

QUALIFICATIONS

TOWN OF LEDYARD, CT



Engineering Services for
Upgrade of WWTF at
82 Town Farm Road

February 2015



WRIGHT-PIERCE 
Engineering a Better Environment

February 12, 2015
W-P Project No. T10517

Mr. Charles Karno, Town Planner
Mayor's Office
Town of Ledyard
741 Colonel Ledyard Highway
Ledyard, CT 06339

Subject: Request for Qualifications
Engineering Services for Wastewater Facility Improvements

Dear Mr. Karno:

The Town of Ledyard Water Pollution Control Authority (WPCA) owns and operates a wastewater collection and treatment system to serve the Highlands section of Ledyard that is primarily residential with some school and commercial service as well. The plant was originally constructed in 1962 and most recently underwent a significant expansion and upgrade in 1997. The facility has been in continuous service and is very well operated and maintained.

The equipment and systems at a water pollution control facility (WPCF) typically have a useful life of approximately 20 years due to the harsh environment and continuous duty requirements. The Ledyard WPCA would like to proactively upgrade portions of the WPCF to ensure its long-term reliability. To assist in these efforts, the WPCA would like to retain the services of an engineer to provide design, bidding and construction phase engineering services in connection with these planned improvements. We understand that the WPCA has an established budget and would like to maximize the capital improvements to the WPCF within this budget.

Wright-Pierce is a full-service, civil and environmental engineering firm with a staff of over 200 engineers and support personnel. For over 65 years, the mainstay of our business has been providing wastewater and infrastructure engineering services for municipal clients throughout the Northeast. We have in-house the wide range of engineering disciplines and technical staff needed to support projects including water, wastewater, environmental, structural, civil, electrical, instrumentation, architectural and mechanical engineers, and support staff, all with extensive municipal infrastructure engineering experience. We are familiar with many of the issues facing your Town of Ledyard having worked on past infiltration and inflow studies and sewer system evaluation surveys. Wright-Pierce is experienced with the traditional design-bid-build method of completing projects but we also have experience with alternative project delivery techniques that could help to maximize capital improvements while minimizing other project costs.



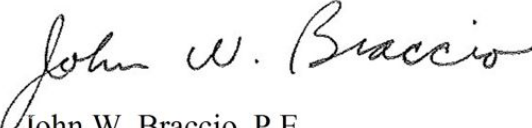
Our expertise, experience, and resources are only partially the reason we are well-suited to provide engineering services to the Town of Ledyard WPCF. What really sets us apart:

- ✓ our practical hands-on approach
- ✓ track record for developing reliable, cost-affordable solutions tailored to the specific needs of our clients
- ✓ proactive approach to optimizing the involvement of our clients throughout the project
- ✓ commitment to achieving total client satisfaction

We are committed to client satisfaction and to client involvement. We take the word "service" very seriously. You will recognize it in the thoroughness of our work and in the quickness of our response to your requests. We encourage you to contact our references for a first-hand account of our performance and our capabilities.

Thank you for considering Wright-Pierce to provide engineering services for the improvements to your wastewater treatment facility. We look forward to meeting with your selection committee to further discuss our qualifications as needed. If you have any questions, or if you need additional information, please feel free to call.

Sincerely,
WRIGHT-PIERCE


John W. Braccio, P.E.
President

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Section 1

PROJECT BACKGROUND

The Town of Ledyard Water Pollution Control Authority (WPCA) owns and operates a wastewater collection and treatment system to serve the Highlands section of Ledyard. The plant was originally constructed in 1962 and most recently underwent a significant expansion and upgrade in 1997. The facility has been in continuous service and is very well operated and maintained.

The equipment and systems at a water pollution control facility (WPCF) typically have a useful life of approximately 20 years due to the harsh environment and continuous duty requirements. The Ledyard WPCA would like to proactively upgrade portions of the WPCF to ensure its long-term reliability. The project includes Headworks upgrades including screenings, grit removal and raw sewage pumping improvements, Sequencing Batch Reactor (SBR) tank upgrades including blowers, diffuser membranes and dissolved oxygen control system improvements, sludge storage and thickening upgrades, equipment and instrumentation upgrades and related improvements. The project is being pursued in conformance with a recently completed Wastewater Facilities Study.



Due to the age and condition of the existing facilities, the WPCA desires to hire a consulting engineer to provide engineering services including:

- Reviewing existing studies and making recommendations to the WPCA as to specific activities and timing of improvements.
- Coordinating all design and bidding activities with the Town and preparing plans and specifications as necessary for approval by the WPCA.
- Providing bidding phase services including attending any and all mandatory pre-bid conferences, answering any inquiries regarding the plans and specifications during the bid process, and preparing any necessary addenda.
- Reviewing all bids received recommending award of any contracts to the WPCA and the Town Purchasing Agent.
- Reviewing and making recommendations concerning the suitability of any proposed alternate or substituted equipment, material, or methods proposed.
-
- Providing construction phase services including communications with the contractor, on-site regular project observations, written observation reports and minutes of project coordination meetings, reviewing shop

SECTION 1

PROJECT UNDERSTANDING

drawings, material samples, subcontractor's qualifications, and any other submission for compliance with the specifications, evaluating change orders and Applications for Payment, attending scheduled evening WPCA meetings, determining contract completion, recommending project acceptance, and performing other standard engineering services related to this project.

- Preparing record drawings following construction.

Based on our understanding of the project, discussions with the WPCF staff, visits to the site and our knowledge of the Ledyard WPCF, we have identified some of the key issues that will need to be considered as part of this project. These key issues are discussed below.

KEY ISSUES

Grit removal

The existing aerated grit system dates back to the original plant construction more than 50 years ago. While there are alternative technologies available such as vortex grit removal, the existing aerated grit system is one of the simplest to operate and maintain. There were no issues reported by plant staff with grit affecting downstream processes. If improved grit removal efficiency is required, other alternatives could be considered as part of any headworks upgrade. If not, construction of a new aerated grit system or possibly rehabilitation of the existing grit chamber including concrete rehabilitation, replacement of the existing blower and upgrading the coarse bubble air diffusers would be the most cost-effective. Alternate grit removal systems typically require grit washing and classifying systems that add capital cost and operational complexity. The existing system only requires contracting with a company to vacuum out the grit periodically.

Influent Screening/Headworks Facility

Screening of the raw wastewater is accomplished with a climber type mechanical bar screen with 3/8-inch bar spacing. The screen is installed in a concrete chamber and lifts screenings above grade. The system was installed outside with no enclosure around the screen. Because of freezing issues with the mechanical screen and the screenings container, the WPCF staff has constructed an insulated enclosure for the screenings container and installed insulation on the outside of the mechanical screen. These measures have been somewhat effective, however, there are difficulties associated with having the screen exposed during cold weather.



The material collected on the screen is discharged to a container and disposed of offsite. The material is not washed or compacted and therefore contains fecal matter and excess water resulting in odors and increased weight of the material to be disposed. Additionally, the CT DEEP considers raw sewage screenings to be a “Special Waste” requiring disposal at a landfill permitted to accept this material.

As discussed in the facilities plan, a new Headworks facility is planned including new screening, influent flow meter, automatic sampler and grit removal. As part of this new facility, the following key issues should be considered:

- Alternate screening technology could be considered. While the climber type screen is very robust, it also requires additional headroom for discharging material. To minimize the height of any enclosure for the new Headworks, an alternate screen type such as a step screen or a multi-rake screen could be considered.
- Screenings processing should be provided. To reduce odors and minimize the weight of the screenings by reducing water content, a screenings wash press should be installed. The Town could also consider adding a grinder to this process. If the screenings are ground, washed, and compacted, the CT DEEP allows for disposal as municipal solid waste and not as Special Waste. The cost difference for disposal could be evaluated versus the cost of the grinder. The grinder could also be included as a bid alternate item should the budget not allow for it to be included.
- A new Parshall flume could be included as part of a new Headworks. As an alternate, due to reports of the flume being surcharged during high flows, consideration could be given to providing a magnetic flow meter on the discharge of the influent pumps in a new meter vault.

Influent Pumping

The Ledyard WPCF includes an influent pump station with three dry pit pumps. We understand that two of the pumps have been replaced recently but that the third pump needs to be replaced. The WPCF staff report that typically only one pump is needed but that during high flow periods, the second pump is also in service. Therefore, the third pump is needed for redundancy should one of the other newer pumps require maintenance.

SBR Influent Valves

The sequencing batch reactors at the Ledyard facility are designed so that they can either operate in a batch feed mode or a continuous feed mode.

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PROJECT UNDERSTANDING

In the continuous feed mode, currently in use at the plant, influent is pumped to both SBRs continuously. In the batch feed mode, only one SBR is filled while the other goes through the various react and settle processes. To operate in the batch feed mode, automated valves are provided on the inlet. When in the continuous feed mode, these valves are both open. Plant staff reported that the pneumatic valves on the SBR influent were reaching the end of their useful life and may need to be replaced. It was unclear if just the actuators needed replacing or the entire valve. The option of eliminating these valves was also mentioned. The following key issues should be considered:

- The valves are needed to operate in batch mode. If the plant eliminates these valves, this mode of operation would no longer be possible.
- The valves and actuators are located in a below-grade space. This space is likely considered a Class 1, Division 2 space from an electrical classification. If the actuators are replaced, continued use of pneumatic actuators would likely be cost effective because electric actuators would need to be rated for this space.

Aeration System

The SBRs are aerated using dual-lobe positive displacement blowers installed in 1997. The controls are set so that one blower is dedicated to each SBR and a third blower is a standby that can be directed to either SBR. There is currently no dissolved oxygen control system and the blowers operate in an “on” or “off” mode depending on the cycle of the SBR. The plant staff report that they are achieving good effluent quality and are able to reduce nitrogen but that at times, the dissolved oxygen in the tanks will increase to as much as 8 mg/L or more at night when flows and loadings are reduced. While at least two of the blowers are equipped with VFDs, the speed of the blower must be manually set and is not automatically controlled. Plant staff must keep the minimum speed of the blower sufficiently high to handle the peak loadings during the day and therefore, they are over aerating the system at night. This over-aeration results in additional power costs and can also reduce the ability of the system to fully denitrify. During the denitrification portion of the cycle, it is necessary for all of the excess dissolved oxygen to be consumed before denitrification occurs. As part of the aeration system improvements, the following key issues should be considered:

- The existing blowers are old and less efficient than some newer technology. Consideration could be given to tri-lobe or “hybrid” helical lobe blowers with variable frequency drives. It is still necessary



to utilize a positive displacement blower due to the varying water levels in the SBRs.

- A dissolved oxygen control system should be installed to measure the D.O. content of the water and to control the speed of the blowers. This type of system can result in significant energy savings and would also qualify for energy efficiency funding from CL&P.
- The facilities plan discusses also including ORP monitoring to improve efficiency. While this can help determine when the system is anoxic and in a denitrification mode, it is typically not used to control the aeration system. More recently, the use of ammonia analyzers are being considered to help improve aeration efficiency. While a dissolved oxygen set point of 2 mg/L is typical in activated sludge systems, if the ammonia can be reduced with less air, the ammonia analyzer can trim the D.O. set point to a lower level, resulting in reduced energy usage.
- The plant currently utilizes a supplemental chemical source for alkalinity. A portion of the alkalinity consumed during the nitrification reaction is returned during the denitrification reaction. By optimizing the aeration controls, it may be possible to reduce the amount of supplemental alkalinity added to the system.
- Replacement of the fine bubble diffuser disc membranes is also necessary. One alternative to be considered is the use of new Teflon-coated EPDM replacement membranes. These membranes reportedly are easier to clean and reduce fouling resulting in maintaining oxygen transfer efficiency over a longer period.
- Another issue that can be considered is the use of a mixer in the SBR. To achieve nitrogen removal, the SBR is cycled between aerobic and anoxic phases. The air is used to mix the tank contents. During the anoxic phase, the air is off and the mixed liquor will begin to settle. The use of a mixing system separate from the diffused aeration system could help improve nutrient removal. Based on current plant performance, this type of system may not be necessary.

SBR Decanters

When the SBR cycle is complete and the mixed liquor has settled, effluent is decanted from the surface of the tank. For this style of SBR, the decanter is raised out of the water using an actuator mounted on the side of the tank. When the decant cycle begins, the decanter is lowered into the water to allow effluent to overflow into the equalization tank. This type of decanter offers the benefit of not requiring a valve on the decant pipe to keep from decanting during other portions of the SBR cycle. The disadvantage is that



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the actuator requires a long arm and is mounted up above the SBR where it can be subject to freezing.

The existing decanter units are old, and the plant staff can't get parts for the actuator and motor. The actuators have also been wrapped insulation due to freezing problems. As part of the project, the following key issues should be considered relative to the decanters:

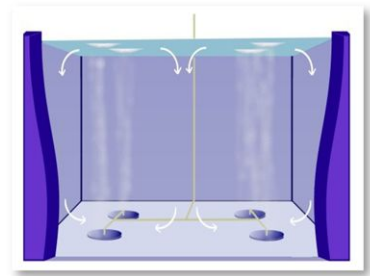
- The existing decanters appear to be in good condition. It may be possible to replace the entire actuator unit with a new unit while maintaining the in-tank portion of the decanter.
- An alternate decanter can be considered. Other SBR manufacturers utilize floating decanters. This keeps the actuator close to the decanter in a single unit floating on the tank. Typically, these units are protected from freezing due to the walls of the SBR and the temperature of the water. The disadvantage is that it would require more capital cost to install and would likely require an automated valve on the discharge pipe where it enters the equalization tank.

Sludge Thickening and Storage

Sludge is currently wasted from the SBRs to one of the old tanks from the original 1962 plant. Periodically, the sludge from this tank is pumped through a rotary drum thickener and discharged to a thickened sludge storage tank. This tank is then pumped to a tanker truck for offsite disposal at a merchant sludge facility. Plant staff has indicated that the rotary drum thickener should be replaced due to its age. They also indicated that the current pumped recirculation mixing system is not sufficient to properly mix the thickened sludge storage tank. Key issues to be considered relative to the sludge thickening and storage improvements include:

- Based on our experience, a rotary drum thickener is typically the best alternative for plants of Ledyard's size. Additionally, the existing building configuration may not allow for many alternate thickening technologies.
- The existing polymer system did not appear to have any containment for the 55-gallon drum. A containment pallet could be utilized for this purpose. Additionally, plant staff indicated that problems occurred with the polymer as it aged. It may be necessary to utilize either a small mixer in the drum or investigate smaller polymer containers that are emptied more frequently.
- The thickened sludge tank is mixed using a recirculation line off the truck loading pumps. These pumps are likely too small to provide adequate mixing. Alternatives to be considered would include

providing a separate larger pump for recirculation, providing a submersible mixer in the tank, or providing a top-mounted vertical mechanical mixer. Another new technology that can be considered is the use of a pulsed-air mixing system. These systems have been used to mix wet wells to prevent grease build up and more recently are being used in thickened applications. A few diffusers mounted to the bottom of the tank are equipped with large holes. A compressor supplies air to the system. Automated valves open briefly to create large air bubbles at the diffuser that rise and mix the tank contents. These systems can be more energy efficient than mechanical mixers.



Pulsed Hydraulics air mixing system

Site Improvements

In addition to the above specific items, we understand that there are other related improvements that will likely be required including:

- Demolition of original, unused tankage from the 1962 plant. These tanks continue to deteriorate, are a potential safety issue and may also be an insect breeding area.
- Rehabilitation of existing concrete structures to maintain their long-term integrity.
- Upgrading the plant-wide SCADA system to a more modern system.
- Evaluating the feasibility of renewable energy systems such as solar panels or other energy improvements such as lighting, HVAC, or possibly installing a VFD on the plant water pump. This would also include an evaluation of potential CL&P incentive funding.

Section 2

COMPANY PROFILE



Connecticut

[Redacted]

[Redacted]

[Redacted]

[Redacted]

[Redacted]

Innovative, Reliable, Sustainable Solutions Tailored to Your Needs

[Redacted]

[Redacted]

Value Driven

[Redacted]

[Redacted]

Massachusetts

[Redacted]

New Hampshire

Responsive Service Focused on Your Success

[Redacted]

[Redacted]

[Redacted]

[Redacted]

Maine

[Redacted]

- [Redacted]
- [Redacted]
- [Redacted]
- [Redacted]

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[Redacted]

Rhode Island

[Redacted]

[Redacted]

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Wright-Pierce — innovative, reliable, sustainable solutions for your success today and tomorrow!

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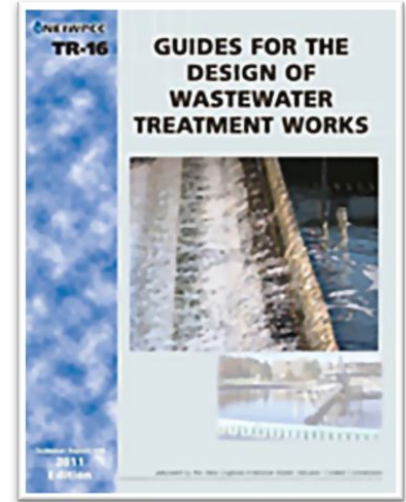
WE ARE A FULL SERVICE ENGINEERING FIRM

Wright-Pierce provides a full-range of engineering services and has extensive experience in all significant elements of wastewater projects. Our engineers have the in-house support staff to "cover all the bases". Our environmental engineers draw on the support of other disciplines, as needed, from our multi-discipline staff and consultants. We have in-house architectural, mechanical (HVAC), electrical, instrumentation/SCADA, structural, and civil engineers, GIS Analysts, CAD technicians, hydrogeologists, laboratory personnel, licensed wastewater operators, and construction inspectors, all of which focus exclusively on our infrastructure projects. These support services know the relevant code issues and have extensive experience planning, evaluating, designing, and constructing wastewater upgrade projects. **We believe having these in-house resources allows us to deliver higher quality services more cost-effectively and more expeditiously.**

Wright-Pierce is exceptionally proud of its environmental engineering staff, their demonstrated capabilities, and their commitment to professional development. Most of our environmental engineers have advanced engineering degrees. Our engineers have authored numerous journal articles and routinely speak at regional and national conferences. In addition to encouraging our staff to be leaders in treatment and automation technology, we encourage them to be "hands-on" practical engineers. Several of our engineers are licensed treatment plant operators and, in all of our designs, we stress "operability" and "maintainability." Wright-Pierce also supports and encourages our engineering staff to participate in professional associations.

Our proven hands-on approach, responsiveness, and sensitivity to local issues allow us to successfully provide cost-effective and practical solutions to our clients.

The following section presents brief descriptions of the nature of our experience related this project. **Specific project descriptions (including references) at the end of this section provide detailed examples of projects similar to Ledyard's.** Additional details and descriptions can be provided to the Town upon request.



Our engineers have contributed to universal standards for the wastewater treatment industry, including the previous and the latest versions of the TR-16 manual for the design of wastewater treatment facilities.

SECTION 2

RELEVANT EXPERIENCE

WE ARE FAMILIAR WITH YOUR FACILITY

Wright-Pierce is familiar with the Highlands wastewater collection and treatment facility. We worked with the Ledyard WPCA in the past performing an infiltration and inflow evaluation and sewer system evaluation survey to identify sources of clean water entering the collection system. In addition, we helped to update some of the limited collection system mapping in place at that time and also conducted preliminary evaluations on modifications to portions of the collection system. As a result, Wright Pierce personnel are familiar with Ledyard's WPCF and the superintendent, and the needs of the facility. **Our experience, combined with our knowledge of Ledyard's facility and staff, means we can "hit the ground running" on this project.**



WASTEWATER TREATMENT FACILITY UPGRADES ARE OUR BUSINESS

Throughout most of Wright-Pierce's 65-year history, wastewater engineering services has been a mainstay of the company. We are proud of our record of innovation in the wastewater field and have won numerous Engineering Excellence awards for our wastewater treatment projects.

Wright-Pierce has designed more than 50 wastewater treatment plants and upgraded dozens more. In Connecticut, Wright-Pierce has performed the evaluation, design and/or construction administration for several recent and ongoing wastewater upgrade projects including:

- Fairfield
- Farmington
- Glastonbury
- Killingly
- Manchester
- Mattabassett
- Naugatuck
- Norwalk
- Sharon
- South Windsor
- Sprague
- Torrington
- Windham/Willimantic

Wright-Pierce is an established leader throughout New England with respect to wastewater engineering projects. Although much of our work in Connecticut has been for mid-sized communities, we have also been involved in the evaluation, design and/or construction administration for upgrades to many facilities within Connecticut and throughout the Northeast that are of a similar size to Ledyard. For the Town of Sharon, CT, we recently upgraded their wastewater treatment facility with a design flow of 0.108 MGD. We have also completed a facilities plan for the Town of Sprague, CT which has a treatment plant with a design flow of 0.4 MGD.



*Oak Bluffs, MA
SBR Facility*



*Booth Bay Harbor, ME
SBR Facility*

We have also worked on the upgrade of many other similarly sized sequencing batch reactor (SBR) facilities throughout the Northeast including:

- Boothbay Harbor, ME
- Hardwick, MA
- Falmouth, MA
- Pine Hills, Plymouth, MA
- Oak Bluffs, MA
- Maine Wild Blueberry Company, Machias, ME
- Irving Big Stop, Baileyville, ME
- South Berwick, ME
- Exeter, NH
- Farmington, NH
- New Market, NH
- Star Island, Isle of Shales, NH

Overall Activated Sludge Treatment Experience

Wright-Pierce has tremendous activated sludge treatment process expertise. We have experts that understand the process biology (causes of filaments, poor setting sludge, etc.), process kinetics, and operational strategies to get the most out of an activated sludge system in terms of maximizing use of existing infrastructure to increase treatment capacity and capabilities, or to optimize process control and operations. We use the most advanced "dynamic" process modeling available (i.e., the Biowin® Dynamic Computer Model) to develop and refine our solutions. Our capabilities in this regard are documented in many of the enclosed case studies.

Headworks Screenings and Grit Removal

The majority of our wastewater treatment evaluation and upgrade projects have included new or retrofitted headworks, screening and/or grit removal facilities. Wright-Pierce has extensive experience with all of the various screening technologies including: channel grinders; screening systems such as climber screens, multi-rake bar screens, rotating screens and step-screens. We are also well versed on the latest developments in the marketplace. We have designed some of the first 1/4" fine step screens used in New England. Wright-Pierce recently installed the Headwork's Mahr screens as part of the Mattabassett WPCF upgrade, Duperon screens in Windham, CT, JWC multi-rake screens in Manchester, CT and a Vulcan "climber" screen in Glastonbury.

We are also very familiar with the CT DEEP's policy on screenings handling. To be considered a municipal solid waste (MSW), the screenings must be **ground, washed, compacted and "unrecognizable"**. If these conditions are not met, this material is considered a "Special Waste" that



*Duperon screens in
Windham, CT*

SECTION 2 RELEVANT EXPERIENCE

must be disposed of at a landfill permitted to accept Special waste. As part of the headworks upgrades described above, we have included screenings grinder wash presses to allow this material to be disposed of as MSW. We have extensive experience with the various configurations that can be used for this equipment and understand it's limitations.

Headworks Screening Projects over the Past 10 Years

Project	Flow		Screen Type / Manufacturer	Year Completed
	ADF	PHF		
Glastonbury, CT <i>(Includes grinder wash press per CT DEEP Guidelines)</i>	3.26	8.1	Climber / Vulcan	2011
Cromwell, CT The Matabasett District	35	110	Chain/flight / Headworks	2014
Manchester, CT <i>(Includes grinder wash press per CT DEEP Guidelines)</i>	8.0	24	Chain/flight / JWC	2014
Windham, CT <i>(Includes grinder wash press per CT DEEP Guidelines)</i>	2.76	9.3	Chain / flight / Duperon	2012
Hudson, MA	3.0	9.2	Climber / Vulcan	2009
Spencer, MA	0.92	6.2	Climber / Vulcan	
Manchester, NH	25	80	Climber / Vulcan	2004
Durham, NH	2.5	7.2	Step / Huber	2005
Claremont, NH	3.9	10	Climber / Vulcan	2006
Dover, NH	3.1	17	Chain / flight / Headworks	2011
Hampton, NH	4.0	15	Chain / Flight / Headworks	2008
Berlin, NH	2.2	11.5	Climber / Vulcan	2003
Sanford, ME	3.5	18	Climber / Vulcan	2004
Skowhegan, ME	1.65	7.5	Step / Huber	2004

Grit Removal Systems

Wright-Pierce has experience with evaluating and designing a variety of grit removal technologies including aerated grit chambers, vortex systems, and the Eutek Headcell. The existing grit removal system at the Ledyard WPCF consists of a single aerated grit tank with no grit processing. The system dates back to the original 1962 facility and has exceeded its useful life.

Wright-Pierce has recently been involved in the planning, design and/or construction administration projects for headworks upgrades that included aerated grit removal systems for Killingly, CT, Manchester, CT and Stamford, CT.

We also have extensive experience utilizing vortex-type grit removal systems. These systems are typically requiring a smaller footprint than aerated grit systems. We have incorporated these systems in our projects in Farmington and Glastonbury, CT.

Grit handling is also an important consideration for the design. For aerated grit systems, one of the simplest alternatives is to have a company come in and vacuum out the grit that accumulates on a scheduled basis and dispose of it off site. For other facilities, we have designed grit washing and classifying systems to remove organic matter from the grit and as much water as possible. The grit is then disposed of off-site as a Special Waste.

Influent Pumping Systems

Many of our headworks upgrades also include the upgrade of raw sewage pumping systems. We have recently been involved in the evaluation, design and/or construction administration of raw sewage pump upgrades as part of our WPCF upgrade projects in Farmington, CT, Manchester, CT, Stamford, CT, and Windham, CT. These improvements have ranged from the replacement of existing pumps within the existing pump station to the design of new raw sewage pumping stations. This experience has also included a range of pump types and sizes. For Farmington, CT, we are designing a new pump station and utilizing submersible pumps. The Windham WPCF upgrade also included a new pump station but with dry-pit-submersible pumps. In Manchester, CT, we replaced the existing belt-drive centrifugal pumps with new close-coupled vertical pumps operated by VFDs and in Stamford, CT; our evaluation recommended replacing the existing vertical extended shaft pumps in kind.



*Manchester, CT
Aerated Grit Tank with new
stainless steel air system*



SECTION 2

RELEVANT EXPERIENCE

Aeration Systems

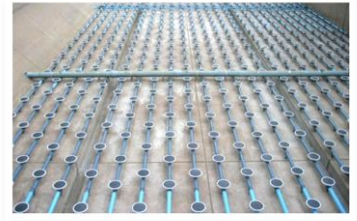
Wright-Pierce has extensive experience in upgrading and improving the energy efficiency of wastewater process aeration systems as part of our projects. For most water pollution control facilities, aeration energy cost is one of the largest single budget items and it is important for facilities to be operating the most efficient system possible with escalating energy costs. To do this, it is not only necessary to properly size the aeration blowers to operate over the full range of aeration requirements but it is also necessary provide good control of the air supply to the aeration tanks to maintain the minimum amount of air necessary for optimum process control without over-aerating and wasting energy.

Wright-Pierce has recently designed or is in the process of designing aeration blower and fine-bubble aeration system upgrades at the following facilities:

- Farmington, CT
- Glastonbury, CT
- Hockanum River WPCF in Manchester, CT
- The Mattabassett District WPCF in Cromwell, CT
- Windham, CT
- Killingly, CT
- Greater Lawrence Sanitary District, North Andover, MA
- South Portland, ME
- Kennebec Sanitary Treatment District, Waterville ME
- Lewiston-Auburn Water Pollution Control Authority, Lewiston, ME
- Middleborough, MA
- Cranston, RI

In addition to those listed above, we have designed more than two dozen fine-bubble aeration systems as part of other plant upgrades. Wright-Pierce has extensive design and operational experience with all the conventional blower options including:

- Two-lobe positive displacement blowers.
- Tri-lobe positive displacement blowers.
- Helical-lobe positive displacement blowers.
- Belt-driven constant speed or variable speed with VFD drives for all types of positive displacement blowers for air volume control.



Wright-Pierce has designed more than two dozen fine-bubble aeration systems; and we have extensive design and operational experience with all conventional blower options.

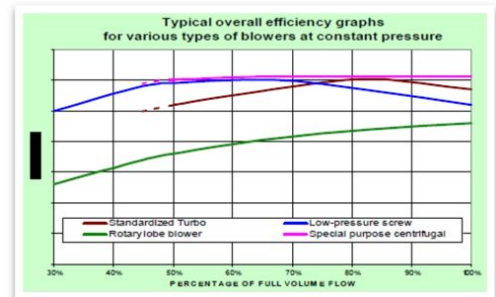
- Centrifugal blowers using constant speed inlet throttling control.
- Centrifugal blowers with variable speed control with VFDs.
- High speed turbo blowers
- Single-stage, integrally geared centrifugal blowers with inlet and discharge vane control

Blower Types

The preferred technology for supply of air to diffused aeration systems is changing with improvements in technology. However, due to the variable water levels associated with SBR processes, the available selection of blower technology is generally limited to positive displacement blowers.

Each of the blower technologies is best suited and most cost-effective for certain capacity ranges considering both air flow and pressure. Screw-type positive displacement blowers are generally favored in higher pressure applications and could be considered along with dual-lobe and tri-lobe positive displacement blowers.

The actual number and size of blowers required depends of the range of air flow required, and the turndown of the available models for each technology. Each of our aeration system representative projects includes a careful evaluation of the turndown capacity of each technology to ensure that the selected units can provide the desired range.



We carefully evaluate turndown capacity of proposed units for each technology to ensure they can provide a desired range.

Dissolved Oxygen Control Systems

In addition to the design of the blowers and fine-bubble aeration systems for the representative projects, Wright-Pierce has also designed the dissolved oxygen control systems for these projects as well. We are also currently involved in the programming and system integration for the aeration system upgrade and D.O. control system for the Mattabassett WPCF.

Properly sizing and providing energy efficient blowers and diffusers is only part of the requirements for an energy efficient system. It is also necessary to design a control system that will match the air supply to the diurnal and seasonal variations in oxygen demand in the biological process. Wright-Pierce has designed numerous dissolved oxygen control systems that include multiple automatic modulating butterfly valves, air flow meters and D.O. analyzers to control air to individual zones in the aeration tanks. The blower output increases or decreases in response to changes in oxygen. Under one control scheme, the “most-open-valve” control scenario, the

An air supply control system must accommodate the diurnal and seasonal variations in oxygen demand in the biological process.

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header pressure set point is automatically adjusted to maintain the minimum pressure necessary in the header to minimize the energy consumption by the blowers.

More recently, we have also begun incorporating ammonia analyzers into our D.O. control schemes for biological nutrient removal (BNR) facilities similar to the Ledyard SBR system. In BNR facilities, it is necessary to provide sufficient oxygen to convert incoming ammonia to nitrate. Historically, this was achieved by maintaining a residual D.O. concentration of 2 mg/L in the oxic zones and the ammonia was essentially reduced to 0 mg/L. Because it is not necessary to achieve an ammonia concentration of 0 mg/L, this approach results in over aerating the process. By adding an ammonia analyzer, it is possible to reduce the amount of air supplied. An ammonia set point would be developed (approximately 0.1 to 0.4 mg/L). If the ammonia concentration measured by the sensor is below the set point, it would automatically reduce the D.O. set point from 2 mg/L to something lower, thereby reducing the blower output. If the ammonia concentration began to climb, the D.O. set point would be increased. Recent pilot testing has shown that this approach can reduce aeration energy consumption by as much as 10 percent or more over conventional D.O. control strategies.

We routinely perform analyses and studies in order to develop recommendations for instrumentation and control system upgrades or replacements in order to maximize the efficiency of operations utilizing state-of-the-art technologies for control systems for wastewater treatment facilities. These systems not only help optimize process performance and reduce overall energy consumption at the WPCF, they also typically qualify for energy incentive rebate funding of as much as 50% of the capital cost, depending on the energy savings that can be demonstrated. Wright-Pierce has been very successful at obtaining energy incentive funding for our aeration system upgrade projects.

Biosolids (Sludge) Handling Experience

One of the most significant operating expenses for wastewater treatment facilities is sludge disposal costs. Sludge thickening, digestion, dewatering and/or drying systems can significantly reduce such expenses. Over 40 of our wastewater treatment evaluation and upgrade projects have included sludge handling and/or treatment facilities. Almost all of these projects have involved thickening and/or dewatering facilities. We have extensive experience with all approaches and types of equipment used for sludge storage, mixing and thickening. Our thickening projects have included gravity belt thickeners, rotary drum thickeners, flotation thickeners, and

Recent pilot testing has shown that this approach can reduce aeration energy consumption by as much as 10 percent or more over conventional



gravity thickeners. For small to medium size installations, rotary drum thickeners have often proven the most cost-effective and easiest to operate.

We also have experience providing upgraded mixing systems for sludge digesters or holding tanks. We recently provided a pumped recirculation mixing system in the sludge storage tanks as part of our Manchester, Connecticut WPCF upgrade. We are also completing the design of improvements to the Farmington WPCF which will include the use of a large-bubble mixing system in the sludge storage tanks.

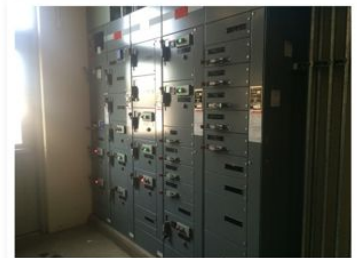
Other recent and ongoing biosolids experience includes shaftless screw sludge conveyors for Cranston, RI and Naugatuck, CT; and rotary drum thickeners for Merrimack, NH and Glastonbury, CT.

Supervisory Control and Data Acquisition (SCADA) Design & Implementation

Municipalities are under constant pressure to increase the efficiency of their operations in order to control operational costs. Most facilities are recognizing the advantages of utilizing computers and programmable logic controllers (PLCs) to better monitor and control unit processes and remote equipment, resulting in reduced operational costs. SCADA can provide numerous benefits to a utility such as save time by simplifying and centralizing operations. This in turn saves costs, improves organization efficiency, and improves reliability of operations.

The key to any instrumentation and control system project is a team that has a complete understanding of wastewater process and equipment systems as well as modern SCADA, telemetry, data network systems, and associated equipment and software. Wright-Pierce has demonstrated success in designing computer based telemetry and SCADA systems. Our in-house telemetry/SCADA experts are also experts in water and wastewater treatment. This experience ensures that the appropriate hardware and software are utilized for each unit process application.

Wright-Pierce's Instrumentation Division provides engineering and design services for the entire instrumentation, control and telemetry systems from initial evaluation through preliminary and final design to construction administration, including start-up for new or renovated municipal wastewater and water facilities. Whether your project involves instrumentation selection and simple relay logic, or the latest in software controlled automation, our engineers have the necessary process, SCADA /Instrumentation and Control skills to produce the control system design that are right for your job.



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OUR DESIGNS STRESS SUSTAINABILITY & ENERGY EFFICIENCY

Wright-Pierce has also been an industry leader in energy conservation strategies for wastewater utilities for more than 30 years and we provide our clients with solutions that incorporate sustainable design principles and employ innovative strategies and technologies. **Our approach is to promote long-term cost savings, improve community amenities and relations, and restore the environment – the basic tenets of sustainability.** We have an interactive and collaborative design approach that involves our clients as an integral member of the project team, and our goal is to deliver solutions that strike the proper balance between "green" design goals and the other constraints such as regulatory compliance, budget and schedule.



In addition to all the standard "green" design criteria that our building design team considers on all our projects, **our wastewater engineers consider a range of creative strategies to maximize process efficiency, which can have a significant impact on energy use** (as well as chemical use and labor requirements).

WE HAVE A GOOD WORKING RELATIONSHIP WITH LOCAL REGULATORY AGENCIES

In addition to the technical aspects of wastewater projects, we are familiar with the wastewater regulatory and permitting requirements of the CT DEEP and EPA. **We have developed a good working relationship working with the CT DEEP on several ongoing wastewater projects.** We have provided services to clients required to meet special permit conditions and we have recently assisted numerous communities with discharge permit negotiations.



We are very familiar with the Connecticut Department of Energy & Environmental Protection (DEEP) Clean Water Fund (CWF) grant and loan programs. We have successfully assisted several Connecticut communities in obtaining CWF grants and loans for wastewater projects including:

- | | | |
|------------------------------------|-----------------|--------------|
| • Cromwell (Mattabassett District) | • Ledyard | • Torrington |
| • Glastonbury | • Portland | • Trumbull |
| • Harwinton | • South Windsor | • Windham |
| • Killingly | • Sprague | • |

We are also very familiar with the USDA Rural Development (RD), CDBG, EDA, and the State Revolving Loan Fund (SRF) Program. We have performed many projects for our clients utilizing the Connecticut SRF Loan

program. Through our many recent and on-going projects, we are familiar with all the grant application procedures as well as the requirements that subsequently apply to the use of such funds. The close working relationships we have developed with various agency staff members enable us to facilitate the acquisition of maximum grant funding for our clients. **Over the past few years alone, we have helped our clients secure well in excess of \$100 million in funding.**

Wright-Pierce not only has a proven track record in securing state and federal funding for our client's projects, we know how to successfully manage the funding process from procurement to closeout. We perform all monitoring and reporting tasks, including MBE and WBE requirements and make sure that the necessary reporting is timely and accurate.

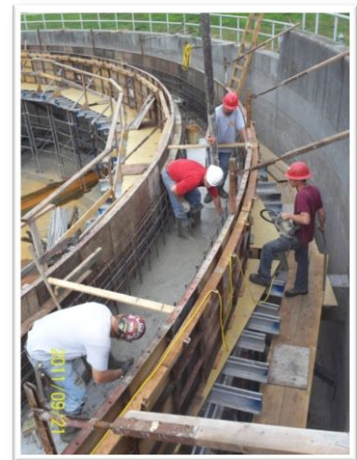
WE HELP BUILD IT, TOO

While thorough design plans and specifications are an important first step in a quality project, Wright-Pierce understands that the best design in the world is of little value if the design is not constructed properly. **We understand the importance of competent construction management services to ensure that the final project is appropriately constructed.**

One of the things that we believe sets Wright-Pierce apart from many of our competitors is that we strive to keep the same team on a project from the initial evaluation through construction and start-up of the new facilities. In this way, the team involved in the construction phase is familiar with the design intent and can better make decisions in the field. This experience also results in better designs based on the experience gained in observing how projects are constructed. Our project staff will continue to work with the Town through bidding services including advertising the project for bid, responding to contractor's questions and preparing addenda, attending the pre-bid conference, evaluating bids received, and making a recommendation of award for the project.

Our staff can also provide construction administration services including reviewing submittals, responding to requests for information (RFIs), interpreting the drawings and specifications, negotiating change orders, reviewing payment requisitions, providing site visits by specific engineering disciplines throughout the project, and leading monthly meetings including the preparation distribution of meeting minutes.

Wright-Pierce maintains a staff of Resident Project Representatives (RPR, also known as construction field inspectors) to perform on-site observation of the construction process. The RPR makes sure that the Contractor performs all construction operations in accordance with the design plans



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and specifications. Daily field reports are prepared by the RPR to document all construction work. Our field inspectors document everything, leaving no question of what happened on every project, on every day, during the entire construction phase.

WE PROVIDE COST-EFFECTIVE SOLUTIONS TO OUR CLIENTS

When state and federal grants were paying up to 90 percent of infrastructure construction projects, a design philosophy developed among many consulting engineers that said, "With local cost being only ten cents on the dollar, cost doesn't matter." As a result, many of the infrastructure projects went from functional to grandiose. Many of the facilities built, although impressive, have been monuments to the design engineer and are not the most cost-effective solution for the client. Many of the most impressive facilities also have the most "impressive" operating budgets and are a financial burden on the users of the system.

Wright-Pierce, while serving some of the largest utilities in New England, was founded on serving small towns and municipalities. Typically, for small towns having a small user-base, a streamlined and cost-effective approach is the only way to make projects affordable. **We have mastered the ability to stretch each available dollar while achieving the desired end result: cost-effective, functional, and reliable solutions to wastewater problems.** Our track record for cost-effective upgrade solutions is due in part to our approach of:

- Understanding the problem thoroughly before developing solutions
- Keeping solutions simple and effectively engineered
- Developing solutions that address not only short-term needs, but also reflect anticipated future needs
- Maximizing the value of existing facilities
- Positioning our clients for the most favorable regulatory requirements
- Positioning our clients for available financial assistance programs

In addition to the state and federal grant and loan funding sources, Wright-Pierce has experience with developing alternative local funding strategies. On past projects, we have evaluated the traditional ad valorem tax and user charge systems, as well as impact fee, betterment assessment, drainage area assessments, and tax increment financing options for funding infrastructure projects. We have an in-house funding expert and we have a reputation for "leaving no stone unturned" in aggressively pursuing funding sources for our



clients. We also have extensive expertise with developing user agreements with other municipalities.

Our Proven Cost Control & Cost Estimating Techniques

The ultimate goal of the project team is to deliver the project within the allocated funding; therefore, it is important to focus on the total project cost. Project cost includes construction cost, construction contingency, direct purchase items, "Division 0" costs, technical services, legal, administrative, and financing costs. We will manage the project cost by:

"Hands-On" Engineering and Project Management - We begin with a thorough understanding of the problems to be solved and the project goals and objectives. Then we take a comprehensive approach to developing the reliable and cost-effective solutions noted above. We take pride in our track record of simplifying the design and maximizing the benefits of our clients' investment dollars. Our track record in this regard is superior to that of our competitors. We accomplish this with our "hands-on" engineering approach to understanding the problems, to keeping solutions simple and effectively engineered, and to maximizing the value of existing facilities.

Comprehensive Preliminary Design - A thorough preliminary design effort is one of the keys to a successful project, whether success is measured in terms of technical, operational, schedule and/or budget factors. Decisions made during preliminary design can be used to actively manage initial construction costs as well as long-term operation and maintenance costs.

Identify "Unanticipated Items" - Significant cost items are not always anticipated or even identified in planning studies. Based on our experience with similar projects, we have a good understanding of the possible unanticipated costs to include in the project's comprehensive cost model in order that they can be properly tracked and their impacts minimized.

Comprehensive Project Cost Model - Over the past several years, construction materials costs (e.g., plywood formwork, PVC pipe, ductile iron pipe, reinforcing steel, and concrete) as well as construction labor costs have substantially increased. As a part of our comprehensive project cost models, we incorporate an "inflation to mid-point of construction" multiplier. This multiplier is adjusted downward through the course of the design phase until the final cost estimate is prepared. While the rate of inflation is only an educated guess, the cost of inflation is never zero.

Monitor "Scope Creep" - Paying particular attention to project "scope creep" and advising the client of the cost implications of any client-requested additions to the project or the development of unforeseen

Wright-Pierce was founded on serving New England's smaller communities where financial considerations are of paramount importance and are sensitive to municipal

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conditions. We will work with Ledyard to develop a "bidding strategy" based on the funding available and provide a "budget safety valve" in the event that bid costs are higher than anticipated.

Construction Team Collaborative Approach - We will work closely with the contractor and Bristol staff to anticipate issues and to resolve them before they become problems. Our design approach includes a concerted effort to develop thorough designs and enter the construction phase as a team effort (including Ledyard, the contractor, and Wright-Pierce). As a result, we have among the lowest change order track records in the industry.

PROJECT CASE STUDIES

The following are case studies of relevant projects that we hope will be of interest to the selection committee. We can provide additional information and/ or project descriptions upon request.

CASE STUDIES



WASTEWATER ENGINEERING SERVICES

The effective management and treatment of human and industrial wastewater is critical to maintaining public health and clean, safe environment. Wright-Pierce's wastewater engineers have a wealth of experience in treating wastewater and its residuals, from small, decentralized systems to large municipalities and industries.

Wastewater Treatment

- Facility Planning
- Pilot Studies
- Wastewater Treatment
- Treatability Studies
- Nutrient Removal
- Toxicity Reduction
- Industrial Pretreatment
- Biosolids Treatment and Beneficial Use
- Septage Treatment
- Fats, Oils and Grease (FOG) Management
- Alternative Disinfection
- Land Application Systems
- Natural Treatment Systems
- Water Reclamation/Reuse
- Odor Control
- Receiving Water Modeling/
TMDL Analysis
- Decentralized Treatment Systems
- Energy Management

Other Wastewater Services

- Process Instrumentation and Control/SCADA
- Process Optimization/Operation Assistance
- Funding/Financial Assistance/Rate Studies
- Value Engineering/Peer Review / OPM
- Contract Administration
- Public Procurement and Bidding
- Facility Start-up
- Post Construction Consultations



Serving Clients Throughout the Northeast
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ONLINE BIDDING SERVICES

Wright-Pierce is committed to providing clients with the most up-to-date online technical services. On our website (www.wright-pierce.com), the “Projects Out To Bid” section provides the best visibility for any given project out for bid. Contractors, subcontractors and suppliers can easily collaborate, ultimately leading to lower bids for our clients.

Contractors and suppliers are able to view electronic plans and specifications by requesting a code to unlock viewing. The bid documents cannot be printed or downloaded from the online plan room, which enables Wright-Pierce to keep an accurate list of plan holders. If potential bidders wish to purchase a printed set or a CD, they can conveniently place an order on the website and the plans will be shipped to them.

By maintaining its own online plan room, Wright-Pierce can be confident that only the most current and up-to-date project information is displayed, and that our clients are getting the visibility and customization they deserve.

Bidding Services Provided on Wright-Pierce.com

- Invitation to bid posted
- Engineers estimates available
- Plan holders list maintained
- Bid and pre-bid dates
- Bid opening location
- Addenda information
- Order or purchase bid documents by credit card
- Online viewing of plans and specifications

www.wrightpierceanplanroom.com



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CONSTRUCTION ADMINISTRATION SERVICES

Wright-Pierce understands that the best design in the world is of little value if the design is not constructed properly. Accordingly, it is important to have competent construction management services.

Wright-Pierce maintains a staff of resident project representatives (RPRs) or construction field inspectors) to perform on-site observation of the construction process. The RPR monitors the construction phase for compliance with design plans and specifications, and keeps field reports to document the construction work.

We have in-house quality control procedures and hold regularly scheduled professional development training for our field staff. We utilize a “suggested modification system” to solicit feedback from our RPRs to facilitate ongoing communication of “lessons learned” in order to continuously improve our design and construction management methods.

The duties of a project representative will vary with the type of project and the degree of observation requested by the client.

The following services are an example of typical duties performed by a Wright-Pierce RPR during the construction phase:

- Serve as liaison between Wright-Pierce and client
- Review progress schedules
- Conduct on-site observations of the work in progress
- Report to the client any work that does not conform
- Oversee tests, equipment and systems start-ups and operating and maintenance training
- Oversight of contract documents modifications
- Clarifications and interpretations of the contract documents
- Inspections
- Records maintenance
- Report generation
- Certificates, maintenance and operation manuals
- Review applications for payment
- Maintenance of comprehensive field files, including shop drawings, contract documents, change orders, field orders, and progress reports



Aeration System Improvements

Naugatuck, Connecticut

Veolia Water provides operation, maintenance and management services to Naugatuck for its wastewater and biosolids treatment facilities. The treatment facility consists of a 10.3 MGD design-rated wastewater treatment plant and a 72 dry-ton per day merchant sludge incinerator facility. The wastewater treatment facility treats, on average, 5.3 MGD of municipal wastewater and 1.76 MGD of wastewater generated at the merchant sludge facility.

Wright-Pierce was retained to evaluate the nutrient removal process and to identify opportunities to achieve potential operational cost savings through process, equipment, monitoring and control improvements. In order to improve the efficiency and operation of the nutrient removal system, reduce power consumption and provide better operational control, it was recommended that the existing nutrient removal system be modified to operate in a MLE process flow configuration. In addition, new air flow meters, control valves, DO monitoring, new VFDs on the blowers, and a PLC based control system to operate the blowers are expected to provide significant energy cost savings.

Wright-Pierce worked with Connecticut Light and Power to secure a 50% grant for the full cost of the upgrade, including equipment, installation, instrumentation, SCADA programming, and engineering design and construction. Wright-Pierce worked with Veolia to select and size the required equipment and provided individual bid packages for these items, allowing for direct purchase by Veolia.



Client

Veolia Water North America

Project at a Glance

The WWTF, which serves as a regional sludge incineration facility, is required to comply with the state's nitrogen removal limits outlined in the *General Permit for Nitrogen Discharges*.

Challenges

- Significant recycle load from the incinerator/solids handling operation
- Equipment procurement and construction documents prepared in several packages for direct contracting and purchase by Veolia

Solutions

- Modified nutrient removal process to coincide with site specific needs/requirements
- Enhanced instrumentation and control systems to reduce power consumption
- Obtain 50% grant funding for entire project costs through local utility

Wastewater and Biosolids Facilities Upgrades

Naugatuck, Connecticut

Wright-Pierce provided engineering services for a variety of facility upgrades to the Naugatuck wastewater and biosolids treatment facilities operated by Veolia Water. Upgrades include:

- Design/build of a new shaftless screw dewatered sludge conveyor system to replace the unreliable progressive cavity sludge pumps and aging piston sludge pumps. The improvements include a new live hopper for the dewatered sludge hopper, and a series of horizontal and vertical shaftless screw conveyors to convey dewatered sludge approximately 80 feet high to the sludge silo. Horizontal shaftless screws were also provided to convey dewatered sludge from two belt filter presses and two centrifuges to the sludge hopper.
- Modifications to the nutrient removal process to improve operational costs through process, equipment, monitoring and control improvements. The system was modified to operate in a MLE process flow configuration. New air flow meters, control valves, DO monitoring, VFDs on the blowers, and a PLC based control system to operate the blowers will provide significant energy cost savings.
- Energy improvements to the facility's raw wastewater influent pumps. Antiquated reostat controls and eddy-current motors were replaced with new PLC based control panel, high efficiency motors and VFDs.

Wright-Pierce worked with Connecticut Light and Power to obtain a 50% grant for the upgrade including equipment, instrumentation, SCADA programming, engineering and construction. Individual bid packages were developed for direct purchase of major equipment. The installation and construction drawings and specifications have also been provided in several discipline bid packages.



Client

**Veolia Water
North America**

Project at a Glance

Background

- The Veolia operated facility consists of a 10.3 MGD wastewater treatment plant and a 72 dry-ton per day merchant sludge incinerator facility
- The WWTF treats, on average, 5.3 MGD of municipal wastewater and 1.76 MGD of wastewater generated from the merchant sludge incineration facility

Challenges

- Compliance with General Permit for nitrogen discharges
- Operational improvements
- Antiquated equipment

Solutions

- Design/build of a new shaftless screw dewatered sludge conveyor system
- Modifications to the nutrient removal process to operate in a MLE process flow configuration
- Energy efficient influent pumping system
- Obtained grants to cover 50% of upgrade costs
- Projects expected to save over \$175,000 in annual power costs

Secondary Clarifier Upgrades

Waterbury, Connecticut

The water pollution control facility (WPCF) in Waterbury had a major upgrade in 1999, which included the construction of four new (upper) 110 foot diameter secondary clarifiers and the height increase of the lower clarifier walls by two feet. This construction at different elevations made it difficult to operate the facility under borderline high flow conditions. Since the upgrade, the lower secondary clarifiers experienced several major problems, resulting in uneven flow distribution and operational issues.

Wright Pierce was retained to provide professional engineering services for the evaluation, design, bidding, construction administration and inspection phase services for improvements to the lower secondary clarifiers, the first phase of improvements at the WPCF.

Due to the repetitive failure of the in-board FRP launders, the WPCF wanted to replace the existing launder system with a new reinforced concrete in-board launder and support system. Additional improvements included the installation of new 36-inch diameter knife gates, valve stem, operator stands, and associated platform and support structure on each of the four lower secondary clarifiers effluent piping. The knife gates allow for each of the clarifiers to individually be added or taken off-line, as well as providing necessary safety measures while working within the clarifiers. In addition, the proposed improvements included the replacement of an existing aluminum hatch on the scum well drain structure with a watertight hatch.



Client

Waterbury Water Pollution Control Facility

Project at a Glance

Background

The treatment facility uses the four new (upper) secondary clarifiers throughout the year and the lower secondary clarifiers during increased, wet weather flow periods.

- Improvements to the lower secondary clarifier include 36" CI knife gate valves with epoxy painted launder system.
- Scum well improvements include a new water resistant hatch.
- Repairs to cracks in the concrete for existing clarifiers and structures were also made.

WPCF Dechlorination System Upgrade

Design-Build Services

Danbury, Connecticut

The Danbury Water Pollution Control Facility (WPCF) had safety and operational concerns with the existing sulfur dioxide gaseous dechlorination system.

To address this issue the Danbury WPCF and Veolia Water North America (VWNA) replaced the gaseous sulfur dioxide dechlorination system with a safer sodium bisulfite liquid chemical feed system.

Wright-Pierce provided contract drawings and inspection services for the design build of the new dechlorination system. The system design included replacing the existing sulfur dioxide gaseous dechlorination system with a new liquid sodium bisulfite bulk storage and chemical feed system.

Construction of the project is currently underway and is expected to be completed in March of 2014.



Client

Veolia Water North America

Project at a Glance

Background

- Safety and operational concerns with the existing sulfur dioxide gaseous dechlorination system
- Design-build upgrade to new liquid sodium bisulfite storage and chemical feed system

Challenges

- Fitting new sodium bisulfate double-wall storage tanks within existing space
- Integrating chemical feed system to existing dechlorination system

Solutions

- Reduced size of double wall storage tanks to 2,500 gallons
- Configured chemical feed pumps for automatic operation to existing SCADA system

Chemical Building Improvements

Farmington, Connecticut

As part of the development of a wastewater facilities plan, Wright-Pierce assisted the Town in designing, bidding, construction administration, inspection and start-up engineering services for upgrades to the chemical building.

Four, 15 year-old polyethylene chemical storage tanks had exceeded their anticipated service life. In addition, this building was originally designed for use with chlorine gas and the ventilation system was originally oversized for current needs. The existing building has also experienced severe corrosion in certain areas including the chemical metering pumps, ductwork, pipe and conduit supports and fittings.

In addition, the Town wanted to develop a design/build bid package to upgrade this system including replacement of the storage tanks, metering pumps, piping within the building, conduit, pipe supports, and ductwork. Upon building evaluation, additional services were required including: a new sprinkler system; repair of roof and roof flashings; retrofitting the building to accommodate larger, double containment tanks, and improvements to the safety station to address shower and eyewash station deficiencies.



Client

Town of Farmington

Project at a Glance

Background

Wright-Pierce assisted the Town in designing, bidding, construction administration, and start-up engineering services for upgrade of the chemical building.

Challenges

- Failure of ventilation system caused a corrosive environment in the building
- Meeting new code requirements for an existing building

Solutions

- A new ventilation system was recommended to meet the requirements of the design
- Provided a sprinkler system as required per code for the chemical storage area and sulfur dioxide storage room and fireproofing as necessary

Water Pollution Control Facility Upgrade

Glastonbury, Connecticut

In order to meet increasingly stringent nitrogen removal regulatory requirements, upgrade aging equipment and systems, and address safety concerns related to the use of chlorine gas, the Town hired Wright-Pierce to provide design and construction administration services for the upgrade of their water pollution control facilities. The upgrade included:

- New 4-stage, Bardenpho process to provide for nitrogen removal to nitrogen discharges permit limits
- Improvements to the solids handling system, including demolition of the existing incinerator and a new sludge thickening system
- New headworks with mechanical screening and grit removal systems
- New odor control system
- Two new secondary clarifiers and improvements to two existing secondary clarifiers
- Upgrade of final effluent and stormwater pumps
- Improvements to the scum and septage handling systems
- New laboratory and improvements to the operations building
- New electrical service, distribution system, and emergency generator
- Conversion of the effluent disinfection system from chlorine gas to ultraviolet (UV) disinfection system
- Modern, computer-based SCADA system

Since the facility came on line, Wright-Pierce has worked with the WPCF staff to implement a primary activation process in which primary sludge is recirculated to the head of the plant. This process has increased available organic material for nitrogen removal, resulting in discharge effluent nitrogen concentrations of between 2.5 mg/L and 3.5 mg/L.



Client

Town of Glastonbury

Project at a Glance

- Design and construction administration services for \$25 million upgrade
- 4-stage nitrogen removal
- Reuse of existing structures and tanks
- Rehabilitation of equipment
- New electrical distribution system
- Project received \$125,000 in energy efficiency incentive funding from CL&P
- Innovative primary activation process
- Achieved goal of meeting 2014 *General Permit for Nitrogen Discharges* limits without having to purchase nitrogen credits
- Received *Engineering Merit Award* from ACEC- CT
- NEWEA *Utility of the Year Award*, 2012

Water Pollution Control Facility Upgrade

Manchester, Connecticut

The Town of Manchester owns and operates the Hockanum River Water Pollution Control Facility (HRWPCF). The HRWPCF was last expanded in the early 1990s, however, much of the secondary treatment system dated to the early 1970s, while portions of the solids handling system dated to the 1950s. The Town wished to upgrade their facility to rehabilitate aging structures, replacing antiquated equipment, provide more energy efficient systems and meet stringent nutrient removal requirements.

Wright-Pierce performed a comprehensive plant evaluation and prepared a wastewater facilities plan recommending improvements to upgrade the existing facility to meet stringent new nitrogen and phosphorus standards and rehabilitate the deteriorated treatment structures and equipment. Following completion of the evaluation, Wright-Pierce was hired to design and provide construction administration services for a \$54M plant upgrade, which includes a new four-stage Bardenpho process for nitrogen removal; a new solids handling facility; a new energy efficient aeration system; a new secondary clarifier and improvements to two existing clarifiers; a new tertiary treatment process to achieve a seasonal phosphorus limit of 0.15 mg/l; rehabilitation of the existing headworks, raw sewage pumping and primary treatment facilities; improvements to the electrical service and distribution system and building systems (HVAC, roofing, windows) throughout the facility. This project is currently under construction and should be complete in early 2015.

New aeration system installation.



New tertiary facilities under construction.



Client

Town of Manchester

Project at a Glance

Background

Wright-Pierce was hired to conduct comprehensive facility evaluation and developed planning study recommendations for WPCF upgrade.

Challenges

- WPCF facing increasingly stringent effluent standards for nitrogen and phosphorus removal
- Aging 8.5 MGD secondary treatment facility
- Energy inefficient aeration
- High cost to purchase nitrogen credits
- Facing stringent new phosphorus limits
- Antiquated instrumentation and controls

Solutions

- Upgraded facility, modern energy efficient equipment
- New aeration system
- Four-stage Bardenpho process
- Tertiary phosphorus removal
- Modern instrumentation and controls and new SCADA system

Wastewater System Upgrade

Windham, Connecticut

The Town of Windham owns and operates a water pollution control facility with an average daily flow is 2.5 mgd and was last upgraded in the early 1970s. The facility also serves as a regional disposal site for septage and restaurant grease trap pumping. The Town was facing the need to update antiquated, inefficient equipment and also the prospect of increasingly stringent nitrogen limits. In addition, after the project had been under construction for almost one year, the CT DEEP published future phosphorus limits that would have to be met. The Town hired Wright-Pierce to develop a comprehensive facilities planning study to upgrade the Windham WPCF to meet needs of the Town over the 20-year planning period and to allow the project to qualify for Clean Water Fund grant/loan assistance. Wright-Pierce also provided engineering services necessary for the comprehensive upgrade of the Windham WPCF.

The completed upgrade with a design flow of 5.5 mgd includes the following:

- Design/build for addition of ferric chloride chemical feed system
- New influent pumping station and headworks, including improved screenings handling to meet requirements for disposal of screenings as municipal solid waste
- New primary clarifiers & settling tanks
- New phosphorus removal system
- Renovated aeration tanks including fine-bubble aeration and nitrogen removal
- Renovated secondary clarifiers
- Upgrade instrumentation and control systems
- New administration building
- New electrical distribution system and emergency generator
- Other energy improvements that qualified for CL&P incentive rebates



Aerial of Windham's Wastewater Treatment Plant while under construction.

Client

Town of Windham WPCF

Project at a Glance

- Tight site constraints required innovative rehabilitation and reuse of existing structures to reduce costs
- Phosphorus removal improvements
- Nitrogen removal improvements
- Maximizing use of existing structures and tanks
- Large side stream loads (septage and FOG)
- Permit assistance for renewal of NPDES discharge
- Flood Management Certification and General Permit for Utilities and Drainage

Wastewater Treatment Facility Evaluation

SBR Process Evaluation

Falmouth, Massachusetts

Wright-Pierce evaluated the ability of the Town's WWTF to achieve its effluent permit limits. The facility was upgraded in 2005 to include new fine screening, SBR, post equalization, denitrification filters, UV disinfection, rapid infiltration basins, and sludge/ septage thickening. The WWTF is designed to meet a strict total nitrogen (TN) limit of 3 mg/L at an average daily flow of 1 MGD. Also, the denitrification filters have only been used as a solids separation process and have not been used to "denitrify."

The facility initially consistently achieved its TN limit. To "test" the facility with the goal of maintaining treatment at the lowest operational cost, the Town made some process changes which may have included reducing chemical addition (i.e. caustic addition) and cutting back on the SBR aeration cycle time. At some point, the Town also switched from a "DO mode of operation" in the SBR's to a "time mode of operation." As a result of these operational changes, the WWTF reduced its ability to consistently achieve the desired low nitrogen levels. The Town also receives a large amount of septage, which is pumped directly to the solids handling processes. The recycle flows and loads from this septage are returned back to the influent wet well, where it is pumped along with the influent wastewater to the SBR process.

Wright-Pierce conducted an analysis of the plant data and developed a BioWIN modeling program to determine the cause of the recent inability to achieve low nitrogen concentrations. Based on our analysis, it was determined that insufficient aerobic SRT and the resulting impact of the recycle flows and loads were root causes of the plant performance issues. A number of process recommendations were made to the Town and the plant once again is performing well in regards to TN removal.



Client

Town of Falmouth

Project at a Glance

Background

- Wright-Pierce was retained to conduct evaluation of SBR WWTF to achieve its permitted nitrogen effluent limits.

Challenges

- Town made treatment process changes to test options for maximization of processes at lowest operational costs.
- Process changes effected consistency of desired low nitrogen levels.

Solutions

- Wright-Pierce developed BioWIN modeling program to trouble shoot inconsistent nitrogen levels.
- Determination of insufficient aerobic SRT and resulting impact of the recycle flows and loads were root causes of the plant performance issues.

Wastewater Collection, Treatment and Disposal Upgrades

Farmington, New Hampshire

The Town discharges to the Cocheco River, and ultimately to New Hampshire's Great Bay estuary. This resulted in very stringent phosphorus, metals, ammonia and total nitrogen limits being imposed by the EPA and DES. The original facility, constructed in 1975, an extended aeration activated sludge facility with disinfection and effluent aeration, was not capable of achieving the new effluent limits. Wright-Pierce was retained to evaluate treatment and disposal alternatives to position the town for long-term compliance and to provide for modest growth within the existing collection system. The facilities planning process provided the following recommended plan:

- New 0.5-MDG sequencing batch reactors to meet treatment objectives
- Implement a combined land-based (rapid infiltration basins) and river-based discharge
- Rehabilitate portions of the collection system to reduce peak I/I flow
- Optimize potable water corrosion control to minimize influent copper

The infiltration/inflow removal and sewer replacement project included open cut sewer and storm drain installation, cure-in-place sewer methods to minimize street disturbance, and cure-in-place service lateral rehabilitation to minimize private property disturbance. This public/private rehabilitation has dramatically reduced infiltration/inflow.

Wright-Pierce negotiated with EPA and DES on river- and land-based discharge permit conditions and conducted hydrogeologic investigations and permitting for the land-based discharge. The permit also included an innovative "peak flow to river" concept whereby, 98% of the year-round volume of effluent will be discharged to the land, while the other 2% of the year-round flow will be discharged to the river (during peak I/I season).



Client

Town of Farmington

Project at a Glance

Background

- 35-year old extended aeration activated sludge facility with disinfection and effluent aeration
- Designed to treat 0.35-MDG average daily flow, serving residential and commercial users
- Provided planning, design and construction administration services for facility upgrade

Challenges

- Continued discharge to Cocheco River mandated advanced treatment for phosphorus copper ammonia, and total nitrogen
- Small sewer user base

Solutions

- Comprehensive facilities upgrade to address aging infrastructure
- Expansion of WWTF capacity using SBR's for nitrogen and phosphorus removal
- Alternative effluent disposal (rapid infiltration) to improve discharge standards
- Collection system rehabilitation to reduce infiltration/inflow
- Phased implementation to maximize grant funding
- Secured more than 55% grant funding from USDA Rural Development, DES and CDBG

Wastewater Treatment Plant Upgrade

Boothbay Harbor, Maine

Wright-Pierce has been providing consulting engineering services for the Boothbay Harbor Sewer District since the early 1970s. Like many coastal New England resort communities, tourism plays a major role in the local economy. The variation in seasonal population results in a high variation in the seasonal wastewater flows.

Following a system-wide evaluation, Wright-Pierce provided design engineering and construction oversight to the sewer district for upgrades for the addition of a secondary treatment process. The upgrades included a new influent pumping system, new headworks, two SBRs, new hypochlorite disinfection system, new sludge dewatering system and a new outfall into Boothbay Harbor.

Public participation was a key factor in the upgrade design because the plant was located on a small site in a residential area of town. Sequencing batch reactors (SBRs) were selected as the secondary treatment process to accommodate site constraints and to position the facility for compliance with nitrogen removal standards.



Client

Boothbay Harbor Sewer District

Project at a Glance

Background

- Wright-Pierce was retained to conduct a sewer system evaluation and subsequent upgrades designs and construction oversight.

Challenges

- Boothbay is a coastal community with high variation of wastewater flows dependent on seasonal populations.
- The existing facility was located on a small site in a residential area.

Solutions

The major components of the upgrade included:

- new influent pumping system
- new headworks
- two SBRs accommodated site constraints
- new hypochlorite disinfection system
- new sludge dewatering system
- new outfall into Boothbay Harbor

Wastewater Treatment and Disposal Facilities

Plymouth, Massachusetts

The Pinehills is a 3,000-acre tract of land that is being developed with up to 2,800 homes, a commercial center, a resort hotel and conference center, and golf courses. Wright-Pierce was part of a consultant team that guided the planning, design and construction of wastewater facilities for the project. Early studies investigated several options for collection, treatment and disposal, and concluded that the best approach should include a combination of decentralized facilities for the outlying residential areas and a centralized system for the commercial center. Plans and specifications for the centralized facilities were prepared in 1999 and 2000, and the \$6-million first phase of the project was completed in 2001.

The treatment plant consists of sequencing batch reactors for removal of organics and nitrogen, effluent filtration, ultraviolet disinfection, and disposal through rapid infiltration beds. A system of irrigation wells is located down-gradient from the disposal area, to allow recovery of some of the discharged water and nutrients for recycling on the golf course. The treatment plant design allowed easy expansion from the first phase flow of 150,000 GPD to an eventual 450,000 GPD. The second phase of 150,000 GPD was completed in 2008.



Client

The Pinehills

Project at a Glance

Background

- 3,000-acre parcel of undeveloped land that demanded an environmentally sensitive design to be implemented in phases
- A plan for a virtually self-sufficient community with little reliance on municipal services

Challenges

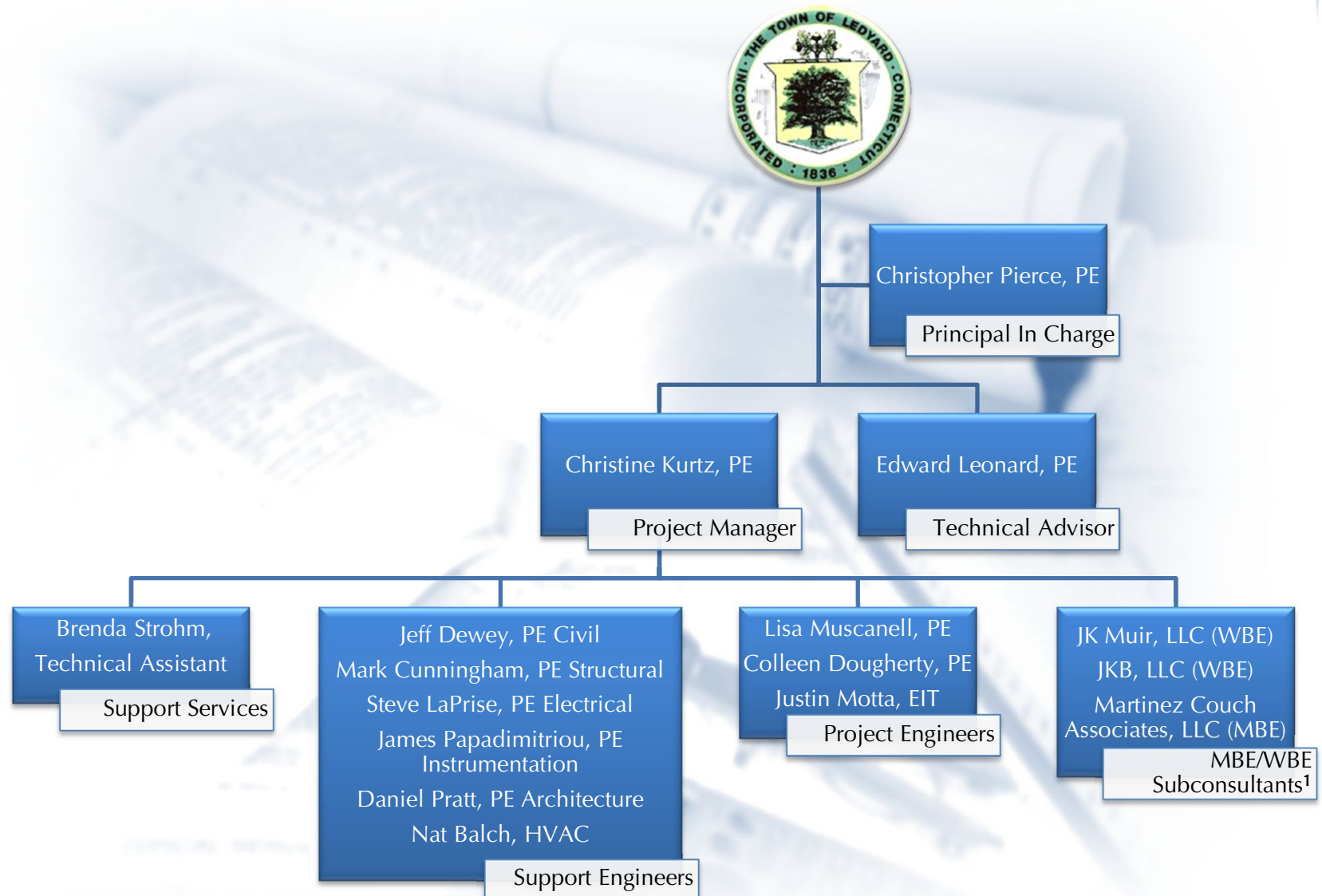
- Dispersed development made conventional wastewater infrastructure difficult
- A permitting program focused on centralized wastewater treatment
- Owner and community insistence for very high environmental standards

Solutions

- Mix of individual on-site and a centralized systems for densest development
- Phased construction of an advanced treatment facility
- Land application of effluent with down-gradient recovery wells for golf course irrigation

Section 3

SECTION 3 ORGANIZATIONAL SUPPORT & KEY PERSONNEL



¹ If CT DEEP Clean Water Funding is pursued by Town

SECTION 3

ORGANIZATIONAL SUPPORT & KEY PERSONNEL

OUR TEAM'S VISION

Wright-Pierce maintains a diverse staff of experienced civil, water, wastewater, architectural, structural, instrumentation, electrical, and mechanical engineering professionals. From our full-service staff of engineers, operators, technicians and support personnel, we have assembled a Project Team with many years of demonstrated practical experience completing a full range of projects. At Wright-Pierce, when a project team is assembled, the same team members participate throughout all phases of a project to ensure continuity, effective implementation of the original concepts and the overall success of the project.

At Wright-Pierce we focus on building quality into our projects and lasting working relationships with our clients.

INTRODUCING LEDYARD'S PROJECT TEAM

Brief descriptions of key team members and their responsibilities are presented below. Specific qualifications of individual team members can be found in their resumes provided at the end of this section. Resumes also include a list of applicable licensures and/or certifications for each team member; copies of individual certificates can be made available to the Town upon request.

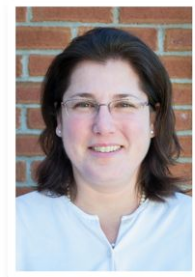
Christopher Pierce, PE – Principal in Charge

Christopher N. Pierce, PE, would serve as the Principal in Charge for Ledyard's WPCF upgrade project, responsible to ensure that all contractual obligations are met and that the proper resources are provided for this project. Chris will also assist with meetings, presentations, and negotiations with regulatory agencies as necessary. Chris has been with Wright-Pierce for over 14 years, is located in our Middletown, Connecticut office, and has a Master's Degree in Environmental Engineering with over 26 years of extensive experience with the planning, design, construction and operations of many wastewater treatment projects throughout Connecticut including plant upgrades in Farmington, Windham, Glastonbury, Manchester, Killingly, The Mattabassett District, and Sharon. Several of these projects had stringent phosphorus discharge limits.



Christine E. Kurtz, PE – Project Manager

Christine E. Kurtz, PE would serve as Ledyard's Project Manager, responsible for regular contact with the Town and for coordinating the work of the project team. Christine has a Bachelor's Degree in Civil and Environmental Engineering with over 23 years of experience in the evaluation and design of wastewater infrastructure improvements. Christine



was the Project Manager for the recent phosphorus removal evaluation for Bristol, and for facilities plans in Torrington and Sprague, Connecticut that included phosphorus removal evaluations. She is also familiar with the Ledyard facility from her experience with a previous employer as part of the engineering team for the 2002 upgrade. Christine is located in our Middletown, Connecticut office and is the lead project engineer for the construction of The Mattabassett District's wastewater treatment facility upgrade project

Edward J. Leonard, PE – Technical Advisor

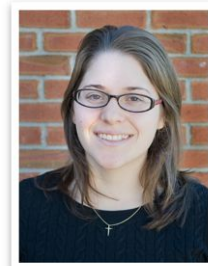
Ed Leonard, PE would serve as a Technical Advisor for this project, responsible for assisting with the development of technical concepts and providing technical review support. Ed has worked on numerous phosphorous removal projects, including an upgrade for the Sanford, ME Wastewater Treatment Facility, which has a phosphorus discharge limit of 0.1 mg/l. This project won the ACEC Maine Grand Conception Award.



Lisa Muscanell-DePaola, PE, Colleen Dougherty, PE, and Justin Motta, EIT – Project Engineers

Lisa Muscanell-DePaola, PE, Colleen Dougherty, PE, and Justin Motta, EIT would serve as Project Engineers, assisting Christine with all phases of Ledyard's project.

Lisa is a project engineer in the Middletown office. Her responsibilities include design of wastewater collection & treatment processes and facilities, as well as preparation of design plans and specifications. She assists in serving clients with permit compliance and permit application preparation for both state and municipal needs as well as Clean Water Fund applications. She also specializes in implementing phosphorus removal studies/designs and documenting regulatory requirements as defined in the NPDES program for flows / loads studies and driving design parameters.



Colleen has been with Wright-Pierce for 7 years in the Middletown office and has a Master's Degree in environmental engineering. Her wastewater-related responsibilities include design of wastewater collection and treatment processes and facilities, as well as preparation of design plans and specifications. In addition, Ms. Dougherty's project experience includes the use of hydraulic models for design and analysis of master planning and asset management, treatment processes, pilot studies, construction administration, and construction inspection.



SECTION 3

ORGANIZATIONAL SUPPORT & KEY PERSONNEL

Justin has been with Wright-Pierce for 6 years in the Middletown office and is currently finishing his Master's Degree. His responsibilities include the design and construction administration of wastewater collection system and treatment process facilities including preparing preliminary design reports, final design plans and specifications, bidding documents, construction administration and inspection and overseeing project till construction completion.



Brenda Strohm, Administrative Support

Brenda Strohm would serve as administrative support for this project. Brenda is a technical assistant in the Middletown office and has provided administrative support for treatment plant evaluations, design, bidding, and construction phases of many Middletown projects for the past 5 years.



Support & Building Design Services

Additional technical and engineering support services will be required during the preliminary and final design phases. This may include the need for civil, structural, electrical, architectural, and mechanical engineering support. We have these specialized technical and engineering staff in-house to support our wastewater projects. We also have CAD technicians on staff. They are all very familiar with the related technical issues and code requirements for municipal infrastructure projects. We have included the following resumes as examples of the individuals with extensive wastewater experience who would be responsible for technical and engineering services related to each discipline.

- Jeff Dewey, PE - Civil
- Mark Cunningham, PE - Structural
- Steve LaPrise, PE - Electrical
- James Papadimitriou, PE - Instrumentation
- Daniel Pratt, PE - Architecture
- Nat Balch - HVAC

Wright-Pierce maintains its own specialized technical staff to support our engineering projects, allowing us to deliver a higher quality of service, cost-effectively and expeditiously.

STATEMENT OF AVAILABILITY

The individuals listed above are the staff with current availability and the people we feel would best serve the Ledyard's project. Also, as mentioned above, once a team is established for a project, those same people will work on all phases of that project to ensure continuity of project goals and objectives. Additionally, Chris Pierce has the authority to obtain support from any number and combination of Wright-Pierce's nearly 200 engineers

and support personnel, and our network of local subconsultants, if needed, to meet the scheduling objectives for this project. The project team members described above may be supplemented, as necessary, by other personnel from Wright-Pierce's Environmental Engineering Division, as well as from our Civil Division and/or Building Services Division which provides mechanical, structural, instrumentation, electrical and architectural services. (Additional resumes can be provided upon request.) As the project progresses, any team member additions or changes would be discussed and confirmed with the Town.

ADDITIONAL PROJECT SUPPORT

Wright-Pierce has the in-house capability and equipment to perform the engineering services needed for the Ledyard's project. However, we will utilize Minority Business Enterprise (MBE) or Woman Business Enterprise (WBE) sub-consultants to satisfy or exceed the funding requirements of the CT DEEP Clean Water Fund, should Ledyard decide to pursue such funding. Wright-Pierce maintains a good working relationship with many sub-consultants including several MBE and WBE companies. We will only hire a subconsultant after prior discussion with and written permission from the Town.

Examples of MBE/WBE subconsultants that we would possibly use for this project and their past working experience with us are included below. Additional information about these consultants can be provided upon request and, again, would only be hired for this project with permission from the Town.

*MBE, **WBE

Firm Contact Info.	Potential Services
Advanced Reprographics** 50 Corporate Ave. Plainville, CT 06062 Christine Motta Telephone: (860) 410-1020 office@advancedrepro.net	<ul style="list-style-type: none"> • Printing of reports, plans and specifications
Earth Design Associates, Inc.* 60 Gillette Street Hartford, CT 06105 Ignatius Okawonko, President Telephone: (860) 251-6802 edainc@aol.com	<ul style="list-style-type: none"> • Geotechnical investigations and engineering • Site sub-grade testing and inspection services

SECTION 3

ORGANIZATIONAL SUPPORT & KEY PERSONNEL

Firm Contact Info.	Potential Services
<p>Environmental Partners, LLC*</p> <p>100 Columbus Blvd., Suite 503 Hartford, CT 06103-2819</p> <p>Paul Muniz, President Telephone: (860) 251-9059</p>	<ul style="list-style-type: none"> • Environmental site contamination assessment
<p>Hadlyme Enviro. Engr., LLC**</p> <p>East Haddam, CT</p> <p>D. Kathryn Scott, P.E. Telephone: (860) 322-0644 Hadlmye.env.eng@comcast.net</p>	<ul style="list-style-type: none"> • Developing specifications • Electronic O&M manuals • Coordination of geotechnical evaluation services
<p>JKB Consulting, LLC**</p> <p>15 Hill Road Old Saybrook, CT 06475</p> <p>Julie K. Bjorkman, P.E. Telephone(860) 395-6654 julie_bjorkman@yahoo.com</p>	<ul style="list-style-type: none"> • Regulatory permitting assistance (local, state and federal)
<p>JKMuir, LLC**</p> <p>21 New Britain Ave., Suite 204 Rocky Hill, CT 06067</p> <p>Jen K. Muir, P.E. Telephone: (860) 249-0989 jenmuir@jkmuir.com</p>	<ul style="list-style-type: none"> • Energy audits • Energy evaluations • Energy rebate applications • Wastewater engineering
<p>L.P. Consultants, LLC*</p> <p>6 Hummingbird Lane Enfield, CT 06082</p> <p>Kiran S. Majmudar, P.E. Telephone: (860) 749-0733 lpconsultants@snet.net</p>	<ul style="list-style-type: none"> • Structural evaluations and designs
<p>Martinez, Couch & Associates*</p> <p>1084 Cromwell Ave. Rocky Hill, CT 06067</p> <p>Raphael Martinez Telephone: (203) 265-1002 armartinez@martinezcouch.com</p>	<ul style="list-style-type: none"> • Survey services and development of base plans • Civil engineering evaluations and designs

SECTION 3 ORGANIZATIONAL SUPPORT & KEY PERSONNEL

Firm Contact Info.	Potential Services
Reliance Engineering* 155 Bull Hill Lane, Suite 205 West Haven, CT 06516 Vidya N. Trivedi, P.E. CHMM Telephone: (203) 934-2352	<ul style="list-style-type: none">• Lead and asbestos evaluation

WRIGHT-PIERCE RESUMES



CHRISTOPHER N. PIERCE, PE

Senior Project Manager

PROJECT ASSIGNMENT: Principal in Charge

Education

BS, Civil Engineering,
Syracuse University

MS, Environmental Engineering,
University of California at Davis

Professional Registration

Connecticut

Certifications/Licensure

Construction Documents
Technologist (CDT)
Construction Specifications
Institute (CSI)

Experience

23 Years

Joined Firm

2001

Professional Affiliations

New England Water Environment
Association

Water Environment Federation

New York Water Environment
Association

Presentations

"Hockanum River WPCF Upgrade,
Manchester, CT" NEWEA Spring
Meeting, Newport, RI, June 2012

"Improved Nitrogen Removal at
Glastonbury WPCF" ASRWWA
Conference, Farmington, CT,
October 2012

& many more

EXPERIENCE SUMMARY

Mr. Pierce is a senior project manager in the Wastewater Practice Group at Wright-Pierce's Middletown, Connecticut office. His responsibilities include analysis and design of municipal and industrial wastewater treatment facilities; pumping stations; evaluation and preliminary design reports; preparation of plans and specifications; coordination with regulatory agencies; construction administration; project management; and facility start up and operational assistance.

RELEVANT PROJECT EXPERIENCE

Wastewater Treatment

- Comprehensive Wastewater Facilities Planning Study, Farmington, CT
- Water Pollution Control Facility Capital Improvements, Farmington, CT
- Comprehensive Wastewater Facilities Planning Study, Manchester, CT
- Comprehensive Water Pollution Control Facility Upgrade, Manchester, CT
- Phosphorus Removal Study, Bristol, CT
- Nitrogen Treatment Value Engineering and Hydraulic Analysis Study, Mattabassett District, Cromwell, CT
- Comprehensive Wastewater Treatment Upgrade, Glastonbury, CT
- Comprehensive Wastewater Treatment Upgrade, Windham, CT
- On-Call Wastewater Engineering Services and Evaluation, Waterford, CT
- Wastewater Facilities Planning Study, Killingly, CT
- Instrumentation and Controls and SCADA Evaluation, Norwalk, CT
- Wastewater System Upgrade, Sharon, CT
- Wastewater Facilities Evaluation, Bristol, CT*
- Wastewater Treatment Plant O&M Manual, Canton, CT*
- Nutrient Removal Tertiary Treatment Facility, Redding, CT*
- Nitrogen Reduction Study, Chemical Manufacturer, CT*
- Feasibility Study, Mattabassett District, CT*
- Nitrogen Reduction Study, The Metropolitan District, CT*
- Wastewater Treatment Plant Denitrification Improvements, Stratford, CT*
- Wastewater Treatment Plant Denitrification Improvements, Norwalk, CT*
- Fine Bubble Diffused Aeration System Design, Springfield, MA*
- Old Deer Island WWTF Decommissioning, Massachusetts Water Resources Authority, MA*
- Preliminary Design WWTP Expansion, Birmingham, AL*

Wastewater Collection

- Sewer System Improvements, Sharon, CT
- Infiltration/Inflow and Sewer System Evaluation Study, Windham, CT
- Infiltration/Inflow and Sewer System Evaluation Study, Killingly, CT
- Infiltration/Inflow and Sewer System Evaluation Study, Farmington, CT
- Infiltration/Inflow and Sewer System Evaluation Study, Ledyard, CT
- Pump Station Upgrade, Farmington, CT

CHRISTOPHER N. PIERCE, PE
Senior Project Manager

- Pump Station Upgrade, Killingly, CT
- Wastewater Collection System Expansion Evaluation, Vernon, CT
- Wastewater Facilities Evaluation, YMCA Camp, Colebrook, CT

Water

- Concrete Water Storage Tank Design, Windham, CT*

CHRISTINE E. KURTZ, PE

Project Manager

PROJECT ASSIGNMENT: Project Manager

Education

B.S., Civil Engineering,
University of New Hartford

B.A., Engineering,
Lafayette College

Joined Firm
2009

Experience
24 Years

Professional Registration
Connecticut

Professional Affiliations
Water Environment Federation

EXPERIENCE SUMMARY

Ms. Kurtz is a project manager at Wright-Pierce in the Wastewater Practice Group. She has extensive experience in water and wastewater projects. She has been responsible for the management and design of pumping stations, treatment plant upgrades, sewer and water mains as well as preparing engineering planning type documents (including water supply plans, small water system regionalization studies and wastewater treatment facility plans).

RELEVANT PROJECT EXPERIENCE

Wastewater

- The Mattabassett District Upgrade Project, Cromwell, CT
- Pump Station No. 1 Upgrade, Sprague, CT
- Hanover Pump Station Upgrade, Sprague, CT
- On-Call Engineering Services, New Hartford, Sprague, Torrington and Trumbull, CT
- Regionalization and Contract Negotiation Support, Trumbull, CT
- Feasibility Analysis to Construct a New Treatment Facility, Trumbull, CT
- I/I Rehabilitation and SSES Projects, Trumbull, CT
- Facilities Plan Update, Torrington, CT
- DGS / PFBC, Bellefonte Fish Hatchery Upgrades, Benner, Township, PA*
- DGS / PFBC - Benner Spring Fish Hatchery Upgrades, Centre County, PA*
- Sanitary Sewer Design, Storm Drainage and Roadway Improvements, Stamford, CT*
- Water Pollution Control Facility Upgrade, New Hartford, CT*
- Water Pollution Control Facility Upgrade, Shelton, CT*
- Water Pollution Control Facility Upgrade, Litchfield, CT*
- Sanitary Sewer and Pumping Station, Middletown, CT*
- Sanitary Sewer and Pumping Station, Pratt & Whitney, Middletown, CT*
- Wastewater Pumping Station Upgrade, Glastonbury, CT*
- Facility Plans - Litchfield and Plainfield, CT*
- Inter-Municipal Sewerage Study, Middletown, CT*
- Inter-Municipal Sewerage Feasibility Study, The Mattabassett District, Cromwell, CT*
- Inflow/Infiltration Studies, Farmington, Litchfield, Thomaston, Waterbury, and Meriden, CT*
- Wastewater Treatment Facility, Foxwoods Casino, Ledyard, CT*
- Master Sewer Plan, Farmington, CT*
- Meadowlark Drive Pump Station, Shelton, CT*
- Odor Control System for Gravity Thickeners, Stamford, CT*
- Sanitary Sewer Rehabilitation/Design, Litchfield, Connecticut*

Water

- Water Quality and Safe Yield Analysis – Baltic Reservoir, Sprague, CT
- Water Supply Plan, Sprague, CT

CHRISTINE E. KURTZ, PE
Project Engineer

- Preliminary Engineering Services, Newport, RI*
- Water Main Design, Southington, CT*
- Bath Street and Neutaconkanut Pump Stations, Providence, RI*
- Shrewsbury Well Development, Shrewsbury, MA*
- Water Supply Plan Updates, Southington, Bristol and Middletown, CT*
- Water Company Owned Land Classification, Bristol, CT*
- Small Water Regionalization Study, Armstrong, Clarion, Clinton, Fayette, Forest and Juniata Counties, PA*

Reservoir

- Baltic Reservoir Emergency Action Plan, Sprague, CT
- Southwest Dam Improvements, Baltic Reservoir, Sprague, CT
- Rehabilitation to Parker Dam, Parker Dam State Park, Clarion County, PA*
- Emergency Action Plan, Gouldsboro Lake Dam, Gouldsboro State Park, Monroe and Wayne Counties, PA*
- Spillway Evaluation - Chapman State Park, Warren Country, PA*
- Modifications to Bristol Reservoirs #2, #4 and #5, Harwinton, CT*
- Modifications to Southington Reservoirs #1 and #3, Crescent Lake, Southington, CT

EDWARD J. LEONARD, PE

Associate Vice President/ Senior Project Manager

PROJECT ASSIGNMENT: **Technical Advisor**

Education

B.S., Civil Engineering,
University of Massachusetts,
Amherst

Professional Registration

Maine
Connecticut
New Hampshire
Massachusetts

Experience

20 Years

Joined Firm

2000

Professional Affiliations

Water Environment Federation
New England Water Environment
Association
Maine Water Pollution Control
Association

Publications

Brown, W.E., Hankins, W.D.,
Leonard, E.J., Nutrient Control-
Focus on Nitrogen, Water & Waste
Digest, Sept. 2009

Presentations

Leonard, E.J., "Tackling
Collaboration Challenges to
Address Nitrogen Loading in
Shared Watersheds", Cape Cod
Coastal Conference, June 2013

Leonard, E.J., "Phased
Implementation and Funding
Agency Alphabet Soup Results in
Improved Effluent Quality in
Farmington, NH",
NEWEA Conference, January 2013

Leonard, E.J., "Public-Private
Partnership for a Shared
Wastewater Solution in Sandwich,
Massachusetts",
NEWEA Conference, June 2012

EXPERIENCE SUMMARY

Mr. Leonard is a project manager in the Wastewater Practice Group with a wide-range of experience in planning, design and construction of wastewater and water facilities for municipal clients throughout New England. Since joining Wright-Pierce in 2000, Mr. Leonard has served as project manager and lead project engineer on numerous wastewater projects in Maine, New Hampshire, Connecticut and Massachusetts.

RELEVANT PROJECT EXPERIENCE

Wastewater Treatment

- Wastewater Treatment Facility Upgrade, Brunswick, ME
- Wastewater Treatment Facilities Upgrade, Newington, NH
- Wastewater Treatment Facility Upgrade, Middleborough, MA
- Wastewater Treatment Facility Upgrade, Newmarket, NH
- Wastewater Treatment Facility Upgrade, Dover, NH
- Mattabassett District Wastewater Treatment Facility Upgrade, Cromwell, CT
- WWTF Bardenpho Upgrade, Durham, NH
- WWTF Aeration Blower Upgrade, Old Orchard Beach, ME
- Water Pollution Control Facilities Upgrade, Manchester, CT
- Wastewater Treatment Facility Upgrade, Hudson, MA
- Wastewater Treatment Facility Upgrade, Sanford, ME
- Water Pollution Control Facilities Upgrade, Glastonbury, CT
- Water Pollution Control Facility and CSO Abatement Upgrade, Skowhegan, ME
- Water Pollution Control Facility Improvements, Old Town, ME
- Water Pollution Control Facility & CSO Abatement Upgrade, Old Town, ME
- Wastewater Treatment Facility Process Evaluations, Ogunquit, ME
- Wastewater Treatment Facilities Upgrade, Farmington, NH
- Wastewater Treatment Facility Upgrade, Gardiner, ME
- Wastewater Treatment Facility Dewatering System Upgrade, Wells, ME
- Wastewater Treatment Facility Upgrade, Wells, ME
- Wastewater Treatment Facility Evaluation, Rockland, ME
- Wastewater Treatment Facility Upgrade, Upton, MA*
- WPCF Anaerobic Digester Upgrade, Meriden, CT*
- WPCF Dechlorination Facilities, Meriden, CT*

Wastewater Management and Capital Improvements Planning

- Oyster Pond Targeted Wastewater Management Planning, Falmouth, MA
- Comprehensive Water Resources Management Planning, Sandwich, MA
- Comprehensive Wastewater Management Planning, Orleans, MA
- Industrial Park Wastewater Management Planning, Hingham, MA
- Wastewater Treatment and Nutrient Management Planning, Exeter, NH
- Wastewater Treatment Facilities Planning, Newington, NH

EDWARD J. LEONARD, PE

Associate Vice President/ Senior Project Manager

Leonard, E.J., "Considerations for Full-Scale Application of Urine Diverting Toilets", NEWEA Conference, October, 2010

Leonard, E.J., "Managing the Cost of Future Growth to Ensure the Sustainability of Small Wastewater Systems", NEWEA Conference, June, 2010

Leonard, E.J., "Process Operational Adjustments Result in Energy Reductions and Project Phasing Opportunities: Wolfeboro, NH" NEWEA, Conference, Boston, Massachusetts, January 2009

Leonard, E.J., "Public Outreach for a Downtown Infrastructure Project: Skowhegan, Maine" NEWEA, Conference, Boston, Massachusetts, January 2007

Leonard, E.J., "Nutrient Removal Strategy for Sanford, Maine" NEWEA, Conference, Boston, Massachusetts, January 2004

- Wastewater Treatment Facilities Planning, Brunswick, ME
- Wastewater Treatment Facilities Planning, Old Orchard Beach, ME
- Wastewater Treatment Facilities Planning, Farmington, NH
- Wastewater Treatment Facilities Planning, Sanford, ME
- Water Pollution Control Facility and CSO Facilities Planning, Skowhegan, ME
- Sewer System Master Plan, Skowhegan, ME
- Dissolved Oxygen Concentration Evaluation, Confidential Client

Collection

- Sewer Repair & Replacement (Contract 1 and 2), Farmington, NH
- Sewer Extension Evaluation, Portsmouth, NH
- Davis Avenue Sewer Separation, Sanford, ME
- CSO Storage Tank and Pump Station Upgrades, Skowhegan, ME
- Infiltration and Inflow Evaluation, Skowhegan, ME
- Waterville Road Sewer Separation, Skowhegan, ME
- Waterville Road Sewer Extension, Skowhegan, ME
- Manhole Rehabilitation Project, Durham, NH
- Juniper Hill Sewer Extension Project, Ogunquit, ME
- Route 16 Sewer Relocation, Newington, NH

Pump Stations

- Paul Brook and Shattuck Way Pump Station Upgrades, Newington, NH
- Mechanic Street Pumping Station Upgrade, Portsmouth, NH
- West Grand Pump Station Upgrade, Old Orchard Beach, ME
- Mousam River Pump Station Upgrade, Sanford, ME
- Smada Drive Pump Station Upgrade, Sanford, ME
- Route 109 Pump Station Upgrade, Sanford, ME
- Goodall Pump Station Upgrade, Sanford, ME
- Pump Station No. 2 and HDD Forcemain Upgrade, Ogunquit, ME
- Pump Station No. 6 and HDD Forcemain Upgrade, Ogunquit, ME
- Pump Stations and Route 1 Sewer Extension, Wells, ME
- Pump Station Upgrades, Rockland, ME

General Building

- WWTF HVAC and Odor Control Upgrade, Wells, ME
- Administration Building Improvements, Millbury, MA (Upper Blackstone Water Pollution Abatement District)*

SCADA

- SCADA System Design, Old Orchard Beach, ME
- SCADA System Design, Skowhegan, ME
- SCADA System Evaluation, Meriden, CT*
- Plant Wide SCADA Systems
- Wastewater Treatment Facilities Upgrade, Newington, NH

EDWARD J. LEONARD, PE
Associate Vice President/ Senior Project Manager

- Water Pollution Control Facilities Upgrade, Manchester, CT
- Wastewater Treatment Facility, Farmington, NH
- Water Pollution Control Facilities Upgrade, Glastonbury, CT
- Wastewater Treatment Facility Upgrade, Sanford, ME
- Water Pollution Control Facility, Skowhegan, ME
- Water Pollution Control Facility, Old Town, ME
- Wastewater Treatment Facility Upgrade, Gardiner, ME
- Wastewater Treatment Facility Upgrade, Wells, ME

NPDES Permitting

- Sanford Sewerage District, Sanford, ME - Maine DEP
- Skowhegan, ME - Maine DEP
- Farmington, NH - New Hampshire DES and EPA
- Newington, NH - EPA

User Rates and Connection Fee Studies

- Newington, NH – user rates and connection fees
- Ogunquit Sewer District, Ogunquit, ME – user rates.
- Old Orchard Beach, ME – tax base vs user rates
- Farmington, NH – user rates and connection fees
- Wells Sanitary District, Wells, ME – capacity reserve fee
- Skowhegan, ME – tax base vs user rates, capacity reserve fee

Local Limits/ Sewer Use Ordinances/ Industrial Users

- Technically-Based Local Limits, Sanford Sewerage District, Sanford, ME
- Technical Review, Confidential Client, ME
- Significant Industrial User Evaluations/Negotiations, Skowhegan, ME
- Sewer Use Ordinance Updates, Newington, NH
- Local Limits Evaluation, Newington, NH
- Sewer Use Ordinance, Wells Sanitary District, Wells, ME
- Sewer Use Ordinance, Portsmouth, NH

Flood Certifications

- Pump Station No. 2 Upgrade - Ogunquit, ME
- WPCF Upgrade - Skowhegan, ME
- AWWTF Upgrade - Sanford, ME
- Mousam River Pump Station Upgrade - Sanford, ME
- West Grand Pump Station Upgrade - Old Orchard Beach, ME

Water

- Water Treatment Plant, Enfield, CT*
- Odor Evaluation, Meriden, CT*
- Water Supply and Pump Station, Danbury, CT*
- Hydraulic Analysis, Killingly, CT*

EDWARD J. LEONARD, PE
Associate Vice President/ Senior Project Manager

Mr. Leonard also worked for the Department of Environmental Protection in Hartford, Connecticut, as an engineer in the Urban Sites Remedial Action Program. In this capacity he had extensive contact with state agency representatives, consultants, attorneys and responsible parties to discuss the investigative and treatment alternatives available to delineate and/or mitigate contamination. He also managed technical and financial aspects of state-funded remediation projects.

LISA M. MUSCANELL-DEPAOLA, PE

Project Engineer

PROJECT ASSIGNMENT: Project Engineer

Education

BS, Environmental Engineering,
Rensselaer Polytechnic Institute

Professional Registration

Connecticut

Experience

6 years

Joined Firm

2009

Professional Affiliations

WEF (Water Environment
Federation) NEWEA Member
2010 - present

Presentations

Muscanell, L.M. "Evaluating and
Identifying Energy Efficiencies in
Water / Wastewater Facilities"
Atlantic States Rural Water &
Wastewater Association
(ASRWWA) Conference,
Wallingford, CT, October 2009

Muscanell, L.M. "Phosphorus
Removal in Connecticut"
Atlantic States Rural Water &
Wastewater Association
(ASRWWA) Conference
Wallingford, CT
October 2011

Muscanell, L.M. "Implementing
the Rehabilitation Plan Before H2S
Strikes Again... (Part 2) Town of
South Windsor, CT" NEWEA
Conference Boston, MA
January 2013

EXPERIENCE SUMMARY

Ms. Muscanell is a project engineer in the Wastewater Practice Group. Her responsibilities include design of wastewater collection & treatment processes and facilities, as well as preparation of design plans and specifications. She assists in serving clients with permit compliance and permit application preparation for both state and municipal needs as well as Clean Water Fund applications. She also specializes in implementing phosphorus removal studies/designs and documenting regulatory requirements as defined in the NPDES program for flows / loads studies and driving design parameters.

RELEVANT PROJECT EXPERIENCE

Wastewater

- WPCF Benchmarking Evaluation, Fall River, MA
- Wastewater Treatment Plant Upgrade, Manchester, CT
- Wastewater Treatment, Bristol, CT
- Cytex Industries WWTP Automation Study, Wallingford, CT
- Wastewater Treatment, Danbury, CT
- Wastewater Treatment Plant Upgrade, Torrington, CT
- Wastewater Treatment Plant Upgrade, Facilities Plan, Killingly, CT
- Wastewater Treatment, Trumbull, CT
- Wastewater Treatment Plant Upgrade, Farmington, CT
- Cascades Wastewater Feasibility Study, Sprague, CT

Wastewater Collection Systems

- Inflow / Infiltration Study, South Windsor, CT
- Wastewater Collection System, Force Main Study, South Windsor, CT
- Sewer Rehabilitation and Sliplining Construction Administration, South Windsor, CT
- Wastewater Collection System, Smoke Testing, Farmington, CT
- Wastewater Collection System, House to House Inspections, Trumbull, CT

Permitting and Grant Applications

- Water and Wastewater Collection Systems, Metropolitan District Commission (MDC), Hartford, CT
- Industrial Permitting Assistance, Lakin Tire East, West Haven, CT
- Industrial Permitting Assistance, Habasit ABT, Inc., Middletown, CT
- Wastewater Pump Station Upgrade, Town of Sprague Water and Sewer Authority, Sprague, CT
- Department of Environmental Protection, Hartford, CT*

COLLEEN L. DOUGHERTY, PE

Project Engineer

PROJECT ASSIGNMENT: Project Engineer

Education

MEng, Biological and
Environmental Engineering,
Cornell University
B.S., Biological and Environmental
Engineering Cornell University

Professional Registration

Connecticut

Experience

7 Years

Joined Firm

2007

Professional Affiliations

National Society of Professional
Engineers

EXPERIENCE SUMMARY

Ms. Dougherty is a project engineer in the Wastewater and Water Practice Groups. Her wastewater-related responsibilities include design of wastewater collection and treatment processes and facilities, as well as preparation of design plans and specifications. Her water-related responsibilities include design of distribution system infrastructure, water storage facilities, pump stations, and water supply wells. In addition, Ms. Dougherty's project experience includes the use of hydraulic models for design and analysis of water distribution system infrastructure, master planning and asset management water treatment process pilot studies, construction administration, and construction inspection.

RELEVANT PROJECT EXPERIENCE

Wastewater

- Wastewater Treatment Plant Upgrade, Farmington, CT
- Wastewater Treatment Plant Regionalization Support Services, Trumbull, CT
- Wastewater Treatment Plant Upgrade, Manchester, CT
- Wastewater Treatment Plant Upgrade, The Mattabassett District, Cromwell CT
- Volume Reduction and Composting Facility Permit Compliance Audits, Scotts Miracle-Gro Company, Lebanon, CT
- Huyshope Avenue Sewer and Drain Design, Metropolitan District Commission, Hartford, CT
- Flow Metering Evaluation, Metropolitan District Commission, East Granby, CT
- Sewer Separation Design, Upper Albany Avenue Project 2, Metropolitan District Commission, Hartford, CT
- Sewer Separation Design, Upper Albany Avenue Project 1, Metropolitan District Commission, Hartford, CT
- Inflow & Infiltration Study, Trumbull, CT
- Wastewater Pumping Station Emergency Generators, Metropolitan District Commission, Various Towns, CT
- Wastewater Facilities Plan, Trumbull, CT
- Volume Reduction and Composting Facility Permit Compliance Audits, Harvest Power/GreenCycle, Ellington, CT
- Water Pollution Control Facility/Cascades Paper Mill Feasibility Study, Sprague, CT
- Wastewater Pumping Station, Cheshire, CT
- CSO Long-term Control Plan: CMOM Assessment and Wastewater Pumping Station and Force Main Evaluation, United Water, Newport, RI
- Wastewater Pumping Station, Cheshire, CT
- Volume Reduction and Composting Facility Permitting, Ellington, CT
- Wastewater Facilities Plan, Farmington, CT
- Wastewater Facilities Plan, Waterford, CT
- Wastewater Pumping Station and Force Main, Killingly, CT
- Energy Evaluation, Naugatuck, CT
- Incinerator Ash Handling System, Cranston, RI

COLLEEN L. DOUGHERTY

Project Engineer

- Nutrient Management Feasibility Study, Woodstock, CT
- Well Water Backwash Disposal System, Voluntown, CT
- Fall Creek Watershed Road Salt Loading Analysis (Tompkins County, NY), Cornell University*
- Soil and Water Lab Research, Cornell University*

Water

- Well Field Pumping Station / Water Storage Tank Hydraulic Modeling, Aquarion Water Company, New Fairfield, CT
- Water Pumping Station Hydraulic Modeling, Bethel, CT
- Andrews Street, Highland Avenue and Cindy Lane Water Main Improvements, Bethel, CT
- Greenwood and Milwaukee Avenues Water Main Improvements, Bethel, CT
- Water Supply Generators Design, Metropolitan District Commission, Various Towns, CT
- Water Storage Tank Design Permitting, Bethel, CT
- Huyshope Avenue Water Main, Metropolitan District Commission, Hartford, CT
- Water Distribution System Meter Replacement / Hydraulic Modeling, Watertown, CT
- Hydraulic Modeling / Master Plan Study, North Reading, MA
- Hydraulic Modeling / Master Plan Study, Aquarion Water Company, Ridgefield, CT
- Hydraulic Modeling / Master Plan Study, Aquarion Water Company, Simsbury, CT
- Filter Backwash Systems for Water Treatment Plants, Norwich Public Utilities, Colchester and Montville, CT
- Water Distribution System, Newport, RI
- Water Distribution System and Water Storage Tank, Bethel, CT
- Public Water Supply Permitting, Sprague, CT

JUSTIN D. MOTTA, EIT

Project Engineer

PROJECT ASSIGNMENT: Project Engineer

Education

M.E., Environmental Engineering,
University of Hartford

B.S., Civil Engineering, University
of Massachusetts, Amherst

Professional Registration

Connecticut EIT

Experience

6 years

Joined Firm

2009

Professional Affiliations

Water Environment Federation
New England Water Environment
Association

Certifications

NASSCO trained for
LACP, PACP and MACP

OSHA 10

EXPERIENCE SUMMARY

Mr. Motta is a project engineer in Wright-Pierce's Middletown, Connecticut office. His responsibilities include the design and construction administration of wastewater collection system and treatment process facilities including preparing preliminary design reports, final design plans and specifications, bidding documents, construction administration and inspection and overseeing project till construction completion.

RELEVANT PROJECT EXPERIENCE

Wastewater Treatment

- Farmington WPCF Upgrade, Farmington, CT
- FOG Receiving Facility, Waterbury, CT
- FOG Receiving Facility, Torrington, CT
- Phase I and II Lower Secondary Clarifier Improvements, Waterbury, CT
- Danbury Emergency Generators Upgrade, Danbury, CT
- Danbury WPCF Dechlorination System Upgrade, Danbury, CT

Water Treatment

- Filter Backwash System Design, Norwich, CT

Pump Stations

- Harvey Avenue Pump Station Upgrade, Waterford CT
- Pump Station No. 2, Sprague CT
- Pump Station No. 1, Sprague, CT
- West Side Pump Station Emergency Generator Replacement, New Milford, CT
- Boardman Road Sewer Pump Station, New Milford, CT
- Route 7 – Phase II Sewer Pump Stations, New Milford, CT
- Hyde Road Pump Station, Farmington, CT
- New Harwinton Road Pump Station, Torrington, CT
- Mixville Pump Station Upgrade, Cheshire, CT
- Barton Road Sewer Pump Station, East Hampton, CT

Wastewater Infrastructure

- I/I Infrastructure Improvements, Sprague, CT
- Phase I - Sewer System Improvement Project, South Windsor, CT
- Logger Hill Sewer Rehabilitation, Waterford, CT
- Phase 1, 2, 3 and 4 - SSES Evaluation, Trumbull, CT
- SSES Evaluation, Farmington, CT
- I/I Study, Wallingford, CT
- I/I Study, Harwinton, CT
- MDC Albany Avenue Contact 1 and 2, Hartford, CT

JUSTIN D. MOTTA, EIT
Project Engineer

Civil Infrastructure

- Housatonic Avenue Roadway Reconstruction, New Milford, CT

Water Distribution

- Water Distribution Fire Flow Testing and Evaluation, Newport, RI

BRENDA L. STROHM

Technical Assistant

PROJECT ASSIGNMENT: Administrative Assistance

Education

The Academy for Business
Careers, Hamden, CT -
Executive Secretarial Program

Experience

20 Years

Joined Firm

2010

Proficiencies

Microsoft Office 2010,
including Excel, Outlook,
PowerPoint, & Word

Adobe Acrobat 10 Standard

EXPERIENCE SUMMARY

Mrs. Strohman is a technical assistant in the Middletown, Connecticut office. She is responsible for all supporting tasks of a project team's ability to complete client assignments. She provides support services to every member of the Middletown staff, which currently totals 22 engineering professionals. With over twenty years of experience in administrative support roles, Mrs. Strohman has excellent client service and organization skills.

RELEVANT EXPERIENCE

Office Technical Assistant, Wright-Pierce, Middletown, CT

Responsible for administrative duties of Wright-Pierce's office in Middletown, Connecticut. Responsibilities include the following:

- Fulfill general administrative duties, including shelving, filing, printing, faxing, photocopying, scanning, and placing calls to vendors and clients as requested.
- Reproducing, compiling, binding, and labeling reports, plans, specifications, and marketing proposals, and making arrangements for related vendor services if necessary. Also convert paper copies into electronic formats by scanning and utilizing computer software.
- Collecting vendor invoices and company credit card receipts, and creating purchase requisitions, including obtaining all necessary project information, completing paper work, and sending to accounting for processing.
- Assisting with construction project bids including: ordering and maintaining plan and specification supplies; receiving and processing orders and payment from contractors; maintaining a list of plan holders in Word form and on the company website; distributing any and all addenda for the bid to all plan holders and following up to make sure each one was received by the recipient; entering bid results once received into Excel and posting the results on the website; staying informed about the project to be able to answer questions in the absence of the project engineer/manager.
- Assisting project manager with construction administration for active construction projects. This includes processing shop drawings and operation and maintenance manuals for review and then distribution to the owner, contractor, and resident project representative. Maintaining various logs to record and monitor submittal information and other construction documents. Finally, maintaining a filing system for all construction documents either hard copy or electronically. Also helps resident field representative with various administrative tasks as needed and assists with deliverables to and from construction site and owner's office.
- Assisting in the creation of client deliverables and editing for readability, accuracy, and keeping with company formatting standards. Examples of deliverables: contracts, reports, proposals, transmittal letters, letters, specifications, and memos in Word; data spreadsheets, graphs, and charts in Excel; presentations and organizational charts in Power Point; project case studies and other marketing materials in Publisher; application forms and miscellaneous client and regulatory agency documents in Adobe Acrobat.
- Handling incoming and outgoing mail (Federal Express, UPS, USPS) scheduling pick-ups, and seeing that the appropriate paperwork is done.

**experience with previous employer*

BRENDA L. STROHM

Technical Assistant

Distribute incoming packages to the appropriate person. Ship interoffice correspondences on a regular schedule and as requested.

- Maintaining all supplies for the office, including keeping track of inventory (office and kitchen supplies), and performing standard purchasing functions for the company and comparative shopping for the most cost-effective prices by dealing with several vendors (checking catalogues, publications, and telephoning for information whether it be pencils or furniture). Ordering is done primarily with an online database system, but also by phone and by picking items up in stores.
- Managing office lunch seminars, making car rental and hotel arrangements when needed by employees, collecting all necessary information for billing, filling out correct forms and sending paperwork to accounting.
- Maintaining all office equipment including computers, phones, printers, large format scanner, video conference machine and television, projector, and assisting our remote IT staff by being their eyes and hands for fixing problems with all equipment
- Renewing of technical staff registrations and memberships
- Assistance to IT and technical staff with troubleshooting of equipment and programs
- Dealing with security, custodial, and maintenance crews as necessary
- Organizing office events such as lunches, dinners, birthday observations, holiday parties and office outings
- Running errands when requested as time and duties warrant

*Prior to joining Wright-Pierce, Mrs. Strohm worked as an executive secretary for Beneficial Management Corp. in Brewster, NY, where she provided administrative support to the Vice President and the Director of Human Resources. Her duties consisted of preparing correspondence from oral and written instructions, composing letters and memoranda, compiling special reports, preparing expense reports, orders, and requisitions and distributing management information. She set up and maintained a library and other personal and confidential files and maintained a heavy work flow to support other members of the department as well. Prior to that she worked as a secretary for Combustion Engineering, Inc., in Stamford, CT, where she was responsible for the administrative support of multiple Human Resources Department members.

JEFFREY P. DEWEY, PE

Senior Project Engineer

PROJECT ASSIGNMENT: Civil Engineer

Education

BS, Civil Engineering, University of Connecticut

Professional Training

Class 2 ISDS Designer License - State of Rhode Island DEM;
Class A Pond Designer - Bentley Systems Inc. Software;
Gas Technology Institute Gas Distribution Engineering - Piping Systems & Materials

Professional Registration

Connecticut

Experience

25 Years

Joined Firm

2013

EXPERIENCE SUMMARY

Mr. Dewey has more than 25 years of engineering experience working with public utilities, municipalities and private sector clients. He has held senior level management positions with responsibilities for project design, permitting, budgeting and construction oversight. He recently joined Wright-Pierce's Middletown, Connecticut office.

RELEVANT PROJECT EXPERIENCE

Wastewater

- Sanitary Sewer Collection System, Norwich, CT
- Newton Street Area Sanitary Sewer Collection System, Norwich, CT
- Salem-1 Sanitary Pump Station Rehabilitation, Norwich, CT

Stormwater Management

- Site Plan and Stormwater Management, Skyline Estates II Residential Subdivision, East Hampton, CT
- Stormwater Management and Wetlands Restoration, Chatham Center, East Hampton, CT
- Runoff Water Quality Assessment, North Canaan, CT
- Commercial Paving & Stormwater Management, Groton, CT

Site Design, Planning and Review

- Development Reviews, Salem & Lisbon, CT
- Development Reviews, Norwich, CT
- Site Design for The Ledges, Groton, CT
- Golf Course Infrastructure Design, Hope Valley, RI
- Golf Course Infrastructure Design, Richmond, RI

Dams

- Shaker Pond Dam Inspection, Enfield, CT
- Roberts Pond Dam Inspection, Ridgefield, CT
- Mackenzie Reservoir Dam, Wallingford, CT
- Ulbrich Reservoir Dam Inspection, Wallingford, CT
- Pistapaug Reservoir Dam Inspection, Wallingford, CT

Water and Gas Utilities

- Norwich Water Distribution System Water Quality Improvements, Norwich, CT
- Water Tank Maintenance, Norwich, CT
- Distribution System Modeling for Fire Safety, Norwich, CT
- Freeport-McMoran, Norwich, CT
- Roosevelt Avenue Natural Gas Regulator Station Design, Norwich, CT

JEFFREY P. DEWEY, PE
Project Engineer

- Golden Street and Old Salem Road Propane Tank Decommissions, Norwich, CT
- Regulator Station Emergency Relief, Norwich, CT
- Natural Gas Expansion Initiative, Norwich, CT

Disaster Management

- Natural Disaster Damage Location Manager, Norwich, CT

Marine

- Marina Expansion, Stonington, CT

Subsurface Technology

- Pedestrian Tunnel, North Stonington, CT

MARK W. CUNNINGHAM, PE

Senior Structural Engineer

PROJECT ASSIGNMENT: Senior Structural Engineer

Education

M.S., Civil (Structural) Engineering,
University of Connecticut

B.S., Civil Engineering,
Rensselaer Polytechnic Institute

Professional Registrations

Colorado
Connecticut
Delaware
Maine
Maryland
Massachusetts
New Hampshire
New Jersey
New York
Texas
Virginia
Washington
Washington, D.C.

Experience

27 Years

Joined Firm

2014

Professional Affiliations

American Concrete Institute (ACI)
ACI 350 - Code Requirements for
Environmental Engineering
Concrete Structures, Voting
Member
ACI 350 – Subcommittee A,
General and Concrete, Chairman
ACI 350 – Subcommittee B,
Durability, Voting Member
ACI 350 – Subcommittee C,
Reinforcement and Development,
Voting Member
ACI 350 – Subcommittee D,
Structural, Voting Member
ACI 350 – Subcommittee E,
Steering, Voting Member
American Society of Civil
Engineers (ASCE)
ASCE – Structural Engineering
Institute (SEI)
Connecticut Society of Civil
Engineers (CSCE)

EXPERIENCE SUMMARY

Mr. Cunningham is a senior structural engineer within the Building Design Services practice group. His responsibilities include structural design of buildings, water and wastewater treatment plants, industrial facilities, and other structures, preparation of plans and specifications, cost estimating and construction administration. He is experienced in the design of reinforced concrete, structural steel, reinforced masonry, wood framing, and foundations. He has also performed analysis, design, load ratings, and inspections of bridges.

RELEVANT PROJECT EXPERIENCE

Wastewater – Value Engineering

- Value Engineering for Westerly and Easterly WWTFs Upgrades, Marlborough, MA*
- Value Engineering for Water Pollution Control Facility Upgrade, Windham, CT*
- Value Engineering for WWTF Plant No. 2, Orange County Sanitation District, Huntington Beach, CA*
- Value Engineering for Water Wastewater Treatment Facility Upgrade, Plainville, CT*

Wastewater - Design

- Gold Mine Wastewater Treatment Facility Upgrade, Confidential Industrial Client, CO*
- Wastewater Treatment Facility Upgrade, Westborough, MA*
- Housatonic Wastewater Treatment Facility Upgrade, Milford, CT*
- Beaver Brook Wastewater Treatment Facility Upgrade, Milford, CT*
- Wastewater Treatment Facility Upgrade, Lowell, MA*
- Wastewater Treatment Facility Upgrade, Simsbury, CT*
- Wastewater Treatment at Industrial Facility, Coca Cola, Northampton, MA*
- Wastewater Treatment Facility Upgrade, Augusta, ME*
- New Wastewater Treatment Facility, Ellsworth, ME*
- New Wastewater Treatment Facility, Plympton, MA*
- Wastewater Treatment Facility Upgrade and Expansion, Scarborough, ME*
- New Fruit Street Wastewater Treatment Facility, Hopkinton, MA*
- Water Pollution Control Plant, Arlington, VA*
- Wastewater Treatment Facility Upgrade and Expansion, Branford, CT*
- Wastewater Treatment Facility Denitrification Improvements, Wallingford, CT*
- CSO Abatement Project, Sanitary District, Augusta, ME*
- Wastewater Treatment Facility (New), Town of Tisbury, MA*
- NYOGS Wastewater Treatment Facility Upgrade, Correctional Facility, Bedford Hills, NY*
- Wastewater Treatment Facility Upgrade and CSO Abatement, Rockland, ME*
- Wastewater Treatment Facility Upgrade, Concord, NH*

MARK W. CUNNINGHAM, PE

Senior Structural Engineer

Publications

Cunningham, M., "Fluid and Soil Load Combinations – How Code Provisions Vary Regarding Using Lateral Earth Pressure to Resist Fluid Loads,"
Concrete International,
May, 2013

- Wastewater Treatment Facility Upgrade, Edgartown, MA*
- Wastewater Treatment Facility, Bath, ME*
- Wastewater Treatment Facility, Nantucket, MA*
- Wastewater Treatment Facility Upgrade, Great Barrington, MA*
- Wastewater Treatment Facility, Montville, CT*
- Wastewater Treatment Facility, Livermore Falls, ME*
- New York Organic Fertilizer Company Sludge Processing, Bronx, NY*
- South Essex Sewerage District Wastewater Treatment Facility Renovations, Salem, MA*
- Blue Plains Wastewater Treatment Facility, Water and Sewer Administration, Washington, DC*.

Pump Stations

- Pump Station Upgrade and Expansion, Pump Station No. 4, Sanitary District, Scarborough, ME*
- West Avenue Pump Station Upgrade, Milford, CT*
- Concord Avenue Pump Station and Beaver Brook Pressure Sewer Elimination, Milford, CT*
- Pump Stations, Branford, CT*
- Pump Station Study, Dighton, MA*
- University of Connecticut Mansfield Training School New Pump Stations, Storrs, CT*
- New Pump Station, Millbury, MA*
- Lake Winnecunnet Area New Pump Station, Norton, MA*

Water

- Albertini Wells Water Treatment Facility, Mansfield, MA*
- Veolia Notown and Southeast Corner Well Field Water Treatment Facilities Leominster, MA*
- Cate Springs Water Treatment Facility, Mansfield, MA*
- Water Treatment Facility, Marlborough, MA*
- Water Treatment Facility, Plympton, MA*
- Water Treatment Facility, Dighton, MA*
- Pawtucket Regional Water Treatment Facility, Pawtucket, RI*
- West Virginia Department of Transportation Coalfields Expressway Water Storage Tank, Sophia, WV*
- Coulomb Pond Water Storage Tank, NH*
- Well No. 2 Greensand Filtration Facility, Danvers, MA*
- Greensand Filtration Facility, Dartmouth, MA*
- Standpipe, Hallowell, ME*
- Water Treatment Facility, Hudson, MA*
- Belmont Reservoir Slow Sand Filter Facility, Hinsdale, MA*
- Graves Brook Reservoirs Water Treatment Facility, Palmer, MA*
- Atkins Water Treatment Facility, Amherst, MA*
- Water Treatment Facility, Holyoke, MA*
- Water Treatment Facility, Plainville, CT*

Buildings and Civil Infrastructure Projects

- Chase Brass North End and East End Redevelopment Industrial Complex Projects, Waterbury, CT*
- Suncor Energy Voyageur Village Administration Complex, Alberta, Canada*
- Highway Facility, Town of Westford, MA*
- Municipal Office Building, Town of Westwood, MA*
- Maintenance Garage Foundation, Town of Mount Pleasant, NY*
- Building Addition for Biomass Boiler System, Town of Houlton, ME*
- Movable Building, General Dynamics, Electric Boat, Groton, CT*
- Industrial Building Addition and Renovations, Ludlow Technical Products, Chicopee, MA*
- Storage Building, General Electric, Fitchburg, MA*
- Plant Renovations, Simplex, Gardner, MA*
- Commercial Building, Charles Park Plaza, Fitchburg, MA*
- Fitchburg Art Museum, Fitchburg, MA*
- Building Foundation, United Airlines, Logan Airport, Boston, MA*
- Train Station, Greenwich, CT*
- Cellular Phone Facilities, Bell Atlantic Mobile, Sprint PCS, Cellularone, and Omnipoint, CT, MA, and RI*
- Coca Cola Parking Area, Columbus, OH*
- University of Connecticut Utility Tunnels and Tower Foundation, Storrs, CT*

Bridges

- Canal Bridge Replacement, Salem and Beverly Water Supply Board, MA*
- Bridge Replacements, Larchmont, NY*
- Massachusetts Department of Transportation Route 1 Highway Bridge, Dedham, MA*
- Connecticut Department of Transportation Highway Bridge, I-95, Greenwich, CT*
- Rails-to-Trails Historic Railroad Bridge, Hudson-Marlborough, MA*
- Sharon Station Road Bridge, Sharon, CT*
- Verrazano Narrows Bridge, New York, NY*
- Tappan Zee Bridge Pier Protection, Tarrytown, NY*
- Massachusetts Department of Transportation Drury Lane Bridge Load Rating Northampton, MA*
- Connecticut Department of Transportation Arrigoni Bridge Load Rating, Middletown-Portland, CT*
- Connecticut Department of Transportation Ferry Street Bridge Load Rating, New Haven, CT*
- Connecticut Department of Transportation Blake Street Bridge Load Rating, New Haven, CT*
- Connecticut Department of Transportation Route 384 Bridge Load Rating, East Hartford to Manchester, CT*
- Department of Transportation Grand Avenue Bridge Load Rating, New Haven, CT*
- Connecticut Department of Transportation Route 2 Bridge Load Rating, East Hartford, CT*

MARK W. CUNNINGHAM, PE
Senior Structural Engineer

- Department of Transportation Bridge Load Rating, Beacon Falls, CT*
- Tyringham Road Bridge Shoring,, Lee, MA*
- Meadow Street Bridge Shoring, Lee, MA*
- Bridge Inspections, Department of Transportation, CT*
- Bridge Foundation Scour Assessments, Department of Transportation, CT*

STEVEN A. LAPRISE, PE

Lead Electrical Engineer

PROJECT ASSIGNMENT: Electrical Engineer

Education

BS, Electrical Engineering,
Lawrence Technological
University

Professional Registration

Connecticut
Maine
Massachusetts
Michigan
New Hampshire
Pennsylvania
Rhode Island

Experience

24 Years

Joined Firm

2011

Professional Affiliations

NFPA
NECHPI

EXPERIENCE SUMMARY

As a lead electrical engineer with the Building Design Practice Group, Mr. LaPrise provides electrical design services for additions and renovations to various municipal water and wastewater treatment facilities throughout New England. Mr. LaPrise specializes in electrical designs in Class I, Division 1 and 2 hazardous areas for water, wastewater, natural gas, and LNG facilities. His work involves the design and specifications for low-voltage power distribution systems, fire and security alarm systems, power generation, interior and exterior lighting, panel boards, motor controls, switchboards. Each design required coordination with process, HVAC, instrumentation, and control systems.

RELEVANT PROJECT EXPERIENCE

Electrical Designs

- Wrentham Road and Hartford Water Treatment Plants, Bellingham, MA
- Wastewater Treatment Facility Studies and Upgrades, Merrimack, NH
- Wastewater Treatment Facility Studies and Upgrades, Dover, NH
- Wastewater Treatment Facility Electrical Studies, Franklin, NH
- Pump Station Upgrades, Sprague, CT
- Pump Station Upgrade, Norwalk, CT
- Spencer WWTF and Pump Station Upgrades, Spencer, MA
- Littleton Water Treatment Plant, Littleton, MA
- Church Street Pump Station Upgrade, Hampton NH
- Mattabassett District WPCF Upgrade, Cromwell, CT
- Chemical Building Upgrade, Farmington, CT
- SCADA System Upgrade, Norwalk CT
- Water System Expansion, Adams, MA
- Water Treatment Plant, Sturbridge, MA
- Water Treatment Facility Generator Upgrade, Rockport, MA
- Dewatering System and Grit Facility Upgrade, Nashua, NH
- Wastewater Treatment Plant Actiflo System, Leominster MA
- Pump Station Upgrade, New Harwinton CT

Before joining Wright-Pierce, Mr. LaPrise's experience included the following projects.

- Water Treatment Facility Upgrades - Danvers, MA*
- WWTF Effluent Pump Station Upgrade - Northampton, MA*
- Sewer Improvement Project - Framingham, MA*
- Wastewater BNR Upgrade - Narragansett Bay Commission, RI*
- SCADA and Aeration Tank Design Upgrades - Pittsfield, MA*
- GLSD Energy Projects - North Andover, MA*
- Fire District Energy Study - Wareham, MA*
- Measurement and Regulation Facility - Needham, MA*
- Measurement and Regulation Facility - Lewiston, ME*
- LNG Plant, Boil-off Compressor Project - Lewiston ME*
- Vaporizer Project Addition - Greenville, NC*
- Measurement and Regulation Facility - Richmond MI*

STEVEN A. LAPRISE, PE
Lead Electrical Engineer

- Grass Roots LNG Facility - Leadville CO*
- Measurement and Regulation Facility - Skippack, PA*
- LNG Plant Controls Upgrade - West Conshohocken, PA*

JAMES PAPADIMITRIOU, PE

Senior Project Manager

PROJECT ASSIGNMENT: Senior Instrumentation Engineer

Education

B.E., Engineering Science/Electrical Engineering, Hofstra University

Professional Registration

Connecticut
Massachusetts

Coursework

Intellution, Wonderware, Allen-Bradley Drives, C/C++, Visual Basic, CADKEY

Certificates

OSHA 10-hour
Construction Safety
Confined Space Training

Experience

23 Years

Joined Firm

2014

Professional Affiliations

International Society of Automation
Connecticut Valley Section of ISA
– Executive Board Member; Vice President - Program Director, CCSU Student Chapter Liaison

Presentations

Papadimitriou, J., "City of Peabody, Massachusetts Sewage Pumping Stations – Supervisory Control and Data Acquisition (SCADA) Telemetry Upgrades" presented at the Massachusetts Water Pollution Control Association, Quarterly Meeting, June 2003, and at the New England Water Environment Association (NEWEA) Conference and Exhibit, January 2004.

Papadimitriou, J. & Ibets, J., "Energy Savings Associated with Flow-Based Dissolved Oxygen Control" presented at the ISA 3rd Annual Water & Wastewater and Automatic Controls Symposium, August 2008.

EXPERIENCE SUMMARY

Mr. Papadimitriou has over 23 years of experience in the design, application, implementation, and startup of instrumentation and process control systems for the water/wastewater, industrial process, and machine control markets. His experience is applied to manufacturing, design-bid-construction, and design-build business models.

Mr. Papadimitriou's experience includes the design of electrical systems, instrumentation systems, process control systems, telemetry systems (radio, leased-line, dial-up), Supervisory Control and Data Acquisition (SCADA) Systems, as well as machine control systems. He has been involved in the development of detailed process and instrumentation diagrams (P&ID), process flow diagrams (PFDs), system architecture diagrams, electrical schematics, controls/instrument layout diagrams, interconnection diagrams, bill of materials, control panel layout diagrams (interior/exterior), sequence of operations and control descriptions, as well as numerous I&C specifications.

Mr. Papadimitriou also has experience in application software development for programmable logic controllers (PLCs), operator interfaces (OITs), and SCADA systems. Services provided include implementation, testing and startup, owner training, and customer support.

Mr. Papadimitriou's experience includes contractor submittals reviews, request for information (RFI) responses, review of change orders, factory and site acceptance testing, schedule monitoring, startup, witness testing, closeout procedures, O&M, record drawings, and final acceptance. He has managed design and design-build projects by developing proposal/contracts, directing and coordinating electrical, I&C, mechanical, drafting, and civil design team personnel to ensure project requirements are met on time and on budget.

RELEVANT PROJECT EXPERIENCE

Wastewater

- Wastewater Treatment Plant Upgrades, Middleborough, MA
- New Rochelle Wastewater Treatment Plant BNR Phase II Upgrade, New Rochelle, NY*
- WWTP Rotary Press and Garage Addition Project, Montague, MA*
- Wastewater Treatment Plant CSO and Upgrades. Montague, MA*
- Lewiston Auburn Wastewater Pollution Control Authority, Sludge Thickening and Gas Cogeneration Project, Lewiston, ME*
- Wastewater Treatment Plant Aeration Blower and Energy Improvements, Franklin, NH*
- LMUA Wastewater Treatment Plant Upgrade, Lambertville, NJ*
- Wastewater Treatment Plant Upgrade, Stafford Springs, CT*
- Wastewater Treatment Plant Upgrade, Bowery Bay, NY*
- Wastewater Treatment Plant Upgrade, Hull, MA*
- Biosolids Handling Facility, Bondi Island, Agawam, MA*
- Wastewater Treatment Plant Upgrade, Groton CT*

**experience with previous employer*

JAMES PAPADIMITRIOU, PE

Senior Project Manager

Papadimitriou, J. & Segalla, S.,
“Energy Savings and Process
Stability Associated with Turbo
Blower Powered Flow-Based
Dissolved Oxygen Control for
Aeration Systems” presented at the
NEWEA Spring Meeting, April
2012.

Co-Author of “TRC-16 - Guides for
the Design of Wastewater
Treatment Works, Chapter 13:
Instrumentation, Controls, and
Reporting” by the New England
Interstate Water Pollution Control
Commission, 2011 Edition.

Co-Author of “M2, Instrumentation
& Control Handbook, Chapter 6:
Basic Control Principles, Chapter
7: Hardwired Control” by the
American Water Works
Association, 2013 Edition.

- Wastewater Treatment Plant Upgrade, Derry, NH*
- Wastewater Treatment Plant Upgrade, Groton, CT*
- Control System Verification, United Technologies Corporation-Hamilton Sundstrand, Windsor Locks, CT*
- Odor Control System, Newport, RI*
- York Street SCADA Upgrade, United Water, Springfield, MA
- Tri-Lakes Sanitary Sewer Expansion Project, Belchertown, MA*
- Old Post Road Pump Station, Tolland, CT*
- Control Systems Integration, Contract 4A Pump Station, Coventry, CT*
- Old Post Road Pump Station, Tolland, CT*

Water Treatment and Distribution

- Springfield Water and Sewer Commission (SWSC) SCADA System Upgrade, Springfield, MA *
- Springfield Water and Sewer Commission (SWSC) SCADA System Master Plan, Springfield, MA *
- Water Treatment Plant Manasquan Ozone System Upgrade, Manasquan, NJ *
- United Water’s Haworth Water Treatment Plant Upgrade, Haworth, NJ*
- Security Communication System Improvements Project, City of Worcester, MA*
- Holden Reservoir Gate House Upgrade, City of Worcester, MA *
- Ashburnham/Winchendon Water Treatment Plant, Winchendon MA*
- Water Distribution System, South Hadley, MA*
- Wethersfield Water Pump Station, MDC – Hartford, CT
- Water Supply Facility, Emergency Generator Replacement, MDC – Hartford, CT
- Gillotti Wellfield Pumping Station Improvements, Aquarion Water Company

Industrial

- Research & Development Engineer, Warner’s Division of WARNACO, INC.*
- Research & Development Engineer, Warner’s Division of WARNACO, INC.*
- Research & Development Engineer, Warner’s Division of WARNACO, INC.*
- Chef Solutions, North Haven, CT*
- Control Systems Integration, Engelhard Corporation, East Windsor, CT*
- Weep Control Facility Upgrades, United Technologies Corporation – Hamilton Sundstrand, Windsor Locks CT*

Facilities and Civil

- United Technologies Corporation – Pratt & Whitney, East Hartford, CT*
- Onota Lake Dam Upgrades, Pittsfield, MA*

DANIEL I. PRATT, PE

Architectural Engineer

PROJECT ASSIGNMENT: Architectural Design Services

Education

BS, Architecture,
Rensselaer Polytechnic Institute

Professional Registration

Maine
Connecticut
New Hampshire

Experience

30 Years

Joined Firm

1986

EXPERIENCE SUMMARY

Mr. Pratt is the senior architectural engineer in the Building Design Practice Group and is the team leader of the Architectural Group. His responsibilities include the integration of the client's input with the necessary technical requirements to develop feasible building solutions and associated landscape features for municipal, industrial and environmental buildings. This effort begins during early conceptual development and extends through completion of construction.

During design, Mr. Pratt works with the client and our in-house building design staff to develop the concept into contract documents (plans and specifications) for bidding. Often a project involves existing buildings, requiring that the existing building systems such as walls, doors and roofing, be evaluated and possibly replaced. Mr. Pratt is responsible for the evaluation and design of these systems and changes required to bring the existing facility into compliance with current building codes and accessibility regulations. Evaluating existing buildings and structures, requires a good working knowledge of these codes and regulations, and the ability to provide cost estimates for the modifications required. Mr. Pratt has developed our in-house construction costs estimating models used on all of our building and renovation projects.

As a project engineer, Mr. Pratt is involved in design-build projects and administration of projects during construction. His experience with contractors and general construction is valuable when the project is under construction.

Mr. Pratt also assists our clients with any building related questions and issues that may arise on their existing facilities.

RELEVANT PROJECT EXPERIENCE

New Building Designs

- New Administrative Office, Yarmouth, ME
- New Gate Structure, Smithfield, RI
- New Maintenance Garage, Fort Kent, ME
- New Administrative Office, Windham, CT
- New Commercial Building, Skowhegan, ME
- New Municipal Building, Sabattus, ME
- New Multi-family Housing Project, Waldoboro, ME
- New Mid-Coast Hunger Prevention Program Food Pantry, Brunswick, ME
- Wright-Pierce Office Expansion, Topsham, ME
- Emergency Power System Buildings, Londonderry, NH
- New Office Building, Boothbay Harbor, ME
- New Manufacturing Facility, Van Buren, ME
- New Office Building, South Berwick, ME
- Marine Industrial Park Design, Eastport, ME
- Public Works, Topsham, ME
- Office Expansion, Gardiner, ME

- Railroad Trestle Bridge Conversion, Lewiston-Auburn, ME

Wastewater

- Wastewater Pump Station Design, Hampton, NH
- New SBR Building, Farmington, NH
- New Dewatering Building, Sunapee, NH
- Major Facility Upgrade, Mattabassett, CT
- New Pump Station, South Portland, ME
- New Grit Removal Facilities, Fitchburg, MA
- Wastewater Treatment Facility Upgrade, Hudson, MA
- CSO Abatement Facilities, Bucksport, ME
- New Pump Station, New Milford, CT
- New Grit Removal and Aeration Facilities, North Andover, MA
- New Septage Receiving Facility, Merrimack, NH
- New Screenings Building and Headworks Building Renovation, Berlin, NH
- New Headworks Building, Durham, NH
- Varney Brook Sanitary Pump Station Addition, Dover, NH
- Septage Treatment Facility Buildings, Yarmouth, MA
- New Headworks and Garage, Skowhegan, ME
- Wood Framed Building Design, Rockland, ME
- New West Island Wastewater Treatment Facility Building, Fairhaven, MA
- New Wastewater Treatment Facility Buildings, Thomaston, ME

Water

- New Chemical Building, Augusta, ME
- New Water Treatment Facility, Bellingham, MA
- Pump Station Addition, Sturbridge, MA
- New Pump Stations, Devens, MA
- New Water Treatment Facility, Coventry, RI
- New Water Treatment Facility, Leominster, MA
- New Water Treatment Facility, Acton, MA
- New Water Treatment Facility, Hadley, MA
- New Water Treatment Facility, Hanover, NH
- Junction Road Pump Station, South Berwick, ME
- New Membrane Water Treatment Facility, Dover, NH
- Water Treatment Facility Improvements, Wells, ME
- New Water Treatment Plant, York, ME
- Water and Wastewater Pump Stations, Bow, NH

Upgrades / Renovations / Repairs

- Upgrade to Water Treatment Facility, Bellingham, MA
- Upgrade to Wastewater Pump Station, Norwalk, CT
- Upgrade to Wastewater Pump Station, Somerset, MA
- Painting Town Hall, Old Orchard Beech, ME
- Repairs to Composting Building, Merrimack, NH
- Upgrades to Wastewater Treatment Facility, Dover, NH
- Buried Membrane for Water Storage Tank, Wallingford, CT
- Roof Replacement, Boothbay Harbor, ME

- Office Renovation, Farmington, NH
- Masonry Repairs and Roof Replacement, Lynn, MA
- Dewatering System Upgrade, Merrimack, NH
- Office Renovation, Sunapee, NH
- HVAC Improvements, Farmington, CT
- Building Improvements, Rockland ME
- Pump Station Upgrade, Sanford, ME
- Pump Station Upgrade, Cheshire CT
- Window Replacement and Masonry Repairs, South Portland, ME
- Pump Station Upgrade, Manchester CT
- Pump Station Upgrade, Dover NH
- Wastewater Treatment Facility Upgrade, Rockland, ME
- Buried Membrane at Filter Roof, Newport, ME
- Pump Station Upgrade, Waterford, CT
- Pump Station Upgrade, Old Orchard Beach, ME
- Wastewater Treatment Facility Upgrade, Limestone, ME
- Wastewater Treatment Facility Upgrade, Sanford ME
- Wastewater Treatment Facility Roof Replacement, Camden, ME
- Water Treatment Facility Upgrade, Somersworth, NH
- Dewatering Upgrade, Manchester, NH
- Pump Station Addition, Camden, ME
- Wastewater Treatment Plant Upgrade, Sanford, ME
- Process and Headworks Building Renovations and Additions, Old Town, ME
- Wastewater Treatment Plant Upgrade, South Portland, ME
- Tri-Town Septage Treatment Facility Expansion, Orleans, MA
- Wastewater Treatment Plant Expansion, Bar Harbor, ME
- Wastewater Treatment Facility Upgrade, Hudson, MA
- Wastewater Treatment Plant Upgrade, Glastonbury, CT
- Wastewater Treatment Facility Upgrade, Windham, CT

Evaluations / Studies

- Comprehensive Improvement Plan, South Portland, ME
- HVAC Evaluation, Brunswick, ME
- Comprehensive Improvement Plan, Bangor, ME
- Wastewater Treatment Facilities Evaluation, Hardwick, MA
- Comprehensive Improvement Plan, Topsham, ME
- Wastewater Treatment Facilities Planning, Newington, NH
- Comprehensive Improvement Plan, Brunswick, ME
- Wastewater Facilities Plan, Bath, ME
- Roof Evaluation, Lynn, MA
- Pump Station Evaluations, Dover NH
- Facility Plan, Orleans, MA
- Facility Plan, Dover, NH
- Feasibility Study, Wilmington, DE
- Feasibility Study, Schenectady, NY
- Historical Analysis, Old Orchard Beach, ME
- Space Needs Assessment, Waterford, CT
- Wastewater Treatment Facilities Noise Level Testing, Wells, ME

DANIEL I. PRATT, PE
Architectural Engineer

- Conducted field measurements of the noise levels around the wastewater Liquid Plastic Corporation Code Requirements, Middletown, CT
- Roof Evaluations, Durham, NH

NATHANIEL S. BALCH, PE, LEED AP

Senior Project Engineer

PROJECT ASSIGNMENT: Mechanical Engineer

Education

BS, Mechanical Engineering,
University of New Hampshire

BA, Anthropology
University of Massachusetts

Professional Registration

Maine
New Hampshire
Rhode Island
Massachusetts
Connecticut

Experience

29 Years

Joined Firm

2012

Professional Affiliations

American Society of Heating,
Refrigeration and Air Conditioning
Engineers (ASHRAE)
Durham Energy Committee,
2007-2010
Seacoast Area Renewable Energy
Initiative (SEAREI), 2010-2011

EXPERIENCE SUMMARY

Mr. Balch is a mechanical engineer in the firm's Building Services Group. Mr. Balch's areas of expertise include analysis and design of heating, ventilation, plumbing and fire suppression systems for a variety of types of projects including wastewater and water treatment facilities, pump stations, maintenance garages and laboratories, preparation of plans and specifications, energy analysis and construction administration.

Mr. Balch has been part of Wright-Pierce for two years, with applicable experience included below. Additional experience prior to joining Wright-Pierce is also included, and is marked with an asterisk.

RELEVANT PROJECT EXPERIENCE

Provided mechanical engineering design and support services for the following projects:

Wastewater Treatment Facilities

- WWTF Facility Plan, Gardner, MA
- Sludge Dewatering System Upgrade, Haverhill, MA
- WWTF Upgrade, Newmarket, NH
- WPCF Upgrade, Middleborough, MA
- WWTF Phase I Upgrade, Dover, NH
- Aeration Upgrade, Manchester, NH
- WWTF Phase 2 Compost Facility, Merrimack, NH
- Water and WW CIP Plan, New London, CT
- Treatment Facility Upgrade, Mashpee Village, MA
- Lees River Avenue Pump Station Renovations, Somerset, MA
- Worcester Road Pumping Station, Framingham, MA
- WWTF Tertiary Treatment Building, Cranston, RI
- SBR (Sequencing Batch Reactor) Building, Farmington, NH
- WWTF Dewatering Upgrade, Keene, NH
- FOG Receiving Facility, Waterbury CT
- Dewatering System Upgrade, Durham, NH

Water Treatment Facilities

- Town Drinking Water Treatment Improvements, Bellingham, MA
- MDC Wethersfield Water Pump Station, City, ST
- WTP Technology Facility Evaluation, Haverhill, MA
- Water and WW CIP Plan, New London, CT
- WTP Upgrades, Rochester, NH
- Catherine Street Reconstruction, Rochester, NH
- Upper Village New Water Treatment Plant New Gloucester, ME
- Hydraulic Modeling, Rochester, NH

Municipal Facilities

- Laboratory/Office Upgrade, Mattabassett, Cromwell, CT
- Operations Building HVAC, 1st Floor Renovations, South Portland, ME
- WWTF Emergency HVAC System Renovations, Hull, MA
- Fire Station HVAC Evaluation, Brunswick, ME
- Emergency Control Center, Portsmouth Naval Shipyard, Portsmouth, NH*
- HVAC, Plumbing & Fire Suppression, Portsmouth Naval Shipyard, Portsmouth, NH*
- Holding Cell Renovations, Burlington Federal Office Building, Burlington, VT*
- Kittery Town Hall, Kittery, ME*
- Webster St. Fire Station, Manchester, NH*
- Portsmouth City Hall Renovations, Portsmouth, NH*

Industrial/Manufacturing Facilities

- Control Building, Durham, NH*
- Building 174 Renovations, Portsmouth Naval Shipyard, Kittery, ME*
- Building 306 Renovations, Portsmouth Naval Shipyard Kittery, ME*
- Battery Charging Facility Renovations, Building 238, Portsmouth Naval Shipyard, Kittery, ME*
- Building 178 Renovations, Portsmouth Naval Shipyard, Kittery, ME*
- Berth 7 Renovations, Portsmouth Naval Shipyard Kittery, ME*
- Steam/Water/Air Utilities, Drydock 2 Renovations, Portsmouth Naval Shipyard Kittery, ME*
- Building 337 Renovations Portsmouth Naval Shipyard Kittery, ME*
- Compressed Air Piping System Renovations Compressed Air Utilities, Newington, NH*
- Plumbing Fire Protection Design, MWRA Deer Island Wastewater Treatment Plant, Boston, MA*
- Plumbing and Fire Protection Design, Depressed Artery Project, Boston, MA*
- HVAC, Plumbing and Fire Protection Design, Dover Wastewater Treatment Plant, Dover, NH*
- HVAC, Plumbing and Fire Protection Design, Lynn Wastewater Treatment Plant, Lynn, MA*

Office Facilities

- HVAC and Plumbing Design, Hangar 253 Renovations Pease Air National Guard Base, Newington, NH*
- HVAC, Plumbing and Fire Protection Design, Building 170, 5th Floor Renovations Portsmouth Naval Shipyard, Kittery, ME*
- HVAC, Plumbing and Fire Protection Design, Building 170, 6th Floor Renovations Portsmouth Naval Shipyard, Kittery, ME*
- HVAC, Plumbing and Fire Protection Design, Building 238 Renovations Portsmouth Naval Shipyard, Kittery, ME*
- HVAC, Plumbing and Fire Protection Design, Building 145 Renovations Pease Air National Guard Base, Newington, NH*

NATHANIEL S. BALCH, PE, LEED AP
Senior Project Engineer

- HVAC, Plumbing and Fire Protection Design, Building 245 Renovations Pease Air National Guard Base, Newington, NH*
- HVAC System Renovations, McCormack Federal Post Office/Courthouse Building, Boston, MA*
- HVAC System Renovations, Norris Cotton Federal Office Building, Manchester, NH*
- HVAC and Plumbing System Renovations, Building 178 2nd Floor Renovations, Portsmouth Naval Shipyard, NH*
- HVAC, Plumbing and Fire Protection Design, FBI Office Renovations, Burlington Federal Building*

Airport/Transportation Facilities

- Energy Conservation Projects (4 hangars), Pease Air National Guard Base, Newington, NH*
- HVAC System Renovations, Building 158 Renovations, Otis Air National Guard Base, Cape Cod, MA*
- HVAC, Plumbing & Fire Protection Design, International Air Terminal, Pease Tradeport, Portsmouth, NH*
- Terminal B and C, Plumbing Renovations, Logan International Airport, Boston, MA*
- Plumbing and Fire Suppression Design, Fed Ex Terminals (3 buildings) Logan International Airport, Boston, MA*

Section 4

DON'T JUST TAKE OUR WORD FOR IT

The following are references of existing clients who are located near Ledyard and are familiar with Wright-Pierce. We have completed projects for all of these clients within the last five years. They will be able to share candid opinions regarding the quality of service that has been provided by Wright-Pierce from the Middletown office. Please contact them and ask specifically about our:

- Responsiveness
- Sensitivity to local goals and objective
- Adherence to scope, project schedule, and budgets
- Attention to detail
- Ability to work with committees and stakeholder groups
- Effectiveness in dealing with state and federal regulatory agencies
- Technical knowledge



In addition to municipal references, we have included contact information for two international contract operators with many wastewater facilities in the Northeast. Veolia Water North America and United Water routinely work with many other engineering companies and can provide the Town of Ledyard with a different perspective of Wright-Pierce capabilities.

Local Client	Contact	Nature of Projects
Veolia Water North America 500 Cherry Street Naugatuck, CT 06770	Mr. John E. Batorski, Project Manager 203-723-1433	Influent pump station, aeration system, D.O. control and solids handling improvements
United Water 31 Wauregan Road Danielson, CT 06239	Mr. Glenn M. Tatro, Superintendent 860-485-9166	Aeration blower and fine bubble diffuser replacement and D.O. control system improvements
New Milford Sewer Commission Wastewater Treatment Plant 123 West Street New Milford, CT 06776	Mr. Robert Pudelka, Superintendent 860-355-1049	Septage receiving facility improvements
Town of South Windsor Water Pollution Control Facility 1540 Sullivan Avenue South Windsor, CT 06074	Mr. Fred Shaw, Town Engineer 860-644-2511	Sludge storage tank and secondary clarifier improvements

SECTION 4

CLIENT REFERENCES

Local Client	Contact	Nature of Projects
Town of Waterford Waterford Utilities Commission P.O. Box 310 Waterford, CT 06385	Mr. Jim Bartelli, Assistant Director 860-945-5299	Pump station upgrades
Town of Sprague One Main Street Baltic, CT 06330	Todd Hastings, Water & Sewer Superintendent 860-822-3005	Pump station upgrades
Town of Windham 2 Main Street PO Box 257 Willimantic, CT 06226	David Garand, WPCF Superintendent 860-465-3078	WPCF upgrade including new mechanical screens, screenings grinder wash press, influent pumps, aeration blowers, diffusers and D.O. control system
Town of Killingly 172 Main Street PO Box 6000 Killingly, CT 06239	David Capacchione, PE, Town Engineer 860-779-5360	Aeration blower and fine bubble diffuser replacement and D.O. control system improvements



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