Town of North Stonington
Water Pollution Control Authority
Regular Meeting
New Town Hall Conference Room
40 Main Street
August 25th 2022
7:00 PM

AGENDA

1. Call to Order
2. Roll Call
3. Public Comment*
4. Approve Minutes: Feb 24th 2022, Oct 28th 2021, June 24th 2021, Sept 24th 2020
5. Old Business
    a. Water Testing and WPCA Plan
        i. Report on Draft Plan by Bill Warzecha
    b. WPCA Regulation update
        i. Report on Draft Plan by Bill Warzecha
6. New Business
7. Adjourn
8. Next meeting date: September 22nd – 7:00 PM

*The Water Pollution Control Authority respectfully requests that public comments do not exceed two (2) minutes per person in respect for everyone's time.

Town of

North Stonington Connecticut

WATER POLLUTION CONTROL AUTHORITY

REGULAR MEETING MINUTES

Thursday – February 27th 2022 – 7:00 PM
New Town Hall – Conference Room
40 Main Street
North Stonington, CT 06359

1. **CALL MEETING TO ORDER:** Chair Currier called the Regular Meeting of the North Stonington WPCA to order on Thursday, February 27th 2022, at 7:00 p.m.
2. **ROLL CALL:**
   MEMBERS PRESENT: Chair Bradford Currier, Vice-Chairman Carl Johnston, Robert Boissevain, Andrea Sadowski.
   MEMEBRS ABSENT: Secretary Ryan Mason.
   STAFF PRESENT: William Warzecha – Water Sewer and Infrastructure Consultant.
   STAFF ABSENT AND EXCUSED: Planning, Development & Zoning Official Nathan Reichert.
   SELECTMAN PRESENT: None
3. **PUBLIC COMMENT:** None
4. **APPROVAL OF MINUTES:**
   28 Jan 2022 minutes approved: moved by Carl Johnston, 2nd by Robert Boissevain – unanimous approval.
5. **OLD BUSINESS:**
   a. Bill Warzecha - Plan and development update.
      i. Need to be tweaked by Nate within the next weeks.
      ii. Add in west end Rt2 zone.
      iii. Talked about language for the west end Route 2 sewer district.
      iv. Maps and possible soils.
   b. Bill Warzecha – Water sampling. Has locations Billings and Wyassup samples – safe for swimming. Talked about sampling done by Wood River / Pawcatuck / Westerly Water Authority.
6. **NEW BUSINESS:**
7. **ADJOURNMENT: Discussed moving the time and possible new members prior to motion to adjourn.** moved by Andrea Sadowski, 2nd by Robert Boissevain – unanimous approval.

   Meeting Adjourned at 8:10 PM.

   Next regular meeting is set for March 24th 2022 at 7:00 PM in the New Town Hall Conference Room.

Respectfully Submitted,

Carl Johnson

Acting Secretary

Town of

North Stonington Connecticut

WATER POLLUTION CONTROL AUTHORITY

REGULAR MEETING MINUTES
Thursday – October 28th 2021 – 7:00 PM
New Town Hall – Conference Room
40 Main Street
North Stonington, CT 06359

1. **CALL MEETING TO ORDER:** Chair Currier called the Regular Meeting of the North Stonington WPCA to order on Thursday, October 28th 2021, at 7:00 p.m.
2. **ROLL CALL:**
   MEMBERS PRESENT: Chair Bradford Currier, Vice-Chairman Carl Johnston, Robert Boissevain, Andrea Sadowski.
   MEMEBRS ABSENT: Ryan Mason.
   STAFF PRESENT: William Warzecha – Water Sewer and Infrastructure Consultant. Planning, Development & Zoning Official Nathan Reichert.
   SELECTMAN PRESENT: None
3. **PUBLIC COMMENT:** None
4. **APPROVAL OF MINUTES:** None
5. **OLD BUSINESS: None**
6. **NEW BUSINESS:**
   a. New Staff was introduced. Bill Warzecha has been hired by the 1st Selectman to serve as a water and sewer consultant for the Town. Bill grace a brief introduction about himself and told of his long history as a State of Connecticut employee within the Water section of the Department of Energy and Environment.
   b. Nathan Reichert the Town's new Planning, Development and Zoning Official was introduced to the group. Nate talked about his qualifications and was welcomed as a member of the Town staff assigned to aide WPCA.
   c. Water Testing and WPCA Plan – The Staff discussed a vision for updating the WPCA's sewer avoidance plan including possible water testing around Town. Authority members by consensus endorsed the general outline provided by staff and await the development of draft materials in the coming months.
7. **ADJOURNMENT: Motion to adjourn.** moved by Andrea Sadowski, 2nd by Robert Boissevain – unanimous approval.
   Meeting Adjourned at 8:00 PM.
   Next regular meeting is set for November 18th at 7:00 PM in the New Town Hall Conference Room.

Respectfully submitted

Nathan Reichert
Planning, Development and Zoning Official

Town of

North Stonington, CT

Water Pollution Control Authority

REGULAR MEETING
of the WPCA
Thursday, June 24, 2021
7:00pm Education Center Media Center
298 Norwich Westerly Rd.
Draft Minutes

Call to order & Roll Call: Chairman B. Currier called the meeting to order at 7:02pm with Members Present: B. Currier, C. Johnston, B. Boissevain, R. Mason & Ex-oficio member M. Urgo and Staff, Juliet Hodge, PDZO
Members Absent: A. Sadowski

Public Comment: None

Approval of Minutes: The minutes of the regular meeting held on 5/20/21 and special meeting held 4/29/21 were accepted as written.

Election of a Secretary: None of the members present were willing to take on the position of Secretary. M. Urgo informed the members that when J. Hodge leaves, her replacement will not likely staff the WPCA. One of the members will have to take minutes. He urged B. Currier to reach out to A. Sadowski to see if she wanted to continue to serve. If not, he will find a potential replacement, and that person would be willing to take minutes

Water testing and WPCA Plan: J. Hodge went over the RFP that went out and answered questions. When the Bids come in, the WPCA members will review and discuss them at their July 22nd meeting and make a recommendation for further action for the BOS to consider at their July meeting or at a special joint meeting with WPCA & BOS. J. Hodge will send the RFP out to additional companies and to seCTer/PTAP.
J. Hodge went through the Sewer Plan outline she drafted for the WPCA to work with. She will ask B. Carlson to reach out to LLHD to see if they have records on all approved and all failed Septic systems installed over the last 40 years. She will ask J. Russel if a map can be made based on addresses to shoe the amount and location of new development in the same time frame so that testing locations can be determined. J. Hodge will ask the State for any information or results from water testing they may have done over the years.

Adjourn: Motion was made and seconded (R. Mason/C. Johnston) to adjourn at 7:44pm. Motion Passed

Respectfully submitted,
Juliet Hodge, PDZO

TOWN OF

NORTH STONINGTON, CT

WATER POLLUTION CONTROL AUTHORITY

REGULAR MEETING
of the WPCA
September 24, 2020
7:00pm Via Zoom

Draft Minutes

Chairman B. Currier called the Special Meeting to Order at 7:01pm

Members Present: B. Currier, B. Boissevain, & C. Johnston

Members Absent: A. Sadowski & R. Mason

Staff: J. Hodge,

Guests: Selectmen, M. Urgo, N. Kincaid and B. Carlson; Ken Labbe, Consultant, Grace Kasprzak, student, and Eric McPhee, DPH were also present. Lori Mathieu, DPH joined at 7:30pm.

J. Hodge to take minutes in the absence of A. Sadowski.

Update from K. Labbe and M. Urgo on Water/Sewer Projects.

K. Labbe updated the WPCA and others present on how he initially got involved with the Town and his background in general. He provided an overview of some of the expressed need for water and/or sewer infrastructure to select parcels along Frontage Rd., Pendleton Hill Rd. and Rte. 2 between I95 and the Rotary and presented several scenarios on how to move forward. K. Labbe provided a document providing details. KOA is still the driving force as they are still having to truck water in to meet the demand. K. Labbe stated he has been interviewing all property owners who might have interest including the CFO for the MPTN, D. Nettleton (WPCA Stonington) and B. Beauregard (Westerly Water). K. Labbe is looking at a phased approach and reviewed several options including creating a municipally sourced water system financed by private owners; creating a municipal water system that consists of tying together the various wells on the parcels interested in having public water, and the option of developing new wells on private property to tie in. He discussed the Town's Exclusive Service Area status and the regulatory issues of buying or selling water or connecting to Westerly wells as part of a more regional system.

Some scenarios explored involved running a line under the Shunock River which would raise the cost of the project significantly; or having to cross the Rotary. One plan being explored would initially avoid crossing any highway or the river to get water to KOA- as they are the priority. The use of a water tower was also discussed.

The WPCA and K. Labbe discussed Westerly Water and the resources they may bring to the table as well as a potential role for the MPTN as they own property in the Utility Extension area as well.

Eric McPhee from DPH introduced himself and commended the Town on being proactive. He agreed that a phased approach was best when trying to serve or develop a corridor. He discussed possible funding through the CT Drinking Water Revolving Loan Fund as KOA would qualify for such funding given their current issues with water "quality and quantity" – a threshold for qualification. E. McPhee went over other funding mechanisms, the timing, and complications of each.

B. Carlson asked for more detail on the various scenarios being considered.

Lori Mathieu had joined the call at 7:30 and provided additional information on the funding options as well as giving some history on Westerly's previous efforts to develop a well in North Stonington. She discussed the complications of water coming from Westerly explaining that they cannot simply extend their pipes into CT. Westerly is excluded from the ESA process – being in a different state – but they can sell water to CT. She stated that it was great for the towns to work together and that regulations were improving. She stated that the CT DPH currently has a MOU with Westerly. She stated that the DPH is here to help in any way they can especially since KOA is a regulated water system.

C. Johnston stated that he liked K. Labbe's idea to cross the Romanella property to connect to the Vineyard and then across to KOA, and agreed that the other later phases could be added later. M. Urgo stated that the BOS should discuss this further at their next meeting (10/13)– he will invite WPCA and K. Labbe.

B. Boissevain stated that KOA has been waiting 3 years at this point and now it seems like they will now have to wait longer. He also reminded everyone that the Vineyard wanted a definite answer by December. M. Urgo stated that K. Labbe would look into the easements, and that the flow tests etc. have been completed, so now only the details about the financing have to be worked out. He believed we would have an answer soon.

Approval of 9/2/2020 Special Meeting Minutes: Minutes were accepted as written.

Motion made and seconded (C. Johnson/B. Boissevain) to adjourn the meeting at 8:52pm. Motion Passed

Next Regular meeting will be held on October 22, 2020
at 7PM Location/Format TBD

DRAFT

WATER POLLUTION CONTROL AUTHORITY PLAN

FOR THE TOWN OF

NORTH STONINGTON, CONNECTICUT

Prepared by the

North Stonington Water Pollution Control Authority

Bradford Currier, Chair

Carl Johston, Vice Chairman

Robert Boissevain, Member

Andrea Sadowski, Member

Bill Warzecha, WPCA staff

August, 2022

2021/2022 North Stonington WPCA Water Pollution Control Authority Plan

Introduction

Protecting the quality of the surface and ground water resources in North Stonington has been a long-standing priority for its town residents and officials. As stated in The Town's Plan of Conservation and Development (POCD), last updated in 2013 as well as prior ones, one of the Town's main goals is to ensure and protect the integrity of its environmental assets and natural resources critical to public health and safety. Protecting its ground water and surface water resources are also all goals articulated in state and regional plans. The Town of North Stonington's Water Pollution Control Authority (WPCA) seeks to protect the natural environment and efficiently regulate and limit land use impacts through the implementation of an updated 2022 Water Pollution Control Authority Plan.

The intent of the Town's sewer avoidance program is to manage onsite sewage disposal systems and to avoid sewering areas other than the specifically identified district (and future ones that maybe established) that is identified in the Town's water pollution control authority's regulations and on its land use maps. Any future sewer district(s), if established, shall be done only in accordance with the WPCA regulations and other applicable zoning regulations or ordinances. Extending public sewers into the established sewer district(s) will help serve those areas deemed suitable for planned growth where onsite sewage disposal may not be technically feasible or has the potential to adversely impact the Town's ground and surface water resources.

Judicious care must be taken to protect the valuable ground water resources associated with the Shunock River, Green Fall River, and Pawcatuck River stratified drift valleys. These valleys are very important natural resources in North Stonington in terms of potentially producing large volumes of water to a well(s) and should be protected.

Much of the Town's commercially zoned areas lie along Route 2, especially in the central and eastern portions, which, in places, is encompassed by the Shunock River stratified drift valley and the areas encompassed by the Town's aquifer protection zone. Given the highly permeable, sandy and, in places, shallow to bedrock soils characterizing the area, every effort should be made to prevent septic system failures or overloading the area with too great a volume of septic tank effluent that poses a risk to drinking water quality or the Town's stratified drift aquifer areas.

Current Profile and Conditions

Water Pollution Control Authority

The current Water Pollution Control Authority was re-established in 1993 and has functioned as an Authority continually since that time. The Water Pollution Control Authority derives its statutory power from section 7-246(b) of the Connecticut General Statutes (CGS), which

requires the Town to designate and delineate the boundary of; (1) areas served by any municipal sewage system; (2) areas where municipal sewage facilities are planned and the schedule of design and construction anticipated or proposed; (3) areas where sewers are to be avoided; (4) areas served by any community sewage system not owned by a municipality and (5) areas to be served by any proposed community sewage system not owned by a municipality. **(INSERT MAP)**

Reliance Upon Septic and Well Systems

The Town of North Stonington almost exclusively relies upon private, onsite sewage disposal systems and individual drinking water wells. The Town elected to join a regional health district(Ledge Light Health District) in 2017 to provide full-time public health services to the Town's residents and businesses. It is a full-time public health agency serving nine municipalities located in southeastern Connecticut. Prior to joining a health district, the Town employed a part-time sanitarian to oversee sewage disposal in town.

The health district currently serves the community by, among other things, approving, inspecting, and permitting septic systems with flows below 2000 gals. /Day and drinking water well locations. The state Departments of Public Health (DPH), in conjunction with the health district, and Energy and Environmental Protection (DEEP) regulate septic systems with flows ranging between 2000 and 7500 gals. /Day and greater than 7500 gals. /Day, respectively.

According to the town's health district, there have been a total of 92 septic permits issued in Town since the fall of 2017 for the installation of new septic systems and septic repairs in Town when it joined the Health District.

Private Drinking Water

Most of North Stonington is served by individual, on-site drinking water wells. The health district is responsible for issuing, reviewing, and approving well water permits for all residential drinking water wells. The well drilling permit is issued only when it has been demonstrated that the well installation conforms to the state's public health code and the state Department of Consumer Protection's Well Drilling Board Rules and Regulations as well as local ordinances, if applicable.

Public Water Systems

There are three types of public water systems: community, transient, non-community, and non-transient, non-community. The health district coordinates with the DPH for the permitting of all public water systems (community and non-community).

Community water systems serve 25 residents throughout the year. North Stonington currently has two community water systems.

Non-community water systems are broken down into two categories: transient and non-transient systems. Neither of those two systems meet the definition of a community water system. Non-transient, non-community systems serve 25 of the same people over 6 months of the year. Examples of a non-transient, non-community system would be a school, day care facilities and businesses employing 25 people or more. There are eight non-transient, non-community water systems in North Stonington. Transient, non-community systems are all other public water systems not meeting the definition of a non-transient, non-community system. Examples of a transient, non-community system would be a gas station, restaurant, and youth camp. There are 27 transient, non-community public water systems in North Stonington most of which are in the southern parts.

The Town holds the exclusive water service rights for public water in town but does not operate a public water system itself. However, there are two public water systems (community) that operate within the Town of North Stonington: Southeastern CT Water Authority (SCWA) and Westerly, R.I. Water Company. The SCWA serves the central parts of North Stonington where higher density housing and commercial uses exist. The areas that are served are as follows: Kingswood Dr., Laurelwood Rd., Hewitt Rd., Main St., Meadowwood Dr., Mystic Rd., Old Colony Rd., Pinecrest Rd., Ravenwood Rd., Rhonda Ln., Rocky Hollow Rd., Sharon Ln., Starlight Ln., Norwich-Westerly Rd., Wyassup Rd. SCWA also provides public water to the Cedar Ridge residential subdivision, which is served by two, bedrock floored wells. Westerly Water holds the rights for a small area in the commercially zoned, southeast corner of town not far from the intersection of Route 2 and I-95.

Public Sewer Access

North Stonington does not own a sewage treatment plant facility. The Southeastern Connecticut Council of Government's (SCCOG) Regional Wastewater Management Plan (2019) evaluated whether North Stonington should build its own sewage treatment plant or connect to an existing accessible sewer line provided by a bordering town (Stonington), Westerly R.I., or potentially the Mashantucket Pequot Tribal Nation (MPTN) reservation. While an option, the 2019 Plan stated that the cost would be $10 million dollars to build a sewage treatment plant to satisfactorily treat the anticipated flows, which were estimated at 200,000 gals. /Day, for the established sewer district located in southeast North Stonington. That cost estimate is probably low by current standards and may not include the cost of acquiring the land and possibly laying the pipe.

The Town of Stonington, Westerly, R.I., and the Mashantucket Pequot Tribal Nation have sewer resources that could potentially be expanded into the Town of North Stonington. However, North Stonington has not yet secured access agreements for general use by the Town's residents and businesses to connect to public sewer lines mentioned in the preceding sentence and the one already existing in the southeast part of town.

There are two instances where the property owner previously negotiated a private agreement with the Town of Stonington to do so. Both are located within the existing sewer district.

Sewer District(s)

There is currently only one established sewer district identified on the Town's zoning map to date. The Town's Water Pollution Control Authority's (WPCA) establishes and promulgates regulations and approves applications for use within the sewer district. The district is in the southeast part of Town with sewage most likely being conveyed to the Pawcatuck wastewater treatment plant facility in Stonington. While there have been negotiations for decades between North Stonington and Stonington officials to draft an intermunicipal agreement to allow a substantial and inclusive interconnection, no such agreement has been formally approved to date.

As noted above, there are two properties located within the established sewer district presently tied into the Pawcatuck wastewater treatment facility via a force main; A/Z Corporation and the CTDOT I-95 rest stop. Those property owners negotiated a private agreement with Stonington to access the sewer line. Because the line is under pressure, no other properties may connect to the line in North Stonington.

North Stonington Growth and Population Projections

The 2021 North Stonington Town Profile estimates the Town's population at 5,223 down from 5,287 in the 2013 POCD. The Connecticut State Data Center predicts that the population of North Stonington will decrease to 4875 and 4250 in the years 2030 and 2040, respectively.

The 2013 POCD points out that there is likely a 30-to 40-year supply of developable land in North Stonington. Much of that land is zoned for high (one acre) and medium (2 acres) density residential development. Since there are only two private, individual sewer connections in town, thus far, the remaining developable land including nonresidential land would likely be served by an onsite sewage disposal septic system unless it is located and served by a sewer line available in the existing sewer district (s) or future ones.

In general, one acre of land is needed to install an onsite sewage disposal system and a water supply well that will meet all necessary public health code requirements. Larger lot sizes (greater than one acre) afford even more flexibility to properly install a septic system and a well. All nonresidential land uses located outside of a sewer district will likely need to rely on an onsite sewage disposal system permitted by DEEP if flows exceed 7,500 gals. /day or the Department of Public Health/local health district, if flows are between 2,000 and 7500 gals. /Day and will strictly depend on the favorability of onsite soils.

The non-residentially zoned land areas remaining in Town constitute significantly less acreage than the residentially zoned land. At least in the southeast part of Town, non-residentially zoned land is encompassed by the existing sewer district. As mentioned earlier, the resort commercially zoned areas in the western end of Town will also likely be fully or partially

served by public sewers emanating from the Mashantucket Pequot Tribal Nation sewerage disposal facility provided there is an executed agreement between the parties.

Considering the projections for decreasing population and residential lot sizes of one acre or more in size comprising most of the land remaining in North Stonington that is developable, the need to extend sewers elsewhere in Town to support potential growth areas is highly unlikely. It is prudent for the Town's land-use offices to closely monitor the areas surrounding the lake districts (Blue, Billings, and Wyassup Lakes) in the northern part of town (See page 11) The provision of public sewers is necessary only in the one sewer district presently identified in Town and the one that may potentially occur in the western part of Town near the Mashantucket Pequot Tribal Nation reservation. Little or no nonresidential development has occurred in those two areas to date.

Water Pollution Control Authority Planning History:

1972 and 1976 WPCA Plans

The Water Pollution Control Authority has a history of actions that date back to 1972. During the history of the Authority, Water Pollution Control Action Plans were previously prepared in 1972, 1976, and 1994. Pursuant to the requirements set forth in Section 7-246(b) of the CGS North Stonington established, in 1972, a water pollution control authority, which existed until 1976 when it was disbanded. The Authority was re-established in 1993 and has been fully active to the present time.

Due to the demand for larger scaled, non-residential development in the eastern part of town, the WPCA initially adopted its regulations on July 12, 1994. The regulations were amended on September 20, 2010, and have not been amended, since that time. The regulations further the policy of sewer avoidance within the Town. However, the regulations do provide for the extension of a public sewer line but only to those properties encompassed by the Town's sewer district or future districts as established by the regulations. The sole sewer district presently established in Town is in southeastern North Stonington where the land is zoned Village Commercial/Industrial/ Commercial/Office Research.

In June 1967, the Town was issued pollution abatement order No. 84 by the Water Resources Commission, (the state agency preceding the establishment of the Department of Environmental Protection [now the Department of Energy & Environmental Protection]) to determine if there was a community pollution problem relating to onsite septic system failures and to assess the need for a sewage collection system ("public sewers") in North Stonington. An engineering firm was hired by the Town to address the requirements of the Order and, in 1970, it concluded that no problem existed and that public sewers would not be needed for a decade.

After being provided a 2-year extension by the Department of Environmental Protection (DEP) under Order No. 84, the Town further embarked on a two-year investigation and sanitary surveys to comprehensively study the need for public sewers. It also included surface water

sampling to determine the presence of pollution related to septic system failures or the presence of direct discharges of sewage to the Town's water courses. That study, completed in 1972, concluded that public sewers would not be needed for fifty (50) years, based on the following:

1. Sanitary surveys and surface water sampling showed that existing septic system problems were relatively few and could be repaired on site without the need for extending public sewers.
2. Population growth rates in Town are projected to remain low.
3. No growth patterns to develop growth centers were anticipated and a desire by town residents to keep the Town rural.
4. Land-use regulations in place ensuring and enforcing orderly growth that could be supported by properly designed and constructed on-site disposal systems.
5. Industrial growth would occur in a designated area of Town where soils are deemed adequate for on-site sewage disposal. However, it is also prudent to assess the use, generation and the handling of hazardous wastes, materials, and substances at industrial/manufacturing sites to make sure that they are handled, stored, and disposed of properly and do not pose a risk to ground water quality. Providing a sewer line to the industrial zoned land would help to minimize the risk of ground water pollution due to illegal or accidental discharges of wastewater containing hazardous chemicals or substances via an onsite sewage disposal system. Those types of wastewater discharges pose a significant risk to ground water in the area.
   Besides wastes being discharged via an onsite sewage disposal system, industrial discharges that occur directly to the ground surface because of accidental spills and leaking containers in outside storage areas storage areas also represent a risk to groundwater quality. The WPCA is concerned about these types of discharges and, as such, will be addressed later in the report.

1976 Engineering Report

A second engineering report was issued by the Town in the spring of 1976. It concluded that, among other things, the findings of the initial report (1972) "are still valid." Those findings were incorporated into the second engineering report. Additional information and data per DEP requests were provided by the report including documentation of septic system corrections/improvements identified in four problem areas in Town, as identified below.

Based on surface water sampling (conducted in the 1960s, 1971 & 1975) and visual inspections done pursuant to the two studies, four problem areas were identified that include the following:

1. The Village of North Stonington, where direct sewage discharges to the Shunock River were identified.
2. Kingswood/Meadowood Residential Subdivision comprising homes built in the 1960s on lots typically less than one acre in size, an area characterized by soils limited for sewage

disposal due to high water table conditions and slow percolation rates and the illegal connection of sewer lines to foundation drains.

3. The 1950s Cedar Ridge residential subdivision exhibiting similar conditions as mentioned in the previous residential subdivision, i.e., high density, small lot sizes, high water table and poor soils, and the illegal connection of septic systems discharging to the storm/catch basin system: and,
4. The I-95 DOT rest stop area in the southeast corner of Town due to the large volume of sewage needed to be treated especially during peak periods, the proximity of the septic system/leaching field to the Shunock River, and the inability of highly permeable soils (sandy, gravelly) soils covering the area to effectively renovate sewage effluent.
5. By the mid-70s, the problems in the Village were resolved by eliminating the direct pipe discharges to the Shunock and making on-site repairs, where permissible. Four homes were purchased and demolished by the Town. All direct pipe discharges to the river were eliminated.

The I-95 rest stop facility has since been connected to public sewers, based on a private agreement by CT-DOT and the Town of Stonington. The sewage emanating from the rest stop is discharged to the Pawcatuck wastewater treatment facility.

Regarding the Kingswood/Meadowood and Cedar Ridge residential subdivisions, the town sanitarian stated, prior to the release of 1994 report, that there were no septic problems in Town, which could not be handled on-site on a case-by-case basis by the local health department. Staff of the town's health distriict also presently concurs with that position.

The availability of public water to the Kingswood/Meadwood and Cedar Ridge residential subdivisions affords flexibility in repairing/replacing a failing septic system. The need to maintain the prescribed state public health code setback from an onsite well is not necessary thereby providing more room to repair the septic system. The availability of public water in those areas greatly reduces the risk of polluting individual onsite drinking water wells by partially treated septic tank effluent or failing septic systems.

Following the 1976 study, the Authority disbanded, feeling "it could no longer be effective." Additionally, due to the findings of the two studies, pollution abatement order No. 84 was rescinded by DEP and, the 1976 Plan was approved ultimately by the DEP. It provided for the avoidance of sewers in Town through 2020, based on the following;

1) Low growth population was anticipated.
2) The Planning and Zoning Commission committed to use its statutory authority to control the location, density, and type of economic and residential development in Town so that sewers would not be needed.
3) The Industrial and Development Commission felt that economic development in Town could be handled by on-site septic systems.

1994 Water Pollution Control Plan

Following a 17-year hiatus, the WPCA was re-established in February of 1993 with a plan to update the 1972 and 1976 Water Pollution Control Plans by providing information and guidelines for ongoing inventory of septic systems, the monitoring of surface water quality and potential pollution sources related to septic systems to provide early warning signs enabling sewer avoidance and providing other information as to the workings of the North Stonington WPCA.

In 1992, two large hotels were proposed for development at the eastern end of Town near the Route 2/Route 184 rotary and east of Route 2/south of I-95. Both locations are encompassed by the Town's aquifer protection area associated with the Shunock River stratified drift valley. The Town approved the requested regulation change/special permit to accommodate the hotels but with the condition that sewage disposal would need approval by DEP. There was concern that due to the large volume of sewage expected from each hotel, it would not be feasible to install an on-site subsurface sewage disposal system. Since the Town has never owned a wastewater treatment plant facility, the only other option would be to extend the public sewer line from an adjoining town that operates a waste water treatment plant, which has the capacity to accept projected flows from North Stonington. The Town was also very concerned about potential pollution from an on-site sewage disposal system adversely impacting the Shunock River sand and gravel aquifer.

The WPCA worked quickly to assess the feasibility of extending public sewers to the two hotels with the understanding other existing businesses having access to the sewer might also connect once it became available. It prepared to identify and establish the Town's only sewer district, hired legal and consultants, and drafted and adopted rules and regulations for the installation, operation, and financing of sewers and attempted negotiating an intermunicipal agreement between North Stonington and Stonington to use the Pawcatuck wastewater treatment facility.

By the summer of 1994, the WPCA established Water Pollution Control Authority Regulations (WPCAR), which, among other things, created the sewer district located in southeast North Stonington and furthered the policy of sewer avoidance in Town. The regulations provided for the extension of a public sewer only to those properties located within the sewer district including specific criteria and conditions for which a property or property adjoining the sewer district could tie into the sewer.

Ultimately, the WPCA decided that all costs associated with the sewer extension would be borne by the developers and other property owners within the prospective sewer district wishing to tie into the sewer. However, that funding was not forthcoming. Therefore, the WPCA was unable to pursue the drafting and adoption of regulations to create a sewer district in the southeast part of Town until the summer of 1994 coinciding with the initial passage of the WPCA Regulations. Despite negotiations between town officials to allow the conveyance of the

flow of sewage to the Pawcatuck wastewater treatment facility, there is no formal intermunicipal agreement with Stonington to use its sewer system, to date.

Consistent with the requirements of Section 7-246(b) of the CGS, the updated 1994 WPCA Plan describes the way municipal programs are being carried out to avoid community wide septic system pollution problems. Moving forward at the time, the WPCA agreed with the Town's POCD regarding sewer avoidance and felt it was important to create its long-range plan consistent with the Town's POCD, which reflects the consensus of the townspeople.

The following recommendations were incorporated into the 2013 POCD with respect to providing public sewer and water:

1. Extending public water and sewer available from an adjoining town to southeastern North Stonington would need to be strictly limited and clearly defined. The concern is that large-scale commercial and industrial developments for which the area will be zoned should not be solely dependent by on-site subsurface sewage disposal systems and on-site wells, due to the risk for causing pollution given the zone's location within the Town's aquifer protection area.

2. Providing public utilities to the area, which is zoned for higher density, non-residential developments will help to allow the Town to balance growth in terms of densities and land-use elsewhere in Town. It will help to keep the remaining non-sewered areas rural thereby avoiding the need for sewers as acknowledged by town residents.

3. Public sewer should be provided only in the areas of Town proposed for economic development such as the southeast part mentioned above (now encompassing the "sewer district") where the carrying capacity of soils may not be suitable for larger scaled, non-residential development. The intent is to limit the availability of the sewer line only to the defined area of the sewer district and that all other adjoining land used for residential development be at a density supported by on-site sewage disposal systems.

The 1994 Plan also recognized the potential for a second sewer district, which would be in the western part of Town near the Mashantucket Pequot Tribal Nation Reservation coinciding with the land that was ultimately zoned as Resort Commercial on the zoning map. That prospective sewer district would be located on the north and south sides of Route 2 generally between the western Town line and Yerrington's Salvage Yard, Inc. site. It comprises about 350 acres.

Town officials will need to initiate conversations with the Mashantucket Pequot Tribal Nation (MPTN) regarding the extension of its sewer line (and probably public water from the MPTN water supply system) into the area described in the preceding sentence. Soils mapping data in

that area identify soils that are limited for onsite sewage disposal systems especially ones discharging large volumes of sewage.

Whether discussions to extend a sewer line from the MPTN are successful or not, the WPCA and its staff should work proactively to draft an amendment to its regulations to incorporate the second sewer district to serve the northwest corner of Town near the casino encompassed by the resort commercially zoned area. There are additional amendments needed to the existing WPCA regulations if a second sewer district is established in Town. The amendment language should probably be proactively drafted by the WPCA and its staff in conjunction with the town's land-use office and town attorney.

The 1994 Plan identified three activities for the Town that is central to pollution avoidance from septic failures/discharges, which included the following:

1. Provide technical guidance to town boards and educate the public on the importance of properly maintaining an onsite subsurface sewage disposal system.
2. Develop and maintain a sewage disposal inventory.
3. Develop an ongoing water quality sampling/testing program.

The WPCA acknowledged that it would accomplish the first activity by providing advice to Town's land-use boards and commissions, as appropriate, to regularly review land use rules ensuring that the Town's regulations are consistent with the goal of sewer avoidance and actions that threaten surface and ground water in Town; provide advisory comments regarding non-residential land uses that pose a pollution risk to ground water, including but not limited to assessing the handling, storage, and disposal of chemical constituents, hazardous wastes, substances, and materials from any new or existing facility; and disseminating information to Town boards, commissions, business owners and residents regarding pollution avoidance.

Staff of the WPCA working in conjunction with the town's health department will provide educational pamphlets to residents and businesses on septic system maintenance, operation, and care to ensure that on-site septic systems function and are maintained properly, prevent pollution to surface and ground water in town and help to avoid the expansion of sewers to rural, non-sewered parts of Town.

Information pamphlets would be drafted to residents and business owners as part of the permitting process when a new septic system is installed, or repairs are made to existing systems. The information will educate town residents and business owners especially those coming from an urban setting where public water and sewer are available with materials explaining the importance of maintaining and caring for on-site sewage disposal systems. The information will also be especially helpful to property owners whose properties are located within the watersheds of the Billings, Wyassup and Blue (Anderson) Lakes in Town because of the presence of limiting soils characterizing the Lake watersheds, small and unfavorably configured lots for optimum sewage disposal, and constraints in meeting proper separation distances between onsite drinking water wells and sewage disposal systems.

A sewage disposal inventory of private and community septic systems will be created and updated on an annual basis by the WPCA staff. It would include a status update of corrective measures taken in the four problem areas identified by the 1972 and 1974 reports (Village center, Kingswood/Meadowood, Cedar Ridge, and the I-95 Rest Stop), new developments since (2017) when the Town joined LLHD that potentially represent a threat to water pollution and identify other sources of pollution in Town.

Staff of the WPCA will coordinate with staff of the town's health districtto compile a list of all new septic systems and septic system repairs that have been permitted throughout Town, since it joined the health district in 2017. Special attention will be given to septic system repairs that have occurred in the four problem areas previously identified in 1972 and 1974 Plans as well as the Lake areas.

Finally, the surface water quality monitoring, as was conducted in 1971 and 1975, should continue, on an as needed basis, to determine trends in surface water quality throughout North Stonington. Testing done in the 70s did not reveal a significant problem in terms of adverse impacts directly related to septic tank system discharges. The testing would generally coincide with the locations of the earlier sampling. Sampling parameters, which are indicative of wastewater discharges from septic systems, will include total and fecal coliform, nitrates, nitrites, ammonia, detergents, pH, and specific conductance. It is possible when considering the scope of surface water sampling, the results for sampling conducted by DEEP in recent time and other environmental organizations for several of the key watercourses in Town that the actual number of water samples needed to be collected can be significantly reduced.

Lake Districts (Blue, Billings and Wyassup Lakes)

The 1994 Plan also suggested surface water testing, including but not limited, to Billings Lake, Wyassup Lake, and Blue (Anderson) Lake. That testing has not been initiated to date. Lots located within the lake districts are served by individual onsite septic systems and drinking water wells.

The lake areas present a challenge to sewer avoidance and environmental impact mitigation. The areas surrounding the lakes have evolved from seasonal campsites years ago into a hodge-podge of seasonal and year around uses. Billings and Wyassup Lakes have been extensively developed with a considerable number of summer cottages at each lake as well as year-round homes. DEEP, in late 2021, stated that a report will be released in the spring of 2022 based on surface water testing conducted in Billings Lake.

The dominant soils surrounding both Billings and Wyassup Lakes are the shallow-to-bedrock groups typified by the Hollis and Hollis-Charlton soil association. Sandy, highly permeable soils as well as shallow-to-bedrock soils surround Blue Lake. The previously mentioned soil types impose restrictions for the construction and operation of residential septic systems due to rapid percolation and risk of bacterial contamination to the bedrock aquifer due to the shallow undulating nature of the bedrock surface in the lake areas. These Lake districts are served

entirely by individual drinking water wells-it is alleged, too, that some of the cottages draw domestic water directly from the Lake. The latter source of water is not an approved sanitary, well water supply source as prescribed by the state public health code. Every effort should be made to terminate these connections when identified.

Besides the water testing, it will be paramount that before any seasonal dwelling units located within the Lake district are converted to year-round that the Health District ensure the new septic system/leaching system or repair of an existing system is compliant with the latest public health code regulations/technical standards and any local ordinances. It would be prudent to review rules and regulations of other towns that have been drafted for the conversion of summer cottages to year-round habitation. The WPCA and its staff should coordinate closely with the health district on this issue and ensure that pollution from failing or partially treated septic effluent does not reach the Lake.

In general, the design of leaching systems in the soil setting locations mentioned above require large quantities of approved fill with the leaching fields ideally being spread laterally across the landscape. However, many of the lots surrounding the lakes are configured (long and narrow) such that there is little horizontal room in which to install the leaching trenches laterally over the landscape. It is preferable in that setting to spread the leaching trenches laterally over the landscape rather than stacking short ones on top of each other and overloading the area with too great a volume of sewage. The need for properly separating the onsite water supply from septic systems also further complicates the issue.

According to health district, there have only been a couple septic repairs reported in the lake areas since that time 2017. The health district reported that all new installations and repairs to the septic systems around the lakes as well as those installed in the remainder of Town have been successful.

Based on the preceding discussion and those with the health district, there does not presently appear to be any need for the collection and off-site treatment of sewage from the lake areas. Given the remote location of the lakes in northwest North Stonington, it would probably not be technically feasible and too costly to extend public sewers in the event of widespread septic system failures and decreased surface water quality conditions in the water bodies due to infiltrating septic wastewater.

The only option besides repairing the system onsite may be to locate a tract of land of sufficient size in proximity to the Lakes that has suitable soils and large enough area to accommodate a private community septic system. Locating, designing, permitting, and installing such a system would likely be costly and potentially legally complex. This underscores the need for the WPCA and its staff to work closely with the town's land use office, the health district and residential property owners in the watershed of the lakes to make sure new septic systems and repaired/renovated septic systems are properly sited, designed, constructed, and properly maintained.

Policy Options and Recommendations for 2022 and Beyond

Create Sewer District 2

The resort commercially zoned area located along Route 2 near the MPTN casino (Foxwoods) is likely the prospective location of a second sewer district to serve nonresidential development in that part of Town. According to the 2019 SCCOG Plan mentioned earlier, there has been conversation between the Town and the MTPN but the details of the potential service area or draft agreement have not been forthcoming. The WPCA will draft amendments to the Regulations to include a second sewer district for discussion purposes with the selectman's office and Town land use officials.

Continued Adherence to Sewer Avoidance Plan

As stated earlier, town residents, based on town-wide surveys, have consistently supported sewer avoidance policies. Additionally, the goal of WPCA's regulations is to avoid sewers outside of the regulatorily established sewer district or future districts identified in the WPCA regulations. Every effort must continue to educate residents and business owners on septic system maintenance, care, and operation to prevent septic system failures and to promptly abate them when they do occur. This can be accomplished by the following:

1. Excluding the sewer districts identified in the WPCA regulations, the remainder of the Town will be served by properly designed and constructed subsurface sewage disposal systems that are ultimately approved by the LLHD, DPH-Subsurface Sewage Disposal section and/or DEEP's Subsurface Sewage Disposal Section.

2. The Town should continue to be served by a full-time health district that provides technical and regulatory oversight for the design and installation of new septic systems as well as those in need of repair or replacement. Health district staff have the necessary training, certification, and expertise in terms of regulatory oversight, soil testing and septic system design. It ensures, on behalf of the town, the proper installation and functioning of new and renovated septic systems thereby reducing the risk of pollution to surface water and ground water due to failing septic systems or the recharge of partially treated septic tank effluent and the need for public sewers.

3. The WPCA and its staff will actively monitor land use in Town and implement measures identified in the 1994 WPCA Plan update by; 1) coordinating closely with Town's land use office, P&Z and health district staff to review land use rules to ensure that the town's regulations are consistent with sewer avoidance especially at the perimeter of the Lake areas; 2) educate all residents/business owners on the proper operation, care, and maintenance of septic systems especially for those residents who are not familiar with the operation of an onsite septic system, i.e., those residents moving from urban areas that are served by public utilities, rather than an onsite well and septic system; and 3) having the Town's zoning and planning staff coordinate with the building official

to ensure all requests for building conversions and expansions especially in the lake districts are referred to the health department to determine if water supply and sewage disposal systems are adequately addressed and in compliance with all local ordinances, state public health code regulations and technical standards.

4. The 1994 Plan also recommends the testing of public water supplies, specifically the one comprising the Hewitt Farm wellfield owned by the Southeastern CT Water Authority and other public water systems in Town subject to Department of Public Health regulations. Reviewing water quality reports with respect to potential adverse impacts from failing septic systems or partially treated septic tank effluent for public water systems especially ones located within the Level A Aquifer Protection Area and the Town's aquifer protection zone is critical.

5. Staff of the WPCA will work closely with the health district, Department of Public Health and private water systems to receive copies of all drinking water quality reports for public and private supplies that are required pursuant to Sections 19-13-B101 and 102 of the state public health code, respectively. Those water quality reports would include well completion reports and water quality reports required of new construction and certificates of occupancy and water quality reports generated because of the transfer of a residential property. Staff would also review annual drinking water quality reports for public water systems and testing requirements pursuant to Section 19-13-B101 of the state public health code to ensure that there are no adverse impacts due to septic system failure. Staff will track trends of the potability testing for bacteriological quality, detergents, when available, and nitrogen compounds all of which are indicative of sewage pollution.

6. It would be prudent for the WPCA and its staff to review ground water monitoring reports that are required of large (>7,500 gals. /day), DEEP permitted septic systems (hotel package systems) to ensure that there are no adverse impacts to ground water quality by failing septic systems or by partially treated septic system effluent down gradient of the leaching system.

7. Although not mentioned in the 1994 Plan, the MTPN's Lake of Isle Golf Course uses treated water from its sewage treatment plant for irrigating the golf course. WPCA will contact the Tribe to get copies and review the water quality testing of the treated wastewater effluent used to irrigate the golf course. That water recharges ground water within the Town of North Stonington. It is imperative that it not represent a risk to the natural quality of ground/surface water in the area.

Implementing the above tasks will greatly help to protect the surface and ground water resources in North Stonington and to maintain the Town's desired goal for sewer avoidance except for the sewer district(s) as identified in the WPCA's regulation.

Annotated Bibliography

North Stonington Plan of Conservation and Development adopted by the North Stonington, CT Planning & Zoning Commission, December 12, 2013. (North Stonington's long range, comprehensive plan that reflects community concerns on all aspects of future growth in Town and articulates a clear vision that guides the future development of the Town.)

Regional Wastewater Management Plan by Milone & MacBroom in association with Tighe & Bond on behalf of the Southeastern CT Council of Governments, Norwich, CT. June 2014 (Identifies and provides recommendations for wastewater needs in the towns encompassing southeast CT through 2040)

Sewer Authority Engineering Report prepared by the North Stonington Sewer Authority, April 29, 1972. (A report generated to estimate the long-range projection of residential and industrial

growth and the findings of a sanitary survey conducted pursuant to an administrative order issued to the Town of North Stonington by the state agency preceding the establishment of the Department of Environmental Protection to determine whether public sewers will be needed within a 50-year period.)

Sewer Authority Engineering Report No. 2 prepared by the North Stonington Sewer Authority, April 20, 1976. (A report generated to update the findings of the initial report compiled in 1972 and includes material that was requested of the Town by DEP regarding the need for public sewers in Town.)

Soil Survey-New London County, Connecticut, USDA Soil Conservation Service, Storrs, CT. (Complete soils map of the county along with information relating to the soil's limitations based on development and the soil's ability to assimilate sewage via an onsite sewage disposal system.)

Surficial Materials Map of Connecticut, prepared in cooperation with the State of Connecticut Department of Environmental Protection, Geological and Natural History Survey, 1992, by Janet Radway Stone, John P. Schafer, Elizabeth Haley London, and Woodrow B. Thompson. (Map showing the distribution of glacial and post-glacial surficial material (unconsolidated material that lies between the land surface including the upper soil horizons) and the bedrock surface.)

Regulations for the Use of Sewage Systems within the Town of North Stonington Prepared by North Stonington Water Pollution Control Authority, Adopted July12, 1994; Revised September 20, 2010. Regulations established for the use of municipal and community systems to further the policy of sewer avoidance within Town but to provide municipal sewage facilities to specific and limited areas for the purpose of non-residential growth. The regulations provide for the extension of public sewer to area(s) identified as sewer districts on the Town's zoning map.

The Municipal Primer prepared by the CT Department of Environmental Protection, last updated November 19, 2021. (Provides among other things an overview of how waste water (sewage) is managed and its implications in terms of land use stewardship and responsible growth.)

Water Pollution Control Authority Plan for the Town of North Stonington prepared by the North Stonington Sewer Authority, January 18, 1994. (A plan that provides information and guidance for the on-going inventory of potential pollution sources and monitoring of surface water quality in town to determine the need for sewers. It also provides the workings of the Water Pollution Control Authority.)

Water Quality Classification Map of Connecticut, compiled by James Murphy, State Department of Environmental Protection, Water Compliance Unit, 1987. (Shows both surface and ground water classifications regarding among other things potability, recreational uses, waste assimilation.)

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