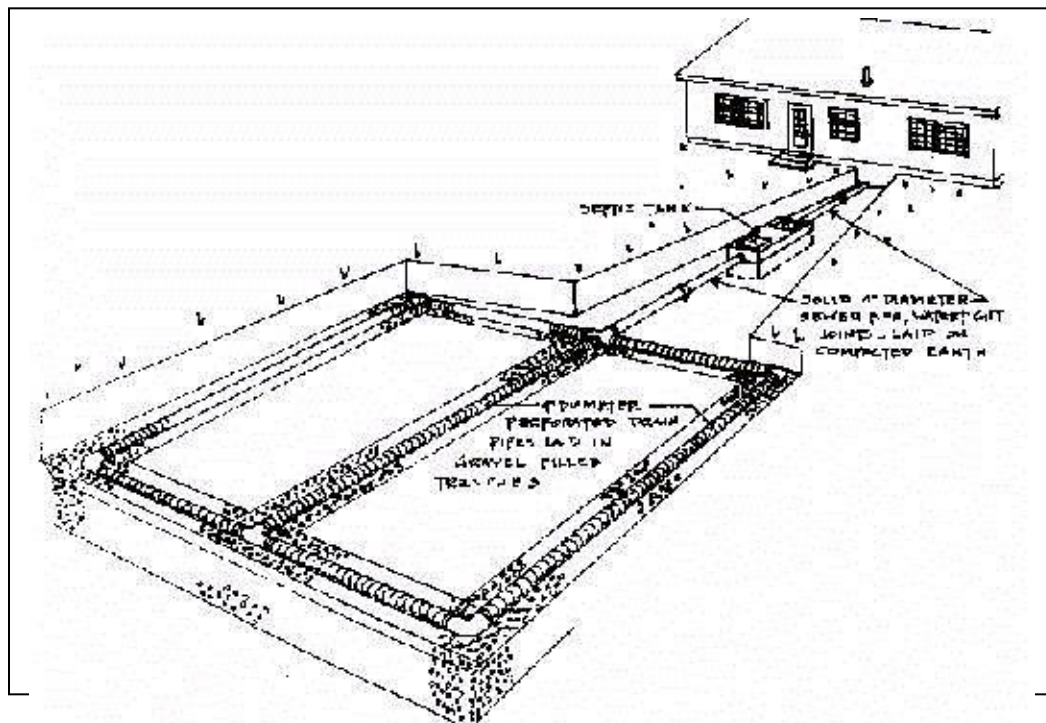


Map, Plan & Report

Final

North Queensbury Wastewater Disposal District No 1

(Dunham's Bay)



Schematic detail of a complete subsurface absorption system for a flat area using the preferred serial distribution method.

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Executive Summary

Introduction

Individual Onsite Septic Disposal is the sole method of wastewater disposal in those sections of the Town of Queensbury, that lie within the Lake George Watershed. It is an established fact that over time, even with proper operation and maintenance, septic systems contribute to the contamination and degradation of groundwater and subsurface soils. Without adherence to best management practices being employed in the siting, operation and permitting of such installations, the impact to groundwater and ultimately, adjoining or adjacent water bodies... can be critically significant.

Protecting the water quality of Lake George is crucial. The lake is classified as a “AA- Special” water body and serves as drinking water source for many of the residents of all eight towns in the Lake George basin. The respective local governments and institutional members of the Lake George Watershed Coalition, and in particular the Town of Queensbury are dedicated in various ways to the protection of water quality of Lake George. The Town is committed to the establishment of the North Queensbury Wastewater Management District No 1 for the proper elimination and/or mitigation of non-point source pollution generated by continued operation of substandard system.

The proposed district would be established to provide a management structure and plan to ensure the timely inspection of systems to detect signs of failure and/or malfunction as well as to optimize the systems’ operating efficiencies through the routine and schedule pump-out of the system components.

Project Authorization

In the fall of 2013, the Town Board of the Town of Queensbury, authorized the preparation of this Map, Plan & Report, as a tool in establishing the North Queensbury (Dunham’s Bay) Wastewater Disposal District, No 1. A copy of that (draft) resolution is attached as Appendix D.

Need for the Project

The proposed district lies wholly within the Dunham’s Bay Area of the Town, located on the east shore of Lake George. The dwellings within the district are located along the lakeshore. There are some lots within the district where camps or cottages were constructed more than 50 years ago along the shore on extremely small lots. The pollution of the lake was not a concern at the time of their construction as the dwellings were seasonal, and fewer in number. Over time, the buildings were winterized, expanded and some became year round residences. Houses have been built on formerly vacant shorefront lots as the demand for second homes has increased.

Many of the disposal systems currently in use on these lakeshore properties have insufficient separation distances (as established by state regulation), from the septic tank, absorption field or seepage pit to Lake George. The area's predominant soil types are poorly suited for subsurface disposal systems because of low permeability, stony composition or steep slopes.

Lake George is used as a drinking water source by a majority of the residents of the entire lake, and indeed, the immediate vicinity along Dunham's Bay. Individual users of lake water may or may not disinfect or filter water before use. Simply stated, the problem is that there is a significant number of operating septic systems along Dunham's and they must be operated effectively and efficiently to ensure that we maximize opportunity to protect the lake's water quality.

Demographics

Development within the proposed district consists of approximately 61 dwellings/structures, some year round homes, with the majority being second (seasonal) homes, as well as commercial mixed use facilities (marinas et al), that received concentrated use during selected months of the year. This is evidenced by mailing of tax bills and an observable reduction in population after the summer months. Second home usage is increasing in spring and fall as the homes are winterized and as the property owners seek to maximize usage of their substantial investment in real estate.

There are currently 71 properties of record being considered for the district. A map depicting the physical boundaries of the District is provided as Appendix B. Similarly, a listing of the properties included in the District can be found at Appendix C

Site Description, Topography, Geology & Soils (Types)

In concert with the staff of the Warren County Soil & Water Conservation District, the following description of Topography, Geology and Soils is provided. These descriptions have been gleaned from a review of the current USGS Soils & Topographic Maps for this region.

The total land are of the proposed district consists of approximately 118.5 acres. The USGS generally describes the peninsula as consisting of the following three soils classification, Bice, very bouldery, fine sandy loam, Bice-Woodstock very boulder, with fine sandy loam, steep sloped, and Charlton, fine sandy loam. The delineation of the three are shown on an Appendix in the rear of this report..

ChB (Charlton fine sandy loam), 3 to 8 percent slopes.

This is a gently sloping, deep, well drained soil on smooth hilltops and hillsides on uplands. Areas are oval to rectangular and range from 5 to 50 acres.

Typically, the surface layer is very dark grayish brown sandy loam about 7 inches thick. The subsoil is darkish-brown, yellowish-brown, and light olive-brown sandy loam about 21 inches thick. The substratum is grayish brown sandy loam to a depth of 60 inches or more

The seasonal high water table in this Charlton soil is at a depth of 6 feet or more. Bedrock is generally at a depth of 60 inches or more. Permeability, or the rate of water movement through the soil, is moderate or moderately rapid.

Surface runoff is slow or medium. The capacity of the soil to store water available for plants is moderate. Small rock fragments make up 5 to 15 percent of the surface layer. The surface layer is very strongly acid to moderately acid.

Most areas of this soil that had been cleared for farming have reverted to forest or brush. Some areas are used for recreation, and a few areas are used for crops.

This soil is suited to many recreation and urban uses. Most areas have suitable sites for picnic areas, campgrounds, paths and trails, dwellings, and septic tank absorption fields. Ponds and habitat for wetland wildlife are difficult to develop because of the depth to the water table and the permeability of the soil.

This soil is well suited to most cultivated crops grown in the region. Erosion is a hazard in areas where slope is long and in areas unprotected by plant cover. Contour farming, cover crops or sod crops, and conservation tillage systems that return crop residue to the soil help to control erosion, to increase organic matter content, and to improve soil filth. In some areas, stones and boulders on the surface and occasional rock outcrops limit the use of machinery. In some years this soil is droughty.

Bice-Woodstock very boulder, fine sandy loams, steep.

This map unit consists of shallow, somewhat excessively drained or excessively drained Woodstock soils and areas of Rock Outcrop in bedrock-controlled areas on hillsides, hillcrests and mountaintops. It is about 55 percent Woodstock soils, 20 percent areas of Rock outcrop/boulders, and 25 percent other soils. Areas of this soil and Rock outcrop are mostly oblong and 10 to several hundred acres. Stones and boulders 50 to 30 feet apart are on the surface. The Woodstock soil and areas of Rock outcrop are in such an intricate pattern on the landscape that they could not be separated at the scale selected for mapping.

Slope ranges from 3 to 15 percent but is dominantly 8 to 15 percent. Typically, the surface layer of the Woodstock soil is very dark grayish brown fine sandy loam about 2 inches thick. The subsoil is dark yellowish brown and yellowish) brown fine sandy loam about 16 inches thick. Granite bedrock is at a depth of 18 inches.

Rock outcrop consists of exposures, faces, and ledges of schist, gneiss, or granite bedrock. Included with this unit in mapping are some large areas of shallow soils less than 10 inches deep.

A seasonal high water table does not occur in Woodstock soil above bedrock. Bedrock is at a depth of 10 to 20 inches.

Permeability, or the rate of water movement through the soil, is moderately rapid. Surface runoff is medium on the Woodstock soil and rapid on rock outcrops. The capacity of the Woodstock soil to store water available for plant growth is low. Rock fragments make up 5 to 15 percent of the surface layer and 5 to 25 percent of the subsoil. The surface layer is strongly acid to slightly acid. Most areas of the soil in this map unit are forested.

This soil is poorly suited to most recreation and urban uses. Some areas have suitable sites for hiking paths and trails. Rock outcrops, shallow depth to bedrock, numerous stones and boulders on the surface, and droughts are limitations for most other uses.

Potential productivity for trees on this Woodstock soil is moderate. Trees can be uprooted in windy periods because of the shallow rooting depth, and seedling mortality is high because of droughts. Rock outcrops limit the use of equipment. White pine and red pine are common on the Woodstock soil.

This Woodstock soil is not suited to cultivated crops. Shallow depth to bedrock, rock outcrops, and stones and boulders on the surface limit the use of equipment. Droughtiness restricts plant growth. In some areas the soil is suited to low quality, unimproved pasture.

Proposed Initiative

The proposed action is the establishment of a wastewater disposal district in accordance with §190-e of New York Town Law for the purpose of administration, operation, monitoring, operation and maintenance of private on-site waste water disposal systems of said district. In so doing the Town has selected the Responsible Management Entity (RME) Operation and Maintenance Model (IV) as developed by the USEPA. [Source: “*Voluntary National Guidelines for Management of Onsite and Clustered Wastewater Treatment Systems*”, USEPA 832-B-03-001, March, 2003].

In summary, the USEPA RME Model IV provides for the following:

- a. Establishes system performance and monitoring requirements.
- b. Provides professional consulting services related to the proper operation and maintenance of said facilities
- c. Inventories all systems
- d. Provides a tracking system for scheduled maintenance, all while:
- e. System ownership remains with the individual property owner.

The purpose of establishing the District (RME) is to ensure the following actions or initiatives:

1. Education of homeowners on the proper maintenance of their on-site systems and the negative impacts to the environment, public health and local economy of failed septic systems.
2. Assessing the current systems to identify and address any immediate problems (system locations, component efficiency, last pump-out dates, etc)

3. Identifying wastewater treatment strategies to meet future needs of the community and planning to implement those strategies.
4. Supervising the siting, design construction and installation of new or re-vamped systems.
5. Maintaining a data base on the location and specifications of individual systems, such as system users, permits, system maintenance requirements and schedule and the results of inspections and site evaluations.
6. Establishing and enforcing a monitoring and maintenance schedule for existing systems.

Once the District (RME) is formed, the following activities would be performed within the first three year period.

- Initial inspection of all systems...conducted over a single 3 month season.
- Establish a data base of system(s) locations & components....using the Town's GIS data base as a "platform" for establishing the data base.
- Scheduled (septic tank) pump out of existing systems...once every three years (for non-holding tank systems)
- Solicit contracts with local haulers for discount rates, based on a base, annual work load
- Engage contract inspection services for the annual inspection of systems.
- Educate property owners and temporary (vacation) users of proper system use and maintenance considerations.
- Identify (failing or substandard) systems that may be candidates for consolidation into community systems
- Require inspection/certification as a condition of realty transfer
- Consider the feasibility and benefits to establishing an "approved installer/contractor" list
- Prepare for consideration/adoption by the Town Board, proposed District Bylaws and Operating Procedures

In accordance with the aforementioned §190-e of New York Town Law, this Map, Plan and Report shall describe the following:

1. Mode and frequency of collection, conveying, treating and disposing of wastewater, residual wastewater or waste septic sludge
2. Mode and frequency of inspections and monitoring, and
3. Location of properties requiring construction or replacement (of private onsite wastewater disposal systems during the next five years.

Para I. & II. Mode & Frequency of Inspection & Monitoring & Mode and Frequency of Collection and Disposal of septic tank sludge.

During the 1st year of District operations, the following activities would be performed and thereafter, annually:

- Inspection of all properties on which systems are located...conducted over a single 3 month season.

- Update and maintain a data base of system(s) locations & components....using the Town’s GIS data base as a “platform” for establishing the data base.
- Scheduled (septic tank) pump out of existing systems...**once every three years** (for non-holding tank systems)
- Solicit contracts with qualified and certified local haulers for discount rates, based on a base, annual work load
- Educate property owners and temporary (vacation) users of proper system use and maintenance considerations.
- Identify (failing or substandard) systems that may be candidates for consolidation into community systems
- ***Require inspection/certification as a condition of realty transfer***

III. Location of properties requiring construction or replacement during the first five (5) years.

As no systems will have been formally inspected prior to the establishment of this District, it cannot be projected at this time how many, if any of the systems will require construction and/or replacement over the first five years of operation. As the District has adopted the aforementioned USEPA Model IV RME, ownership remains with the property owner, and hence responsibility for any and all repairs/upgrades remains with said individual property owner.

Long Term District Operations and Activities & Financial Support

Once the District is formed, it is contemplated that it will be in operation “in-perpetuity”. It is noted, that that the Town has obtained grant funding to assist in the initial district formation, as well as to provide financial assistance for the first ten years of district operations. Although it would be the intention of the Town to seek additional grant funding, to support operation of the District, following the tenth year of operation, no assurances can be provided that additional grant funding opportunities will be available nor that the Town would be successful in obtaining same.

Cost of Proposed Initiative

District Operating Budget

1. Capital Expenditures

There are no capital improvements or expenditures contemplated for the District at the time of its formation.

2. Operating Budget

The operation of the District can be divided into two phases or time periods. The initial phase, immediately following establishment of the District will generally consist of: individual system

inspection(s), data gathering, data base formation and initial district administration set up. This initial phase will generally be conducted within the first year of operation following formation.

The subsequent phase(s) will generally consist of annual operations in support of the district property owners, to include: inspection of individual systems, pump out of 1/3 of the onsite septic systems; provision of education and public outreach to district residents on the proper care and maintenance of their systems, providing a technical resource for district property owners to provide answers to their questions and inquiries.

A detailed analysis of an operating budget for the District is included in the Appendix D. Simply stated, the cost to the district participants (individual property owners of a single family dwelling with an operating system), for the first year is projected at \$69.19. The annual cost for the subsequent 9 years, for a total of ten years, is projected as follows:

Year of Operation	Projected Annual Cost (1)
2	\$109.35
3	\$112.63
4	\$116.01
5	\$119.49
6	\$123.07
7	\$126.76
8	\$130.56
9	\$134.48
10	\$138.51

Notes:

1. The above projection of annual cost in years 2 through 10, presume an annual increase in septic pump out costs of 3% annual.

These projected costs assume: an annual inspection of each system, and a system pump—out every three years for each of the 62 operating systems in the proposed district. The budget (also includes a 50% subsidy of the cost of a septic tank pump out for an individual, single family, (up to) 3-bedroom, residence. This subsidy, being provided by a grant from the State of New York Department of Environmental Conservation, would remain in effect for the first ten years of district operation.

In terms of how the operating budget was prepared, the following assumptions were incorporated into the basis.

- i. The District consists of 62 properties with existing systems, and 9 vacant properties, located Dunham’s Bay area of the Town, for a total of 71 properties.
- ii. Contract/consultant labor would be engaged to conduct an initial inspection of each site, to include contact and coordination with property owners for the purpose of scheduling said on-site inspections and data gathering efforts. It was projected that

- on average two systems could be scheduled, inspected and data recorded per day, for the total of the 62 properties with systems.
- iii. One hour per system would be required of a GIS-data input specialist, at an assumed consultant rate of \$45.00 per hour.
 - iv. One third of the onsite septic systems would be pumped out, per year. It is assumed that since a volume of systems would be pumped out over a defined period of time, economies of scale could be obtained through seeking competitive bids for system pump out services. An assumed rate of \$160.00 per pump out was used as a basis for budget estimating, with an annual increase of 3% added in each year, after year 1.
 - v. The budget also assumes 4 “man-weeks” of technical support to answer constituent questions and inquiries would be provided, also at a contract rate of \$45.00 per hour.

Source of District Formation and Operating Revenues

Source of Funds – District Formation

The budget for formation and first year operation of the proposed District, as depicted on the attached budget spreadsheets, incorporate the use of proceeds from existing grants from the State of New York, via the Environmental Protection Fund – Local Waterfront Revitalization Program (EPF-LWRP). In the first year, a (lump sum) total of \$12,420 has been incorporated into the budget, primarily for contract services related to district formation and preparation of the Map, Plan & Report, and initial inspection of the 71 identified properties to be included in the proposed district.

Source of Funds - Operations

Generally speaking, the main source of funds to *operate* the District, (once formed) in the manner described above, will come from annual assessments to the individual property owners included in the District.

For the first ten years of District operations, following formation of same, the attached budget spreadsheet incorporates an annual rebate to 100% of the 1/3 of the systems that will be pumped out annually. (Recalling from the above discussion that 1/3 of the 61 existing systems identified will be pumped each year). The amount of the rebate incorporated in the annual operating budget assumes a current fee of \$160.00 per 1000 gallon residential tank and a 50% rebate based on that contract pump-out rate; when pump-outs are packaged and scheduled for pump-out by the District), and put out for competitive bidding.) The first ten years of the operating budget also incorporate a \$7500 per year, lump sum contribution from the existing EPF grant as well. This amount has been programmed to pay for annual inspection and educational activities.

An Annual District Operating Budget will be prepared by the Town.

The costs of operating the District as outlined in said Annual Operating Budget will then be assessed to each property owner, on an Equivalent Dwelling Unit (EDU) basis. As defined by the Rural Development office of the US Department of Agriculture, an Equivalent Dwelling Unit (EDU) is defined as the level of service provided to a typical rural residential dwelling per year. In the case of the proposed district, a single EDU will be defined as/represented by a single family, three bedroom residence. This election is consistent with Appendix 75A – Wastewater Treatment Standards – Individual Household Systems, of the NYS Health Code. Appendix 75A requires a minimum of a 1000 gallon septic tank for all residences with 1, 2 or 3 bedrooms. The minimum size requirement changes for four (4) bedrooms, and up. Hence, the election of a single family residence, with up to three (3) bedrooms is being defined as a single EDU. This election will cover the vast majority of residences in the proposed District. For those properties that have residences greater than 3 bedrooms and/or are commercial in nature or operation, an equivalent rate formula will be developed and adopted by the Town Board, that reflects the pro rata and/or measured additional flows attributed to these larger or complex systems.

There will be an annual fee of \$30.00 charged to owners of vacant property included in the district to cover the costs associated with administration of the district for the benefit of all property owners therein.

Although it would be the intention of the Town to seek additional grant funding, to support operation of the District following the tenth year of operation, no assurances can be provided that additional grant funding opportunities would be available, nor that the Town would be successful in obtaining same. It should then be presumed that following the tenth year of District operation, and the presumed expenditure of the then available grant funding assistance that 100% of the District Operating Budget expenses will be met by assessments to the District property owners.

There is no capital financing contemplated by the Town to support any activities of the District.

Schedule for Implementation

The following steps are recommended to advance the formation of the North Queensbury Wastewater Management District No 1 (Responsible Management Entity)

- Town Board provide input to draft Map, Plan & Report
- Revisions to Map, Plan & Report, re-circulated to Town Board
- Map, Plan & Report (Draft) deemed final for public presentation
- Conduct Public Information Meeting(s) as appropriate
- Distribute copies of Draft Plan
- Receive Public Comments
- Map, Plan & Report revised (as and if, appropriate)
- Prepare & Consider SEQR Findings
- Town Board adopts Map, Plan & Report, (subject to permissive referendum...30 days)
- Map, Plan & Report filed with Department of State and NYS Comptroller