

**YORK SEWER DISTRICT
P.O. BOX 1039
YORK BEACH, MAINE 03910**

BOARD OF TRUSTEES:

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FAX 207-363-6701

**ADMINISTRATION OFFICE
21 BAY HAVEN ROAD
207-363-4232
TREATMENT PLANT OPERATIONS
106 MAIN STREET
207-363-5896**

**ANNUAL REPORT OF THE YORK SEWER
DISTRICT**

Since the early 1950's the collection and treatment of wastewater has been under the guidance of the York Sewer District. The District currently operates and maintains over 30 miles of collection system piping and twelve large pump stations. Some of the pump stations operated by the District are capable of pumping millions of gallons of wastewater per day and almost 100% of the Town's wastewater must eventually be pumped to the wastewater treatment facility.

In 1985 special legislation was passed to revise and modernize the District Charter essentially to mirror state law governing sewer districts. Through the years only two other changes have occurred modifying the Charter, the most recent happening just over a year ago. Copies of the Charter are available at the District Office.

IMPACT FEE BY-LAWS FOR SEWER CONNECTIONS

Prior to 1990 the Sewer District recognized that significant capital improvements needed to take place involving the wastewater treatment plant and the necessity to increase capacity due to increased development.

With this thought in mind, the District developed a set of Impact By-Laws with a fee structure aimed at putting the financial burden of increasing capacity on new development. The District's intention was to minimize the impact of plant expansion on existing customers since it was the increasing demand for new service which would make it necessary for a \$7,500,000.00 dollar investment to increase capacity.

YORK SEWER DISTRICT

BY - LAWS TO ESTABLISH A SEWER IMPACT FEE FOR DISTRICT SEWER CONNECTIONS

Section 1. Purpose and Intent.

The York Sewer District determines and declares that:

- (a) Increased residential and commercial property development within the Town of York has created a need to undertake capital improvements to the existing capacity of the District's sewage treatment facility in order to accommodate and treat the increased sewage flow directly produced and generated by this increased development.
- (b) There now exists a need to create a method whereby the costs of the capital improvements to the existing sewage treatment facility made necessary by this increased development can be allocated evenly, fairly and equitably among those persons, firms or corporations creating this demand for capital improvements to the sewage facilities capacity.
- (c) To address this need for capital improvements to the treatment facility, the District hereby intends to create and establish a Sewer Impact Fee to be paid into a separate and distinct fund to be known as the "Sewer Impact Fee Fund" with the proceeds in this fund being applied solely towards the overall capital costs of financing the necessary capital improvements to the sewage treatment facility to increase and enlarge the sewage capacity required by the increased development demands.
- (d) The purpose of these by-laws is to assure that new development bears a proportionate share of the cost of capital expenditures necessary to provide sewer facilities in York.
- (e) The York Sewer District hereby ordains the following by-laws, which is intended to assist in the implementation of the Town of York Comprehensive Plan and the York Sewer District's Facilities Planning.

Section 2. Sewer Impact Fee

- (a) Use of Funds: Funds collected for Sewer Impact Fees shall be used solely for the purpose of acquiring, equipping and/or making capital improvements, along with all costs related thereto, including but not limited to engineering, legal and financing costs, to the sewage treatment facility under the jurisdiction of the York Sewer District.

(b) Time Payable: A Sewer Impact Fee shall be due and payable by the property owner and a permit must be issued by the District prior to: the connection of any sewer line to the sewage collection system, upon the issuance of any plumbing permit for additional plumbing fixtures, any change in use or intensity of use of any property already connected to the sewage collection system, or when water consumption records show a property exceeding the flow established and permitted for that property. Said Sewer Impact Fee is to be determined as provided in Subsection (c) below.

(c) Calculation of Fee: The Impact Fee is based on the volume of flow generated by the average dwelling unit, which has been determined to be 175 gallons per day. The by-law uses this amount as the basic unit for determining the amount of the fee. As a unit of measure the equivalent dwelling unit (EDU) allows comparison of residential and non-residential uses so that all categories of projects can be consistently and uniformly assessed their fair share of the cost of sanitary sewer facilities to serve growth.

Development is viewed as falling into one of two categories: residential or non-residential development. For both residential and non-residential, the amount of the Impact Fee will be based on the number of the EDU's proposed for the property. An amount of \$2,500 per EDU or fraction thereof has been established by the York Sewer District.

Residential Development

For residential development, each living/dwelling unit will be considered an EDU. A single family home will equal one EDU, for a multiple family property, each living unit shall constitute an EDU. The amount of the Impact Fee is then calculated by multiplying the number of living units by \$2,500 to equal the total fee.

For single family, multi-family, including condominiums that are already tied to the sewer system and plan on increasing their flow by adding plumbing fixtures, a fee of \$100 per added fixture will be charged.

Non-residential Development

Application for permit to change use, intensify use, or connect to District facilities requires that the applicant present engineering design data satisfactory to the District projecting the amount of wastewater flow to be generated by the proposed project. The District will also use the Design Flow Table from the Maine Subsurface Wastewater Disposal Rules as listed in the Maine State Plumbing Code, other related manuals and materials, water use records of like uses, the District's professional engineers estimate of flow, or other reasonable means to determine the flow for a particular use or project. When there are multiple uses within a structure, each use shall be subject to a separate Impact Fee.

Impact of the proposed development is calculated by dividing the projected flow by 175 gallons per day (EDU); this will provide the number of EDU's. The Impact Fee will then be calculated by multiplying the number of EDU's times \$2,500 (1 EDU) to arrive at the final amount to be paid. Properties will be permitted for the above calculated flow amount. Should future use records indicate an increase over that amount an additional Impact Fee shall be calculated as the difference between the permitted amount and the amount of flow over the permitted flow.

Section 3. Sewer Impact Fee Fund

(a) A Sewer Impact Fee Fund is hereby established and shall be the depository for all Sewer Impact Fees collected by the Enforcing Officer under the terms of these by-laws. Said Fund shall be segregated by the District from general revenues and shall be used solely and exclusively for the purposes set out in Section 2 (a). All monies so accumulated in this Fund except to finance a debt for improvement under Section 2 (a) shall be expended by the District for the specific purposes stated herein within ten (10) years of their collection and deposit therein. Monies accumulated to finance a debt for an improvement under Section 2 (a), need not be expended within ten years, but must be expended before retirement of the debt.

(b) The proceeds in this Fund may be expended in concert with other revenues and planned expenditures or capital improvement funds or Town funds but only for capital improvements to the sewage treatment facility as distinct from expenses for the maintenance and repair to the existing sewage treatment facility. Funds shall be expended in the order in which they are collected.

(c) In the event that bonds or similar debt instruments are issued for advanced provision of capital facilities for which sewer impact fees may be expended, impact fees may be used to pay debt service on such bonds or similar debt instruments to the extent that the facilities provided are of the type described in Section 1.

(d) Funds may be used to provide refunds as described in Section 4.

Section 4. Refunds of Fees Paid

Any funds not expended or encumbered by the end of the calendar quarter immediately following the term defined in Section 3 (a) from the date the sewage treatment facility impact fee was paid, except funds accumulated to finance debt for improvement under Section 2 (a), shall, upon application of the then current landowner, be returned to such landowner with interest at the then current rate per annum, provided that the landowner submits an application for a refund to the District within 180 days of the expiration of the period in Section 3 (a). The landowner may also waive their right to the refund if so desired.

Section 5. Existing Connected Structures, Exemptions and Credits

(a) The Sewer Impact Fee required by the provisions of these by-laws shall not apply to any building, structure or dwelling already connected to the sewerage system as of the effective date of these by-laws, except, that any change in the use, intensity of use, character or site of any such building, structure or dwelling after the effective date of these by-laws which results in additional sewage flow shall not be exempt from the Sewer Impact Fee. For purposes of this provision, additional flow shall be defined as any

increase in the number of fixture units over that existing as of the effective date of these by-laws or any change in the use or intensity of use of nonresidential property resulting in an increase in the wastewater discharge over that existing or reasonably estimated to have existed as of the effective date of these by-laws or by issuance of a permit to add flow to the District's facilities.

(b) The following shall be exempt from payment of the impact fee:

(1) Alterations or expansion of an existing building where no additional sewage flow occurs and no change in use occurs.

(2) The replacement of a building or structure with a new building or structure of the same size and use where no additional sewage flow occurs.

(3) The installation of a replacement mobile home on a lot or other such site when a sewer impact fee for such mobile home site has previously been paid pursuant to these by-laws where no additional sewage flow occurs, or where a mobile home legally existed on such site on or prior to the effective date of these by-laws.

Section 6. Enforcing Officer

These by-laws shall be enforced by the York Sewer District's Superintendent or his duly authorized deputy or agent or any other person duly authorized by the District's Trustees to enforce these by-law.

Section 7. Severability

If any section, phrase, sentence or portion of these by-laws is for any reason held invalid or unconstitutional by any court of competent jurisdiction, provision, such portion shall be deemed a separate, distinct and independent provision, and such holding shall not affect the validity of the remaining portions thereof.

Section 8. Effective Date

These by-laws shall take effect on January 11, 1990.

PASSED AND DULY ADOPTED THIS 11 Th DAY OF January , 1990.

Amended January 24, 2002 to increase the fee from \$2000 to \$2,500 per EDU.

By-Law language amended January 5, 2006.

By-Law language amended May 3, 2007

YORK SEWER DISTRICT OBJECTIVES

The primary objective of the York Sewer District is to protect the public health and environment from sources of pollution due to wastewater generation. The District works closely with municipal planners to prioritize areas in need of public sewer and by following the requirements of the Comprehensive Plan. Following the direction of the Comprehensive Plan, the District has expanded the collection system into numerous areas of York.

The most recently completed project involved high priority areas to provide public sewer for the protection of public health, welfare, and benefit of its inhabitants. The project also afforded the Town an opportunity to fully reconstruct roadways, make large scale drainage improvements, and make roadway modifications to increase public safety. This was all made possible by the District making extremely low interest financing available to the Town over an extended period of time. The project area encompassed Cow Beach, Long Sands Road, and York Heights.

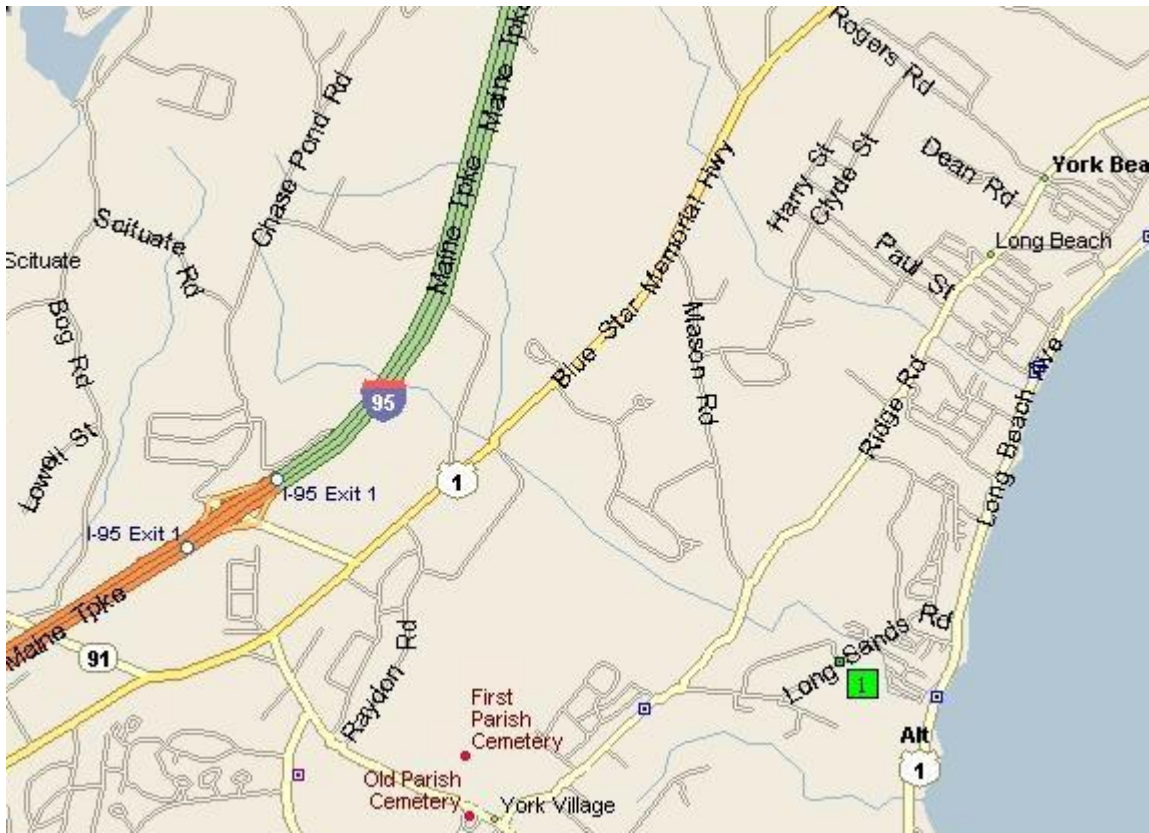
Due to technology advances and cost saving measures used on the project, the District and a representative of F.R. Mahoney were recently selected to present a paper on the project to the New England Water Environment Association at its annual conference. A copy of the paper is reprinted here.

The Community of York, Maine Reaps the Benefits of Low-Pressure Sewer Technology NEW ENGLAND WATER AND WASTEWATER NEWS LEAD ARTICLE FEBRUARY 2007

January 24, 2006

By Henry Albro and Tim Haskell

The Community of York, located on the southern coast of Maine enjoys a steady year round population as well as a great deal of tourism. York is known for its beautiful coastal scenery, historical background and proximity to outlet stores. Many visitors to Maine make York their first stop along the way and stop to visit popular locations such as the York Harbor and York Beach.



¹Officially named York in 1642 after the fall of the loyalists, York has transformed and grown to become a very wonderful community. The Town's historical records state that the first sidewalks and public sewers were constructed in York Beach Village. The evolution of the governmental structure of York has seen the development of sub-towns incorporated under separate governmental entities. The maintenance of separate services and the passage of time have resulted in a combined Town Government incorporating these previously separate communities within the present day York.

The York Sewer District, established in 1951, operates the public sewer collection system and wastewater treatment facilities. The YSD operates a system of gravity collection systems with lift stations that have been constructed and expanded over the years. York has developed comprehensive plans for growth and the expansion of services, including public sewers.

In 1999 the YSD began to look at two new sewer service areas known as Long Sands and Cow Beach. The combined project areas service 262 homes and an elementary school.

Design Approach

¹ York, ME historical information collected from the official York Maine website www.yorkmaine.org.

The project areas were placed under design review and cost evaluation. The Cow Beach area was commissioned to the local engineering firm of Anderson-Livingston. The Long Sands project was commissioned to the engineering firm of Weston & Sampson.

Cow Beach

The YSD originally requested designs showing a conventional gravity approach with a central pump station for the Cow Beach area. Due to the proximity of existing structures and the topography, it was necessary to locate the pumping station in a "Shore land Zone" near environmentally sensitive areas and near a beach area that was prone to flooding. During the planning stages the Planning Board and Zoning Board rejected this location. The gravity sewer designs also presented another set of issues. Several deep cuts of 18-20 feet in solid ledge would be required to maintain gravity flow over 600 linear feet. Due to these factors design costs alone were over \$50,000 dollars. This seasonal community would be severely affected by this type of construction. It became clear that the current approach was far too costly and many design and construction obstacles remained to be settled. The project budget of \$1.8M was clearly unreasonable and another alternative had to be found.

Sewer Superintendent, Tim Haskell had formerly operated Low-pressure sewer systems in Amesbury, MA and saw this technology as a possible way to make sewer service affordable for these projects. The District clearly wanted to explore and verify the cost options of gravity sewers and low-pressure sewers. A requirement of the SRF funding was that alternative methods be evaluated to provide the best cost alternative.

The YSD requested the designers modify the existing plans to show a low-pressure sewer alternative. The low-pressure sewer utilizes smaller diameter pipelines that are installed below the frost depth. The wastewater is transported through these lines by individual household grinder pumps. It was believed that the LPS technology would provide a substantial cost savings.

The added cost to revise the engineering plans was approximately \$9,000. The District supported this cost and was the only engineering amount added to the assessments. The original gravity sewer design cost was not placed on the resident's assessments. Local review by the Planning Board and Zoning Board were not required on the LPS system, as the individual house pump stations were not considered structures, since only the top few inches are exposed. All piping for the project was in the right of way and again did not require any in depth review. Now the District had a viable project with no more environmental or planning issues to solve.

Long Sands

Complete “conventional” sewerage for this area was expected to require pumping in some areas. The low-pressure sewer technology was deemed to be the most effective means to accomplish this. Cost comparisons were made with (4) four lift stations as an alternative in order to provide full gravity sewer service to the homes. At an estimated cost of \$85,000 each, pumping stations were quickly ruled out. The YSD chose to continue with their plans to use LPS and gravity as their design approach. Therefore the design of this project was based on a hybrid approach with gravity sewers utilized in areas of higher lot density and where standard construction methods could be used. Areas that were more difficult to service with gravity sewer were designed with low-pressure sewer technology. Approximately 80 of the 200 properties to be serviced in this area would be serviced by grinder pumps.

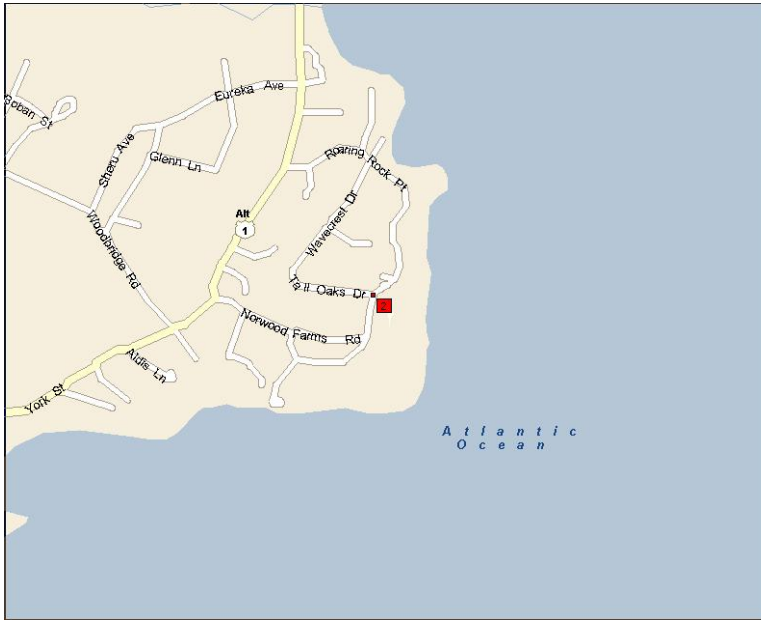
Construction Planning

The YSD developed a public notification plan to review the alternatives and to provide public education to the citizens. In the fall of 2001 the District began scheduling a series of public meetings to discuss the sewerage options with the residents. Presentation of the LPS technology to the residents began in January of 2002. A citizen advisory committee inspected several existing LPS systems to evaluate the long term performance and reliability of this technology. After review of the project cost benefits and evaluation of the reliability of existing systems the York Sewer District moved forward with establishment of its first LPS system.

While low-pressure sewers have a long and well documented history, the YSD was embarking on something new. The YSD had to make some decisions regarding the scope of involvement and how this system would be managed and operated. It was decided to have the YSD manage the selection, installation and maintenance of grinder pumps within the service areas. The District reviewed the performance history of LPS systems.

The YSD decided to standardize the low-pressure system's grinder pumps to one manufacturer and developed bidding specifications to meet their needs. The YSD was approved to utilize a sole source purchasing by the Maine DEP in order to achieve this goal. A two-year contract was awarded to Environment One Corporation through the local representation of F. R. Mahony & Associates, Inc. The contract included the delivery of 160 grinder pumps to the District. The sewer construction was modified to meet the new design.

Cow Beach



The Cow Beach Project included 62 grinder pumps and 6,381 feet of LPS mainline and 7,165 feet of LPS service lines. The total construction cost for this project including the installation of the pumps was \$868,607.50. The District saw a noticeable savings as the engineer's original estimate for this project was \$1,875,000. The average cost per foot of LPS main and service lines was \$51.60 per foot. The pump installation cost per home was \$2,650.00. The Cow Beach area was completed in a 5 month timeframe under a compressed seasonal construction plan.

²Cow Beach Unit Costs for Mainline Work

3-Inch LPS Main	1602 LF	\$20.00
3-Inch LPS in Ledge	1600 LF	\$49.00
2-Inch LPS Main	1882 LF	\$17.75
2-Inch LPS in Ledge	1279 LF	\$47.00

Cow Beach Unit Costs for Service Line Work

1-1/2- Inch Service	3,770 LF	\$19.75
1-1/2-Inch Service in Ledge	2,815 LF	\$41.50
2-1/2-Inch LPS Service	0 LF	\$16.755
2-1/2 Inch LPS Service in Ledge	580 LF	\$48.00

Cow Beach Unit Costs for LPS Appurtenances

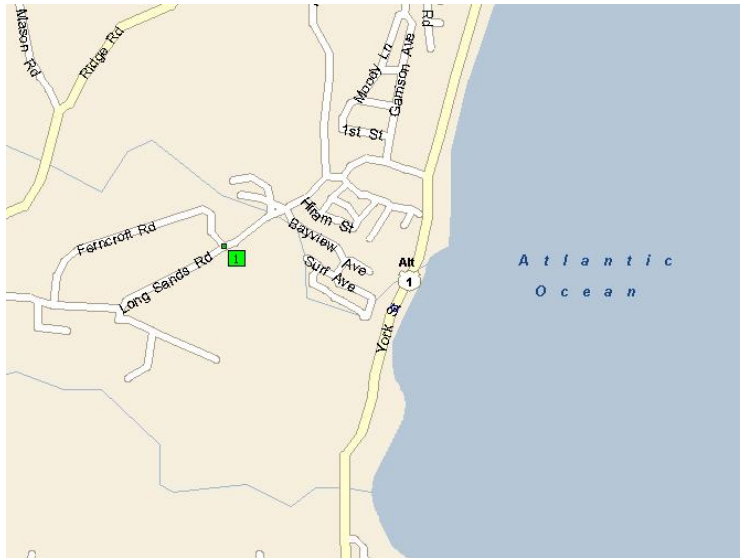
Flushing Manhole	8 Each	\$350
Flushing Manholes in Ledge	15 Each	\$475

¹ Bid tabulations from Payment Requisition Form

Other unit pricing included items such as paving restoration, loam and seed work, test pits and other typical construction pay items.

Long Sands

The Long Sands project area was found to be more conducive to a hybrid combination of gravity and low-pressure sewers.



The terrain and higher lot density in the Long Sands area made it easier to serve portions of this area with gravity sewers.

This area was served by a mix of 8 and 10-inch gravity sewers and 2 and 3-inch PVC LPS mains. 113 gravity sewer services and 81 household grinder pump installations were

included in the final scope of supply. The Long Sands project also included several Public Works improvements that were included in the construction contract. The YSD included road improvements, water line improvements and replacement of box culverts that accounted for \$300,000 of the total project cost.

³Long Sands Unit Costs for LPS Mainline Work

3-Inch LPS Main	1800 LF	\$18.00
3-Inch LPS in Ledge	1675 LF	\$44.00
2-Inch LPS Main	1500 LF	\$16.00
2-Inch LPS in Ledge	2700 LF	\$43.00

³ Bid tabulations from Payment Requisition Form.

Long Sands Unit Costs for Gravity Mainline Work

8-Inch PVC 0-12 feet	3,600	\$38.00
8-Inch PVC 0-12 feet in ledge	4,250	\$60.00
10-Inch PVC 0-12 feet	1,100	\$40.00
10-Inch PVC 0-12 in ledge	1,250	\$65.50
10-Inch PVC >12' in ledge	1,030	\$77.50

There were again several other key bid items that are standard with sewer construction and are too numerous to list here. These included such items as, 590 sewer manholes, 900 feet of 6-inch forcemain, roadway restoration items, etc. The total project cost of \$2,038,833.84 resulted in an overall average cost per pipeline foot of less than \$71.

Grinder Pumps

During construction, the staff of the York Sewer District was provided with installation and service training at their Bay Haven Road Wastewater Treatment facility. The staff of the YSD took an active role in the oversight of pump installation and start up. Pumps were delivered to the WWTF in bulk deliveries and taken to resident's homes for installation by the general contractor. Each pump start up was controlled by the YSD and verified by service staff of F. R. Mahony & Associates.

It should be noted that the low-pressure sewer portions of each project included the installation of the grinder pump and service for each property.

Conclusion

The project enjoyed an overall success. In the words of Tim Haskell "this was a textbook case for low-pressure sewers". The greatest obstacles faced by the District were the work of private property installations. Defining the scope of bidding for each property clearly made for a difficult task. The wide range of landscaping from home to home proved to be a challenge. While intended as a means to provide uniform costs to each resident and to gain the lowest installation cost, it was hard to satisfy all of the resident's expectations of lawn and yard restoration. The District will most likely look at this policy with greater scrutiny for future projects.

The York Sewer District is quite pleased with the project results and the cost savings to the system's users. The project was completed on time and under budget. The resultant average cost per home was \$14,500 including the installation of main lines, service laterals, and pump installation on the Cow Beach Project.

The average per property cost on the Long Sands Project was approximately \$11,000 dollars, mainly due to the higher density of homes to share the costs.

Henry Albro is an associate of F.R. Mahony & Associates, 273 Weymouth Street, Rockland, MA. He has over 25 years of previous experience as wastewater and collections systems Operator and Superintendent.

Tim Haskell is the Sewer Superintendent of the York Sewer District, 21 Bay Haven Road, York Beach, ME and has previously served as DPW Director in the Town of Amesbury, MA and has 24 years of construction and operating experience.

MAIN STREET/SHORE ROAD SEWER EXTENSION

The Main Street and Shore Road Project was officially terminated during the Summer of 2007 due to high costs and lack of support for the project.

LONG BEACH PUMP STATION UPGRADE

The District has planned and is currently upgrading the Long Beach Pump Station. This station dates back to the early 1970's and pumps approximately 90% of the total wastewater flow of the Town. All internal mechanical equipment will be replaced to current standards and additional pumping capacity will be added. The overall investment in this upgrade is expected to be just under one million dollars and will be completed in April of 2009.

CAPE NEDDICK RIVER TESTING

The District has always strived to maintain strict control over our treatment process and to treat discharge waters as thoroughly as possible. In fact, some of the wastewater discharge limits are more restrictive than drinking water standards for water entering your home.

Our receiving waters are a primary concern of the District and over the last few years we have developed a partnership with the Town and the Cape Neddick River Association. Our goal has first been to educate everyone on our process and controls associated with the treatment and discharge of water and then to work together on the improvement of water quality.

The Cape Neddick River Association has donated countless hours of volunteer time to collect samples and perform water testing in our lab. The District has contributed staff time, equipment, and financial support for the testing programs. The Association had also worked with local boy scouts to perform a river assessment, looking along the banks of the River for indicators of probable sources of pollution. Out of this testing program it was determined that e-coli bacteria was being found in higher concentrations in some areas; however, since e-coli is found in all warm blooded animals and birds, it was difficult to determine the actual source.

The District contributed financial support to hire Dr. Stephen Jones of the University of New Hampshire, to further test samples to make positive identification of the e-coli

and determine if the source were human, animal, or foul. The testing was done by examining DNA fragments of the e-coli collected in the watershed. Results of the study and assessment of the watershed all pointed to the need of educating watershed property owners of the affects of water runoff from properties, and the need to hire an additional code enforcement officer to enforce existing Town rules, ordinances, and laws pertaining to buffer areas and septic pumping, etc. To those ends the Town hired a new CEO/Shoreland enforcement officer in 2007. The District continues to support and contribute to the improvement of the quality of the water in and around the Cape Neddick River.

OUTFALL DIFFUSER PROJECT

The District discharges treated water into the mouth of the Cape Neddick River. A device that mixes the flow from the discharge with the water in the river and ocean is referred to as a diffuser. The original diffuser designed in 1974 for the District's discharge or outfall pipe, was very simple and provides for minimal mixing. Of course at that time the goal was to eliminate raw sewerage from being discharged as was the norm for communities along coastal areas and rivers.

Due to various storm events etc. some damage has occurred to the end of the outfall. Since work was being considered on the pipe the District approached the Department of Environmental Protection and requested that a new design be considered which would greatly increase the efficiency and mixing capacity of the diffuser. Since the District is always working hard to maintain the health of the river and ocean, when DEP indicated that a new diffuser design would indeed increase mixing many times over the current design, the decision was an easy one to make.

The final design and permits are in place for replacing the existing designed diffuser with the new design late this spring. The District has invest approximately \$250,000.00 dollars in this effort to help protect the health of the river.

Replacement of the diffuser was completed late Spring of 2007.

TREATMENT PLANT OPERATION

The District operates and maintains a system of piping to collect wastewater and pump stations to transport this water to a treatment facility located in York Beach. The treatment facility uses a biological process to naturally remove various components in the wastewater. Biosolids removed during the treatment process are recycled and put to environmental use such as compost material. A description of the process utilized and the plant expansion of the early 1990's follows.

YORK SEWER DISTRICT WASTEWATER TREATMENT FACILITY UPGRADE

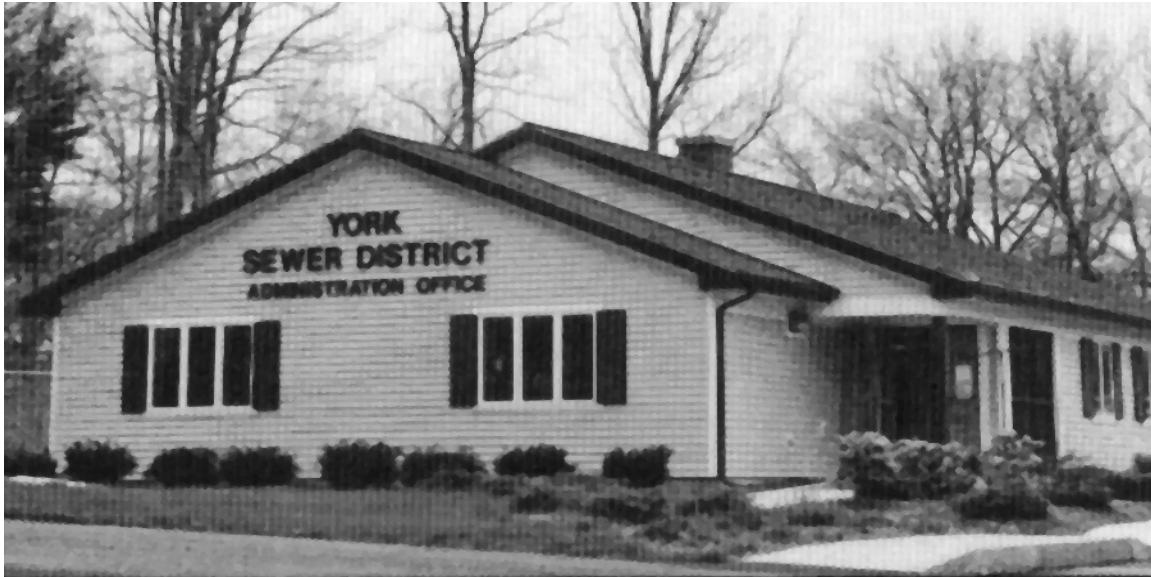


Background

The Town of York has been a summer resort area for many years, and has seen moderate growth in both the year-round and seasonal populations. Since the mid-1980's these populations have increased substantially.

The original secondary treatment plant was constructed at the current site in 1975. It was designed to treat an average daily flow of 1.6 million gallons per day (mgd) and a peak flow of 4.5 mgd. The current treatment facility was designed to serve York for approximately 20 years; however, due to the increased population growth of the 1980's, flows to the facility had reached design levels by 1990.

In 1990, the York Sewer District, which owns and operates the treatment facility, obtained the services of Wright-Pierce Engineers to design an upgraded facility at the existing site. In 1994, the new facility went on line, providing treatment for an average flow of 3.0 mgd and a peak flow of 7.5 mgd.



PROCESS FLOW

A. Headworks

In the headworks wastewater receives preliminary treatment by mechanical screening and grit removal prior to flowing to the aeration basins. Preliminary treatment is provided to protect downstream piping and equipment from damage and plugging, and to reduce the quantity of grit collected in the aeration basins.

B. Aeration Basins

From the headworks wastewater flows to the existing aeration basins where bacteria provide secondary treatment by breaking down wastes and converting it to cell mass (sludge), water, and CO₂. This biological treatment requires air which is introduced into the aeration tanks by aeration blowers and fine bubble ceramic diffusers.

C. Clarifiers

From the aeration basins the wastewater flows to two new 70 foot diameter clarifiers each covered by an aluminum dome. In the clarifiers, sludge settles to the bottom of the tank and clarifier wastewater flows out to the chlorine contact tank for disinfection. A portion of the settled sludge is pumped back to the aeration tanks to maintain the bacterial population and a portion is wasted to the sludge holding tanks.

D. Disinfection System

From the clarifiers, treated wastewater (effluent) flows to the chlorine contact tanks where liquid chlorine is introduced to disinfect the effluent. Before the disinfected effluent is discharged to the ocean in Cape Neddick, sodium bisulfite is added to remove any residual chlorine that was not used during the disinfection stage.

E. Sludge Pumps

The return sludge pumps return activated sludge from the clarifiers to the aeration basins. The sludge can be returned to the headworks, the aeration splitter box or directly to the aeration tanks.

F. Waste Pumps

The waste sludge pumps, waste excess sludge generated during the biological treatment of the wastewater and pump the sludge to the sludge holding tanks.

G. Belt Filter Press Feed Pumps

The belt filter press feed pumps feed the sludge stored in the sludge holding tanks to the belt filter press which dewateres the sludge prior to disposal.

H. Dewatering System

The dewatering system is comprised of a two meter belt filter press, polymer feed and lime stabilization system. This system reduces the volume of sludge that must be disposed of.

I. Plant Water System

The plant water system provides washwater to the belt filter press, to hydrants located around the treatment plant and to a foam control system located in the aeration tanks.

J. Influent Pumps

The majority of the wastewater flow coming to the treatment facility is pumped to the plant by the Long Beach Pump Station. The gravity portion of the flow enters the treatment facility at the influent pump station where it is pumped to the headworks. In addition, belt filter press filtrate and spray wash water flows to the influent pump station.

K. Sludge Holding System

Excess sludge generated during the biological treatment of the wastewater is wasted to the sludge holding tanks where the sludge is stored until it is dewatered by the belt filter press. The sludge is aerated while it is stored to prevent odors and to further stabilize the sludge.