATER SECTION
2011 APR 15 A 11: 52

Ahmadali Alex Tabatabai, Ph.D., MBA, P.E.
Environmental Analyst
Source Water Protection/Planning
Drinking Water Section
CT Department of Public Health
410 Capitol Avenue - MS #51WAT
P.O. Box 340308
Hartford, CT 06134

Re: Town of Ledyard Water Usage

Mr. Tabatabai:

In your e-mail of March 24, 2011 you requested "*a letter from the Town of Ledyard to Groton Utilities that indicates that the Town of Ledyard will restrict water usage in the same manner as Groton Utilities, when necessary, in accordance with the emergency contingency provisions of the Groton Utilities water supply plan*".

Please be advised that Groton Utilities has recently entered into an agreement to manage the water supply and distribution systems for the Town of Ledyard. In addition to supplying water along both Route 12 and Router 117, Groton Utilities is now in charge of managing the day to day operations of the entire Town of Ledyard distribution system. This means that the wells previously used as supply sources are no longer connected to the distribution system, and the staged responses mentioned in their water supply plan's emergency contingency section (dated September 2005 and revised to October 2006) are no longer relevant or applicable to the system. All water is being supplied by Groton Utilities.

As such, the supply to the Town of Ledyard is now managed under the same controls, contingencies and / or restrictions as those noted in the Groton Utilities Water Supply and Water Contingency Emergency Plans.

Please let me know if this answers your concern and whether or not you need any additional information.

GROTON UTILITIES

Rick Stevens
General Manager – Water Division & PAF

295 Meridian Street
Groton, Connecticut 06340
T 860-446-4000 F 860-446-4098

Information based on 2006 Groton Utilities WSP

23-Mar-11

Groton Available Water vs Demand, Entire System

Source	Safe Yield	Available Water	ADD FY05	ADD 5-yr	ADD 20-yr	ADD 50-yr	MMADD FY05	MMADD 5-yr	MMADD 20-yr	MMADD 50-yr	MDD FY05	MDD 5-yr	MDD 20-yr	MDD 50-yr
Total (raw water demand including filter backwash and non-revenue)	12.6	12.6	7.41	8.55	9.54	10.76	9.41	10.86	12.12	13.67	11.83	13.83	15.52	17.46
Active Supplies:														
Billings Avery Diversion														
Morgan Pond Reservoir														
Ledyard Reservoir														
Poheganut Reservoir		System reports a non-revenue of only 7.7% now and plans to reduce to 2.5% by 2050 (p. VI-7, Table 10)												
Smith Lake														
Poquonnock Reservoir														
Total														
Firm Treatment Capacity, mgd**	18.7													
Maximum Treatment Capacity ??? MGD:	20.0													
Rated Treatment Capacity, mgd	14.0													
Contract Commitments:														
Groton Long Point			0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35
Noank Fire District			0.43	0.43	0.43	0.43	0.43	0.43	0.43	0.43	0.43	0.43	0.43	0.43
Ledyard			0.2500	0.2500	0.3500		0.2500	0.2500	0.3500		0.2500	0.2500		
Regional Water demands (Montville, Mohegan Tribal Utility, Ledyard, Groton)			0.70	1.37	1.93		0.70	1.37	1.93		0.70	1.37	1.93	
Total contracts:			1.73	2.40	3.06	0.78	1.73	2.40	3.06	0.78	1.73	2.40	2.71	0.78
Non-revenue including unmetered Public Authority Consumption			non-revenue already captured in total demand above											
Actual amount used from contracts (Talbe 10, p. VI-7)			1.13	2.03	2.24	2.75	1.13	2.03	2.24	2.75	1.13	2.03	2.24	2.75
Additional amount added to system demand to bring up to maximum contract allocation			0.60	0.37	0.82		0.60	0.37	0.82		0.60	0.37	0.47	
Total System Demand w/ only system demand w/ non-revenue (not including all contract amounts)			7.41	8.55	9.54	10.76	9.41	10.86	12.12	13.67	11.83	13.83	15.52	17.46
Total System Demand w/ system demand w/ non-revenue w/all max contract amounts			8.01	8.92	10.36	10.76	10.01	11.23	12.94	13.67	12.43	14.20	15.99	17.46
MOS (based on all system demand w full contract commitments based on Available water/SY)			1.57	1.41	1.22	1.17	1.26	1.12	0.97	0.92	1.01	0.89	0.79	0.72
MOS (based on full contract & Non-revenue & use of Firm Treatment Capacity of 18.7 MGD as avail water due to treatment cap for MMADD/MDD)			2.34	2.10	1.81	1.74	1.87	1.67	1.45	1.37	1.51	1.32	1.17	1.07
MOS (based on full contract & Non-revenue & use of Rated Treatment Capacity of 14.0 MGD as avail water due to treatment cap for MMADD/MDD)			1.75	1.57	1.35	1.30	1.40	1.25	1.08	1.02	1.13	0.99	0.88	0.80

**"Firm Capacity" means adequate pumping equipment and/or treatment capacity (excluding coagulation, flocculation, and sedimentation) to meet peak daily demand, as defined below, when the largest pumping station or treatment unit is out of service.

Connecticut Department
of
ENERGY &
ENVIRONMENTAL
PROTECTION

RECEIVED
AUG 26 2011
GROTON UTILITIES

WATER

PY	!	DLL	
HDC	!	JAB	
RMS	!	TC	
RLV	!	KLC	
DLC		KFA	A
MSW		ROB	!
BAK		ORIG FILE	

Groton Utilities
295 Meridian Street
Groton, CT 06340
attn: Richard M. Stevens

Town of Ledyard
Town Hall, 741 Col. Ledyard Hwy.
Ledyard, CT 06339-1511
attn: The Honorable Fred B. Allyn, Jr., Mayor

Re: Authorization Under the General Permit for Diversion of Water for Consumptive Use: Authorization Required Categories

Authorization No.: DIV-201103692GP **(Modification of DIV-200701742GP)**
Eligible Category: Interconnection and Transfer of Up to 1,000,000 gpd
Town: Ledyard

Dear Mr. Stevens & Mayor Allen:

Your *Request for Authorization Under the General Permit for Diversion of Water for Consumptive Use* dated April 28, 2011 and filed with this department on May 19, 2011 is hereby approved. The purpose of the diversion is to provide for public water supply. Your request for authorization is approved pursuant to the provisions of the *General Permit for Diversion of Water for Consumptive Use: Authorization Required Categories* (DEP-IWRD-GP-012) ("the General Permit") issued March 29, 2007 pursuant to Section 22a-378a of the General Statutes.

The diversion authorized by this permit supersedes the diversion authorized by Water Diversion Permit #DIV-200701742GP.

Please be advised that Section 22a-379 of the General Statutes requires the holder of a water diversion permit authorizing a consumptive use of waters of the state to pay an annual fee to the Commissioner of Environmental Protection. The annual fee requirement applies to holders of individual permits and general permit authorizations. Currently, the annual fee established by Special Session Public Act No. 03-6 for such permits is $940 ($470 for municipalities). Each year, the department mails an invoice for payment to each permit holder. Payment of the invoice is due by July 1st (August 1st for municipalities).

If you have not already done so, you should contact your local Inland Wetlands Agency and the U.S. Army Corps of Engineers to determine local and federal permit requirements on your project, if any. Write the Corps' New England District, Regulatory Branch, 696 Virginia Road, Concord, MA 01742-2751 or call (978) 318-8335.

If you have any questions concerning this authorization, please contact staff in the Inland Water Resources Division at (860) 424-3019.

Authorized Activity:

Groton Utilities and the Town of Ledyard (the "permittee") are authorized to divert the waters of the state by transferring a maximum of 0.500 million gallons of water per day (mgd) from Groton Utilities' system to the Town of Ledyard's system in accordance with documentation submitted as a part of the request for authorization. This authorization is further limited by a maximum month/average daily (calculated by dividing the total yearly transfer volume by the number of days the transfer was active during the peak use calendar month) transfer of 0.250 mgd. This authorization is subject to the conditions described below.

Permittee's failure to comply with the terms and conditions of this authorization and those of the general permit shall subject permittee and permittee's contractor(s) to enforcement actions and penalties as provided by law.

Any permittee authorized for a diversion of water under this general permit shall assure that activities authorized by the general permit are conducted in accordance with the following conditions:

A. SPECIAL CONDITIONS - none

B. OPERATING CONDITIONS

(1) Diversion Metering

The permittee shall install a flow meter(s) to measure the total volume of diversion authorized herein, and shall for the duration of the authorization continuously operate and maintain such meter(s) in good working order. In the event of meter malfunction or breakage, the permittee shall repair or replace such meter within 72 hours.

(2) Meter Calibration

The permittee shall test each meter referenced in condition B(1) above every other year, and calibrate to within two percent accuracy as shown through a post-calibration test. The permittee shall maintain a record of the accuracy and calibration tests along with supporting documentation and certifications. The permittee shall make a copy of said records available to the commissioner or the commissioner's designee immediately upon request.

(3) Inspections

The permittee shall conduct routine inspections of all equipment associated with the diversion(s) authorized by the general permit. Inspections shall be conducted as necessary to insure proper operation of all equipment. A log shall be maintained on-site documenting the date of inspection, inspector's name, verification of operation or critical equipment, and a summary of any work or change in equipment associated with the diversions authorized by the general permit.

(4) Daily Diversion Recording

The permittee shall record on a daily basis the quantity of water that is diverted or transferred, and is metered, pursuant to the general permit. Water diversions shall be recorded and reported in gallons or thousands of gallons. The daily record shall include all other pertinent data such as but not limited to the volume of water diverted, typical hours of operation, the time each day that the meter was read and recorded, and denotation and explanation of any instances in which the diversion of water exceeded the authorized withdrawal limitation(s) specified above. Such record shall be on a form as prescribed by the commissioner. A copy of the daily record of withdrawals shall be included in the Annual Report to the commissioner as required in condition C(3) below.

(5) Long-range Water Conservation Plan

Each permittee that is a water company, as defined in section 25-32a of the Connecticut General Statutes, and is required by section 25-32d of the Connecticut General Statutes to submit a water supply plan to the Commissioner of Public Health, shall implement its water conservation component of said plan and any subsequent amendments or updates as approved by section 25-32d of the Connecticut General Statutes. The permittee shall maintain a summary of all actions taken each year pursuant to the Long-range Water Conservation Plan and, where practical, a description of the estimated or actual water savings achieved. A copy of this summary shall be included in the Annual Report to the commissioner as required in condition C(3) below.

(6) Water Audit

Each water company authorized to divert or transfer herein shall triennially conduct a water audit of their water distribution system. The water audit shall follow standards and criteria contained within American Water Works Association's (AWWA) Manual M36 as may be amended or revised. A copy of all actions taken pursuant to the water audit shall be included in the Annual Report to the commissioner as required by condition C(3) below.

(7) Leak Detection

Each permittee that is a water company, at any time that the unaccounted-for water, as calculated pursuant to condition B(6) remains above 15% of total system input, the permittee shall, in the subsequent year conduct a system-wide, comprehensive leak detection survey of the water distribution system and repair any leaks found. The leak detection survey shall follow standards and criteria contained within the AWWA Manual M36 as may be amended or revised. The permittee shall maintain a record of all actions taken pursuant to the leak detection survey, including the number of miles of water main surveyed, the survey techniques and methodology utilized, the number of leaks detected, and the actual repairs made. A copy of this record shall be included in the Annual Report to the commissioner as required by condition C(3) below.

(8) Seasonal Irrigation Restrictions

Irrigation withdrawals authorized under this general permit are restricted to the period of April 15 through October 31, inclusive.

(9) Pollution Prevention / Best Management Practices

The permittee shall not cause or allow the authorized diversion, including any construction associated therewith, to result in pollution or other environmental damage and shall employ best management practices to prevent such damage. The permittee shall, in addition to employing any other best management practices necessary to prevent such damage, do the following:

(A) Control Erosion

The permittee shall install and maintain in optimal condition erosion and sedimentation controls to prevent erosion and discharge of material into any waters of the state, including wetlands, as a result such diversion or any construction associated therewith. Such controls shall be installed and maintained in conformity with the *Connecticut Guidelines for Soil Erosion and Sediment Control*, as amended, published by the Connecticut Council on Soil and Water Conservation pursuant to section 22a-328 of the General Statutes.

(B) Golf Courses

For diversions authorized under the general permit, involving the irrigation of golf courses, the permittee shall, where applicable, conform with the document entitled *Best Management Practices for Golf Course Water Use*, as amended, available from the Department at http://www.ct.gov/dep.

(C) Dispose of Excess Material Properly

All excess material and solid waste generated during any construction associated with such diversion shall be disposed of in accordance with applicable federal, state and local law.

(10) Alteration of Authorized Diversion

In operating the authorized diversion, the permittee shall not make any alteration, except a de minimis alteration, to such diversion and shall not make any de minimis alteration without first obtaining the written approval from the commissioner of such alteration. For the purposes of the general permit, a de minimis alteration means a change in the design or operation of the authorized diversion that does not increase its adverse environmental or other impacts and does not significantly change the quantity or location of water withdrawn.

(11) Contractor Notification

If the authorized diversion will be constructed by a person(s) under contract to the permittee, the permittee shall (A) give a copy of this general permit and of permittee's approval of authorization hereunder to such contractor(s) prior to the start of construction, and (B) retain a written receipt for such copy, signed and dated by such contractor(s).

(12) Notice to Commissioner of Any Changes in Permittee Contact Information

The permittee shall give written notice of any changes in permittee contact information to the commissioner within two weeks of any such change or modification.

(13) Notice to Commissioner upon Permanent Discontinuance of Diversion

Within two weeks after permanently discontinuing the authorized diversion, the permittee shall give written notice of same to the commissioner.

(14) Initiation of Diversion

If the permittee does not initiate the authorized diversion within three years after the date of the applicable approval of authorization, said approval shall be null and void.

(15) Restrictions

The DEEP shall have the right to restrict the diversion authorized in this permit at any time the commissioner determines:

(A) a declared local, regional or state-wide drought advisory, watch, warning or emergency necessitates curtailment of non-essential water uses, or

(B) the continuation of the diversion would have an adverse effect on wetlands and watercourses, water quality, fisheries resources, aquatic habitat, or any public or private water supply well.

C. REPORTING AND RECORD KEEPING REQUIREMENTS

Except as provided in condition C(3) below, or as otherwise specified in writing by the commissioner, all information required under the general permit shall be retained by the permittee and be readily available on request.

(1) The permittee shall maintain a copy of the general permit authorization on site at all times.

(2) The permittee shall retain copies of all records and reports required by the general permit, and records of all data used to compile these reports for a period of at least fifteen years from the date such data was generated or report was created whichever is later.

(3) Annual Report

The permittee shall submit by January 30 of each year, for the duration of their authorization, an Annual Report for the preceding calendar year. Such report shall be certified in accordance with condition E(4) below and shall contain the following:

(A) A copy of the withdrawal records of daily withdrawals and daily transfers as required by condition B(4);

(B) Summary report of any actions taken pursuant to the Long-Range Water Conservation Plan and Water Conservation Plan and description of actual or estimated water savings achieved as required by condition B(5);

(C) A copy of any Water Audit Report as required by condition B(6);

(D) A copy of any Leak Detection Report as required by condition B(7); and

(E) A copy of any violation report as required in section D below.

D. RECORDING AND REPORTING VIOLATIONS

Immediately upon learning of a violation of a condition of this authorization or of any of the requirements for authorization of Section 3(b) of the general permit, the permittee shall immediately take all reasonable action to determine the cause of such violation, correct such violation and mitigate its results, prevent further such violation, and report in writing such

violation and such corrective action to the commissioner within five (5) calendar days of the permittee learning of such violation. Such report shall include but not be limited to the following information:

(1) the provision(s) of this authorization that has been violated;

(2) the date and time the violation(s) was first discovered and by whom;

(3) the cause of the violation(s), if known;

(4) if the violation(s) has ceased, the duration of the violation(s) and the exact date(s) and time(s) it was corrected;

(5) if the violation(s) has not ceased, the anticipated date when it will be corrected;

(6) steps taken and steps planned to prevent a reoccurrence of the violation(s) and the date(s) such steps were implemented or will be implemented;

(7) the signatures and signed certification statements of the permittee and of the individual(s) responsible for actually preparing such report.

A copy of this report shall be included in the Annual Report required above.

E. GENERAL CONDITIONS

(1) Reliance on Request for Reauthorization

In evaluating the request for reauthorization, the commissioner has relied on information provided by the requester. If such information proves to be false or incomplete, the authorization issued under the general permit may be suspended or revoked in accordance with law, and the commissioner may take any other legal action provided by law.

(2) Duty to Correct and Report Violations

Upon learning of a violation of a condition of this authorization, a permittee shall immediately take all reasonable action to determine the cause of such violation, correct such violation and mitigate its results, prevent further such violation, and report in writing such violation and such corrective action to the commissioner within five (5) days of the permittee's learning of such violation, as required by section C above. Such report shall be certified in accordance with condition E(4) below.

(3) Duty to Provide Information

If the commissioner requests any information pertinent to the authorized activity or to determine compliance with the general permit, the permittee shall provide such

information in writing within thirty (30) days of such request. Such information shall be certified in accordance with condition E(4) below.

(4) Certification of Documents

Any document, including but not limited to any notice, which is submitted to the commissioner under the general permit shall be signed by, as applicable, the registrant or the permittee in accordance with section 22a-430-3(b)(2) of the Regulations of Connecticut State Agencies, and by the individual or individuals responsible for actually preparing such document, each of whom shall certify in writing as follows:

"I have personally examined and am familiar with the information submitted in this document and all attachments thereto, and I certify that, based on reasonable investigation, including my inquiry of those individuals responsible for obtaining the information, the submitted information is true, accurate and complete to the best of my knowledge and belief. I understand that a false statement made in the submitted information may be punishable as a criminal offense, in accordance with section 22a-6 of the General Statutes, pursuant to section 53a-157b of the General Statutes, and in accordance with any other applicable statute."

(5) Date of Filing

For purposes of the general permit the date of filing with the commissioner or with any municipal agency or commission of any document is the date such document is received by the commissioner, municipal agency or commission, respectively. The word "day" as used in the general permit means the calendar day; if any date specified in the general permit falls on a Saturday, Sunday, or legal holiday, such deadline shall be the next business day thereafter.

(6) False Statements

Any false statement in any information submitted pursuant to the general permit may be punishable as a criminal offense, in accordance with section 22a-6 of the General Statutes, pursuant to section 53a-157b of the General Statutes, and in accordance with any other applicable statute.

(7) Correction of Inaccuracies

Within fifteen (15) days after the date a permittee becomes aware of a change in any of the information submitted pursuant to the general permit, becomes aware that any such information is inaccurate or misleading, or that any relevant information has been omitted, such permittee shall correct the inaccurate or misleading information or supply the omitted information in writing to the commissioner. Such information shall be certified in accordance with condition E(4) above. The provisions of this subsection shall

apply both while a request for authorization is pending and after the commissioner has approved such request.

(8) Transfer of Authorization

An authorization under the general permit is transferable only in accordance with the provisions of section 22a-6o of the General Statutes and upon payment of a transfer fee of $750. A transfer of authorization shall not be deemed authorized unless the transfer fee has been paid in full.

(9) Other Applicable Law

Nothing in the general permit shall relieve the permittee of the obligation to comply with any other applicable federal, state and local law, including the obligation to obtain any other lawfully required authorization to construct or maintain the authorized diversion.

(10) Other Rights

The general permit is subject to and does not derogate any present or future rights or powers of the State of Connecticut and conveys no rights in real or personal property nor any exclusive privileges, and is subject to all public and private rights and to any federal, state, and local laws pertinent to the property or activity affected by such general permit. In conducting any activity authorized hereunder, the permittee may not cause pollution, impairment, or destruction of the air, water, or other natural resources of this state. The issuance of the general permit shall not create any presumption that the general permit should or will be renewed.

This authorization shall expire on March 29, 2017.

July 25, 2011
Date

Denise Ruzicka
Director
Inland Water Resources Division

STATE OF CONNECTICUT

DEPARTMENT OF PUBLIC HEALTH

RECEIVED
NOV 1 3
GROTON UTILITIES

November 14, 2007

Mr. Glenn M. Wilson
City of Groton Utilities
295 Meridian Street
Groton, CT 06340

Re: Permit #07-02-Sale of Excess Water to the Town of Ledyard through the Route 117 Interconnection

Dear Mr. Wilson:

Enclosed please find a copy of the authorized permit for the sale of excess water to the Town of Ledyard through the Route 117 Interconnection. This permit will require renewal on or before April 1, 2017.

Sincerely,

Lori Mathieu
Supervising Environmental Analyst
Drinking Water Section

KA

c: Stephen Steadman, Director Ledyard WPCA

GMW		LJM		ACD	/
DFC	/	BJR		RMS	/
DLC	/	RAM		RLV	/
TFS		GRS		KLC	
TMP				BAS	
FEW		DJL		LC	4
SGB		RAJ		copy - corres.	
LAS		RCD		ORIG TO	/ Legal

Phone: (860) 509-7333
Telephone Device for the Deaf: (860) 509-7191
410 Capitol Avenue - MS # 51WAT
P.O. Box 340308 Hartford, CT 06134
Affirmative Action / An Equal Opportunity Employer

PERMIT SEW #07-02

SALE OF EXCESS WATER PERMIT

In accordance with the application received August 31, 2007, and the provisions of Section 22a-358 of the Connecticut General Statutes, the City of Groton Utilities is authorized to sell excess water to the Town of Ledyard through the Route 117 Interconnection, on a daily basis up to a maximum of 0.35 million gallons per day and 128 million gallons per year.

This approval is issued because the City of Groton Utilities, has established that it has water reserves in excess of those required to maintain an adequate supply of water to customers in its service area and will continue to have adequate supplies for the duration of this permit. This permit shall expire and be null and void November 1, 2017, unless specifically renewed and extended by the Commissioner.

This permit is subject to, and does not derogate, any present or future property rights or other rights or powers of the State Connecticut, and conveys no property rights in real estate, material, or water, nor any exclusive privileges, and is further subject to any and all public and private rights and to any federal, state or local laws or regulations pertinent to the property or activity affected thereby.

The City of Groton Utilities is required to meter and report all use in accordance with Section 19-13-B102(n) of the Public Health Code.

This constitutes the approval required by Section 22a-358 of the Connecticut General Statutes.

The Commissioner may suspend or revoke this permit at any time if it is found that any condition of this permit has been violated, or if such action is necessary to maintain the purity and adequacy of the water supply.

11/15/2007
Date

Darrell Smith, Public Health Services Manager
Drinking Water Section

(860) 509-7333

51WAT

FROM: Dom DelVecchio
Drinking Water Section

SUBJECT: Review of Sale of Excess Water Permit Application (City of Groton Utilities to Town of Ledyard through the Route 117 Interconnection)

DATE: October 10, 2007

I have reviewed the subject application and offer the following comments:

1. The average daily demand (ADD) in the City of Groton Utilities system, as provided in the application, is 5.9 MGD in 2006.

2. Projected ADD for Groton Utilities in 2017 is 9.27 MGD. This includes 0.22 mgd of the proposed 0.35 mgd to be sold to the Town of Ledyard, (Route 117). The projected ADD for Groton Utilities in 2017 is 9.4 mgd if the entire 0.35 mgd proposed to be sold to the Town of Ledyard, (Route 117) were actually realized.

3. Available water from the City of Groton Utilities is 12.6 MGD, the safe yield of the reservoir system, which is sufficient to meet projected demands (9.27 mgd) which includes projected sales to the Town of Ledyard through the Route 117 interconnection through 2017.

In view of the above, I do not see any reason to deny the sale of excess water request by the City of Groton Utilities.

Groton Rte 117 Ledyard Interconnection Available Water vs Demand

Source	Total Yield	Safe Yield	Ave Day (FY 2006)	Max Day (FY 2006)	5 years	10 years	50 years
Groton Utilities Reservoir System		12.6 mgd	5.9 mgd		8.33	9.05	
Total							
Ledyard WPCA Wholesale (contract max)					.35 mgd	.35 mgd	
Total System Demand w/ max wholesale					**8.68 mgd**	**9.4 mgd**	
Margin of Safety (all contracts fully utilized)					**1.45**	**1.34**	

STATE OF CONNECTICUT
DEPARTMENT OF ENVIRONMENTAL PROTECTION

August 22, 2006

RECEIVED
AUG 28 2006
GROTON UTILITIES

City of Groton
Groton Utilities Department
295 Meridian Street
Groton, CT 06340
Attn: Glenn M. Wilson

Town of Ledyard
Water Pollution Control Authority
Town Hall, 741 Colonel Ledyard Highway
Ledyard, CT 06339-1541
Attn: Donald Cameron-Chairman

Application No.:	DIV-200600038
Town:	City of Groton, Town of Groton, Town of Ledyard
Waters:	Groton Reservoir System, Great Brook & Poquonnock River

Dear Messrs. Wilson and Cameron:

The Commissioner of Environmental Protection has approved your application to conduct certain regulated activities. Your attention is directed to the conditions of the enclosed permit. You should read your permit carefully. Construction and other work must conform to that which is authorized.

Section 22a-379 of the General Statutes requires the holder of a water diversion permit authorizing a consumptive use of waters of the state to pay an annual fee to the Commissioner of Environmental Protection. Currently, the annual fee established by Special Session Public Act No. 03-6 for such permits is $750. Each year, the department mails an invoice for payment to each permit holder. Payment of the invoice is due by July 1st.

If you have not already done so, you should contact your local Planning and Zoning Office and the U. S. Army Corps of Engineers to determine local and federal permit requirements on your project, if any. Write the Corps' New England District, Regulatory Branch, 696 Virginia Road, Concord, MA 01742-2751; http://www.nae.usace.army.mil/ or call (978) 318-8303.

If you have any questions concerning your permit, please contact the Inland Water Resources Division at (860) 424-3019.

GMW		LJM		ACD	
DFC	/	BJR		RMS	/
DLC		RAM		RLV	/
TFS		GRS		KLC	
TMP				BAS	
FEW		DJL		UC	/
SGB		RAJ			
LAS		RCD		ORIG TO	

Sincerely,

Denise Ruzicka, Director
Inland Water Resources Division
Bureau of Water Protection and Land Reuse

COPIES FURNISHED TO:

All Parties
Mayor/First Selectman
Conservation Commission
Inland Wetland Agency
DEP Inland Fisheries
DPH Drinking Water Section
U. S. Army Corps of Engineers
Planning & Zoning Commission

STATE OF CONNECTICUT
DEPARTMENT OF ENVIRONMENTAL PROTECTION

PERMIT

PERMITTEES: City of Groton
Groton Utilities Department,
295 Meridian Street, Groton, CT 06340
Attn: Glenn M. Wilson

Town of Ledyard
Water Pollution Control Authority
Town Hall
741 Colonel Ledyard Highway, Ledyard, CT 06339-1541
Attn: Donald Cameron-Chairman

PERMIT NO.: DIV-200600038
TOWN: City of Groton, Town of Groton & Ledyard
WATERS: Groton Reservoir System, Great Brook & Poquonnock River

Pursuant to Connecticut General Statutes section 22a-368, the City of Groton and the Town of Ledyard (the "permittees") are hereby authorized to divert the waters of the state at an interconnection located along Route 117 at the Groton/Ledyard town line (the "site") in accordance with permittees' application dated January 9, 2006, filed with this Department on January 10, 2006 and described herein. The purpose of the diversion is to provide a source of potable water to meet the demands of the Town of Ledyard public water supply system.

AUTHORIZED ACTIVITY

The permittees are authorized to divert a maximum of 0.350 million gallons per day at a maximum rate of 700 gallons per minute from the City of Groton water supply system to the Ledyard water supply system via a new watermain interconnection along Route 117 in Ledyard. The withdrawal of water shall be conducted in accordance with plans entitled "Construction of Watermains and Appurtenant Work at Center Groton Road (Connecticut Route 117) –Phase 1, Water Pollution Control Authority, Ledyard, Connecticut," dated 12/19/05 and "Construction of Watermains and Appurtenant Work at Center Groton Road (Connecticut Route 117) –Phase 2A, Water Pollution Control Authority, Ledyard, Connecticut," dated 12/19/05, both plans prepared by Amory Engineers, P.C., and in accordance with documentation submitted in the application.

PERMITTEE'S FAILURE TO COMPLY WITH THE TERMS AND CONDITIONS OF THIS PERMIT SHALL SUBJECT PERMITTEE AND PERMITTEE'S CONTRACTOR(S) TO ENFORCEMENT ACTIONS AND PENALTIES AS PROVIDED BY LAW.

SPECIAL CONDITIONS

1. **Metering of Withdrawals.** The permittees shall maintain a totalizing flow meter to measure the total amount of water transferred each day from the Groton water supply system to the Ledyard water supply system via the interconnection located along Route 117 at the Groton/Ledyard town line, and shall for the duration of this authorization continuously operate and maintain such meter in good working order. In the event of meter malfunction or breakage, the permittees shall repair or replace such meter within 72 hours.

2. **Daily Withdrawal Record.** The permittees shall maintain a daily record of the meter readings indicating the total volume of water in gallons transferred from the Groton water supply system to the Ledyard water supply system via the interconnection located along Route 117 at the Groton/Ledyard town line that day. The daily record shall also record the hours of operation, the time of meter readings, and denote and explain any instances in which the diversion of water exceeded the authorized withdrawal limitation(s) specified in this permit. A copy of the daily record of withdrawals shall be included in the Annual Report to the Commissioner required by Special Condition No. 8 of this permit.

3. **Leak Detection.** Every five years, based upon the schedule below, the permittees shall conduct a system wide comprehensive leak detection survey of the Groton and Ledyard water distribution system and repair any leaks found. The leak detection survey shall follow standards and criteria contained within AWWA Manual M36 as may be amended or revised. No later than January 15, of the following year, the permittees shall report to the Commissioner of all actions taken pursuant to the leak detection survey, including the number of mile of main surveyed, survey techniques and methodology, leaks found and repairs made. A copy of this record shall be included in the Annual Report to the Commissioner required by Special Condition No. 8 of this permit. The permittees shall undertake such leak detection surveys on or before November 1, 2010, November 1, 2015 and November 1, 2020.

4. **Meter Calibration and Reporting.** The permittees shall biennially beginning in the year following the issuance of the permit test and calibrate the interconnection meter within two percent accuracy as shown through a post-calibration test. The permittees shall maintain a record of the accuracy and calibration test(s) along with supporting documentation and certifications. The permittees shall make a copy of said records available to the Commissioner or the Commissioner's designee immediately upon request.

5. **Long-range Water Conservation Plan.** The permittees shall implement its Long-range Water Conservation Plan, as described in the permittees' application, and in accordance with the permittees' Water Supply Plan as approved pursuant to CGS Section 25-32d and any amendments or updates thereto. The permittees shall maintain a summary of all actions taken each year pursuant to the Long-range Water Conservation Plan and a description of the estimated or actual water savings achieved. A copy of this summary shall be included in the Annual Report to the Commissioner required by Special Condition No. 8 of this permit.

6. **Record Keeping Requirements.** Except as provided below, or as otherwise specified in writing by the commissioner, all information required under this permit shall be retained at the subject site, or be readily available on request. The permittees shall maintain a copy of this permit on site at all times. The permittees shall retain copies of all records and reports required by this permit; and records of all data used to compile these reports for a period of at least ten years from the date such data was generated or report created, whichever is later.

7. **Recording and Reporting Violations.** Within 48 hours after the permittees learns of a violation of this permit, the permittees shall submit in writing a report of the violation to the Commissioner. Such report shall be certified in accordance with General Condition #11 and shall include the following information:

   a. The provision(s) of this permit that has been violated;
   b. The date and time the violation(s) was first discovered and by whom;
   c. The cause of the violation(s), if known;
   d. If the violation(s) has ceased, the duration of the violation(s) and the exact date(s) and time(s) it was corrected;
   e. If the violation(s) has not ceased, the anticipated date when it will be corrected; and
   f. Actions taken and actions planned to prevent a reoccurrence of the violation(s) and the date(s) such actions were implemented or will be implemented.

8. **Annual Reporting.** The permittees shall submit by January 15 of each year, for the duration of this authorization, an Annual Report for the preceding calendar year. The Annual Report shall be certified in accordance with General Condition #11 of this permit and shall contain the following:

   a. A copy of the record of daily withdrawals and hours operated as required by Special Condition Nos. 1 and 2 of this permit;
   b. Denotation and explanation of any instances of violation of the authorized

withdrawal limitation(s) or any other condition of this authorization;

c. Summary report of all the actions taken pursuant to the Long-Range Water Conservation Plan and Water Conservation Plan and description of actual or estimated water savings achieved, as required by Special Condition No. 3 of this permit;

d. A copy of the leak detection report as required by Special Condition No. 6 of this permit.

GENERAL CONDITIONS

1. The permittees shall notify the Commissioner in writing two weeks prior to: (A) commencing construction or modification of structures or facilities authorized herein; and (B) initiating the diversion authorized herein.

2. The permittees may not make any alterations, except de minimis alterations, to any structure, facility, or activity authorized by this permit unless the permittees applies for and receives a modification of this permit in accordance with the provisions of section 22a-377(c)-2 of the Regulations of Connecticut State Agencies. Except as authorized by subdivision (5) of section 22a-377(b)-1(a) of the Regulations of Connecticut State Agencies, the permittees may not make any de minimis alterations to any structure, facility, or activity authorized by this permit without written permission from the Commissioner. A de minimis alteration means an alteration which does not significantly increase the quantity of water diverted or significantly change the capacity to divert water.

3. All structures, facilities, or activities constructed, maintained, or conducted pursuant hereto shall be consistent with the terms and conditions of this permit, and any structure, facility or activity not specifically authorized by this permit, or exempted pursuant to section 22a-377 of the General Statutes or section 22a-377(b)-1 of the Regulations of Connecticut State Agencies, shall constitute a violation hereof which may result in modification, revocation or suspension of this permit or in the institution of other legal proceedings to enforce its terms and conditions.

4. Unless the permittees maintain in optimal condition any structures or facilities authorized by this permit, the permittees shall remove such structures and facilities and restore the affected waters to their condition prior to construction of such structures or facilities.

5. In issuing this permit, the Commissioner has relied on information provided by the permittees. If such information was false, incomplete, or misleading, this permit may be modified, suspended or revoked and the permittees may be subject to any other remedies or penalties provided by law.

6. If construction of any structures or facilities authorized herein is not completed within three years of issuance of this permit or within such other time as may be provided by this permit, or if any activity authorized herein is not commenced within three years of issuance of this permit or within such other time as may be provided by this permit, this permit shall expire three years after issuance or at the end of such other time.

7. This permit is subject to and does not derogate any rights or powers of the State of Connecticut, conveys no property rights or exclusive privileges, and is subject to all public and private rights and to all applicable federal, state, and local law. In constructing or maintaining any structure or facility or conducting any activity authorized herein, the permittees may not cause pollution, impairment, or destruction of the air, water, or other natural resources of this State. The issuance of this permit shall not create any presumption that this permit should be renewed.

8. In constructing or maintaining any structure or facility or conducting any activity authorized herein, or in removing any such structure or facility under paragraph 4 hereof, the permittees shall employ best management practices to control storm water discharges, to prevent erosion and sedimentation, and to otherwise prevent pollution of wetlands and other waters of the State. The permittees shall immediately inform the Commissioner of any adverse impact or hazard to the environment which occurs or is likely to occur as the direct result of the construction, maintenance, or conduct of structures, facilities, or activities authorized herein.

9. This permit is not transferable without the prior written consent of the Commissioner.

10. This permit shall expire on August 10, 2021.

11. **Certification of Documents**. Any document, including but not limited to any notice, which is required to be submitted to the Commissioner under this permit shall be signed by the permittees or a responsible corporate officer of the permittees, a general partner of the permittees, and by the individual or individuals responsible for actually preparing such document, each of whom shall certify in writing as follows:

    "I have personally examined and am familiar with the information submitted in this document and all attachments and certify that based on reasonable investigation, including my inquiry of those individuals responsible for obtaining the information, the submitted information is true, accurate and complete to the best of my knowledge and belief, and I understand that any false statement made in this document or its attachment may be punishable as a criminal offense in accordance with Section 22a-376 under 53a-157 of the Connecticut General Statutes."

12. **Submission of Documents.** Any document or notice required to be submitted to the Commissioner under this permit shall, unless otherwise specified in writing by the Commissioner, be directed to:

Director
DEP/Inland Water Resources Division
79 Elm Street
Hartford, CT 06106-5127

The date of submission to the Commissioner of any document required by this permit shall be the date such document is received by the Commissioner. The date of any notice by the Commissioner under this permit, including but not limited to notice of approval or disapproval on any document or other action, shall be the date such notice is personally delivered or the date three days after it is mailed by the Commissioner, whichever is earlier. Except as otherwise specified in this permit, the word "day" as used in this permit means any calendar day. Any document or action which is required by this permit to be submitted or performed by a date which falls on a Saturday, Sunday or legal holiday shall be submitted or performed by the next business day thereafter.

This authorization constitutes the permit required by section 22a-368(b) of the Connecticut General Statutes.

Issued as a permit of the Commissioner of Environmental Protection on 8/22/06.

Gina McCarthy
Commissioner

STATE OF CONNECTICUT
DEPARTMENT OF ENVIRONMENTAL PROTECTION

September 21, 2010

Town of Ledyard Water Pollution Control Authority
741 Colonel Ledyard Highway
Ledyard, CT 06339-1541

Attention: Gregory Teifert, Director

Application No.:	DIV-200802557 **(Renewal of DIV-96-07)**
Town:	Ledyard
Waters:	Whitford Brook & Williams Brook

Dear Mr. Teifert:

The Commissioner of Environmental Protection has approved your application to conduct certain regulated activities. Your attention is directed to the conditions of the enclosed permit. You should read your permit carefully. Construction and other work must conform to that which is authorized.

Note that instead of the withdrawal amount you requested in your application, this permit authorizes a reduced historical maximum volume as reported to us pursuant to your annual water use reports. The reduction was necessary due to a lack of sufficient information in your application that would have adequately described the environmental impacts of an increased withdrawal amount. Internal reviews detailing these informational needs were forwarded to you in my July 14, 2010 letter. You may submit a new application containing the required information and any additional information as may be necessary for a larger withdrawal.

If you have not already done so, you should contact your local Planning and Zoning Office and the U. S. Army Corps of Engineers to determine local and federal permit requirements on your project, if any. Write the Corps' New England District, Regulatory Branch, 696 Virginia Road, Concord, MA 01742-2751; http://www.nae.usace.army.mil/ or call 1-800-343-4789.

Section 22a-379 of the General Statutes requires the holder of a water diversion permit authorizing a consumptive use of waters of the state to pay an annual fee to the Commissioner of Environmental Protection. Currently, the annual fee for such permits is $940 ($470 for municipalities). Each year, the department mails an invoice for payment to each permit holder. Payment of the invoice is due by July 1st (August 1st for municipalities).

If you have any questions concerning your permit, please contact the Inland Water Resources Division at (860) 424-3019.

Sincerely,

Denise Ruzicka
Director
Inland Water Resources Division
Bureau of Water Protection and Land Reuse

COPIES FURNISHED TO:

All Parties
Mayor/First Selectman
Conservation Commission
Inland Wetland Agency
DEP Inland Fisheries
DPH Drinking Water Section
U. S. Army Corps of Engineers
Planning & Zoning Commission

STATE OF CONNECTICUT
DEPARTMENT OF ENVIRONMENTAL PROTECTION

PERMIT

PERMITTEE: Town of Ledyard Water Pollution Control Authority
741 Colonel Ledyard Highway, Ledyard, CT 06339

PERMIT NO.: DIV-200802557 **(Renewal of DIV-96-07)**
TOWN: Ledyard
WATERS: Whitford Brook & Williams Brook

Pursuant to Connecticut General Statutes section 22a-368, Town of Ledyard Water Pollution Control Authority (the "permittee") is hereby authorized to divert the waters of the state at the Loftus Site well field, 480 Shewville Road, Ledyard (the "site") in accordance with the permittee's application dated October 24, 2008, filed with this Department on October 28, 2008 and described herein. The purpose of the diversion is to provide public drinking water supply to a portion of the Town of Ledyard.

AUTHORIZED ACTIVITY

The permittee is authorized to withdraw a total maximum of 0.250 million gallons of groundwater per day (mgd) from two wells designated PW-1 and PW-2 of the Loftus Site Wellfield in accordance with plans entitled "Location of Data Collection Points, Loftus Site", dated September 27, 1996 prepared by Ground Water Associates, Inc. and documentation submitted as a part of the application.

PERMITTEE'S FAILURE TO COMPLY WITH THE TERMS AND CONDITIONS OF THIS PERMIT SHALL SUBJECT PERMITTEE AND PERMITTEE'S CONTRACTOR(S) TO ENFORCEMENT ACTIONS AND PENALTIES AS PROVIDED BY LAW.

SPECIAL CONDITIONS

1. **Metering of Withdrawals.** The permittee shall install a totalizing flow meter to measure the total amount of water withdrawn from wells PW-1 and PW-2 for which withdrawals are authorized herein, and shall for the duration of this authorization continuously operate and maintain such meter in good working order. In the event of meter malfunction or breakage, the permittee shall repair or replace such meter within 72 hours.

2. **Daily Withdrawal Record.** The permittee shall maintain a daily record of the meter readings indicating the total volume of water in gallons withdrawn from wells PW-1 and PW-2 that day. The daily record shall also record the typical hours of operation, the time of meter readings, and denote and explain any instances in which the diversion of water exceeded the authorized withdrawal limitation(s) specified in this permit. A copy of the

daily record of withdrawals shall be included in the Annual Report to the Commissioner required by Special Condition #10 of this permit.

3. **Leak Detection.** Every five years, based upon the schedule below, the permittee shall conduct a system wide comprehensive leak detection survey of the water distribution system and repair any leaks found. The leak detection survey shall follow standards and criteria contained within the AWWA Manual M36 as may be amended or revised. No later than January 30, of the following year, the permittee shall report to the Commissioner of all actions taken pursuant to the leak detection survey, including the number of miles of main surveyed, survey techniques and methodology, leaks found and repairs made. A copy of this record shall be included in the Annual Report to the Commissioner required by Special Condition #10 of this permit. The permittee shall undertake such leak detection surveys on or before November 1, 2011, November 1, 2016, November 1, 2021, November 1, 2026, and November 1, 2031.

4. **Other Restrictions.** The DEP shall have the right to restrict the diversion authorized in this permit at any time the Commissioner in his judgment determines: a) a declared local, regional or state-wide drought advisory, watch, warning or emergency necessitates restriction or reduction of essential water uses, or b) the continuation of the diversion may have an adverse effect on water quality, fisheries resources, aquatic habitat or public health.

5. **Stream Gaging, Monitoring and Reporting.** The permittee shall maintain their existing staff gage within Whitford Brook for the purpose of monitoring stream flow for the duration of this permit, including re-calibration and development of a new rating curve as field conditions warrant. The permittee shall maintain a record of the staff gage reading and stream flow as determined from the established rating curve. Such measurements shall be recorded biweekly during the November 1 through April 30 and daily from May 1 through October 30 of each year for the duration of the permit. A copy of this record shall be included in the Annual Report to the Commissioner as required by Special Condition #10 of this permit.

6. **Meter Calibration and Reporting.** The permittee shall biennially beginning in 2011test and calibrate each source meter to within two percent accuracy as shown through a post-calibration test. The permittee shall maintain a record of the accuracy and calibration test(s) along with supporting documentation and certifications. The permittee shall make a copy of said records available to the Commissioner or the Commissioner's designee immediately upon request.

7. **Long-range Water Conservation Plan.** The permittee shall implement its Long-range Water Conservation Plan, as described in the permittee's application, and in accordance with the permittee's Water Supply Plan as approved pursuant to CGS Section 25-32d and

any amendments or updates thereto. The permittee shall maintain a summary of all actions taken each year pursuant to the Long-range Water Conservation Plan and a description of the estimated or actual water savings achieved. A copy of this summary shall be included in the Annual Report to the Commissioner required by Special Condition #10 of this permit.

8. **Record Keeping Requirements.** Except as provided below, or as otherwise specified in writing by the commissioner, all information required under this permit shall be retained at the subject site, or be readily available on request. The permittee shall maintain a copy of this permit on site at all times. The permittee shall retain copies of all records and reports required by this permit; and records of all data used to compile these reports for a period of at least three years after the expiration date of this permit.

9. **Recording and Reporting Violations.** Within 48 hours after the permittee learns of a violation of this permit, the permittee shall submit in writing a report of the violation to the Commissioner. Such report shall contain the following information:

    a. The provision(s) of this permit that has been violated,
    b. The date and time the violation(s) was first discovered and by whom,
    c. The cause of the violation(s), if known;
    d. If the violation(s) has ceased, the duration of the violation(s) and the exact date(s) and time(s) it was corrected,
    e. If the violation(s) has not ceased, the anticipated date when it will be corrected; and
    f. Actions taken and actions planned to prevent a reoccurrence of the violation(s) and the date(s) such actions were implemented or will be implemented.

10. **Annual Reporting.** The permittee shall submit by January 30 of each year, for the duration of this authorization, an Annual Report for the preceding calendar year. The Annual Report shall be certified in accordance with General Condition #11 of this permit and shall contain the following:

    a. A copy of the record of daily withdrawals and hours operated as required by Special Condition #2 of this permit,
    b. A copy of the leak detection report as required by Special Condition #3 of this permit,
    c. A copy of the stream gage record and stream flow as required by Special Condition #5 of this permit,
    d. Summary report of all the actions taken pursuant to the Long-Range Water Conservation Plan and Water Conservation Plan and description of actual or estimated water savings achieved, as required by Special Condition #7 of this permit,

e. Denotation and explanation of any instances of violation of the authorized withdrawal limitation(s) or any other condition of this authorization, and

GENERAL CONDITIONS

1. The permittee shall notify the Commissioner in writing two weeks prior to: (A) commencing construction or modification of structures or facilities authorized herein; and (B) initiating the diversion authorized herein.

2. The permittee may not make any alterations, except de minimis alterations, to any structure, facility, or activity authorized by this permit unless the permittee applies for and receives a modification of this permit in accordance with the provisions of section 22a-377(c)-2 of the Regulations of Connecticut State Agencies. Except as authorized by subdivision (5) of section 22a-377(b)-1(a) of the Regulations of Connecticut State Agencies, the permittee may not make any de minimis alterations to any structure, facility, or activity authorized by this permit without written permission from the Commissioner. A de minimis alteration means an alteration which does not significantly increase the quantity of water diverted or significantly change the capacity to divert water.

3. All structures, facilities, or activities constructed, maintained, or conducted pursuant hereto shall be consistent with the terms and conditions of this permit, and any structure, facility or activity not specifically authorized by this permit, or exempted pursuant to section 22a-377 of the General Statutes or section 22a-377(b)-1 of the Regulations of Connecticut State Agencies, shall constitute a violation hereof which may result in modification, revocation or suspension of this permit or in the institution of other legal proceedings to enforce its terms and conditions.

4. Unless the permittee maintains in optimal condition any structures or facilities authorized by this permit, the permittee shall remove such structures and facilities and restore the affected waters to their condition prior to construction of such structures or facilities.

5. In issuing this permit, the Commissioner has relied on information provided by the permittee. If such information was false, incomplete, or misleading, this permit may be modified, suspended or revoked and the permittee may be subject to any other remedies or penalties provided by law.

6. If construction of any structures or facilities authorized herein is not completed within three years of issuance of this permit or within such other time as may be provided by this permit, or if any activity authorized herein is not commenced within three years of

issuance of this permit or within such other time as may be provided by this permit, this permit shall expire three years after issuance or at the end of such other time.

7. This permit is subject to and does not derogate any rights or powers of the State of Connecticut, conveys no property rights or exclusive privileges, and is subject to all public and private rights and to all applicable federal, state, and local law. In constructing or maintaining any structure or facility or conducting any activity authorized herein, the permittee may not cause pollution, impairment, or destruction of the air, water, or other natural resources of this State. The issuance of this permit shall not create any presumption that this permit should be renewed.

8. In constructing or maintaining any structure or facility or conducting any activity authorized herein, or in removing any such structure or facility under paragraph 4 hereof, the permittee shall employ best management practices to control storm water discharges, to prevent erosion and sedimentation, and to otherwise prevent pollution of wetlands and other waters of the State. The permittee shall immediately inform the Commissioner of any adverse impact or hazard to the environment which occurs or is likely to occur as the direct result of the construction, maintenance, or conduct of structures, facilities, or activities authorized herein.

9. This permit is not transferable without the prior written consent of the Commissioner.

10. This permit shall expire on July 14, 2020.

11. **Certification of Documents**. Any document, including but not limited to any notice, which is required to be submitted to the Commissioner under this permit shall be signed by the permittee or a responsible corporate officer of the permittee, a general partner of the permittee, and by the individual or individuals responsible for actually preparing such document, each of whom shall certify in writing as follows:

    "I have personally examined and am familiar with the information submitted in this document and all attachments and certify that based on reasonable investigation, including my inquiry of those individuals responsible for obtaining the information, the submitted information is true, accurate and complete to the best of my knowledge and belief, and I understand that any false statement made in this document or its attachment may be punishable as a criminal offense in accordance with Section 22a-376 under 53a-157 of the Connecticut General Statutes."

12. **Submission of Documents**. Any document or notice required to be submitted to the Commissioner under this permit shall, unless otherwise specified in writing by the Commissioner, be directed to:

Director
DEP/Inland Water Resources Division
79 Elm Street
Hartford, CT 06106-5127

The date of submission to the Commissioner of any document required by this permit shall be the date such document is received by the Commissioner. The date of any notice by the Commissioner under this permit, including but not limited to notice of approval or disapproval on any document or other action, shall be the date such notice is personally delivered or the date three days after it is mailed by the Commissioner, whichever is earlier. Except as otherwise specified in this permit, the word "day" as used in this permit means any calendar day. Any document or action which is required by this permit to be submitted or performed by a date which falls on a Saturday, Sunday or legal holiday shall be submitted or performed by the next business day thereafter.

This authorization constitutes the permit required by section 22a-368(b) of the Connecticut General Statutes.

Issued as a permit of the Commissioner of Environmental Protection on September 21, 2010.

Amey Marrella

Amey W. Marrella
Commissioner

APPENDIX E

Hydrant Testing Results

Groton Department of Utilities
2015 Hydrant Flow Test Record - LEDYARD

Hydrant	9.29 Exact Location	Number of Outlets	Diameter of Outlets	Coefficient of Outlets	Static (psi)	Pitot (psi)	Residual (psi)	Actual Flow (gpm)	60 psi Calc. (gpm)	20 psi Calc. (gpm)	PMP OP (psi)	Tank Level	System Demand (mgd)	Date Tested	Time Tested	Main Tested	Service Area
A	B	C	D	E	F	G	H	I	J	K	L	M	N	O		P	Q
1	Gallup Hill Road at Pennywise Lane	1	2.5	0.9	80	50	57	1,186	953	1725	71.9	22.1	8.43	6/23/15	9:55 AM		H
2	Gallup Hill Road at Model Park Road	1	2.5	0.9	76	14	24	628	302	594	74.7	19	5.97	6/23/15	8:40 AM		H
3	Gallup Hill Road, between Model Park and Highlan	1	2.5	0.9	78	12	28	581	288	542	74.4	19	5.09	6/23/15	8:50 AM		H
4	Gallup Hill Road at Town Farm Road	1	2.5	0.9	76	14	22	628	302	594	72.9	19	8.03	6/23/15	8:56am		H
5	Flintlock Road, across from Stonegate	1	2.5	0.9	74	8	16	475	205	426	74.5	18	7.18	6/23/15	11:40 AM		H
6	Flintlock Road	1	2.5	0.9	78	10	14	531	259	487	73.7	18	7.83	6/23/15	11:30 AM		H
7	Town Farm Road, behind atheltic field	1	2.5	0.9	100	10	16	531	342	498	72.8	18.1	8.36	6/23/15	11:20 AM		H
8	Highland Drive, between Powder Horn Lane and Bl	1	2.5	0.9	84	16	22	671	382	650	72.6	18.1	8.4	6/23/15	11:10 AM		H
9	Meeting House Lane, across from Pennywise Lane	1	2.5	0.9	73	44	52	1,113	722	1541	72.2	18.7	8.28	6/23/15	9:45 AM		H
10	Meeting House Lane at #49	1	2.5	0.9	86	50	53	1,186	995	1646	72.3	18.5	8.22	6/23/15	10:20 AM		H
11	Blacksmith Road at #45	1	2.5	0.9	98	16	22	671	443	653	72.4	18.5	8.52	6/23/15	10:20 AM		H
12	Blacksmith Road at #1 Old Fort Ln	1	2.5	0.9	80	14	18	628	329	596	73.7	18.5	6.13	6/23/15	10:00 AM		H
13	Highland Drive at #39	1	2.5	0.9	98	20	28	750	509	750	74.9	17.8	6.76	6/23/15	12:01 PM		H
14	Cartridge Trail at #13	1	2.5	0.9	72	20	28	750	340	750	75	17.6	7.74	6/23/15	12:20 PM		H
15	Highland Drive at #60	1	2.5	0.9	62	26	30	856	180	930	73.5	17.5	7.49	6/23/15	12:35 PM		H
16	Meeting House Lane at #91	1	2.5	0.9	60	16	26	671	0	638	73.7	17.4	7.86	6/23/15	12:45 PM		H
17	Meeting House Lane at #123	1	2.5	0.9	90	28	46	888	600	948	73.1	17.2	8.28	6/23/15	1:45 PM		H
18	Country Club Drive at #34 (end of road)	1	2.5	0.9	100	38	48	1,034	816	1187	74.1	17.2	8.25	6/23/15	1:20 PM		H
19	Highlands Well Field off Shewville Road	1	2.5	0.9				0	0	#NUM!							H
20	Meeting House Lane at #149	1	2.5	0.9	100	22	34	787	549	798	73.7	17.1	8.26	6/23/15	1:25 PM		H
21	Town Farm Drive at #75	1	2.5	0.9				0	0	#NUM!							H
22	Lakeside Drive	1	2.5	0.9				0	0	#NUM!							H
23	Lakeside Drive	1	2.5	0.9				0	0	#NUM!							H
24	Unassigned	1	2.5	0.9				0	0	#NUM!							
25	Unassigned	1	2.5	0.9				0	0	#NUM!							
26	Unassigned	1	2.5	0.9				0	0	#NUM!							
27	Unassigned	1	2.5	0.9				0	0	#NUM!							
28	Route 12 @ Building #1458 and Naval Reservation	1	2.5	0.9	70	40	58	1,061	586	1398	73.1	42.8	5.76	6/22/15	8:07 AM		G F
29	Route 12 across from Building #1477	1	2.5	0.9	80	50	68	1,186	953	1725	71	42.8	5.95	6/22/15	8:12 AM		G F
30	Route 12 @ Long Cove Road	1	2.5	0.9	99	58	85	1,278	1244	1821	72.6	42.8	5.73	6/22/15	8:18 AM		G F
31	Route 12 across from Self-Storage, near #1510	1	2.5	0.9	96	62	84	1,321	1363	2040	72.1	72.8	5.86	6/22/15	8:25 AM		G F
32	Route 12 @ Inchcliffe Drive	1	2.5	0.9	94	56	73	1,256	1182	1800	71.6	42.8	5.85	6/22/15	8:35 AM		G F
33	Route 12 @ Christy Hill Condos	1	2.5	0.9	58	56	67	1,256	0	6157	72.2	42.8	5.78	6/22/15	8:38 AM		G F
34	Route 12 @ #1552	1	2.5	0.9	76	46	59	1,138	810	1594	72.7	42.8	6.24	6/22/15	8:45 AM		G F
35	Route 12 North of #1564	1	2.5	0.9	74	44	58	1,113	738	1529	72.3	42.8	6.31	6/22/15	8:50 AM		G F
36	Route 12 @ Van Tassel Drive	1	2.5	0.9	72	44	58	1,113	704	1555	73	42.8	6.19	6/22/15	8:55 AM		G F
37	Route 12 @ Pond and #1592	1	2.5	0.9	73	44	59	1,113	722	1541	72	42.9	6.3	6/22/15	9:02 AM		G F
38	Route 12 @ Building #1602, across from Barry Dri	1	2.5	0.9	80	40	56	1,061	730	1321	72.3	43	6.4	6/22/15	9:13 AM		G F
39	Route 12 @ Kings Highway (South)	1	2.5	0.9	85	48	65	1,163	941	1576	72.9	43	6.22	6/22/15	9:20 AM		G F
40	Route 12 @ #1622	1	2.5	0.9	92	52	75	1,210	1073	1662	73.3	43	6.18	6/22/15	9:26 AM		G F
41	Route 12 @ #1635 (North)	1	2.5	0.9	106	70	92	1,404	1603	2247	72.5	43.1	6.2	6/22/15	9:35 AM		G F
42	Route 12 @ Christy Hill Road	1	2.5	0.9	112	74	94	1,443	1710	2327	72.9	43.1	6.23	6/22/15	9:51 AM		G F
43	Route 12 @ Gales Ferry Commons	1	2.5	0.9				0	0	#NUM!							G F
44	Route 12 in front of Our Lady of Lourdes Church	1	2.5	0.9	110	64	90	1,342	1404	1929	71.3	43.2	6.38	6/22/15	10:00 AM		G F
45	Route 12 @ Military Highway	1	2.5	0.9	105	54	84	1,233	1152	1625	72.1	41.4	6.05	6/22/15	12:01 PM		G F
46	Route 12 @ Chapman Lane	1	2.5	0.9	106	68	86	1,384	1534	2151	71.7	41	6.02	6/22/15	12:18 PM		G F
47	Route 12 near #1686	1	2.5	0.9	96	54	76	1,233	1135	1698	75.1	41.5	5.77	6/22/15	11:53 AM		G F
47B	Route 12 as McDonalds	1	2.5	0.9	102	65	80	1,353	1449	2079	76	43.1	5.67	6/22/15	10:08 AM		G F
48	Route 12 @ Whalehead Road	1	2.5	0.9	80	42	62	1,087	769	1392	72.4	41.6	6.05	6/22/15	11:45 AM		G F
49	Whalehead Road @ Anderson Drive	1	2.5	0.9	86	54	66	1,233	1102	1823	71.2	42.4	6.41	6/22/15	11:00 AM		G F
50	Anderson Drive near House #8	1	2.5	0.9	78	44	67	1,113	789	1485	72.2	42.3	6.3	6/22/15	11:10 AM		G F
51	Anderson Drive @ Route 12 (hydrant east of Route	1	2.5	0.9	79	44	66	1,113	800	1476	72.4	42.2	6.25	6/22/15	11:15 AM		G F
52	Route 12 @ #1737	1	2.5	0.9	84	46	66	1,138	888	1508	72.4	42.2	5.47	6/24/15	11:35 AM		G F

Groton Department of Utilities
2015 Hydrant Flow Test Record - LEDYARD

Hydrant	9.29 Exact Location	Number of Outlets	Diameter of Outlets	Coefficient of Outlets	Static (psi)	Pitot (psi)	Residual (psi)	Actual Flow (gpm)	60 psi Calc. (gpm)	20 psi Calc. (gpm)	PMP OP (psi)	Tank Level	System Demand (mgd)	Date Tested	Time Tested	Main Tested	Service Area
A	B	C	D	E	F	G	H	I	J	K	L	M	N	O		P	Q
53	Route 12 South of Building #1754	1	2.5	0.9	92	56	76	1,256	1178	1826	72.8	42.6	5.48	6/24/15	11:25 AM		G F
54	Route 12 @ Gales Ferry Volunteer Fire Department	1	2.5	0.9	105	58	84	1,278	1248	1760	73.1	43.4	5.55	6/24/15	11:05 AM		G F
55	Route 12 @ Dow Chemical and UP #1718	1	2.5	0.9	107	60	90	1,300	1300	1812	74.9	43.6	5.28	6/24/15	10:58 AM		G F
56	Route 12 @ Dow Chemical North enterance	1	2.5	0.9	108	64	92	1,342	1407	1952	73.4	43.8	5.52	6/24/15	10:52 AM		G F
57	Oakridge Drive @ Route 12	1	2.5	0.9	108	64	86	1,342	1407	1952	72.4	41.6	6.05	6/22/15	11:45 AM		G F
58	River Road @ Route 12 (South)	1	2.5	0.9	105	70	92	1,404	1608	2267	74.1	38.1	5.62	6/22/15	2:54 PM		G F
59	River Road @ #19	1	2.5	0.9	116	90	99	1,592	2409	3223	76.7	38.1	5.33	6/22/15	2:46 PM		G F
60	River Road @ #25	1	2.5	0.9	117	85	98	1,547	2113	2816	76.2	38.2	5.44	6/22/15	2:40 PM		G F
61	Route 12 @ River Road (North intersect.)	1	2.5	0.9	118	80	103	1,501	1886	2503	76.1	28.3	5.41	6/22/15	2:35 PM		G F
62	Clark Lane @ Route 12	1	2.5	0.9	106	76	100	1,463	1843	2583	75	40.1	5.78	6/22/15	1:00 PM		G F
63	Old Quarry Road @ Juliet Long School	1	2.5	0.9	106	70	95	1,404	1603	2247	74.1	39.9	5.86	6/22/15	1:10 PM		G F
64	Old Quarry Road @ Juliet Long School	1	2.5	0.9	106	70	85	1,404	1603	2247	78	39.8	4.78	6/22/15	1:16pm		G F
65	Juiet Long School (East School Entrance)	1	2.5	0.9	105	60	80	1,300	1300	1832	75.8	39.6	4.22	6/22/15	1:25 PM		G F
66	School Parking lot (West Middle School Entrance)	1	2.5	0.9	103	58	67	1,278	1247	1779	78	39.3	4.68	6/22/15	1:42pm		G F
67	School Parking Lot (Northwest corner of the Middle	1	2.5	0.9	103	58	67	1,278	1247	1779	75.4	39	4.86	6/22/15	1:55 PM		G F
68	Route 12 @ Entrance to Playing Field	1	2.5	0.9	110	80	92	1,501	1978	2716	76.3	38.4	5.46	6/22/15	2:25 PM		G F
69	Route 214 Near Route 12	1	2.5	0.9	108	78	96	1,482	1910	2650	72.7	45.9	5.48	6/24/15	9:35 AM		G F
70	Route 214 @ School Drive	1	2.5	0.9	100	72	95	1,424	1726	2510	75.2	38.6	5.55	6/22/15	2:15 PM		G F
71	S. Glenwoods Road Near Route 12	1	2.5	0.9	106	72	90	1,424	1676	2350	73.2	45.7	5.47	6/24/15	9:40 AM		G F
72	Route 12 Near House #1895	1	2.5	0.9	110	80	98	1,501	1978	2716	73.1	44.1	5.46	6/24/15	10:42 AM		G F
73	Stonybrook Near Route 12 Intersection	1	2.5	0.9	110	78	100	1,482	1886	2590	73	45.5	5.51	6/24/15	9:50 AM		G F
74	Stonybrook Road Near House #9	1	2.5	0.9	106	58	72	1,278	1249	1751	73	42	5.51	6/24/15	11:40 AM		G F
75	Stonybrook Road Near House #20	1	2.5	0.9	102	60	80	1,300	1300	1865	73.1	41.4	5.52	6/24/15	11:55 AM		G F
76	N. Glenwoods Near Stonybrook Road Intersect.	1	2.5	0.9	102	66	78	1,363	1481	2126	73.7	41	5.49	6/24/15	12:02 PM		G F
77	Stonybrook Road Near House #36	1	2.5	0.9	90	52	68	1,210	1065	1683	73.9	40.7	5.4	6/24/15	12:10 PM		G F
78	N. Glenwoods Road Near Stonybrook Road Intesec	1	2.5	0.9	84	56	76	1,256	1155	1962	72.7	44.3	5.48	6/24/15	10:35 AM		G F
79	Route 214 Near House #60	1	2.5	0.9	80	44	64	1,113	810	1467	73.3	40	6.69	6/25/15	2:20 PM		G F
80	Cardinal Lane Near Route 12	1	2.5	0.9	86	46	62	1,138	902	1491	73.5	40.1	9.26	6/24/15	1:55 PM		G F
81	Tananger Lane Near Route 12 Intersection	1	2.5	0.9	90	46	58	1,138	925	1462	75.5	40.6	8.82	6/24/15	1:45 PM		G F
82	Bittersweet Drive Near Stonybrook Road	1	2.5	0.9	102	52	80	1,210	1101	1580	71.8	39.5	6.82	6/25/15	2:35 PM		G F
83	Route 12 @ Willamsburg Court	1	2.5	0.9	105	72	96	1,424	1683	2373	73	44.7	5.48	6/24/15	10:18 AM		G F
84	Orchard Ln. Near Route 12	1	2.5	0.9	116	80	98	1,501	1905	2549	73.8	44.9	5.51	6/24/15	10:12 AM		G F
85	Route 12	1	2.5	0.9	100	74	110	1,443	1821	2648	72.8	45.2	5.45	6/24/15	10:00 AM		G F
86	Thamesview Pentway @ Route 12	1	2.5	0.9	108	66	85	1,363	1465	2032	72.3	42.1	6.29	6/22/15	11:20 AM		G F
87	Route 12 @ Dow Chemical South entrance & UP #	1	2.5	0.9	100	56	80	1,256	1193	1734	74.6	42.8	5.31	6/24/15	11:20 AM		G F
88	Hurlbutt Road @ Route 12	1	2.5	0.9				0	0	#NUM!							G F
89	Chapman Lane Near House #19	1	2.5	0.9	106	56	78	1,256	1200	1683	72.9	43.2	6.9	6/26/15	10:45 AM		G F
90	Chapman Lane Near House #28	1	2.5	0.9	108	56	78	1,256	1203	1668	71.7	42.5	7	6/26/15	11:00 AM		G F
91	Chapman Lane Near Gales Ferry Marina	1	2.5	0.9	105	56	72	1,256	1199	1691	71.5	42	7.03	6/26/15	11:10 AM		G F
92	Military Highway @ Winthrop Road	1	2.5	0.9				0	0	#NUM!							G F
93	Hurlbutt Road @ Gales Ferry School	1	2.5	0.9				0	0	#NUM!							G F
94	Winthrop Road @ House #14	1	2.5	0.9				0	0	#NUM!							G F
95	Library Lane @ House #9	1	2.5	0.9	110	72	86	1,424	1651	2268	77.4	41.2	7.9	6/24/15	3:17 PM		G F
96	Ledyard Lane South of Decatur Trl	1	2.5	0.9	110	60	84	1,300	1300	1785	77.4	41.4	7.81	6/24/15	3:30 PM		G F
97	Allyn Lane South of Decatur Trl	1	2.5	0.9	110	66	86	1,363	1461	2006	75.9	40.5	8.78	6/24/15	2:22 PM		G F
98	Sunset Road @ Spring Street No. Inter.	1	2.5	0.9	110	64	84	1,342	1404	1929	75.2	40.7	8.91	6/24/15	2:35 PM		G F
99	Sunset Road near House #7	1	2.5	0.9	108	74	82	1,443	1739	2412	76.4	40.7	7.3	6/24/15	2:40 PM		G F
100	Sunset Road Spring Street (South)	1	2.5	0.9	110	70	84	1,404	1584	2175	76.4	40.8	7.67	6/24/15	2:50 PM		G F
101	Hurlbutt Road @ Maple Corner	1	2.5	0.9	108	68	82	1,384	1527	2118	74.8	44	6.02	6/26/15	9:50 AM		G F
102	Hurlbutt Circle @ Turn Around	1	2.5	0.9	108	66	82	1,363	1465	2032	73.8	50	6.2	6/26/15	10:00 AM		G F
103	Hurlbutt Road @ Library Lane	1	2.5	0.9	108	62	86	1,321	1352	1875	78.1	41.1	7.64	6/24/15	2:10 PM		G F
104	Hurlbutt Road @ Ledyard Lane	1	2.5	0.9	106	64	88	1,342	1410	1977	75.6	41	8.05	6/24/15	3:00 PM		G F
105	Hurlbutt Road @ Allyn Lane	1	2.5	0.9	110	80	84	1,501	1978	2716	75.8	40.4	8.88	6/24/15	2:15 PM		G F

Groton Department of Utilities
2015 Hydrant Flow Test Record - LEDYARD

Hydrant	9.29 Exact Location	Number of Outlets	Diameter of Outlets	Coefficient of Outlets	Static (psi)	Pitot (psi)	Residual (psi)	Actual Flow (gpm)	60 psi Calc. (gpm)	20 psi Calc. (gpm)	PMP OP (psi)	Tank Level	System Demand (mgd)	Date Tested	Time Tested	Main Tested	Service Area
A	B	C	D	E	F	G	H	I	J	K	L	M	N	O		P	Q
106	Hurlbutt Road @ Bluff Road	1	2.5	0.9	110	74	80	1,443	1724	2367	73.5	39.5	7.85	6/24/15	1:06 PM		G F
107	Riverside Drive @ Hurlbutt Road	1	2.5	0.9	112	54	78	1,233	1162	1582	73.5	39.5	7.86	6/24/15	1:00 PM		G F
108	PARTIAL @ Riverside Drive Dead End	1	2.5	0.9	122	58	82	1,278	1256	1644	74	39.6	7.82	6/24/15	12:52 PM		G F
109	Bluff Road @ Bluff Road West (North)	1	2.5	0.9	116	63	84	1,332	1372	1836	75.8	40.3	8.89	6/24/15	2:05 PM		G F
110	Bluff Road West across from House #18	1	2.5	0.9	112	76	82	1,463	1784	2428	74	39.5	7.84	6/24/15	1:21 PM		G F
111	Bluff Road @ Bluff Road West (South)	1	2.5	0.9	113	66	82	1,363	1455	1971	75.2	39.9	8.93	6/24/15	1:45 PM		G F
112	Bluff Road @ Turn Around	1	2.5	0.9	113	64	78	1,342	1400	1897	72.8	39.8	8.85	6/24/15	1:33 PM		G F
113	Bluff Road Extension @ Browns Crossing	1	2.5	0.9	102	42	58	1,087	897	1287	73.1	43.7	6.94	6/26/15	10:30 AM		G F
114	Military Highway @ Gales Ferry School	1	2.5	0.9	107	58	84	1,278	1249	1742	73	38.4	6.16	6/25/15	3:18 PM		G F
115	Military Highway Near Intersect. Maple CornersRo	1	2.5	0.9	94	60	72	1,300	1300	1978	72.4	38.5	6.07	6/25/15	3:11 PM		G F
116	Military Highway Near Intersect. Ridge Road (Wes	1	2.5	0.9	98	60	76	1,300	1300	1916	73.3	38.8	5.96	6/25/15	3:03 PM		G F
117	Military Highway Near Intersection Harvard Terrac	1	2.5	0.9	104	54	76	1,233	1151	1632	72.9	38.2	6.06	6/25/15	4:07 PM		G F
118	End of Ridge Road	1	2.5	0.9	106	54	80	1,233	1154	1618	76.7	43.9	6.49	6/26/15	9:40 AM		G F
119	Browns Crossing Near Harvard Road	1	2.5	0.9	114	66	84	1,363	1453	1960	73.5	38.8	5.96	6/25/15	4:15 PM		G F
120	Harvard Terrace East At The End	1	2.5	0.9	104	54	76	1,233	1151	1632	72.9	38.2	6.06	6/25/15	4:07 PM		G F
121	Harvard Terrace Near House #21	1	2.5	0.9	114	62	88	1,321	1348	1819	72	38.1	6.14	6/25/15	4:00 PM		G F
122	Harvard Terrace Near House #39	1	2.5	0.9	112	56	84	1,256	1206	1642	74.1	37.9	5.97	6/25/15	3:15 PM		G F
123	Harvard Terrace At The End	1	2.5	0.9	102	54	70	1,233	1147	1647	73.5	38	5.92	6/25/15	3:45 PM		G F
124	Military Highway Near U.P. #3634	1	2.5	0.9	106	60	76	1,300	1300	1822	72.7	39.2	6.78	6/25/15	2:45 PM		G F
125	Military Highway Near U.P. #3629	1	2.5	0.9	97	66	74	1,363	1500	2228	71.5	39.4	6.88	6/25/15	3:38 PM		G F
126	Military Highway Near Intersect. Smith Pond Way	1	2.5	0.9	96	66	74	1,363	1504	2252	74	39.9	6.78	6/25/15	2:22 PM		G F
127	Smith Pond Way Near House #7	1	2.5	0.9	117	70	88	1,404	1558	2076	75.9	34.6	6.59	6/23/15	12:16 PM		G F
128	End of Woodland Lane	1	2.5	0.9	104	70	77	1,404	1614	2288	72.6	35.3	8.41	6/23/15	11:15 AM		G F
129	Mulberry Near Military Highway.	1	2.5	0.9	112	78	89	1,482	1864	2537	73.2	36.8	8.33	6/23/15	10:40 AM		G F
130	End of Mulberry Road	1	2.5	0.9	114	70	82	1,404	1568	2115	73.7	37.1	8.32	6/23/15	10:52 AM		G F
131	Military Highway North of Mill Cove Bridge	1	2.5	0.9	118	56	69	1,256	1211	1608	73.7	36.8	8.24	6/23/15	10:38 AM		G F
132	End of Mill Cove Road	1	2.5	0.9	118	70	78	1,404	1555	2064	73.4	37.2	8.32	6/23/15	10:28 AM		G F
133	Long Cove Road	1	2.5	0.9	102	72	83	1,424	1707	2451	73.9	37.2	7.58	6/23/15	8:51 AM		G F
134	Long Cove Road @ Pinelock Drive	1	2.5	0.9	404	68	85	1,384	1401	1487	82.7	37.2	8.05	6/23/15	8:58 AM		G F
135	Long Cove Road @ #2917	1	2.5	0.9	106	74	86	1,443	1756	2462	71.9	37.2	8.26	6/23/15	9:06 AM		G F
136	Long Cove Road @ #2010	1	2.5	0.9	105	72	87	1,424	1683	2373	72.3	37.2	8.28	6/23/15	9:13 AM		G F
137	Long Cove Road @ #2006	1	2.5	0.9	114	70	85	1,404	1568	2115	71.5	37.1	8.49	6/23/15	9:25 AM		G F
138	Long Cove Road Near Military Highway.	1	2.5	0.9	122	84	99	1,538	2003	2621	72.8	37.1	8.81	6/23/15	9:31 AM		G F
139	Military Highway @ Corner of Sleepy Hollow Pent	1	2.5	0.9	112	82	96	1,519	2045	2783	73.5	37.4	9.21	6/23/15	9:56 AM		G F
140	Sleepy Hollow Pentway @ Trailer Park	1	2.5	0.9	112	70	86	1,404	1575	2144	72.9	37.2	9.05	6/23/15	9:38 AM		G F
141	Military Highway @ House 166	1	2.5	0.9	112	70	85	1,404	1575	2144	74	37.5	9.21	6/23/15	10:03 AM		G F
142	Inchcliffe Drive Near The Church	1	2.5	0.9	83	48	60	1,163	927	1597	74.7	35.7	8.09	6/23/15	1:27 PM		G F
143	Inchcliffe Drive Near House #18	1	2.5	0.9	75	40	55	1,061	672	1355	74.1	35.6	8.25	6/23/15	1:20 PM		G F
144	Inchcliffe Drive Near House #26	1	2.5	0.9	64	34	46	978	330	1203	72.2	35.5	8.33	6/23/15	1:13 PM		G F
145	Inchcliffe Drive Near House #36	1	2.5	0.9	62	32	45	949	220	1138	13.5	35.4	8.35	6/23/15	1:06 PM		G F
146	Inchcliffe Drive Near House #58	1	2.5	0.9	74	38	53	1,034	621	1288	73.4	35.3	8.4	6/23/15	1:00 PM		G F
147	Inchcliffe Drive Near Inchcliffe Drive Intersect.	1	2.5	0.9				0	0	#NUM!				6/23/15	12:50 PM		G F
148	Inchcliffe Drive @ Smith Pond	1	2.5	0.9	117	74	89	1,443	1681	2240	73.7	34.8	6.94	6/23/15	12:23 PM		G F
149	Inchcliffe Drive Near House #99	1	2.5	0.9	100	56	74	1,256	1193	1734	73.5	34.9	7.49	6/23/15	12:35 PM		G F
150	Meadow Road Near Inchcliffe Drive Intersection	1	2.5	0.9	112	74	86	1,443	1710	2327	72	34.9	7.19	6/23/15	12:30 PM		G F
151	Meadow Road Near House #30	1	2.5	0.9	108	68	78	1,384	1527	2118	73	40.1	6.75	6/25/15	2:15 PM		G F
152	Meadow Road Near House #18	1	2.5	0.9	110	85	95	1,547	2249	3090	71.9	40.6	6.17	6/25/15	1:55 PM		G F
153	Meadow Road Near House #11	1	2.5	0.9	104	80	92	1,501	2082	2952	71.5	40.7	6.19	6/25/15	1:40 PM		G F
154	Kings Highway Near Intersct. Meadow Road	1	2.5	0.9	100	76	90	1,463	1927	2802	73.6	48.6	4.5	6/25/15	9:00 AM		G F
155	Kings Highway	1	2.5	0.9	106	86	96	1,556	2440	3421	72.7	49.1	4.63	6/25/15	8:40 AM		G F
156	Barry Drive @ Kings Highway	1	2.5	0.9	98	80	90	1,501	2247	3313	72.4	47.9	5.09	6/25/15	9:15 AM		G F
157	Barry Drive Near House #6	1	2.5	0.9	90	68	78	1,384	1636	2585	73.7	47.1	5.07	6/25/15	9:35 AM		G F
158	Barry Drive Near House #18	1	2.5	0.9	98	70	80	1,404	1656	2441	72.4	46.4	5.16	6/25/15	9:50 AM		G F

Groton Department of Utilities
2015 Hydrant Flow Test Record - LEDYARD

Hydrant	9.29 Exact Location	Number of Outlets	Diameter of Outlets	Coefficient of Outlets	Static (psi)	Pitot (psi)	Residual (psi)	Actual Flow (gpm)	60 psi Calc. (gpm)	20 psi Calc. (gpm)	PMP OP (psi)	Tank Level	System Demand (mgd)	Date Tested	Time Tested	Main Tested	Service Area
A	B	C	D	E	F	G	H	I	J	K	L	M	N	O		P	Q
159	Barry Drive Near House #37	1	2.5	0.9	72	50	60	1,186	855	1888	72.3	40.9	6.15	6/25/15	1:20 PM		G F
160	Barry Drive @ Richard Road	1	2.5	0.9	68	50	60	1,186	766	2015	71.4	41.1	6.17	6/25/15	1:00 PM		G F
161	Barry Drive Near Richard Road	1	2.5	0.9	90	65	90	1,353	1493	2359	71.9	43.3	4.64	6/25/15	11:00 AM		G F
162	Richard Road Near House #37	1	2.5	0.9	86	65	75	1,353	1518	2511	71.2	42.6	4.73	6/25/15	11:20 AM		G F
163	Patricia Court @ Richard Road	1	2.5	0.9	67	40	50	1,061	512	1432	74.6	42	4.92	6/25/15	11:40 AM		G F
164	Richard Road Near House #12	1	2.5	0.9	75	62	72	1,321	1427	2879	71.3	41.3	6.23	6/25/15	12:40 PM		G F
165	Patricia Court Near Patricia Court Intersection	1	2.5	0.9	65	40	50	1,061	445	1458	74.6	42	4.92	6/25/15	12:01 PM		G F
166	Patricia Court Near House #26	1	2.5	0.9				0	0	#NUM!							G F
167	South Glenwoods Road @ Hemlock Circle (West)	1	2.5	0.9	92	52	72	1,210	1073	1662	73.2	35.5	8.34	6/23/15	11:10 AM		G F
168	South Glenwoods Road @ Hemlock Circle (East)	1	2.5	0.9	82	38	48	1,034	711	1245	73.6	44.9	5.44	6/24/15	10:15 AM		G F
169	South Glenwoods Road at the End	1	2.5	0.9	78	24	32	822	454	854	72.1	44.7	5.52	6/24/15	10:20 AM		G F
170	Hemlock Circle @ Overlook Road	1	2.5	0.9	76	32	50	949	550	1081	74.8	44.4	5.38	6/24/15	10:30 AM		G F
171	Hemlock Circle @ House #9 and Up #1192	1	2.5	0.9	86	38	50	1,034	743	1228	75	44.2	5.26	6/24/15	10:40 AM		G F
172	Oakridge Drive @ UP #1305	1	2.5	0.9	52	18	30	712	0	689	73.2	43.7	5.44	6/24/15	10:55 AM		G F
173	Overlook Rd. @ Glenwood Court	1	2.5	0.9	50	16	22	671	0	627	92.4	43.4	5.58	6/24/15	11:05 AM		G F
174	Overlook Rd. @ House #27/29	1	2.5	0.9	50	8	18	475	0	396	74.9	43	5.37	6/24/15	11:15 AM		G F
175	Overlook Road @ House #39	1	2.5	0.9	64	12	20	581	145	531	74.9	72.8	5.35	6/24/15	11:20 AM		G F
176	Overlook Road at the End	1	2.5	0.9	66	16	22	671	214	642	73.5	42.4	5.43	6/24/15	11:30 AM		G F
177	Glenwoods Court at the End	1	2.5	0.9	50	14	20	628	0	569	75.2	43.2	5.29	6/24/15	11:10 AM		G F
178	North Glenwoods Road @ Brewster Drive	1	2.5	0.9	78	30	42	919	541	1018	74	40.4	5.84	6/24/15	12:20 PM		G F
179	North Glenwoods Road @ Forest Lane (North)	1	2.5	0.9	50	18	30	712	0	688	72.2	39.8	6.41	6/24/15	12:40 PM		G F
180	North Glenwoods Road @ Forest Lane (South)	1	2.5	0.9	78	38	48	1,034	672	1264	74.2	39.5	7.8	6/24/15	1:00 PM		G F
181	North Glenwoods Road @ House #44	1	2.5	0.9	100	68	80	1,384	1561	2269	72.9	39.6	7.89	6/24/15	1:25 PM		G F
182	Brewster Drive @ House #8	1	2.5	0.9	56	22	32	787	0	812	72.3	39.8	8.96	6/24/15	1:35 PM		G F
183	Brewster Drive @ End	1	2.5	0.9	40	12	18	581	0	485	74.5	39.9	9.03	6/24/15	1:45 PM		G F
184	Cardinal Lane near UP#2173	1	2.5	0.9	76	30	44	919	520	1022	79.2	40.2	9.08	6/24/15	2:00 PM		G F
185	Cardinal Lane near intersection w/Tanager Lane	1	2.5	0.9	80	40	54	1,061	730	1321	75.7	40.3	8.82	6/24/15	2:07 PM		G F
186	Tanager Lane near UP #1084	1	2.5	0.9	108	58	78	1,278	1250	1734	75.9	40.4	8.89	6/24/15	2:15 PM		G F
187	Oakridge Drive at UP #1098	1	2.5	0.9	87	58	69	1,278	1230	2009	71.7	41.5	6.1	6/22/15	11:51 AM		G F
188	Oakridge Drive at Cedar Ridge Road	1	2.5	0.9	82	46	72	1,138	872	1526	71.8	40.7	6.02	6/22/15	12:33 PM		G F
189	Woodridge Circle near UP #2008	1	2.5	0.9	98	60	84	1,300	1300	1916	73.3	40.6	5.93	6/22/15	12:38 PM		G F
190	Woodridge Circle at intersection with Clark Lane	1	2.5	0.9	106	60	83	1,300	1300	1822	74.6	40.4	5.82	6/22/15	12:45 PM		G F
191	Gallup Hill Road at U.P. #4067 (Stub Connection)	1	2.5	0.9	74	28	36	888	467	968	74.5	16.5	5.62	6/22/15	2:57 PM		L C
192	Gallup Hill Road South of Gallup Hill Baptist Church (Stub Connection)	1	2.5	0.9				0	0	#NUM!							L C
193	Gallup Hill Road at House #2 (Stub Connection)	1	2.5	0.9	64	22	26	787	221	807	75.7	16.5	5.45	6/22/15	2:50 PM		L C
194	Gallup Hill Road at Greystone Court (Stub Connect	1	2.5	0.9	58	18	22	712	0	692	76.8	16.5	5.37	6/22/15	2:44 PM		L C
195	Gallup Hill Road by U.P. #2420 (Stub Connection)	1	2.5	0.9	62	18	24	712	134	694	76.2	16.7	5.4	6/22/15	2:37 PM		L C
196	Gallup Hill Road at House #37 (Stub Connection)	1	2.5	0.9	62	26	32	856	180	930	76.3	16.7	5.44	6/22/15	2:30 PM		L C
197	Gallup Hill Road at Ledyard High School (Stub Co	1	2.5	0.9	52	18	26	712	0	689	76.7	16.7	5.34	6/22/15	2:25 PM		L C
198	Gallup Hill Road at Ledyard High School Yard	1	2.5	0.9				0	0	#NUM!							L C
199	Gallup Hill Road Booster Pumping Station	1	2.5	0.9	82	24	32	822	487	852	74.9	19	6.08	6/23/15	8:30 AM		L C
200	Gallup Hill Road Booster Pumping Station	1	2.5	0.9	80	26	34	856	500	906	72.8	19	6.27	6/23/15	8:20 AM		L C
201	Gallup Hill Road at Ledyard High School Entrance	1	2.5	0.9	52	34	34	978	0	1335	75.3	16.8	5.53	6/22/15	2:16 PM		L C
202	Gallup Hill Road at Colonel Ledyard Highway	1	2.5	0.9	72	38	38	1,034	589	1301	81.9	16.8	4.2	6/22/15	2:10 PM		L C
203	Colonel Ledyard Highway at House #646	1	2.5	0.9	66	44	44	1,113	552	1658	76.9	16.8	4.72	6/22/15	2:00 PM		L C
204	Colonel Ledyard Highway at Blonders Boulevard	1	2.5	0.9	54	38	38	1,034	0	1554	75.4	17	4.86	6/22/15	12:55 PM		L C
205	Colonel Ledyard Highway at Center Drive	1	2.5	0.9	44	34	34	978	0	1570	75.9	17	4.78	6/22/15	1:45 PM		L C
206	Colonel Ledyard Highway at Ledyard Country Kitc	1	2.5	0.9	38	23	26	805	0	888	74.9	17.1	4.68	6/22/15	1:35 PM		L C
207	Colonel Ledyard Highway at Wolf Ridge Gap	1	2.5	0.9	36	24	24	822	0	960	74.5	17.1	4.76	6/22/15	1:33 PM		L C
208	Colonel Ledyard Highway at Fairway Drive	1	2.5	0.9	44	24	34	822	0	907	74.1	17.2	5.86	6/22/15	1:10 PM		L C
209	Colonel Ledyard Highway at Fairgrounds	1	2.5	0.9	40	30	38	919	0	1336	75.1	17.3	5.7	6/22/15	1:05 PM		L C
210	Colonel Ledyard Highway at Ray Holdridge Circle	1	2.5	0.9	54	36	48	1,007	0	1419	75.7	17.3	5.7	6/22/15	12:55 PM		L C

Groton Department of Utilities
2015 Hydrant Flow Test Record - LEDYARD

Hydrant	9.29 Exact Location	Number of Outlets	Diameter of Outlets	Coefficient of Outlets	Static (psi)	Pitot (psi)	Residual (psi)	Actual Flow (gpm)	60 psi Calc. (gpm)	20 psi Calc. (gpm)	PMP OP (psi)	Tank Level	System Demand (mgd)	Date Tested	Time Tested	Main Tested	Service Area
A	B	C	D	E	F	G	H	I	J	K	L	M	N	O		P	Q
211	Route 117 at Colonel Ledyard Highway	1	2.5	0.9	56	40	48	1,061	0	1644	71.1	18.2	5.29	6/22/15	10:21 AM		L C
212	Route 117 at United Church of Christ	1	2.5	0.9	47	34	44	978	0	1452	70.9	18.2	5.2	6/22/15	10:29 AM		L C
213	Route 117 at Ledyard Center Elementary School So	1	2.5	0.9	44	32	40	949	0	1380	71.8	18.2	5.16	6/22/15	10:32 AM		L C
214	Route 117 at Ledyard Center Elementary School (2'	1	2.5	0.9	44	30	39	919	0	1230	72	18.3	6.32	6/22/15	10:51 AM		L C
215	Route 117 at Ledyard Center Elementary School No	1	2.5	0.9	46	30	40	919	0	1195	71.4	18.3	6.43	6/22/15	11:02 AM		L C
216	Oak Hills Trail at Avery Hill Road	1	2.5	0.9	66	24	52	822	287	863	73.4	39.7	6.4	6/19/15	3:21 PM		A H
217	Marlene Drive at Rosemarie Court	1	2.5	0.9	65	28	52	888	301	987	71.6	39.7	6.34	6/19/15	3:02 PM		A H
218	Naomi Drive at Marlene Drive	1	2.5	0.9	65	28	48	888	301	987	71.7	39.7	6.41	6/19/15	2:51 PM		A H
219	Avery Hill Road at House #120	1	2.5	0.9	56	26	58	856	0	944	73.2	38.9	7	6/26/15	12:50 PM		A H
220	Naomi Drive at House #20	1	2.5	0.9	60	28	50	888	0	1002	72.2	39.7	6.41	6/19/15	2:45 PM		A H
221	Avery Hill Road across from House #130	1	2.5	0.9	58	28	48	888	0	1009	71.7	39.8	6.37	6/26/15	12:40 PM		A H
222	Rosemarie Court at House #8	1	2.5	0.9	52	22	40	787	0	815	71.8			6/19/15	3:08 PM		A H
224	Naomi Drive at Naomi Drive Extension	1	2.5	0.9	70	36	58	1,007	520	1240	72.5	39.7	6.37	6/19/15	2:56 PM		A H
225	Marlene Drive at Avery Hill Road	1	2.5	0.9	64	22	36	787	221	807	71.7	39.7	6.41	6/19/15	3:15 PM		A H
226	Naomi Drive Extension at House #8	1	2.5	0.9				0	0	#NUM!							A H
228		1	2.5	0.9				0	0	#NUM!							A H
229	Village Drive (West) at Hickory Drive	1	2.5	0.9	92	70	84	1,404	1719	2663	71.2	17.7	6.11	6/22/15	11:55 AM		L C
230	Village Drive East of House #11	1	2.5	0.9	94	48	60	1,163	987	1503	72.1	17.7	6.05	6/22/15	12:01 PM		L C
231	Village Drive (South) at Hickory Drive	1	2.5	0.9	92	60	70	1,300	1300	2014	71.9	17.7	6.08	6/22/15	12:05 PM		L C
232	Village Drive at Cul-de-sac	1	2.5	0.9	86	32	60	949	640	1058	71.8	17.6	6.01	6/22/15	12:12 PM		L C
233	Hickory Drive at House #13	1	2.5	0.9	80	40	54	1,061	730	1321	72.4	17.5	6.02	6/22/15	12:20 PM		L C
234	Colonel Ledyard Highway at Village Drive	1	2.5	0.9	94	64	82	1,342	1436	2186	71.1	16.5	6.16	6/22/15	11:48 AM		L C
235	Colonel Ledyard Highway Near House #788	1	2.5	0.9	86	68	70	1,384	1688	2791	73.2	16.8	5.98	6/22/15	11:44 AM		L C
236	Colonel Ledyard Highway Near House #776	1	2.5	0.9	71	50	52	1,186	837	1916	73.7	17.2	5.96	6/22/15	11:35 AM		L C
237	Colonel Ledyard Highway at Stoddard Wharf/ Iron	1	2.5	0.9	60	44	58	1,113	0	1826	72.7	17.7	6.18	6/22/15	11:25 AM		L C
238	Colonel Ledyard Highway at Subway Restaurant/Ra	1	2.5	0.9	52	38	42	1,034	0	1616	72.4	18	6.25	6/22/15	11:14 AM		L C
239	Colonel Ledyard Highway at Holdridge Nursey	1	2.5	0.9	46	32	44	949	0	1326	72.3	18.1	6.26	6/22/15	11:12 AM		L C
240	Center Groton Road at U.P. #5303	1	2.5	0.9	60	40	56	1,061	0	1543	71	18.2	5.27	6/22/15	10:17 AM		L C
241	Center Groton Road at Ledyard Cemetary	1	2.5	0.9	58	40	50	1,061	0	1589	73.2	18.6	5.07	6/22/15	10:08 AM		L C
242	Center Groton Road at U.P. #1383	1	2.5	0.9	62	46	50	1,138	370	1916	71.3	18.7	6.38	6/22/15	10:00 AM		L C
243	Center Groton Road at House #1917	1	2.5	0.9	68	42	58	1,087	575	1514	72	18.6	6.33	6/22/15	9:56 AM		L C
244	Center Groton Road at U.P. #4038	1	2.5	0.9	68	50	62	1,186	766	2015	72.6	18.8	6.25	6/22/15	9:52 AM		L C
245	Center Groton Road at House #1898	1	2.5	0.9	64	38	48	1,034	376	1374	73.7	18.8	6.14	6/22/15	9:42 AM		L C
246	Center Groton Road at U.P. #5305	1	2.5	0.9	64	48	52	1,163	550	2007	71.8	18.9	6.33	6/22/15	9:32 AM		L C
247	Center Groton Road at U.P. #1392	1	2.5	0.9	58	34	42	978	0	1254	73.3	18.9	6.23	6/22/15	9:28 AM		L C
248	Center Groton Road at U.P. #5656	1	2.5	0.9	46	28	38	888	0	1083	72.9	19	6.22	6/22/15	9:20 AM		L C
249	Hill Street at House #2	1	2.5	0.9	40	22	28	787	0	833	72.5	19	6.29	6/22/15	12:55 PM		L C
250	Center Groton Road at Sable Drive	1	2.5	0.9	36	14	20	628	0	529	72.3	15.6	6.38	6/19/15	12:00 PM		L C
251	Center Groton Road at U.P. #56	1	2.5	0.9	38	18	22	712	0	673	72.8	15.6	6.25	6/19/15	11:45 AM		L C
252	Center Groton Road at Lake Street	1	2.5	0.9	44	18	28	712	0	682	73.2	15.6	6.23	6/19/15	11:37 AM		L C
253	Center Groton Road at U.P. #5655	1	2.5	0.9	54	30	34	919	0	1109	72.4	15.6	6.32	6/19/15	11:25 AM		L C
254	Center Groton Road at U.P. #529	1	2.5	0.9	70	40	48	1,061	586	1398	71.4	15.6	6.33	6/19/15	11:20 AM		L C
255	Center Groton Road at U.P. #4255	1	2.5	0.9	74	38	52	1,034	621	1288	71.3	15.6	6.38	6/19/15	11:11 AM		L C
256	Center Groton Road at U.P. #4155	1	2.5	0.9	74	32	50	949	524	1087	72.3	15.5	6.33	6/19/15	11:05 AM		L C
257	Center Groton Road at U.P. #4063	1	2.5	0.9	70	40	46	1,061	586	1398	72.8	15.5	6.3	6/19/15	10:55 AM		L C
258	Peach Tree Hill Avenue at U.P. #5666	1	2.5	0.9	70	36	46	1,007	520	1240	72.6	15.6	6.28	6/19/15	10:45 AM		L C
259	Center Groton Road at U.P. #499	1	2.5	0.9	68	34	46	978	448	1179	73	15.5	6.25	6/19/15	10:35 AM		L C
260	Center Groton Road at U.P. #496	1	2.5	0.9	72	32	44	949	495	1094	70.9	15.4	6.45	6/19/15	10:25 AM		L C
261	Center Groton Road at Sandy Hollow Road	1	2.5	0.9	76	34	46	978	581	1143	73.7	15.4	6.18	6/19/15	10:07 AM		L C
262	Center Groton Road at Woodview Drive	1	2.5	0.9	54	36	46	1,007	0	1419	72.9	15.5	6.2	6/19/15	9:57 AM		L C
263	Center Groton Road at U.P. #490S	1	2.5	0.9	78	38	48	1,034	672	1264	73.2	15.8	4.66	6/19/15	9:50 AM		L C
264	Center Groton Road at Lambtown Road	1	2.5	0.9	78	42	54	1,087	748	1407	73.2	15.7	6.46	6/19/15	9:25 AM		L C
265	Center Groton Road at Chriswood Terrace	1	2.5	0.9	78	40	52	1,061	709	1333	71.5	15.6	6.45	6/19/15	9:20 AM		L C

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A	B	C	D	E	F	G	H	I	J	K	L	M	N	O		P	Q
266	August Meadow at Center Groton Road	1	2.5	0.9	76	38	44	1,034	648	1275	72.9	15.5	6.2	6/19/15	9:07 AM		L C
267	Center Groton Road at House #1714	1	2.5	0.9	70	30	38	919	435	1037	73.6	15.4	6.2	6/19/15	9:00 AM		L C
268	Center Groton Road at Barton Lane	1	2.5	0.9	60	46	60	1,138	0	2006	73.3	18.4	7.38	6/11/15	2:10 PM		L C
269	Lorenz Parkway at U.P. #6037	1	2.5	0.9	76	54	65	1,233	1038	2042	73.3	18.3	7.83	6/8/15	2:10 PM		L C
270	Center Groton Road at U.P. #5561	1	2.5	0.9	87	62	77	1,321	1377	2250	76.1	18.1	7.74	6/11/15	1:42 PM		L C
271	Center Groton Road at U.P. #3167S	1	2.5	0.9	93	68	89	1,384	1607	2468	74.5	18.2	4.94	6/11/15	1:34 PM		L C
272	Center Groton Road at U.P. #3042	1	2.5	0.9				0	0	#NUM!							L C
273	Center Groton Road at Meter Pit (North)	1	2.5	0.9	100	71	85	1,414	1682	2446	72.8	23.5	6.36	6/10/15	8:50 AM		L C
274	Center Groton Road at Meter Pit (North)	1	2.5	0.9	100	75	87	1,453	1873	2723	72.8	23.5	6.36	6/10/15	9:00 AM		L C
275	Lorenz Parkway at U.P. #6039	1	2.5	0.9	84	60	78	1,300	1300	2207	73.4	18.3	8.01	6/8/15	2:20 PM		L C
276	Lorenz Parkway at Commerce Court	1	2.5	0.9	90	68	83	1,384	1636	2585	74	18.3	8.09	6/11/15	1:50 PM		L C
277	Lorenz Parkway at Cul-de-Sac	1	2.5	0.9	100	68	88	1,384	1561	2269	76.8	18.4	7.47	6/11/15	1:55 PM		L C
278	Commerce Court at Cul-de-Sac	1	2.5	0.9	95	60	87	1,300	1300	1961	77.1	18.4	7.38	6/11/15	2:00 PM		L C
279	Hurlbutt Road at Military Highway	1	2.5	0.9	106	66	73	1,363	1470	2061	72.5	38.3	6.11	6/25/15	3:23 PM		G F
280	Regional Meter Pit - Bluff Road (from Groton)	1	2.5	0.9	116	60	92	1,300	1300	1739	74.1	39.4	7.79	6/24/15	1:15 PM		G F
281	Regional Meter Pit - Bluff Road (to Montville)	1	2.5	0.9				0	0	#NUM!							G F
282	Hurlbutt Road at Bluff Road	1	2.5	0.9				0	0	#NUM!							G F
283	Orchard Lane at Connecticut State Highway (Route	1	2.5	0.9	100	66	72	1,363	1488	2164	72.7	39.2	6.78	6/25/15	2:45 PM		G F
284	Holmberg Orchard gravel access road (at Barn)	1	2.5	0.9	86	42	60	1,087	819	1354	72.1	38.8	6.12	6/25/15	3:00 PM		G F
285	Holmberg Orchard gravel access road (at culvert)	1	2.5	0.9				0	0	#NUM!							G F
286	Gravel Access Road at Holmberg Tank (West of Avery Trailer Park Emergency Connection)	1	2.5	0.9	12	13	19				74.2	38.2	5.98	6/25/15	3:00 PM		G F
287	Gravel Access Road at Holmberg Tank Avery Hill Trailer Park Emergency Interconnection (Future BPS Bypass)	1	2.5	0.9	22	14	20	628	0	297	73	38.3	6.06	6/25/15	3:20 PM		G F
288	Gravel Access Road at Holmberg Tank (North of E	1	2.5	0.9	18	18	16	712	0	#NUM!	72.4	38.6	6.07	6/25/15	3:30 PM		G F
289	Van Tassel Drive at House #13	1	2.5	0.9	62	40	50	1,061	291	1505	73.3	39.7	6.75	6/25/15	2:30 PM		G F
290	Senior Center Access Road at Van Tassel Drive	1	2.5	0.9	62	40	48	1,061	291	1505	72.6	39.9	6.79	6/25/15	2:25 PM		G F
291	Sable Drive between Lots #7 & 9	1	2.5	0.9	44	20	24	750	0	750	74.1		5.86	6/22/15	1:10 PM		LC
292	Fox Hollow Road at Sable Drive	1	2.5	0.9	54	18	28	712	0	690	72.6	15.7	6.35	6/19/15	12:10 PM		LC
293	Sable Drive at House #21	1	2.5	0.9	40	10	16	531	0	426	73	15.8	6.32	6/19/15	12:20 PM		LC
294	Sable Drive at Pleasant View	1	2.5	0.9	24	8	10	475	0	224	73.2	15.8	6.27	6/19/15	12:30 PM		LC
295	Spruce Street at Sable Drive	1	2.5	0.9	30	10	18	531	0	365	72.4	15.8	6.31	6/19/15	12:40 PM		LC
296	Ledyard Center Elementary School South of Playgr	1	2.5	0.9	50	36	44	1,007	0	1519	70.4	18.3	6.05	6/22/15	10:45 AM		LC
297	Fairgrounds Gravel Access Road at U.P. #3 and Pav	1	2.5	0.9				0	0	#NUM!							LC
298	Ledyard Center Tank at Rear of Ledyard Emergency Services Building	1	2.5	0.9	52	42	48	1,087	0	2038	75.7	17.2	4.35	6/22/15	1:15 PM		LC
299	Rear of Ledyard Emergency Services Building at Ledyard Center Tank	1	2.5	0.9	52	36	46	1,007	0	1464	76.7	17.2	4.95	6/22/15	1:20 PM		LC
300	blowoff for led emergency interconnection	1	2.5	0.9				0	0	#NUM!							G F
300	Shewville Road	1	2.5	0.9				0	0	#NUM!							
301	Shewville Road at Town Farm Road	1	2.5	0.9				0	0	#NUM!							
302	Shewville Road at #583	1	2.5	0.9				0	0	#NUM!							
303	Shewville Road at #577	1	2.5	0.9				0	0	#NUM!							
304	Shewvilee Road at #571	1	2.5	0.9				0	0	#NUM!							
305	Shewville Road at	1	2.5	0.9				0	0	#NUM!							
306	Shewville Road at	1	2.5	0.9				0	0	#NUM!							
307	Shewville Road at	1	2.5	0.9				0	0	#NUM!							
308	Shewville Road at Whitford Road Fork	1	2.5	0.9				0	0	#NUM!							
309	Shewville Road at #500	1	2.5	0.9				0	0	#NUM!							
310	Shewvile Road at #484	1	2.5	0.9				0	0	#NUM!							
311	Loftus Wells access road	1	2.5	0.9				0	0	#NUM!							
312	Old Colony Lane at #16	1	2.5	0.9	100	16	24	671	450	654	73.3	18.3	8.36	6/23/15	10:50 AM		

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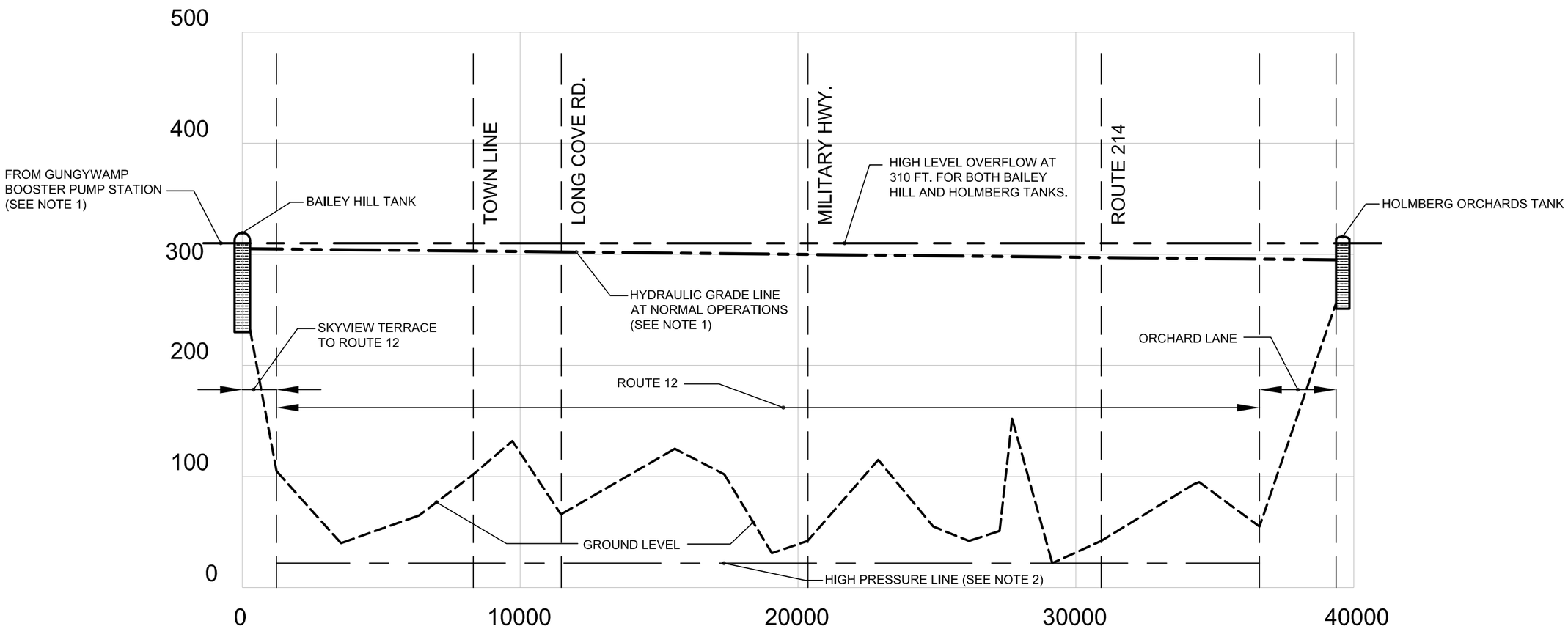
A	B	C	D	E	F	G	H	I	J	K	L	M	N	O		P	Q
313	Old Colony Lane at #25	1	2.5	0.9	106	18	24	712	502	703	73.5	18.2	8.35	6/23/15	11:00 AM		
314	Captain Amos Stanton at #5	1	2.5	0.9	70	24	36	822	361	860	73.9	17.3	8.33	6/23/15	1:08 PM		
315	Captian Amos Stanton at #17	1	2.5	0.9	73	22	38	787	376	804	72.9	17.2	8.29	6/23/15	1:12 PM		
316	Stone Gate Village - Rockledge Dr. (Private)	1	2.5	0.9	72	14	20	628	268	592	73.8	18.1	9.18	6/23/15	9:50 AM		H
317	Stone Gate Village - Rockledge Dr. (Private)	1	2.5	0.9	76	10	18	531	247	486	72.5	18.9	8.33	6/23/15	9:16 AM		H
318	Stone Gate Village - Cliff Rd. (Private)	1	2.5	0.9	78	14	22	628	316	595	73.5	18.7	9.34	6/23/15	9:44 AM		H
319	Stone Gate Village - Boulder Way (Private)	1	2.5	0.9	76	10	16	531	247	486	71.3	18.9	8.18	6/23/15	9:06 AM		H
320	Stone Gate Village - Cliff Rd. (Private)	1	2.5	0.9	72	10	26	531	219	483	72.9	18.7	8.93	6/23/15	9:36 AM		H
321	Stone Gate Village - Cliff Rd. (Private)	1	2.5	0.9	80	12	18	581	300	543	71.4	18.9	8.43	6/23/15	9:25 AM		H
322	Route 12 at #1434 (Town Line)	1	2.5	0.9				0	0	#NUM!							G F
323	Baldwin Hill Road at #1346	1	2.5	0.9	99	70	84	1,404	1647	2412	73.3	37.2	6.16	6/23/15	8:34 AM		G F
324	Long Cove Road at #1362	1	2.5	0.9	98	78	86	1,482	2096	3090	74	37.1	6.03	6/23/15	8:28 AM		G F
325	Long Cove Road at #1492	1	2.5	0.9	96	72	84	1,424	1772	2653	75.3	37.2	6.02	6/23/15	8:43 AM		G F
326	Avery Hill Road at Tuckers Run	1	2.5	0.9	73	38	39	1,034	606	1294	71.6	39.8	6.34	6/19/15	2:34 PM		
327	Tuckers Run at #7	1	2.5	0.9	64	32	54	949	309	1127	71.8	39.8	6.37	6/19/15	2:28 PM		
328	Tuckers Run at Dead End	1	2.5	0.9	49	28	60	888	0	1057	71.4	39.8	6.35	6/19/15	2:22 PM		
329	Avery Hill Road at #156	1	2.5	0.9	39	22	28	787	0	836	73.4	44.7	6.13	6/19/15	8:39 AM		
330	Avery Hill Road at #174	1	2.5	0.9	52	36	44	1,007	0	1464	72.7	44.3	6.27	6/19/15	8:48 AM		
331	Avery Hill Road at #190	1	2.5	0.9	70	26	34	856	384	917	72.2	43.4	6.34	6/19/15	10:04 AM		
332	Avery Hill Road at Windward Lane	1	2.5	0.9	64	24	26	822	237	865	71.9	43.4	6.36	6/19/15	10:15 AM		
333	Windward Lane at #7	1	2.5	0.9	54	14	18	628	0	575	72.4	43.4	6.29	6/19/15	11:08 AM		
334	Windward Lane at Dead End	1	2.5	0.9	66	40	46	1,061	481	1444	73.3	43.4	6.24	6/19/15	11:18 AM		
335	Michael Lane at Avery Hill Road	1	2.5	0.9	64	18	22	712	190	695	73.1	43.4	6.26	6/19/15	10:24 AM		
336	Avery Hill Road at #241	1	2.5	0.9	85	24	30	822	508	851	72.7	43.4	6.29	6/19/15	10:37 AM		
337	Avery Hill Road at Arrowhead Drive	1	2.5	0.9	113	44	50	1,113	965	1308	73.1	43.4	6.26	6/19/15	10:56 AM		
338	Michael Lane at Hillcrest Avenue	1	2.5	0.9				0	0	#NUM!							
339	Michael Lane at Willow Lane	1	2.5	0.9	66	10	16	531	159	477	73	43.6	6.68	6/19/15	11:42 AM		
340	Michael Lane at Laurel Avenue	1	2.5	0.9	73	12	16	581	252	539	73.4	43.1	6.31	6/19/15	12:10 PM		
341	Sunset Avenue at Michael Lane	1	2.5	0.9	74	10	16	531	234	484	72.4	42.8	6.31	6/19/15	12:21 PM		
342	Willow Lane at #11	1	2.5	0.9	66	14	18	628	196	588	73.2	40.2	6.71	6/19/15	11:51 AM		
343	Willow Lane at Dead End	1	2.5	0.9	74	8	13	475	205	426	73.3	39.4	6.71	6/19/15	11:58 AM		
344	Hillcrest Avenue at Louis Avenue	1	2.5	0.9	92	18	32	712	453	701	70.5	40.6	6.55	6/19/15	1:35 PM		
345	Aljen Avenue at Sunset Avenue	1	2.5	0.9	98	24	40	822	574	846	71.2	40.1	6.4	6/19/15	1:43 PM		
346	Sunset Avenue at #11	1	2.5	0.9	92	20	34	750	484	750	71.3	40.2	6.43	6/19/15	1:51 PM		
347	Sunset Avenue at Royal Oaks Drive	1	2.5	0.9	92	21	24	769	500	775	72.4	42.6	6.36	6/19/15	12:31 PM		
348	Arrowhead Drive at Royal Oaks Drive	1	2.5	0.9	112	24	36	822	619	842	72.2	42.3	6.32	6/19/15	12:40 PM		
349	Arrowhead Drive at Johnnie Court	1	2.5	0.9	103	30	38	919	691	985	71.4	42	6.41	6/19/15	12:52 PM		
350	Arrowhead Drive at Aljen Avenue	1	2.5	0.9	113	26	36	856	655	887	70.8	41.6	6.52	6/19/15	1:05 PM		
351	Aljen Avenue at Barn Road	1	2.5	0.9	97	26	44	856	602	894	71.2	41.3	6.54	6/19/15	1:14 PM		
352	Barn Road at Dead End	1	2.5	0.9	97	18	34	712	473	702	69.7	40.9	6.55	6/19/15	1:26 PM		
353	Ferryview Drive in front of #19	1	2.5	0.9				0	0	#NUM!							GF
354	Ferryview Drive at Dead End	1	2.5	0.9				0	0	#NUM!							GF
355	Cedar Ridge Road @ Tom Allyn Road	1	2.5	0.9	80	40	60	1,061	730	1321				6/22/15			
356	Tom Allyn Road @ Dead End	1	2.5	0.9	85	40	63	1,061	773	1294				6/22/15			
357	Stevens Avenue @ R.O.W to RT 117	1	2.5	0.9				0	0	#NUM!							LC
358	Stevens Avenue @ Iron Street (RT. 214)	1	2.5	0.9				0	0	#NUM!							LC

APPENDIX F

Hydraulic Profiles



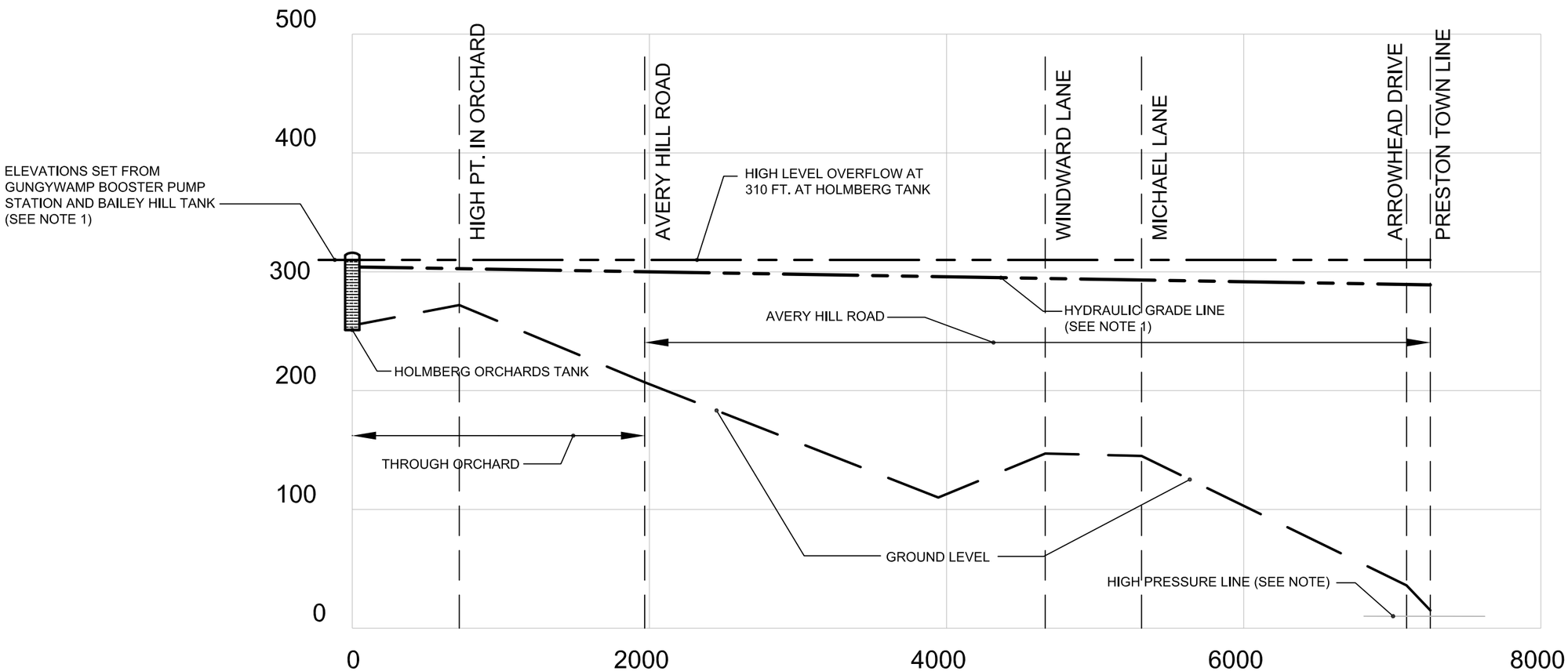
HYDRAULIC PROFILE - BAILEY HILL TANK TO HOLMBERG ORCHARDS TANK ALONG ROUTE 12

SCALE: 1" = 4,000' (HORIZ.)
1" = 100' (VERT.)

NOTES:

1. THE OVERFLOW LEVELS FOR BAILEY HILL TANK AND HOLMBERG ORCHARDS TANK ARE SET AT THE SAME ELEVATION.NORMAL TAK LEVELS ARE SET BY GROTON UTILITIES' GUNGYWAMP BOOSTER PUMP STATION, FLUCTUATING AT NORMAL PERIODS BETWEEN A HIGH OF 305 FT. AND A LOW O2950 FT. AT BAILEY HILL AND A HIGH OF 304 FT. AND A LOW OF 290 FT. AT HOLMBERG ORCHARDS. THE SAME OVERFLOW LEVELS ARE ALSO CARRIED ACROSS THE THAMES RIVER TO REGIONAL CONNECTIONS IN MONTVILLE.

2. MAXIMUM PRESSURES ARE EXPERIENCED AT LOW ELEVATIONS ALONG THE THAMES RIVER WEST OF ROUTE 12, IN THE RANGE OF 115 TO 122 PSI.

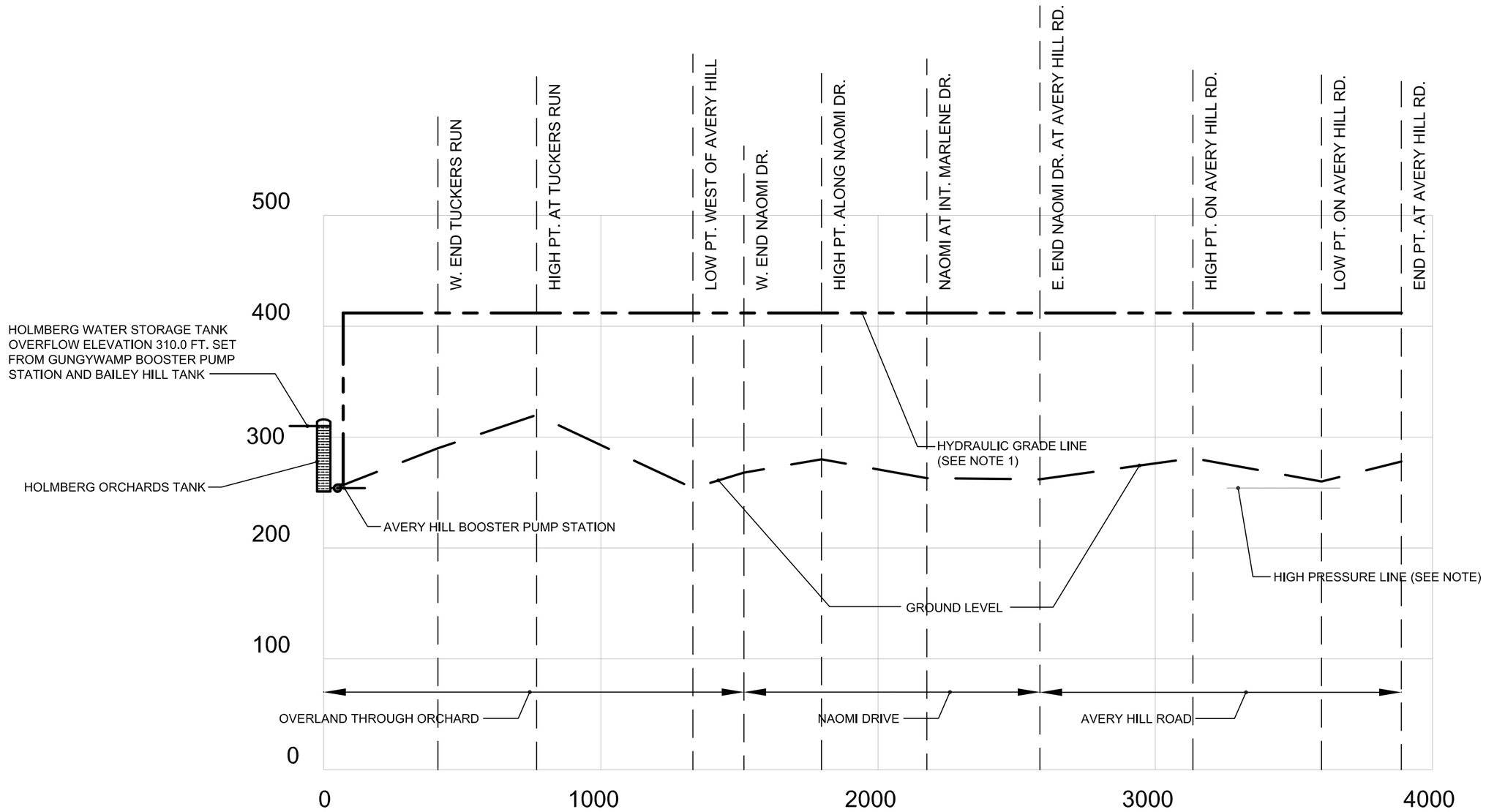


HYDRAULIC PROFILE - HOLMBERG ORCHARDS TANK TO ALJEN HEIGHTS ALONG AVERY HILL RD.

SCALE: 1" = 800' (HORIZ.)
1" = 100' (VERT.)

NOTE:

MAXIMUM PRESSURES ARE EXPERIENCED AT LOW ELEVATIONS ALONG ARROWHEAD DRIVE ADJACENT TO POQUETANUCK COVE, IN THE RANGE OF 115 TO 122 PSI.



HYDRAULIC PROFILE - HOLMBERG ORCHARDS TANK TO AVERY HILL ALONG NAOMI DRIVE AND AVERY HILL RD.

SCALE: 1" = 400' (HORIZ.)
1" = 100' (VERT.)

NOTE:

1. THE HYDRAULIC GRADE LINE FOR THE AVERY HILL SYSTEM IS SET BY THE HYDROPNEUMATIC PUMP STATION ADJACENT TO HOLMBERG TANK. THE PUMP CENTERLINE IS SET AT ELEV. 235.5 FT. AND THE DISCHARGE PRESSURE DESIGN POINT IS 68 PSI. NORMAL OPERATING RANGE IS BETWEEN 60 AND 68 PSI.
2. MAXIMUM PRESSURES ARE EXPERIENCED AT LOW ELEVATIONS ALONG AVERY HILL ROAD AND ARE IN THE RANGE OF 64 PSI.
3. THE HYDRAULIC GRADE LINE AT THE AVERY HILL BOOSTER PUMP STATION WAS DESIGNED TO MATCH THE NORMAL OPERATING RANGE OF THE TANK LOCATED IN LEDYARD CENTER.

APPENDIX G

Finished & Raw Water Quality Laboratory Analyses

Appendix G - Water Quality Data for the Town of Ledyard

The water supply for the distribution system of the Town of Ledyard WPCA is provided by Groton Utilities. As such, Groton Utilities is responsible for water quality delivered to each of the system areas noted within this Water Supply Plan. In addition, Groton Utilities currently operates, maintains and manages each of the WPCA distribution areas. Within that management responsibility is the obligation to perform routine testing within the distribution system as required by the Department of Health (DPH). Attached herewith are copies of the following:

(1) A sample of a monthly report submitted to the DPH detailing a monthly submittal by GU staff (March 2016) with protocols and testing parameters throughout the distribution system.

(2) A sample of a monthly report, again submitted to the DPH, detailing Trihalomethane analyses conducted at storage facilities, in this the Holmberg Orchards Tank.

(3) The 2015 Annual Water Quality Report for the Ledyard WPCA for the Ledyard Center System.

(4) The 2015 Annual Water Quality Report for the Ledyard WPCA for the Gales Ferry System.

[*Note that sampling locations for these reports are shown in Appendix I, which includes Maps for the Ledyard Center and Gales Ferry Sampling Areas.*]

STATE OF CONNECTICUT
DEPARTMENT OF PUBLIC HEALTH
DRINKING WATER SECTION

SURFACE WATER TREATMENT
DISTRIBUTION SYSTEM DISINFECTANT RESIDUAL MONITORING AND REPORTING FORM

(Surface Water Treatment Package- Page 4 of 4)

1. Public Water System (PWS) Information:

PWSID: CT 0727091

PWS Name: LWPCA, Ledyard Center

City/Town: Ledyard

2. Compliance Information:

Water System Facility ID: 00600

Month: March Year: 2016

3. Summary Information:

Day	# of instances where the disinfectant residual was Measured (=a)	# of instances where no disinfectant residual was measured but HPC was measured (=b)*	# of instances where disinfectant residual was not detected and no HPC was measured (=c)	# of instances where disinfectant residual was not detected and HPC>500/ml (=d)	# of instances where disinfectant residual was not measured and HPC>500 ml (=e)
1	2	0	0	0	0
2					
3					
4					
5					
6					
7					
8	1	0	0	0	0
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22	2	0	0	0	0
23					
24					
25					
26					
27					
28					
29	2	0	0	0	0
30					
31					
Total:	7	0	0	0	0

c+d+e = 0 = *Number of samples without a detectable chlorine residual*

V = (c+d+e)/(a+b) x 100 = = *% of Samples without a detectable Federal Limit*

S. Dietrich

Date Revised: 12/10/2010

For DWD Use Only: Entered By:_____ Date: _____

STATE OF CONNECTICUT
DEPARTMENT OF PUBLIC HEALTH
DRINKING WATER SECTION
TREATMENT EFFLUENT MONITORING AND REPORTING FORM

1. Public Water System (PWS) Information:

PWS ID: CT0727051

PWS Name: Town of Ledyard, Gales Ferry System

City/Town: Ledyard

2. Compliance Information:

Water System Facility ID: 00700

Month: March Year: 2016

Certified Operator: Rick Stevens, CPO; Paul Hyatt, ACPO

3. Analytical Results:

Day	Status[1]	Chlorine Residual (mg/L)	pH (pH units)	Phosphate (mg/L)	Fluoride (mg/L)	Day	Status[1]	Chlorine Residual (mg/L)	pH (pH units)	Phosphate (mg/L)	Fluoride (mg/L)
1	Offline					17	Offline				
2	Offline					18	Offline				
3	Offline					19	Offline				
4	Offline					20	Offline				
5	Offline					21	Offline				
6	Offline					22	Offline				
7	Offline					23	Offline				
8	Offline					24	Offline				
9	Offline					25	Offline				
10	Offline					26	Offline				
11	Offline					27	Offline				
12	Offline					28	Offline				
13	Offline					29	Offline				
14	Offline					30	Offline				
15	Offline					31	Offline				
16	Offline										

4. Summary Information (Check all summary types that are applicable regardless of Status):

Summary Type		Treatment Summary Name	Monitoring Requirements: Number of Days Required[2]	Monitoring Requirements: Number of Days Completed	Monitoring Requirements: Compliance (Y/N)[3]	Highest Daily Reading	Monthly Average	Lowest Daily Reading	Level Compliance (Y/N)[4]
☐	**CHLR**	Monthly Chlorine Log							
☐	**PHRD**	Monthly pH Log							
☐	**PHOS**	Monthly Phosphate Log							
☐	**FLRD**	Monthly Fluoride Log							

1 Status indicates a Water System Facility was offline on any particular day of the month. Fill with "offline" when applicable.

2 The Number of Samples Required is contingent on the number of days the Water System Facility or treatment process was online. If the facility or treatment process was not online but monitoring is normally required Number of Days Required = "0" and the Summary Type must be checked.

3 The M&R (Monitoring & Reporting) Complied field is an indicator ensuring Number of Samples Taken ≥ Number of Samples Required.

4 The Level Complied field is an indicator ensuring that the Highest and Lowest Readings are within required ranges for treatment effluents. Operating Limits are provided in the current Schedule of Water Quality Monitoring Requirements.

S. Dietrich

Date Revised: 12/10/2010

For DWD Use Only: Entered By:_____ Date: _____

STATE OF CONNECTICUT
DEPARTMENT OF PUBLIC HEALTH
DRINKING WATER SECTION

SURFACE WATER TREATMENT
DISTRIBUTION SYSTEM DISINFECTANT RESIDUAL MONITORING AND REPORTING FORM

(Surface Water Treatment Package- Page 4 of 4)

1. Public Water System (PWS) Information:

PWSID: CT 0727051

PWS Name: LWPCA, Gales Ferry

City/Town: Ledyard

2. Compliance Information:

Water System Facility ID: 00600

Month: March Year: 2016

3. Summary Information:

Day	# of instances where the disinfectant residual was Measured (=a)	# of instances where no disinfectant residual was measured but HPC was measured (=b)*	# of instances where disinfectant residual was not detected and no HPC was measured (=c)	# of instances where disinfectant residual was not detected and HPC>500/ml (=d)	# of instances where disinfectant residual was not measured and HPC>500 ml (=e)
1	1	0	0	0	0
2					
3					
4					
5					
6					
7					
8	2	0	0	0	0
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22	1	0	0	0	0
23					
24					
25					
26					
27					
28					
29	1	0	0	0	0
30					
31					
Total:	5	0	0	0	0

c+d+e = 0 = *Number of samples without a detectable chlorine residual*

V = (c+d+e)/(a+b) x 100 = = *% of Samples without a detectable Federal Limit*

S. Dietrich

Date Revised: 12/10/2010

For DWD Use Only: Entered By:_____ Date: _____

Groton Utilities WTP Lab

1268 Poquonnock Road
Groton, CT 06340
(860) 446-4080

Tuesday, April 05, 2016

Laboratory Report: Coliform - Dist, DistPhys

Lab Sample Number: 22285

Coll.Date	Collected By	Facility (Water System)	PWS ID#	Sampling Location	State Code	Smp Point
3/1/2016	Riotte, Jay	LEDYARD CENTER	CT0727091	LEDYARD TOWN HALL	00600	LC009

Laboratory Results

		Laboratory Result	Rptg Units	MCL	Standard Method Code	Analysis Completion Date
Dist Total Coliform (DSTC)						
1013	CHLORINE RESIDUAL, FREE	0.95	MG/L		4500Cl-G	3/1/2016
3100	DISTRIBUTION COLIFORM TOTAL	Absent		ABSENT	9223B-PA	3/2/2016
3014	DISTRIBUTION E.COLI	Absent		ABSENT	9223B-PA	3/2/2016
Dist Physical Parameters (PPS)						
SCL	DISTRIBUTION COLOR	1	CU		2120B	3/1/2016
SOD	DISTRIBUTION ODOR	0	TON		SM2150	3/1/2016
SPH	DISTRIBUTION PH	7.5	PH		4500H-B	3/1/2016
DTR	DISTRIBUTION TURBIDITY	0.28	NTU		2130B	3/1/2016

Lab Sample Number: 22287

Coll.Date	Collected By	Facility (Water System)	PWS ID#	Sampling Location	State Code	Smp Point
3/1/2016	Riotte, Jay	LEDYARD CENTER	CT0727091	PUMPKIN HILL MARKET	00600	LC004

Laboratory Results

		Laboratory Result	Rptg Units	MCL	Standard Method Code	Analysis Completion Date
Dist Total Coliform (DSTC)						
1013	CHLORINE RESIDUAL, FREE	1.10	MG/L		4500Cl-G	3/1/2016
3100	DISTRIBUTION COLIFORM TOTAL	Absent		ABSENT	9223B-PA	3/2/2016
3014	DISTRIBUTION E.COLI	Absent		ABSENT	9223B-PA	3/2/2016
Dist Physical Parameters (PPS)						
SCL	DISTRIBUTION COLOR	2	CU		2120B	3/1/2016
SOD	DISTRIBUTION ODOR	0	TON		SM2150	3/1/2016
SPH	DISTRIBUTION PH	7.5	PH		4500H-B	3/1/2016
DTR	DISTRIBUTION TURBIDITY	0.28	NTU		2130B	3/1/2016

Groton Utilities WTP Lab

1268 Poquonnock Road
Groton, CT 06340

(860) 446-4080

Lab Sample Number: 22326

Coll.Date	Collected By	Facility (Water System)	PWS ID#	Sampling Location	State Code	Smp Point
3/8/2016	Duarte, Mauricio	LEDYARD CENTER	CT0727091	BILL LIBRARY LC	00600	4

Laboratory Results

		Laboratory Result	Rptg Units	MCL	Standard Method Code	Analysis Completion Date
Dist Total Coliform (DSTC)						
1013	CHLORINE RESIDUAL, FREE	1.22	MG/L		4500Cl-G	3/8/2016
3100	DISTRIBUTION COLIFORM TOTAL	Absent		ABSENT	9223B-PA	3/9/2016
3014	DISTRIBUTION E.COLI	Absent		ABSENT	9223B-PA	3/9/2016
Dist Physical Parameters (PPS)						
SCL	DISTRIBUTION COLOR	2	CU		2120B	3/8/2016
SOD	DISTRIBUTION ODOR	0	TON		SM2150	3/8/2016
SPH	DISTRIBUTION PH	7.4	PH		4500H-B	3/8/2016
DTR	DISTRIBUTION TURBIDITY	0.13	NTU		2130B	3/8/2016

Lab Sample Number: 22383

Coll.Date	Collected By	Facility (Water System)	PWS ID#	Sampling Location	State Code	Smp Point
3/22/2016	Duarte, Mauricio	LEDYARD CENTER	CT0727091	GALLUP HILL SCHOOL	00600	LC003

Laboratory Results

		Laboratory Result	Rptg Units	MCL	Standard Method Code	Analysis Completion Date
Dist Total Coliform (DSTC)						
1013	CHLORINE RESIDUAL, FREE	0.87	MG/L		4500Cl-G	3/22/2016
3100	DISTRIBUTION COLIFORM TOTAL	Absent		ABSENT	9223B-PA	3/23/2016
3014	DISTRIBUTION E.COLI	Absent		ABSENT	9223B-PA	3/23/2016
Dist Physical Parameters (PPS)						
SCL	DISTRIBUTION COLOR	0	CU		2120B	3/22/2016
SOD	DISTRIBUTION ODOR	0	TON		SM2150	3/22/2016
SPH	DISTRIBUTION PH	7.4	PH		4500H-B	3/22/2016
DTR	DISTRIBUTION TURBIDITY	0.21	NTU		2130B	3/22/2016

Groton Utilities WTP Lab

1268 Poquonnock Road
Groton, CT 06340

(860) 446-4080

Lab Sample Number: 22384

Coll.Date	Collected By	Facility (Water System)	PWS ID#	Sampling Location	State Code	Smp Point
3/22/2016	Duarte, Mauricio	LEDYARD CENTER	CT0727091	VILLAGE MARKET	00600	LC001

Laboratory Results

		Laboratory Result	Rptg Units	MCL	Standard Method Code	Analysis Completion Date
Dist Total Coliform (DSTC)						
1013	CHLORINE RESIDUAL, FREE	0.76	MG/L		4500Cl-G	3/22/2016
3100	DISTRIBUTION COLIFORM TOTAL	Absent		ABSENT	9223B-PA	3/23/2016
3014	DISTRIBUTION E.COLI	Absent		ABSENT	9223B-PA	3/23/2016
Dist Physical Parameters (PPS)						
SCL	DISTRIBUTION COLOR	1	CU		2120B	3/22/2016
SOD	DISTRIBUTION ODOR	0	TON		SM2150	3/22/2016
SPH	DISTRIBUTION PH	7.5	PH		4500H-B	3/22/2016
DTR	DISTRIBUTION TURBIDITY	0.17	NTU		2130B	3/22/2016

Lab Sample Number: 22406

Coll.Date	Collected By	Facility (Water System)	PWS ID#	Sampling Location	State Code	Smp Point
3/29/2016	Riotte, Jay	LEDYARD CENTER	CT0727091	LITTLE LEARNERS	00600	4

Laboratory Results

		Laboratory Result	Rptg Units	MCL	Standard Method Code	Analysis Completion Date
Dist Total Coliform (DSTC)						
1013	CHLORINE RESIDUAL, FREE	0.87	MG/L		4500Cl-G	3/29/2016
3100	DISTRIBUTION COLIFORM TOTAL	Absent		ABSENT	9223B-PA	3/30/2016
3014	DISTRIBUTION E.COLI	Absent		ABSENT	9223B-PA	3/30/2016
Dist Physical Parameters (PPS)						
SCL	DISTRIBUTION COLOR	3	CU		2120B	3/29/2016
SOD	DISTRIBUTION ODOR	0	TON		SM2150	3/29/2016
SPH	DISTRIBUTION PH	7.5	PH		4500H-B	3/29/2016
DTR	DISTRIBUTION TURBIDITY	0.16	NTU		2130B	3/29/2016

Groton Utilities WTP Lab

1268 Poquonnock Road
Groton, CT 06340

(860) 446-4080

Lab Sample Number: 22407

Coll.Date	Collected By	Facility (Water System)	PWS ID#	Sampling Location	State Code	Smp Point
3/29/2016	Riotte, Jay	LEDYARD CENTER	CT0727091	LAKESIDE CONDOS	00600	LC006

Laboratory Results

		Laboratory Result	Rptg Units	MCL	Standard Method Code	Analysis Completion Date
Dist Total Coliform (DSTC)						
1013	CHLORINE RESIDUAL, FREE	0.30	MG/L		4500Cl-G	3/29/2016
3100	DISTRIBUTION COLIFORM TOTAL	Absent		ABSENT	9223B-PA	3/30/2016
3014	DISTRIBUTION E.COLI	Absent		ABSENT	9223B-PA	3/30/2016
Dist Physical Parameters (PPS)						
SCL	DISTRIBUTION COLOR	1	CU		2120B	3/29/2016
SOD	DISTRIBUTION ODOR	0	TON		SM2150	3/29/2016
SPH	DISTRIBUTION PH	7.9	PH		4500H-B	3/29/2016
DTR	DISTRIBUTION TURBIDITY	0.14	NTU		2130B	3/29/2016

Respectfully submitted,
Groton Utilities WTP Lab

Joyce Brown
Laboratory Director
CT Lab# PH-0409

Groton Utilities WTP Lab

1268 Poquonnock Road
Groton, CT 06340
(860) 446-4080

Tuesday, April 05, 2016

Laboratory Report: Coliform - Dist, DistPhys

Lab Sample Number: 22266

Coll.Date	Collected By	Facility (Water System)	PWS ID#	Sampling Location	State Code	Smp Point
3/1/2016	Riotte, Jay	LEDYARD WPCA, GF SYSTEM	CT0727051	GF FIRE DPT GF	00600	4

Laboratory Results

		Laboratory Result	Rptg Units	MCL	Standard Method Code	Analysis Completion Date
Dist Total Coliform (DSTC)						
1013	CHLORINE RESIDUAL, FREE	1.38	MG/L		4500Cl-G	3/1/2016
3100	DISTRIBUTION COLIFORM TOTAL	Absent		ABSENT	9223B-PA	3/2/2016
3014	DISTRIBUTION E.COLI	Absent		ABSENT	9223B-PA	3/2/2016
Dist Physical Parameters (PPS)						
SCL	DISTRIBUTION COLOR	0	CU		2120B	3/1/2016
SOD	DISTRIBUTION ODOR	0	TON		SM2150	3/1/2016
SPH	DISTRIBUTION PH	7.5	PH		4500H-B	3/1/2016
DTR	DISTRIBUTION TURBIDITY	0.30	NTU		2130B	3/1/2016

Lab Sample Number: 22324

Coll.Date	Collected By	Facility (Water System)	PWS ID#	Sampling Location	State Code	Smp Point
3/8/2016	Duarte, Mauricio	LEDYARD WPCA, GF SYSTEM	CT0727051	UNITED WAY BLDG, GF	00600	4

Laboratory Results

		Laboratory Result	Rptg Units	MCL	Standard Method Code	Analysis Completion Date
Dist Total Coliform (DSTC)						
1013	CHLORINE RESIDUAL, FREE	0.93	MG/L		4500Cl-G	3/8/2016
3100	DISTRIBUTION COLIFORM TOTAL	Absent		ABSENT	9223B-PA	3/9/2016
3014	DISTRIBUTION E.COLI	Absent		ABSENT	9223B-PA	3/9/2016
Dist Physical Parameters (PPS)						
SCL	DISTRIBUTION COLOR	3	CU		2120B	3/8/2016
SOD	DISTRIBUTION ODOR	0	TON		SM2150	3/8/2016
SPH	DISTRIBUTION PH	7.6	PH		4500H-B	3/8/2016
DTR	DISTRIBUTION TURBIDITY	0.16	NTU		2130B	3/8/2016

Groton Utilities WTP Lab

1268 Poquonnock Road
Groton, CT 06340

(860) 446-4080

Lab Sample Number: 22325						
Coll.Date	Collected By	Facility (Water System)	PWS ID#	Sampling Location	State Code	Smp Point
3/8/2016	Duarte, Mauricio	LEDYARD WPCA, GF SYSTEM	CT0727051	4 ALJEN HTS LANE GF	00600	4

Laboratory Results

		Laboratory Result	Rptg Units	MCL	Standard Method Code	Analysis Completion Date
Dist Total Coliform (DSTC)						
1013	CHLORINE RESIDUAL, FREE	0.34	MG/L		4500Cl-G	3/8/2016
3100	DISTRIBUTION COLIFORM TOTAL	Absent		ABSENT	9223B-PA	3/9/2016
3014	DISTRIBUTION E.COLI	Absent		ABSENT	9223B-PA	3/9/2016
Dist Physical Parameters (PPS)						
SCL	DISTRIBUTION COLOR	1	CU		2120B	3/8/2016
SOD	DISTRIBUTION ODOR	0	TON		SM2150	3/8/2016
SPH	DISTRIBUTION PH	8.0	PH		4500H-B	3/8/2016
DTR	DISTRIBUTION TURBIDITY	0.14	NTU		2130B	3/8/2016

Lab Sample Number: 22382						
Coll.Date	Collected By	Facility (Water System)	PWS ID#	Sampling Location	State Code	Smp Point
3/22/2016	Duarte, Mauricio	LEDYARD WPCA, GF SYSTEM	CT0727051	GF LIBRARY GF	00600	4

Laboratory Results

		Laboratory Result	Rptg Units	MCL	Standard Method Code	Analysis Completion Date
Dist Total Coliform (DSTC)						
1013	CHLORINE RESIDUAL, FREE	1.33	MG/L		4500Cl-G	3/22/2016
3100	DISTRIBUTION COLIFORM TOTAL	Absent		ABSENT	9223B-PA	3/23/2016
3014	DISTRIBUTION E.COLI	Absent		ABSENT	9223B-PA	3/23/2016
Dist Physical Parameters (PPS)						
SCL	DISTRIBUTION COLOR	0	CU		2120B	3/22/2016
SOD	DISTRIBUTION ODOR	0	TON		SM2150	3/22/2016
SPH	DISTRIBUTION PH	7.4	PH		4500H-B	3/22/2016
DTR	DISTRIBUTION TURBIDITY	0.14	NTU		2130B	3/22/2016

Groton Utilities WTP Lab

1268 Poquonnock Road
Groton, CT 06340

(860) 446-4080

Lab Sample Number: 22405

Coll.Date	Collected By	Facility (Water System)	PWS ID#	Sampling Location	State Code	Smp Point
3/29/2016	Riotte, Jay	LEDYARD WPCA, GF SYSTEM	CT0727051	HOLMBRG ORCH STORE	00600	AR34708

Laboratory Results

		Laboratory Result	Rptg Units	MCL	Standard Method Code	Analysis Completion Date
Dist Total Coliform (DSTC)						
1013	CHLORINE RESIDUAL, FREE	0.34	MG/L		4500Cl-G	3/29/2016
3100	DISTRIBUTION COLIFORM TOTAL	Absent		ABSENT	9223B-PA	3/30/2016
3014	DISTRIBUTION E.COLI	Absent		ABSENT	9223B-PA	3/30/2016
Dist Physical Parameters (PPS)						
SCL	DISTRIBUTION COLOR	1	CU		2120B	3/29/2016
SOD	DISTRIBUTION ODOR	0	TON		SM2150	3/29/2016
SPH	DISTRIBUTION PH	8.5	PH		4500H-B	3/29/2016
DTR	DISTRIBUTION TURBIDITY	0.11	NTU		2130B	3/29/2016

Respectfully submitted,
Groton Utilities WTP Lab

Joyce Brown
Laboratory Director
CT Lab# PH-0409

Groton Utilities WTP Lab

1268 Poquonnock Road
Groton, CT 06340
(860) 446-4080

Thursday, March 03, 2016

Laboratory Report: Trihalomethanes

Lab Sample Number: 22283

Coll.Date	Collected By	Facility (Water System)	PWS ID#	Sampling Location	State Code	Smp Point
2/2/2016	Duarte, Mauricio	LEDYARD WPCA, GF SYSTEM	CT0727051	HOLMBRG ORCH STORE	00600	AR34708

Laboratory Results	Laboratory Result	Rptg Units	MCL	Standard Method Code	Analysis Completion Date
Total Trihalomethanes (TTHM)					
* 2943 BROMODICHLOROMETHANE	0.0115	MG/L		524.3	2/9/2016
* 2942 BROMOFORM	<0.0005	MG/L		524.3	2/9/2016
* 2944 CHLORODIBROMOMETHANE	0.0025	MG/L		524.3	2/9/2016
* 2941 CHLOROFORM	0.0442	MG/L		524.3	2/9/2016
* 2950 TOTAL TRIHALOMETHANE	0.0582	MG/L		524.3	2/9/2016

* Tested by Regional Water Authority, CT (PH-0411)

Respectfully submitted,
Groton Utilities WTP Lab

Joyce Brown
Laboratory Director
CT Lab# PH-0409

Ledyard Water Pollution Control Authority

LEDYARD CENTER SYSTEM

2015 ANNUAL WATER QUALITY REPORT

The Town of Ledyard Water Pollution Control Authority (WPCA) is pleased to present this year's Annual Water Quality Report. We are proud to report that the water we supply **meets all established Federal and State drinking water standards.**

This report contains information about the source and treatment of your water, lists the results of our 2015 testing, and contains information about what you can do to conserve and protect your valuable water supply.

The Water Quality Data chart in this report lists only the compounds that were detected in the water. It does not contain the contaminants that were tested for, but not found in our water. You will note that some of the results, though representative, were from samples collected prior to 2015. That is because the CT Department of Public Health (CTDPH) allows us to monitor for some contaminants less than once per year because the concentrations of these contaminants do not change frequently.

If you have any questions about this report, please call the Groton Utilities Laboratory at (860) 446-4080. You are encouraged to attend the Ledyard WPCA's regularly scheduled meetings which are held on the fourth Tuesday of each month in the Ledyard Town Hall Annex Building at 7:00 PM.

What is the Source of Our Water?

The Ledyard Center System is a consecutive system of Groton Utilities, which means that we purchase our water from Groton Utilities after the water has undergone full conventional treatment. The Groton Utilities water source is supplied by surface water from a series of five interconnected reservoirs. Their staff includes reservoir patrol staff, who with local and state police, maintain a high level of security, monitor the watershed for potential sources of contamination, and routinely collect water samples for laboratory analysis. Since June 2010, we have contracted with Groton Utilities to operate and maintain our water system.

How is the Water Treated?

All of Groton Utilities water treatment plant operators are certified (as required by the CT Department of Public Health), and are responsible for producing water that meets all State and Federal drinking water regulations. The water is treated through a process called "conventional treatment" which consists of coagulation, flocculation, sedimentation and filtration. Chlorine dioxide may be added during the summer months to help remove iron and manganese. Lime and phosphate are added to inhibit corrosion of plumbing. Chlorine is added for disinfection and to maintain the quality of water as it travels throughout the piping network to your home. Fluoride is added to reduce the formation of cavities, as required by State of Connecticut Public Health regulations.

Source Water Assessment

The State of Connecticut Department of Public Health has performed an assessment of our drinking water source. It was found that Groton Utilities' drinking water sources have an overall low susceptibility to potential sources of contamination. The completed report is available for access on the Drinking Water Division's website: www.ct.gov/dph. Click on Topics A-Z, Drinking Water, Source Water Protection, and then Connecticut's SWAP Assessment Reports and Findings.

Sources of Drinking Water Contaminants

The sources of drinking water (both tap and bottled water) include rivers, lakes, streams, ponds, reservoirs, springs and wells. As water travels over the surface of the land or through the ground, it dissolves naturally occurring minerals and radioactive material, and can pick up substances resulting from the presence of animals or from human activity. Listed below are some examples of such contaminants:

- Microbiological contaminants such as viruses and bacteria, which may come from septic systems, agriculture and livestock operations, and wildlife;
- Inorganic contaminants, such as salts and metals that can be naturally occurring or result from urban storm water runoff, industrial or domestic wastewater discharges, or farming;
- Pesticides and herbicides, which may come from a variety of sources such as agriculture, urban storm water runoff, and residential uses;
- Organic chemicals, including synthetic and volatile organic compounds which are byproducts of industrial processes, and can come from gas stations, urban storm water runoff, and septic systems;
- Radioactive contaminants that can be naturally occurring.

How You Can Help to Protect Your Source Water Quality

- Don't flush medications or over-the-counter products down the toilet or sink. Put them in the trash (and not in the recycling bin). For information on safely disposing them in the trash, visit the CT DEEP's website at www.ct.gov/deep. Under Environmental Quality, click on Pollution Prevention; and then Proper Medication Disposal.

- Go Green - Seek alternatives to caustic household cleaners, pesticides, paint removers, and other products containing toxic chemicals. Go to the CT DEEP's website at www.ct.gov/deep. Under Environmental Quality, click on Pollution Prevention; and then Reducing Toxic Products in the Home. Alternative "recipes" (as well as other helpful tips) are given for many toxic products commonly used in the house and garden.

- Properly dispose of paints, motor oil, pesticides and other hazardous household waste by bringing it to a household hazardous waste collection site. Visit www.town.ledyard.ct.us, click on Trash and Recycling, and then Hazardous Waste Collection for the 2016 Regional Household Hazardous Waste Day Schedule.

Health Effects Information

Drinking water, including bottled water, may reasonably be expected to contain at least small amounts of some contaminants. The presence of contaminants does not necessarily indicate that water poses a health risk. More information about contaminants and potential health effects can be obtained by calling the EPA's Safe Drinking Water Hotline (800-426-4791).
Some people may be more vulnerable to contaminants in drinking water than the general population. Immuno-compromised persons, such as persons with cancer undergoing chemotherapy, persons who have undergone organ transplants, people with HIV/AIDS or other immune system disorders, some elderly, and infants can be particularly at risk from infections. These people should seek advice about drinking water from their health care providers.

EPA/CDC guidelines on appropriate means to lessen the risk of infection by *Cryptosporidium* and other microbial contaminants are available from the Safe Drinking Water Hotline (800-426-4791).

Important Information about Lead and Copper in Drinking Water

Due to Groton Utilities' watershed protection measures and their active program to control corrosion in water pipes, our water system has remained in compliance with drinking water regulations. However, it is possible that lead or copper levels at your home may be higher than at other homes in the community as a result of materials used in your home's plumbing.

If present, elevated levels of lead can cause serious health problems, especially for pregnant women and young children. Infants and children who drink water containing lead in excess of the action level could experience delays in their physical or mental development. Children could show slight deficits in attention span and learning abilities. Adults who drink water containing lead in excess of the action level over many years could develop kidney problems or high blood pressure.

Copper is an essential nutrient, but some people who drink water containing copper in excess of the action level over a relatively short amount of time could experience gastrointestinal distress. Some people who drink water containing copper in excess of the action level over many years could suffer liver or kidney damage. People with Wilson's Disease should consult their personal doctor.

Lead and copper in drinking water is primarily from materials and components associated with service lines and home plumbing. We are responsible for providing high quality drinking water, but cannot control the variety of materials used in plumbing components. Following are steps that can be taken to minimize potential exposure to lead:

- ✓ **If the water has sat unused in your pipes for more than several hours, flush your cold water tap for a few minutes (or until it gets cold) before using for drinking, cooking or making baby formula.**
- ✓ **Use cold water (not water from the hot water tap) for drinking, cooking, making formula, hot cocoa, tea, instant foods, etc.**
- ✓ **Periodically remove and clean the aerator or screen from the end of each faucet and rinse to remove any debris.**
- ✓ **Ensure that any updates to household plumbing are done with lead-free solder and fixtures.**

If you are concerned about lead or copper in your water, you may wish to have your water tested. Information on lead in drinking water, testing methods, and steps you can take to minimize exposure is available from the Safe Drinking Water Hotline (800-426-4791) or at www.epa.gov/your-drinking-water/basic-information-about-lead.

Water Conservation Tips

- Fix leaky faucets, showerheads and toilets.
- Consider replacing older toilets with a WaterSense labeled high efficiency toilet. These must past rigorous performance criteria and can't use more than 1.28 gallons per flush in order to earn the WaterSense label. (Older toilets can use up to four times more water than WaterSense toilets).
- Install aerators on your faucets. They reduce the flow and use air to maintain good water pressure. (and remember to periodically remove and clean faucet aerators because they can trap debris).
- Take shorter showers. High efficiency WaterSense showerheads automatically use less water without compromising the quality of your shower.
- Consider replacing your old washing machine with a high-efficiency Energy Star labeled model, which uses up to 50% less water and electricity.
- Run the dishwasher and washing machine only when full.
- Don't over-water your lawn or garden - use a timer, and water early in the morning or at night to avoid excess evaporation.
- Clean your sidewalk or driveway with a broom instead of a hose.

Ledyard Center 2015 Annual Water Quality Data

Regulated Contaminants

	Highest Level Allowed		Ledyard Center Water			
Parameter	MCL	MCLG	Highest Detected Level	Range **(a)**	Major Source	Met Standards?
Barium (ppm)	2	2	0.009	------	Discharge of drilling wastes; discharge from metal refineries; erosion of natural deposits	YES
Chloride (ppm)	250	N/A	53	32 - 53	Stormwater runoff containing road salt, erosion of natural deposits.	YES
Fluoride (ppm)	4	4	1.21	0.12 - 1.21	Erosion of natural deposits; water additive which promotes strong teeth	YES
Nitrate (ppm)	10	10	0.21	ND - 0.21	Runoff from fertilizer use, leachate from septic tanks; sewage, erosion of natural deposits.	YES
Parameter	TT	MCLG	Lowest RAA	Range	Major Source	
Total Organic Carbon (N/A)	Removal ratio must be >=1	N/A	1.6	1.3 - 2.3	Naturally present in the environment.	YES
Parameter	TT	MCLG	Highest detected level	Lowest % of samples meeting limit	Major Source	
Turbidity (NTU) **(b)**	95% of samples must be <=0.3 NTU	N/A	1.0	99%	Soil runoff	YES
Parameter	Action Level	MCLG	90th percentile **(c)**	# of sites above AL	Major Source	
Lead (ppb)	15	0	3	1 out of 20	Corrosion of household plumbing systems; erosion of natural deposits	YES
Copper (ppm)	1.3	1.3	0.03	0 out of 20	Corrosion of household plumbing systems; erosion of natural deposits; leaching from wood preservatives	YES
Parameter	MCL	MCLG	Highest LRAA **(d)**	Range	Major Source	
Haloacetic Acids (ppb)	60	N/A	27.2	17.1 - 31.5	By-product of drinking water disinfection	YES
Total Trihalomethanes (ppb)	80	N/A	68.3	33.0 - 89.3	By-product of drinking water disinfection	YES
Parameter	MRDL	MRDLG	Average	Range	Major Source	
Chlorine (ppm)	4	4	0.77	<0.05 - 1.46	Water additive used to control microbes	YES

Unregulated Contaminants **(e)**

Parameter	MCL	MCLG	Average	Range	Major Source	Met Standards?
Sodium (ppm)	Notification level = 28	None	23	19 - 27	Stormwater runoff containing road salt, erosion of natural deposits.	N/A
Sulfate (ppm)	None	None	6	5 - 9	Naturally occurring	N/A

Notes

Only detected contaminants are listed in this table. Analyses were performed in 2015 unless noted otherwise.

(a) A range of values is not presented for those parameters which were measured only once in 2015.

(b) Turbidity is a measure of the cloudiness of water and is a good indicator of the effectiveness of Groton's filtration system. Turbidity cannot exceed 1 NTU.

(c) Of the 20 homes tested in 2014, 90% had lead levels below 3 ppb and 90% had copper below 0.03 ppm; since these values are below the respective Action Levels, our system is in compliance. Next analysis is due in 2017.

(d) Highest Locational Running Annual Average (LRAA) of samples taken in the distribution system. Values in the range are individual sample results.

(e) EPA has not established drinking water standards for unregulated contaminants. We are required to monitor for them to assist the EPA in determining their occurrence and whether future regulation is warranted.

Key to Table

AL = Action Level: The concentration of a contaminant which, if exceeded, triggers treatment or other requirements which a water system must follow.

MCL = Maximum Contaminant Level: the highest level of a contaminant that is allowed in drinking water.

MCLG = Maximum Contaminant Level Goal: the level of a contaminant in drinking water below which there is no known or expected risk to health. MCLGs allow for a margin of safety. (MCLs are set as close to the MCLGs as feasible using best available technology.)

MRDL = Maximum Residual Disinfectant Level: The highest level of a disinfectant allowed in drinking water. There is convincing evidence that addition of a disinfectant is necessary for control of microbial contaminants.

MRDLG = Maximum Residual Disinfectant Level Goal: The level of a drinking water disinfectant below which there is no known or expected risk to health. MRDLGs do not reflect the benefits of the use of disinfectants to control microbial contamination.

N/A = Not Applicable **NTU** = Nephelometric Turbidity Units
< = Less than > = Greater than

ppm = parts per million **ppb** = parts per billion **pCi/L** = picoCuries per Liter
P/A = presence/absence **ND** = Not detected **RAA** = Running Annual Average

TT = Treatment Technique: A required process intended to reduce the level of a contaminant in drinking water.

Ledyard Water Pollution Control Authority

GALES FERRY SYSTEM

2015 ANNUAL WATER QUALITY REPORT

The Town of Ledyard Water Pollution Control Authority (WPCA) is pleased to present this year's Annual Water Quality Report. We are proud to report that the water we supply **meets all established Federal and State drinking water standards.**

This report contains information about the source and treatment of your water, lists the results of our 2015 testing, and contains information about what you can do to conserve and protect your valuable water supply.

The Water Quality Data chart on the last page of this report lists only the compounds that were detected in the water. It does not contain the contaminants that were tested for, but not found in our water. You will note that some of the results, though representative, were from samples collected prior to 2015. That is because the CT Department of Public Health (CTDPH) allows us to monitor for some contaminants less than once per year because the concentrations of these contaminants do not change frequently.

If you have any questions about this report, please call the Groton Utilities laboratory at (860) 446-4080. You are encouraged to attend the Ledyard WPCA's regularly scheduled meetings which are held on the fourth Tuesday of each month in the Ledyard Town Hall Annex Building at 7:00 PM.

What is the Source of Our Water?

The Gales Ferry System is a consecutive system of Groton Utilities, which means that we purchase our water from Groton Utilities after the water has undergone full conventional treatment. Since June 2010, we have contracted with Groton Utilities to operate and maintain our water system.
The Groton Utilities water source is supplied by surface water from a series of five interconnected reservoirs. Their staff includes reservoir patrol staff, who with local and state police, maintain a high level of security, monitor the watershed for potential sources of contamination, and routinely collect water samples for laboratory analysis.

How is the Water Treated?

All of Groton Utilities water treatment plant operators are certified (as required by the CT Department of Public Health), and are responsible for producing water that meets all State and Federal drinking water regulations. The water is treated through a process called "conventional treatment" which consists of coagulation, flocculation, sedimentation and filtration. Chlorine dioxide may be added during the summer months to help remove iron and manganese. Lime and phosphate are added to inhibit corrosion of plumbing. Chlorine is added for disinfection and to maintain the quality of water as it travels throughout the piping network to your home. Fluoride is added to reduce the formation of cavities, as required by State of Connecticut Public Health regulations.

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The State of Connecticut Department of Public Health has performed an assessment of our drinking water source. It was found that Groton Utilities' drinking water sources have an overall low susceptibility to potential sources of contamination. The completed report is available for access on the Drinking Water Division's website: www.ct.gov/dph. Click on Topics A-Z, Drinking Water, Source Water Protection, and then Connecticut's SWAP Assessment Reports and Findings.

Sources of Drinking Water Contaminants

The sources of drinking water (both tap and bottled water) include rivers, lakes, streams, ponds, reservoirs, springs and wells. As water travels over the surface of the land or through the ground, it dissolves naturally occurring minerals and radioactive material, and can pick up substances resulting from the presence of animals or from human activity. Listed below are some examples of such contaminants:

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- Organic chemicals, including synthetic and volatile organic compounds which are byproducts of industrial processes, and can come from gas stations, urban storm water runoff, and septic systems;
- Radioactive contaminants that can be naturally occurring.

How You Can Help to Protect Your Source Water Quality

- Don't flush medications or over-the-counter products down the toilet or sink. Put them in the trash (and not in the recycling bin). For information on safely disposing them in the trash, visit the CT DEEP's website at www.ct.gov/deep. Under Environmental Quality, click on Pollution Prevention; and then Proper Medication Disposal.

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- Properly dispose of paints, motor oil, pesticides and other hazardous household waste by bringing it to a household hazardous waste collection site. Visit www.town.ledyard.ct.us, click on Trash and Recycling, and then Hazardous Waste Collection for the 2016 Regional Household Hazardous Waste Day Schedule.

Health Effects Information

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Some people may be more vulnerable to contaminants in drinking water than the general population. Immuno-compromised persons, such as persons with cancer undergoing chemotherapy, persons who have undergone organ transplants, people with HIV/AIDS or other immune system disorders, some elderly, and infants can be particularly at risk from infections. These people should seek advice about drinking water from their health care providers.

EPA/CDC guidelines on appropriate means to lessen the risk of infection by *Cryptosporidium* and other microbial contaminants are available from the Safe Drinking Water Hotline (800-426-4791).

Important Information about Lead and Copper in Drinking Water

Due to Groton Utilities' watershed protection measures and their active program to control corrosion in water pipes, our water system has remained in compliance with drinking water regulations. However, it is possible that lead or copper levels at your home may be higher than at other homes in the community as a result of materials used in your home's plumbing.

If present, elevated levels of lead can cause serious health problems, especially for pregnant women and young children. Infants and children who drink water containing lead in excess of the action level could experience delays in their physical or mental development. Children could show slight deficits in attention span and learning abilities. Adults who drink water containing lead in excess of the action level over many years could develop kidney problems or high blood pressure.

Copper is an essential nutrient, but some people who drink water containing copper in excess of the action level over a relatively short amount of time could experience gastrointestinal distress. Some people who drink water containing copper in excess of the action level over many years could suffer liver or kidney damage. People with Wilson's Disease should consult their personal doctor.

Lead and copper in drinking water is primarily from materials and components associated with service lines and home plumbing. We are responsible for providing high quality drinking water, but cannot control the variety of materials used in plumbing components. Following are steps that can be taken to minimize potential exposure to lead:

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- ✓ **Use cold water (not water from the hot water tap) for drinking, cooking, making formula, hot cocoa, tea, instant foods, etc.**
- ✓ **Periodically remove and clean the aerator or screen from the end of each faucet and rinse to remove any debris.**
- ✓ **Ensure that any updates to household plumbing are done with lead-free solder and fixtures.**

If you are concerned about lead or copper in your water, you may wish to have your water tested. Information on lead in drinking water, testing methods, and steps you can take to minimize exposure is available from the Safe Drinking Water Hotline (800-426-4791) or at www.epa.gov/your-drinking-water/basic-information-about-lead.

Water Conservation Tips

- Fix leaky faucets, showerheads and toilets.
- Consider replacing older toilets with a WaterSense labeled high efficiency toilet. These must past rigorous performance criteria and can't use more than 1.28 gallons per flush in order to earn the WaterSense label. (Older toilets can use up to four times more water than WaterSense toilets).
- Install aerators on your faucets. They reduce the flow and use air to maintain good water pressure. (and remember to periodically remove and clean faucet aerators because they can trap debris).
- Take shorter showers. High efficiency WaterSense showerheads automatically use less water without compromising the quality of your shower.
- Consider replacing your old washing machine with a high-efficiency Energy Star labeled model, which uses up to 50% less water and electricity.
- Run the dishwasher and washing machine only when full.
- Don't over-water your lawn or garden - use a timer, and water early in the morning or at night to avoid excess evaporation.
- Clean your sidewalk or driveway with a broom instead of a hose.

Gales Ferry 2015 Annual Water Quality Data

Regulated Contaminants

	Highest Level Allowed		Gales Ferry Water			
Parameter	MCL	MCLG	Highest Detected Level	Range **(a)**	Major Source	Meets Standards?
Asbestos (MFL) **(b)**	7	7	2.6	------	Decay of asbestos cement water mains	YES
Barium (ppm)	2	2	0.009	------	Discharge of drilling wastes; discharge from metal refineries; erosion of natural deposits	YES
Chloride (ppm)	250	N/A	53	32 - 53	Stormwater runoff containing road salt, erosion of natural deposits.	YES
Fluoride (ppm)	4	4	1.21	0.12 - 1.21	Erosion of natural deposits; water additive which promotes strong teeth	YES
Nitrate (ppm)	10	10	0.21	ND - 0.21	Runoff from fertilizer use, leachate from septic tanks; sewage, erosion of natural deposits.	YES
Parameter	TT	MCLG	Lowest RAA	Range	Major Source	
Total Organic Carbon (N/A)	Removal ratio must be >=1	N/A	1.6	1.3 - 2.3	Naturally present in the environment.	YES
Parameter	TT	MCLG	Highest detected level	Lowest % of samples meeting limit	Major Source	
Turbidity (NTU) **(c)**	95% of samples must be <=0.3 NTU	N/A	1.0	99%	Soil runoff	YES
Parameter	Action Level	MCLG	90th percentile **(d)**	# of sites above AL	Major Source	
Lead (ppb)	15	0	0.003	0 out of 10	Corrosion of household plumbing systems; erosion of natural deposits	YES
Copper (ppm)	1.3	1.3	0.06	0 out of 10	Corrosion of household plumbing systems; erosion of natural deposits; leaching from wood preservatives	YES
Parameter	MCL	MCLG	Highest LRAA **(e)**	Range	Major Source	
Haloacetic Acids (ppb)	60	N/A	20.5	12.8 - 25.0	By-product of drinking water disinfection	YES
Total Trihalomethanes (ppb)	80	N/A	61.8	37.2 - 67.3	By-product of drinking water disinfection	YES
Parameter	MRDL	MRDLG	Average	Range	Major Source	
Chlorine (ppm)	4	4	0.82	ND - 1.50	Water additive used to control microbes	YES

Unregulated Contaminants **(f)**

Parameter	MCL	MCLG	Average	Range	Major Source	Meets Standards?
Sodium (ppm)	Notification level = 28	None	23	19 - 27	Stormwater runoff containing road salt, erosion of natural deposits.	N/A
Sulfate (ppm)	None	None	6	5 - 9	Naturally occurring	N/A

Notes

Only detected contaminants are listed in this table. Analyses were performed in 2015 unless noted otherwise.

(a) A range of values is not presented for those parameters which were measured only once in 2015.

(b) Represents 2010 results. Next analysis due in 2019.

(c) Turbidity is a measure of the cloudiness of water and is a good indicator of the effectiveness of Groton's filtration system. Turbidity cannot exceed 1 NTU.

(d) Of the 10 homes tested in 2015, 90% had lead levels below 3 ppb, and 90% had copper below 0.06 ppm; since these values are below their respective Action Levels, our system is in compliance. Next analysis 2018.

(e) Highest Locational Running Annual Average (LRAA) of samples taken in the distribution system. Values in the range are individual sample results.

(f) EPA has not established drinking water standards for unregulated contaminants. We are required to monitor for them to assist the EPA in determining their occurrence and whether future regulation is warranted.

Key to Table

AL = Action Level: The concentration of a contaminant which, if exceeded, triggers treatment or other requirements which a water system must follow.

MCL = Maximum Contaminant Level: the highest level of a contaminant that is allowed in drinking water.

MCLG = Maximum Contaminant Level Goal: the level of a contaminant in drinking water below which there is no known or expected risk to health. MCLGs allow for a margin of safety. (MCLs are set as close to the MCLGs as feasible using best available technology.)

MRDL = Maximum Residual Disinfectant Level: The highest level of a disinfectant allowed in drinking water. There is convincing evidence that addition of a disinfectant is necessary for control of microbial contaminants.

MRDLG = Maximum Residual Disinfectant Level Goal: The level of a drinking water disinfectant below which there is no known or expected risk to health. MRDLGs do not reflect the benefits of the use of disinfectants to control microbial contamination.

N/A = Not Applicable **NTU** = Nephelometric Turbidity Units
< = Less than **>** = Greater than
ppm = parts per million **ppb** = parts per billion **pCi/L** = picoCuries per Liter
P/A = presence/absence **ND** = Not detected **MFL** = million fibers per liter longer than 10 micrometers **RAA** = Running Annual Average
TT = Treatment Technique: A required process intended to reduce the level of a contaminant in drinking water.

APPENDIX H

Water Service Rate Structure

Ledyard WPCA Fee Schedule

Ledyard Connection Fees - Water	
Item	**Fee**
Basement Hook-Up	$385.00
Pit Hook -Up	$495.00
Development Fee	$1,650.00
Basement Hook-Up (Sablewoods)	$4,235.00
Pit Hook-Up (Sablewoods)	$4,345.00
2" Service Connection	$1,650.00
3" Service Connection	$2,035.00
4" Service Connection	$2,805.00
6" Service Connection	$4,702.50
8" Service Connection	$6,270.00

Groton Utilities Connection Fees - Water	
Item	**Fee**
Inspection	$110.00
1" Water Service Tap, Inspection	$395.00
> 1" Water Service Tap, Inpsection	Provide Estimate

Note: Customers hooking up to an ***Existing Curbstop*** to be charged:
Ledyard Hook-Up Fee (Basement or Meter Pit)
GU Inspection Fee

Note: Customers hooking into Water Main ***(New Tap)*** to be charged:
Ledyard Hook-Up Fee (Basement or Meter Pit)
Ledyard Development Fee
GU Tap / Inspection Fee

Fire Sprinkler Service - ANNUAL CHARGES	
2" Connection	$55.00
4" Connection	$165.00
6" Connection	$330.00
8" Connection	$440.00
10" Connection	$660.00

Hydrant Service - ANNUAL CHARGES	
All Hydrants	$550.00

Ledyard Connection Fees - Sewer	
Item	**Fee**
Hook-Up Fee	$500.00
Development Fee	$1,500.00

Via Verde -NEW CONSTRUCTION	
Item	**Fee**
Inspection	Charge WO #27515
Basement Hook-Up Charge	$200.00

Via Verde -EXISTING RESIDENCES	
Item	**Fee**
Inspection Fee	$110.00
Basement Hook-Up Charge	$385.00
Connection Charge	$1,650.00

Note: Existing Residences apply to the following:
Stevens: #1, #2, #3, #4, #5 ,#7, #11
Hilltop: #2, #3, #5

Note: Fees for NEW Construction reduced by agreement between Ledyard WPCA and Developer.

Revised to: April 2015

APPENDIX I

Mapping

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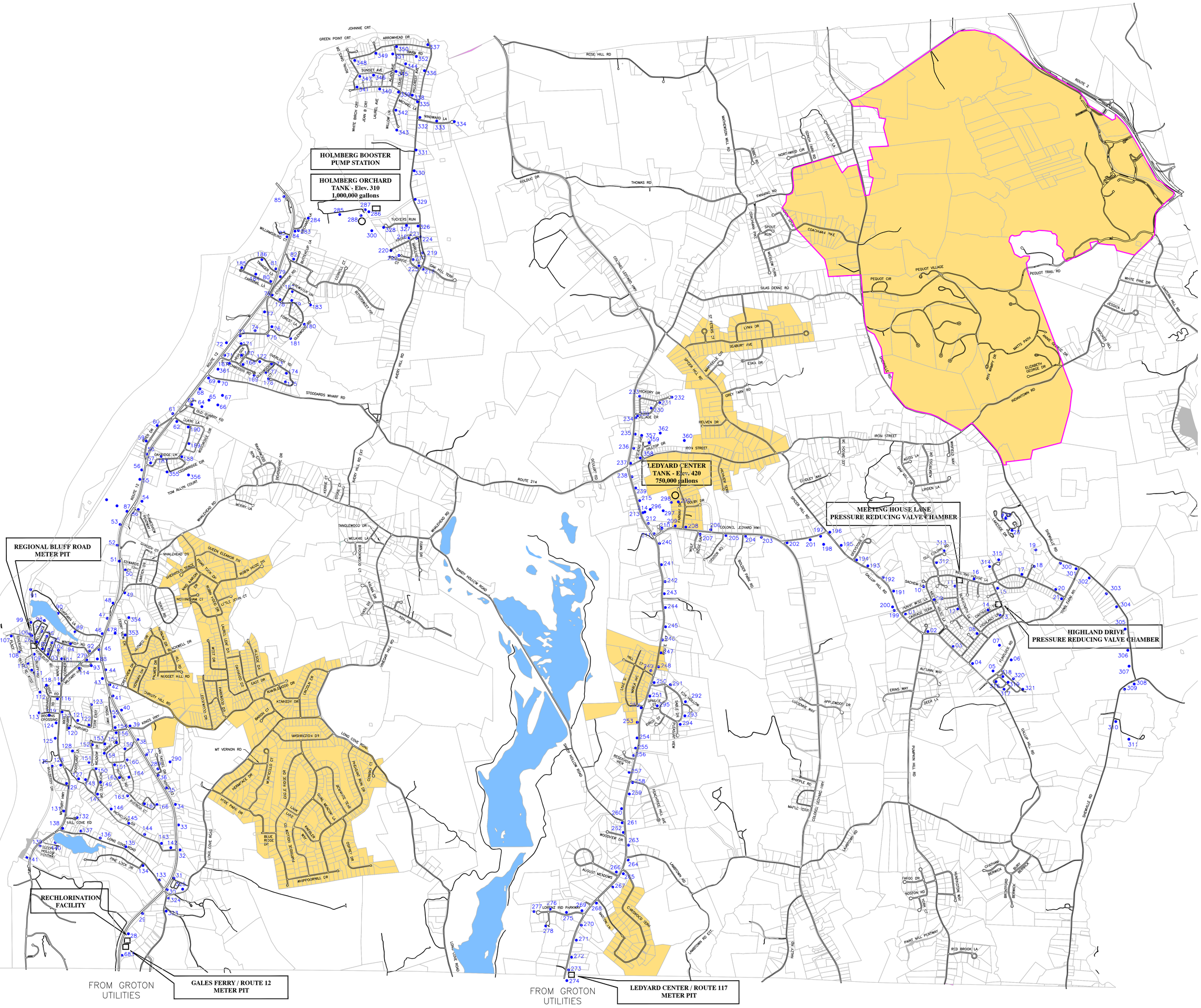
1 - Ledyard Water System Master Plan / Distribution

2 - Ledyard Water System Master Plan / Hydrants

3 - Ledyard Water System / Distribution System Sampling / Ledyard Center

4 - Ledyard Water System / Distribution System Sampling / Gales Ferry



LEGEND

●## FIRE HYDRANT WITH ID NO.

OTHER UTILITY SERVICE AREA

LOW-SERVICE (SOLID LINE)	HIGH-SERVICE (DASHED LINE)
2" WATERMAIN	2" WATERMAIN
4" WATERMAIN	4" WATERMAIN
6" WATERMAIN	6" WATERMAIN
8" WATERMAIN	8" WATERMAIN
10" WATERMAIN	10" WATERMAIN
12" WATERMAIN	12" WATERMAIN
16" WATERMAIN	16" WATERMAIN

CITY OF GROTON CONNECTICUT
DEPARTMENT OF UTILITIES

LEDYARD WATER SYSTEM MASTER PLAN

0' 800' 1600' 2400'

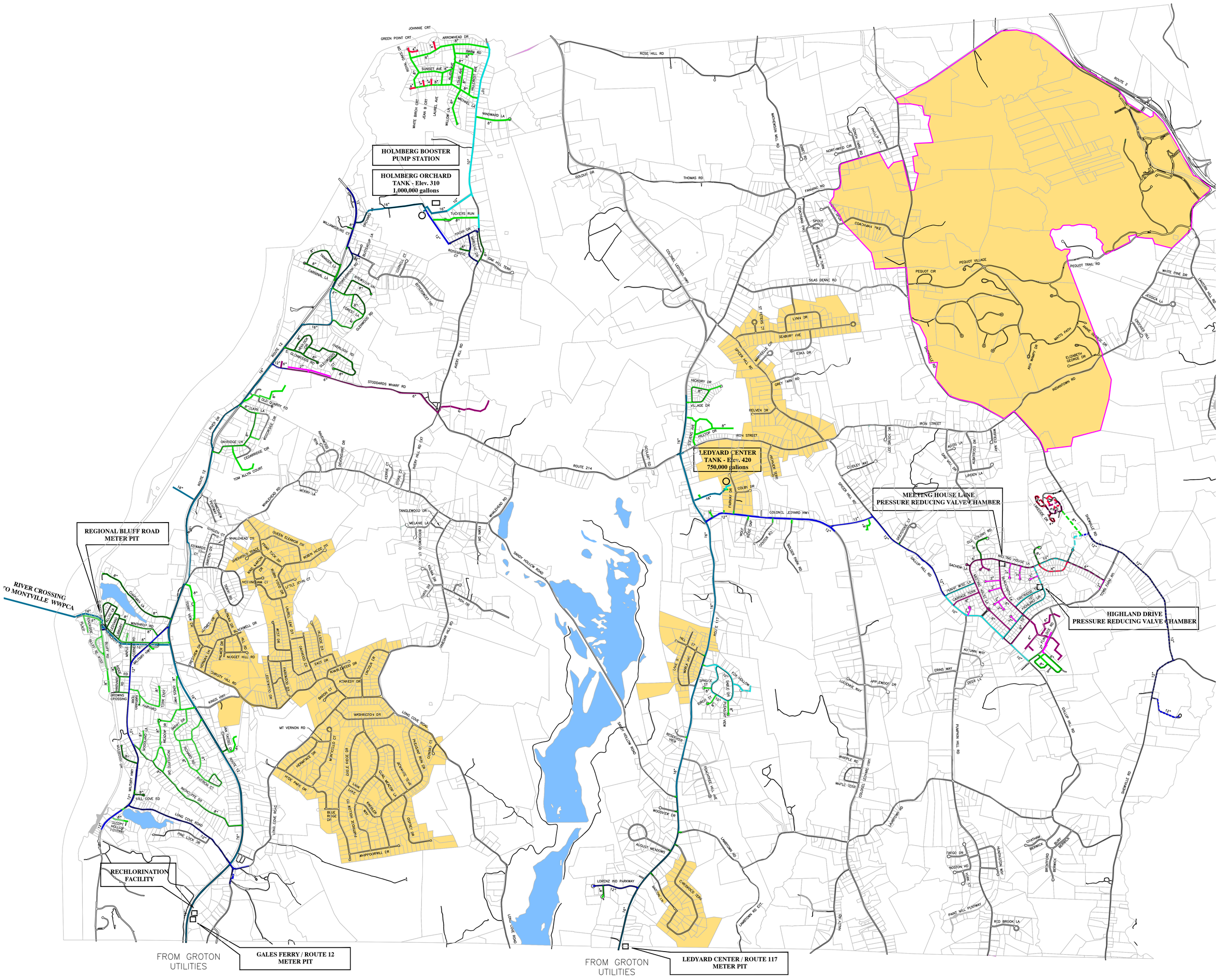
DATE	BY	REVISION
9/24/15	DLL	GENERAL PLAN REVISIONS
10/2/14	DLL	CEDAR RIDGE & TOM ALLYN COURT ADDED TO PLAN.
9/22/14	DLL	STEVENS & HILLTOP ADDED TO PLAN.
8/26/14	DLL	HOLMBERG BOOSTER PUMP STATION ADDED TO PLAN.
7/29/14	DLL	MASHANTUCKET SERVICE AREA REVISED.
3/13/13	DLL	FERRYVIEW DRIVE ADDED TO PLAN
1/15/13	MSW	Avery Hill Rd/ Aljen Heights

GROTON UTILITIES

LEDYARD SERVICE AREA
HYDRANT MASTER PLAN

SURVEY BY: DATE:
BASE PLAN BY: MSW DATE: 8/10/98
DESIGN BY: DATE:

SCALE: 1" = 800'
DWG. NO.
SHEET 1 OF 1



LEGEND

OTHER UTILITY SERVICE AREA

LOW-SERVICE (SOLID LINE)	HIGH-SERVICE (DASHED LINE)
2" WATERMAIN	2" WATERMAIN
4" WATERMAIN	4" WATERMAIN
6" WATERMAIN	6" WATERMAIN
8" WATERMAIN	8" WATERMAIN
10" WATERMAIN	10" WATERMAIN
12" WATERMAIN	12" WATERMAIN
16" WATERMAIN	16" WATERMAIN

CITY OF GROTON CONNECTICUT
DEPARTMENT OF UTILITIES

LEDYARD WATER SYSTEM MASTER PLAN

0' 800' 1600' 2400'

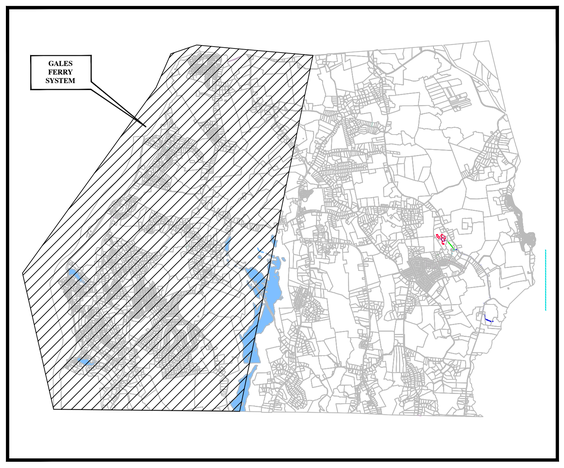
DATE	BY	REVISION
09/23/15	DLL	GENERAL PLAN REVISIONS
01/14/15	DLL	2" PVC WATER MAIN @ FLINTLOCK ROAD
10/2/14	DLL	CEDAR RIDGE & TOM ALLYN COURT ADDED TO PLAN
9/22/14	DLL	STEVENS & HILLTOP ADDED TO PLAN.
8/26/14	DLL	HOLMBERG BOOSTER PUMP STATION ADDED TO PLAN
7/29/14	DLL	MASHANTUCKET SERVICE AREA REVISED.
6/11/13	DLL	2" PVC MAIN @ STODDARDS WHARF ADDED TO PLAN
3/13/13	DLL	FERRYVIEW DRIVE WATER MAIN ADDED TO PLAN
1/15/13	MSW	AVERY HILL & ALJEN HEIGHTS

GROTON UTILITIES

LEDYARD SERVICE AREA
WATER MAIN MASTER PLAN

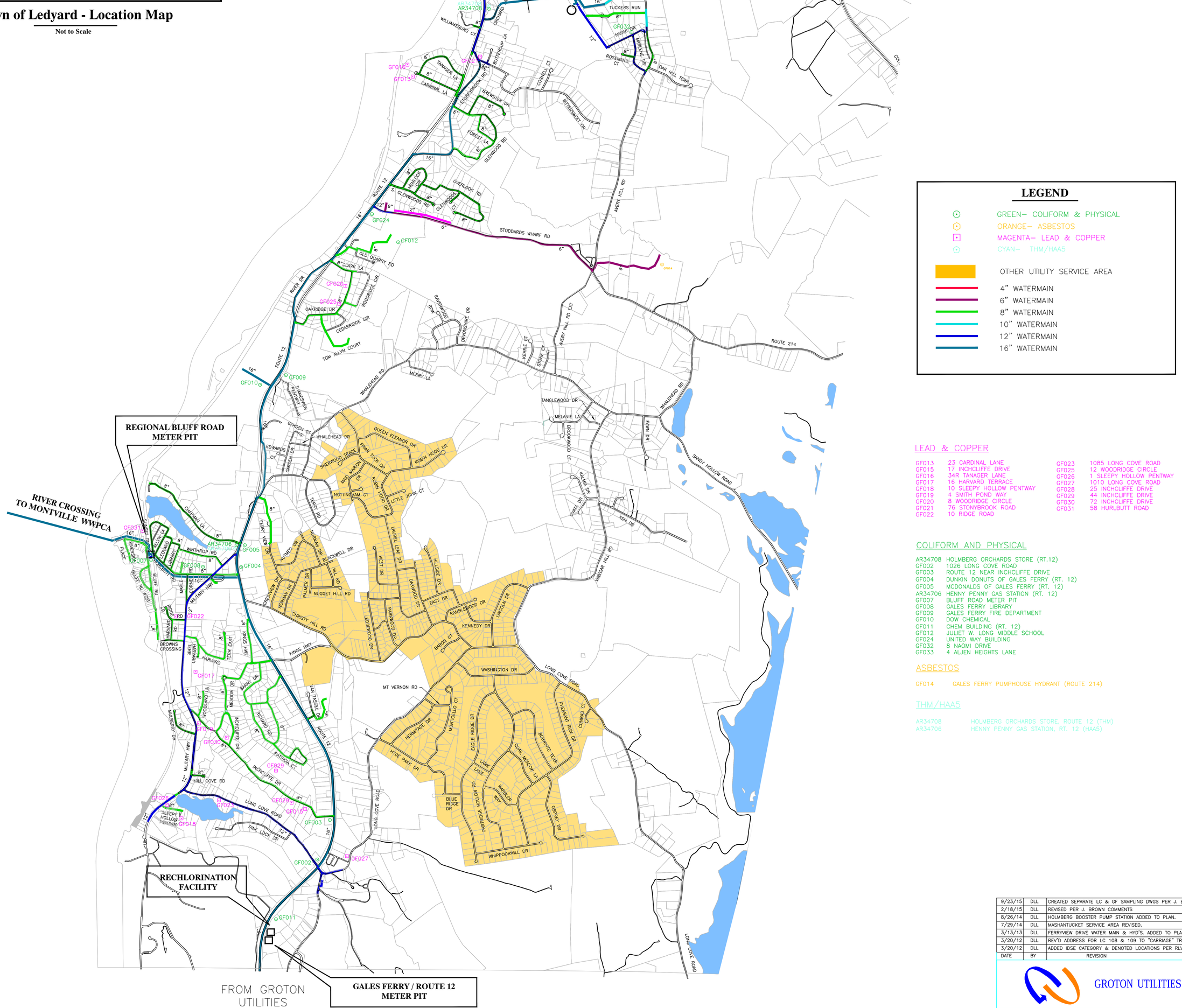
SURVEY BY: DATE:
BASE PLAN BY: MSW DATE: 8/10/98
DESIGN BY: DATE:

SCALE: 1" = 800'
DWG. NO.
SHEET 1 OF 1



Town of Ledyard - Location Map

Not to Scale



LEAD & COPPER

GF013	23 CARDINAL LANE	GF023	1085 LONG COVE ROAD
GF015	17 INCHCLIFFE DRIVE	GF025	12 WOODRIDGE CIRCLE
GF016	34R TANAGER LANE	GF026	1 SLEEPY HOLLOW PENTWAY
GF017	16 HARVARD TERRACE	GF027	1010 LONG COVE ROAD
GF018	10 SLEEPY HOLLOW PENTWAY	GF028	25 INCHCLIFFE DRIVE
GF019	4 SMITH POND WAY	GF029	44 INCHCLIFFE DRIVE
GF020	8 WOODRIDGE CIRCLE	GF030	72 INCHCLIFFE DRIVE
GF021	76 STONYBROOK ROAD	GF031	58 HURLBUTT ROAD
GF022	10 RIDGE ROAD		

COLIFORM AND PHYSICAL

AR34708	HOLMBERG ORCHARDS STORE (RT.12)
GF002	1026 LONG COVE ROAD
GF003	ROUTE 12 NEAR INCHCLIFFE DRIVE
GF004	DUNKIN DONUTS OF GALES FERRY (RT. 12)
GF005	MCDONALDS OF GALES FERRY (RT. 12)
AR34706	HENNY PENNY GAS STATION (RT. 12)
GF007	BLUFF ROAD METER PIT
GF008	GALES FERRY LIBRARY
GF009	GALES FERRY FIRE DEPARTMENT
GF010	DOW CHEMICAL
GF011	CHEM BUILDING (RT. 12)
GF012	JULIET W. LONG MIDDLE SCHOOL
GF024	UNITED WAY BUILDING
GF032	8 NAOMI DRIVE
GF033	4 ALJEN HEIGHTS LANE

ASBESTOS

GF014 GALES FERRY PUMPHOUSE HYDRANT (ROUTE 214)

THM/HAA5

AR34708 HOLMBERG ORCHARDS STORE, ROUTE 12 (THM)
AR34706 HENNY PENNY GAS STATION, RT. 12 (HAA5)

Gales Ferry Water System

Scale: 1" = 800'

DATE	BY	REVISION
9/23/15	DLL	CREATED SEPARATE LC & GF SAMPLING DWGS PER J. BROWN
2/18/15	DLL	REVISED PER J. BROWN COMMENTS
8/26/14	DLL	HOLMBERG BOOSTER PUMP STATION ADDED TO PLAN.
7/29/14	DLL	MASHANTUCKET SERVICE AREA REVISED.
3/13/13	DLL	FERRYVIEW DRIVE WATER MAIN & HYD'S. ADDED TO PLAN.
3/20/12	DLL	REV'D ADDRESS FOR LC 108 & 109 TO "CARRIAGE" TRAIL
3/20/12	DLL	ADDED IDSE CATEGORY & DENOTED LOCATIONS PER RLV.

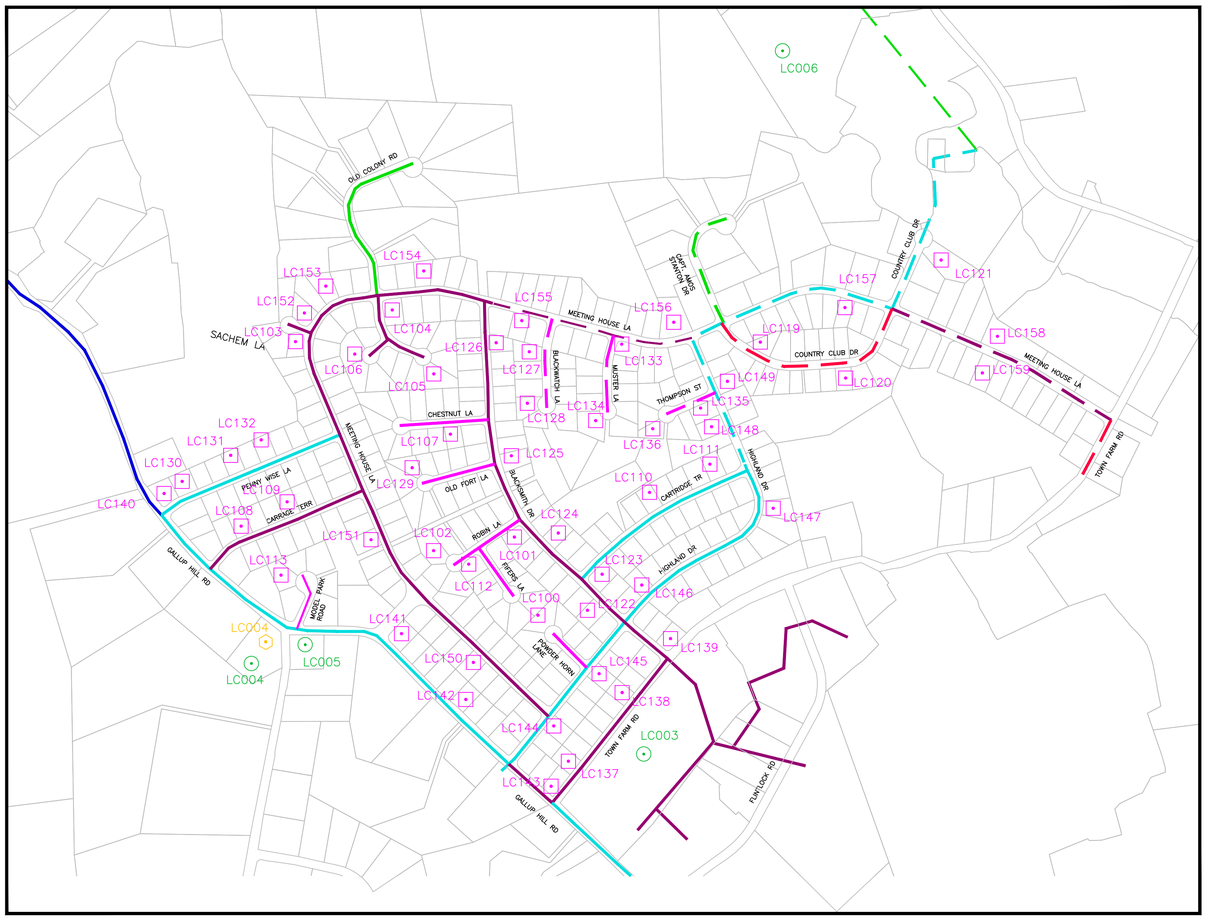
GROTON UTILITIES

TOWN OF LEDYARD
GALES FERRY SYSTEM CT0727051
DISTRIBUTION SYSTEM
SAMPLING MAP

SURVEY BY: DATE:
BASE PLAN BY: MSW DATE: 10/20/10
DESIGN BY: DATE:
SCALE: 1" = 800'
DWG. NO.
SHEET 1 OF 1

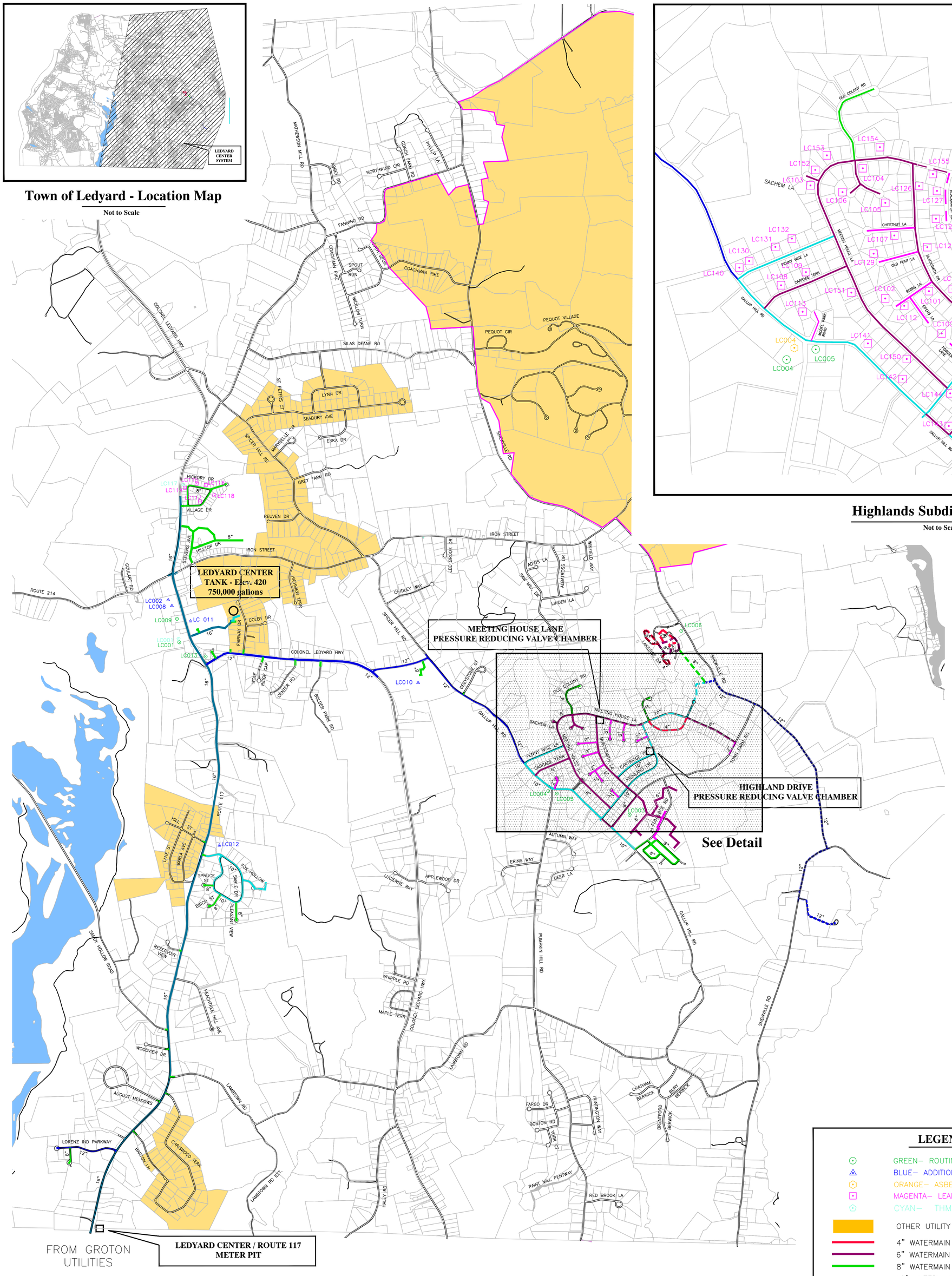
Town of Ledyard - Location Map

Not to Scale



Highlands Subdivision - Detail

Not to Scale



Ledyard Center Water System

Scale: 1" = 800'

LEAD & COPPER

LC100	8 POWDER HORN DRIVE
LC101	1 ROBIN LANE
LC102	14 ROBIN LANE
LC103	1 SACHEM LANE
LC104	1 WHITEWOOD LANE
LC105	12 WHITEWOOD LANE
LC106	4 ASPEN LANE
LC107	3 CHESTNUT LANE
LC108	5 CARRIAGE TRAIL
LC109	11 CARRIAGE TRAIL
LC110	13 CARTRIDGE TERRACE
LC111	21 CARTRIDGE TERRACE
LC112	2 FIFERS LANE
LC113	3 MODEL PARK ROAD
LC114	11 HICKORY DRIVE
LC115	19 HICKORY DRIVE
LC116	25 HICKORY DRIVE
LC117	11 VILLAGE DRIVE
LC118	20 VILLAGE DRIVE
LC119	5 COUNTRY CLUB
LC120	18 COUNTRY CLUB
LC121	34 COUNTRY CLUB
LC122	11 BLACKSMITH DRIVE
LC123	14 BLACKSMITH DRIVE
LC124	22 BLACKSMITH DRIVE
LC125	32 BLACKSMITH DRIVE
LC126	46 BLACKSMITH DRIVE
LC127	6 BLACKWATCH LANE
LC128	12 BLACKWATCH LANE
LC129	10 OLD FORT LANE
LC130	3 PENNYWISE LANE
LC131	9 PENNYWISE LANE
LC132	13 PENNYWISE LANE
LC133	1 MUSTER LANE
LC134	12 MUSTER LANE
LC135	1 THOMPSON STREET
LC136	7 THOMPSON STREET
LC137	5 TOWN FARM ROAD
LC138	15 TOWN FARM ROAD
LC139	23 TOWN FARM ROAD
LC140	105 GALLUP HILL ROAD
LC141	139 GALLUP HILL ROAD
LC142	149 GALLUP HILL ROAD
LC143	163 GALLUP HILL ROAD
LC144	8 HIGHLAND DRIVE
LC145	16 HIGHLAND DRIVE
LC146	25 HIGHLAND DRIVE
LC147	42 HIGHLAND DRIVE
LC148	53 HIGHLAND DRIVE
LC149	58 HIGHLAND DRIVE
LC150	11 MEETINGHOUSE
LC151	27 MEETINGHOUSE
LC152	53 MEETINGHOUSE
LC153	57 MEETINGHOUSE
LC154	69 MEETINGHOUSE
LC155	82 MEETINGHOUSE
LC156	101 MEETINGHOUSE
LC157	122 MEETINGHOUSE
LC158	139 MEETINGHOUSE
LC159	140 MEETINGHOUSE

COLIFORM AND PHYSICAL

LC001	VILLAGE MARKET
LC003	GALLUP HILL SCHOOL
LC004	PUMPKIN HILL MARKET
LC005	LITTLE LEARNERS DAYCARE
LC006	LAKESIDE CONDOS
LC009	LEDYARD TOWN HALL
LC013	BILL LIBRARY

ADDITIONAL COLIFORM AND PHYSICAL

LC002	AJ'S RESTAURANT
LC008	HOLDRIDGE NURSERY
LC010	LEDYARD HIGH SCHOOL
LC011	LEDYARD CENTER SCHOOL
LC012	5 SABLE DRIVE

ASBESTOS

LC004	PUMPKIN HILL MARKET

THM/HAA5

LC001	VILLAGE MARKET
LC017	11 VILLAGE DRIVE

LEGEND

- GREEN– ROUTINE COLIFORM & PHYSICAL
- BLUE– ADDITIONAL COLIFORM & PHYSICAL
- ORANGE– ASBESTOS
- MAGENTA– LEAD & COPPER
- CYAN– THM/HAA5
- OTHER UTILITY SERVICE AREA
- 4" WATERMAIN
- 6" WATERMAIN
- 8" WATERMAIN
- 10" WATERMAIN
- 12" WATERMAIN
- 16" WATERMAIN

DATE	BY	REVISION
9/16/15	DLL	CREATED SEPARATE LC & GF SAMPLING DWGS PER J. BROWN
2/18/15	DLL	REVISED PER J. BROWN COMMENTS
8/26/14	DLL	HOLMBERG BOOSTER PUMP STATION ADDED TO PLAN.
7/29/14	DLL	MASHANTUCKET SERVICE AREA REVISED.
3/13/13	DLL	FERRYVIEW DRIVE WATER MAIN & HYD'S. ADDED TO PLAN.
3/20/12	DLL	REV'D ADDRESS FOR LC 108 & 109 TO "CARRIAGE" TRAIL
3/20/12	DLL	ADDED IDSE CATEGORY & DENOTED LOCATIONS PER RLV.

GROTON UTILITIES

TOWN OF LEDYARD
LEDYARD CENTER SYSTEM CT0727091
DISTRIBUTION SYSTEM
SAMPLING MAP

SURVEY BY:	DATE:	SCALE: 1" = 800'
BASE PLAN BY: MSW	DATE: 10/20/10	DWG. NO.
DESIGN BY:	DATE:	SHEET 1 OF 1