SOURCE WATER PROTECTION PLAN

VILLAGE OF NASSAU

Prepared by:

New York Rural Water Association

And

Village of Nassau
Source Water Protection Committee

Adopted by the Village Board of Trustees
On
June 13, 2018

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1.0 INTRODUCTION

The following source water protection plan has been prepared by Steven Winkley, P.G. of the New York Rural Water Association (NYRWA) with the assistance of the Village of Nassau Source Water Protection Committee. This committee was chaired by Andrew Kahnle, Village resident and retired New York State Department of Environmental Conservation (NYSDEC) fisheries biologist. Other members of the committee included: Tom Snow, Village resident, member of the Planning Board, and Program Coordinator of NYSDEC's New York City Watershed Program; Village Trustee and Water Department Commissioner Randy Howarth; and Jay Devlin, Village Water Department Superintendent. In addition, Rich Elder, Rensselaer County Health Department (RCHD) Environmental Health Director (and Village resident), has been consulted and reviewed the draft plan.

The purpose of this source water protection plan is to help ensure that the Village of Nassau and its citizens have a reliable, high-quality, and affordable water supply for the future. This plan identifies the wells' critical source water protection area, documents land use and potential sources of contamination, and outlines protection strategies to help minimize the threat of contamination of the supply wells and ensure an alternative supply in the event of a contamination event.

2.0 WATER SUPPLY DETAILS AND LOCATION

The Village of Nassau water system serves approximately 1,500 village residents and a few homes located just beyond the Village boundary. The average daily demand based upon production data from 2013 to 2016 was approximately 114,973 gallons per day (gpd). The Village's current source of supply consists of two wells located on a 1.3-acre Village-owned parcel off John Street near the Valatie Kill (Figure 1). A third well, Well 1, was placed off-line due to declining production and was replaced by Well 3 in 2001. Based upon the 250 gallons per minute (gpm) pumps installed in Wells 2 and 3, and the fact that these two wells are considered to be redundant to each other, the NYSDEC has permitted the Village wellfield for a withdrawal of 360,000 gpd (James Garry, NYSDEC, personal communication). Based upon drawdown and yield data (Table 1 below), it is likely that the wells could yield more than the current pumps are capable of supplying.

Well	Year Drilled	Depth (feet)	Diameter (inches)	Casing Depth (feet)	Screened Interval (feet)	Stabilized Yield (gpm)	Specific Capacity (gpm/ft)	Pump Size (gpm)
Well 1*	1959	54	10	?	?	?	?	?
Well 2**	1963	45	8	35	35 - 45	251	50	250
Well 3***	2000	48	12	30	30 - 48	510	85	250

* Use discontinued in 2001 due to declined production. Piping has been disconnected but well could be reactivated on an emergency basis.

** Data based upon 2006 redevelopment project by Capital Well Drilling, LLC.

*** Data from Well 3 Water Supply Permit and supporting documents.

NYSDEC has permitted the wellfield for 360,000 gpd.

Table 1. Water Supply Well Data

As Figure 1 indicates, there are seven residences located within 200 feet of the Village supply wells. Each of these homes relies upon on-site wastewater treatment systems (septic systems).

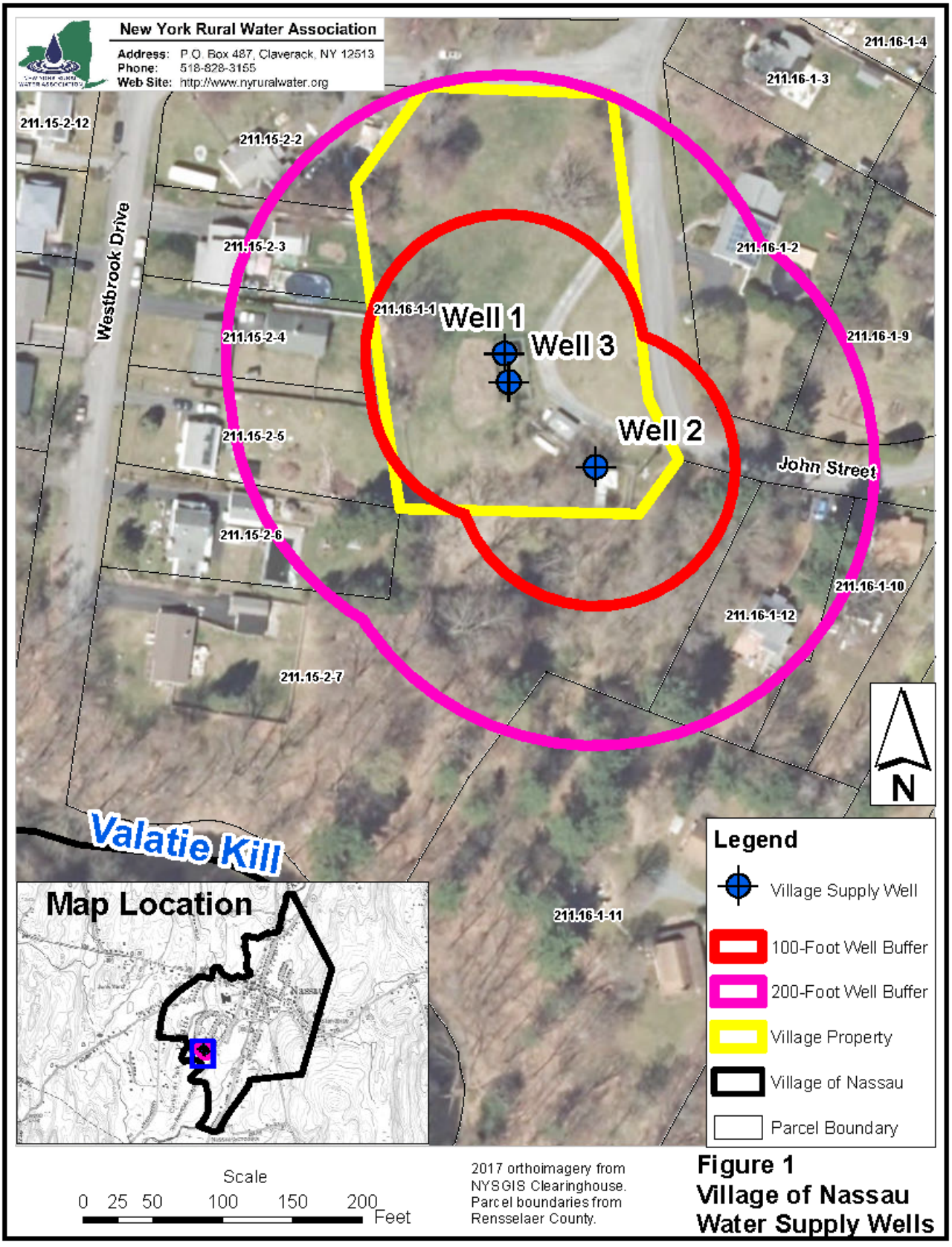

Figure 1
Village of Nassau
Water Supply Wells

New York State Department of Health regulations enacted since installation of the Village wells now stipulate that *"wells serving public water systems shall be located such that the owner of the water system possesses legal title to lands within 100' of the well and the owner controls by ownership, lease, easement or other legally enforceable arrangement the land use activities within 200' of the well."* These same regulations (Part 5, Subpart 5-1, Public Water Systems - Appendix 5D) also indicate that *"where these ownership/control distances or separation distances ….. cannot be achieved.…… use of such well location may be allowed by the Department or local health department having jurisdiction along with such additional measures as needed to prevent contamination of the water well and/or to otherwise provide potable water."* This source water protection plan, in part, is intended to help meet these additional protection measures.

3.0 HYDROGEOLOGIC SETTING AND WATER QUALITY

The Village of Nassau's supply wells all produce water from the so-called Lower Valatie Kill Aquifer, an unconsolidated (sand and gravel) aquifer composed chiefly of glacial outwash contained within the valley of the Valatie Kill south of Nassau Lake. Much of the Village of Nassau is underlain by this aquifer (Figure 2). The aquifer deposits consist of relatively coarse-grained sands and gravel deposited by glacial meltwater. Limited subsurface data indicates the depth of the aquifer varies widely, from 0 to 50 feet, with areas of non-aquifer bedrock or till outcropping at the surface in some areas. Available well data indicates that the aquifer is unconfined, meaning there are no widespread fine-grained deposits such as silt or clay between the land surface and the water-bearing interval tapped by the supply wells. The water table is approximately 9 to 15 feet deep across the public water supply wellfield, and slopes southwest towards the Valatie Kill in this vicinity at an inferred gradient of 0.005 feet/feet (Figure 2).

The sand and gravel aquifer is quite permeable, with a calculated hydraulic conductivity (K) of 153.7 feet/day. This value is within the range of sand and gravel deposits and is based upon a 2006 pumping test (see Figure 3). Based upon this value and the inferred hydraulic gradient, the average groundwater flow rate is estimated to be 3.8 feet/day.

Review of the Village of Nassau's public water supply testing did not reveal any Maximum Contaminant Level (MCL) exceedances for inorganic chemicals, physical characteristics, or organic chemicals. Note that the sodium content of the water (52 to 60 mg/L) does exceed 20 mg/L, which the New York State Department of Health indicates should not be used for drinking by people on severely restricted sodium diets. A plot of historical sodium and chloride levels shows a slight upwards trend in these chemicals (Figure 4). Similarly, nitrate levels have averaged 2.5 mg/L, well below the MCL of 10 mg/L. A plot of historical nitrate levels show annual variations, with a very small overall upwards trend (Figure 5). The relatively low levels of sodium, chloride, and nitrate in water from the supply wells are not indicative of present contamination from man-made sources such as septic systems and deicing salts. However, the small upwards trend in these substances merits continued surveillance.

In early 2016, the Rensselaer County Health Department sampled the Village's water system for PFOA (perfluorooctanoic acid), a chemical historically used to make coatings and products that resist heat, oil, stains, grease, and water. This substance has not been regulated for drinking

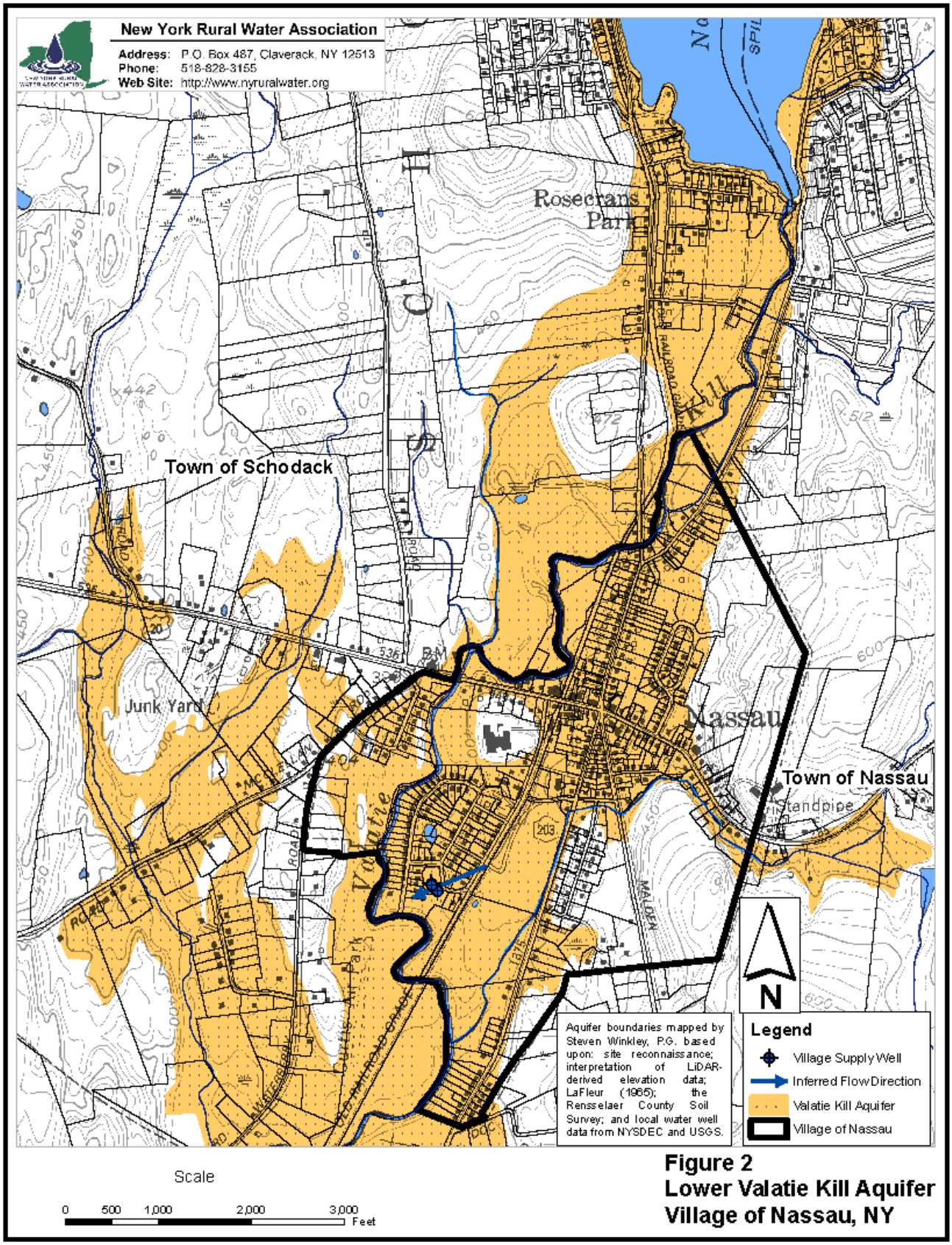

Figure 2
Lower Valatie Kill Aquifer
Village of Nassau, NY

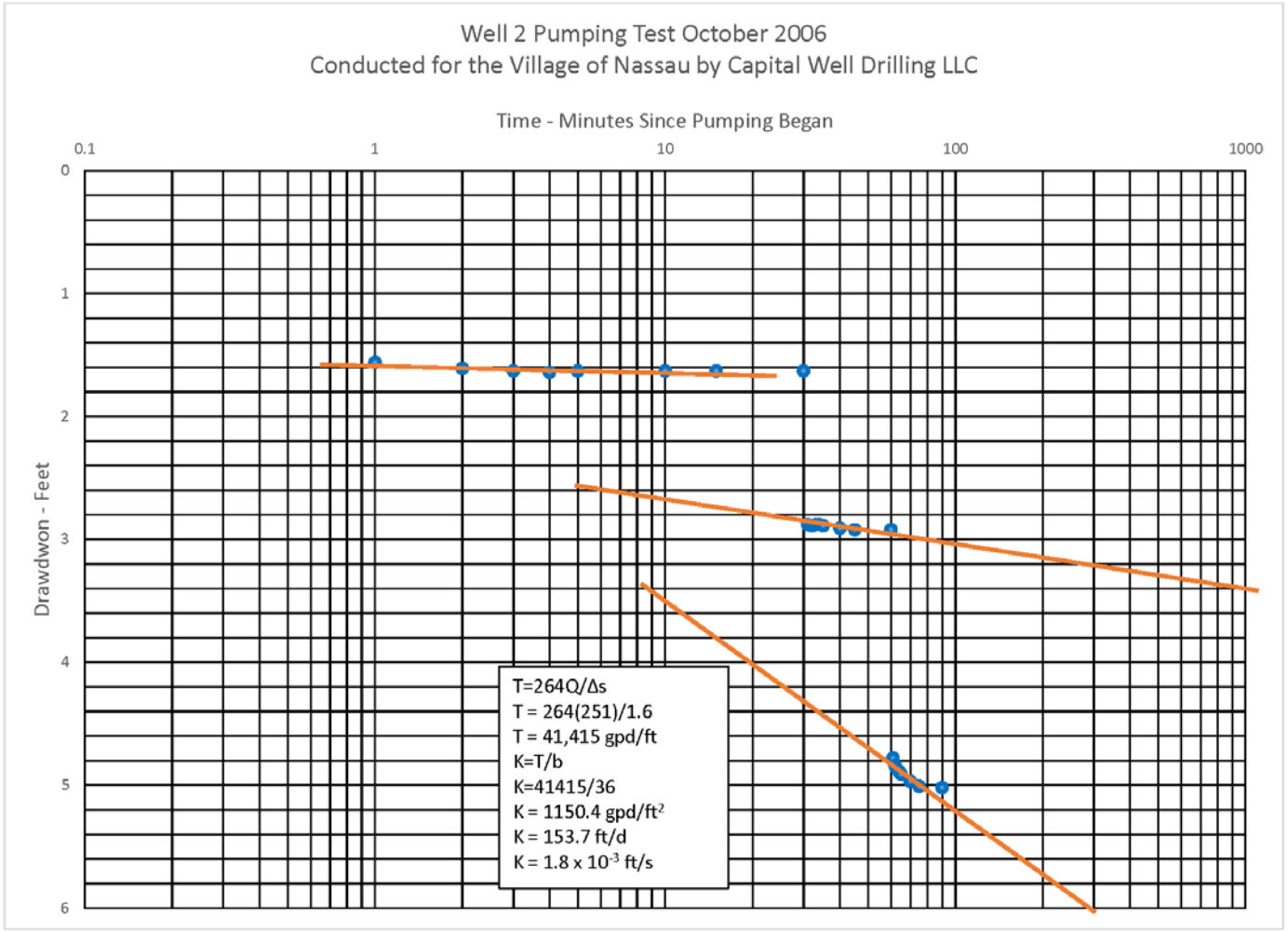

Figure 3. Well 2 Step-Drawdown Test Performed in 2006

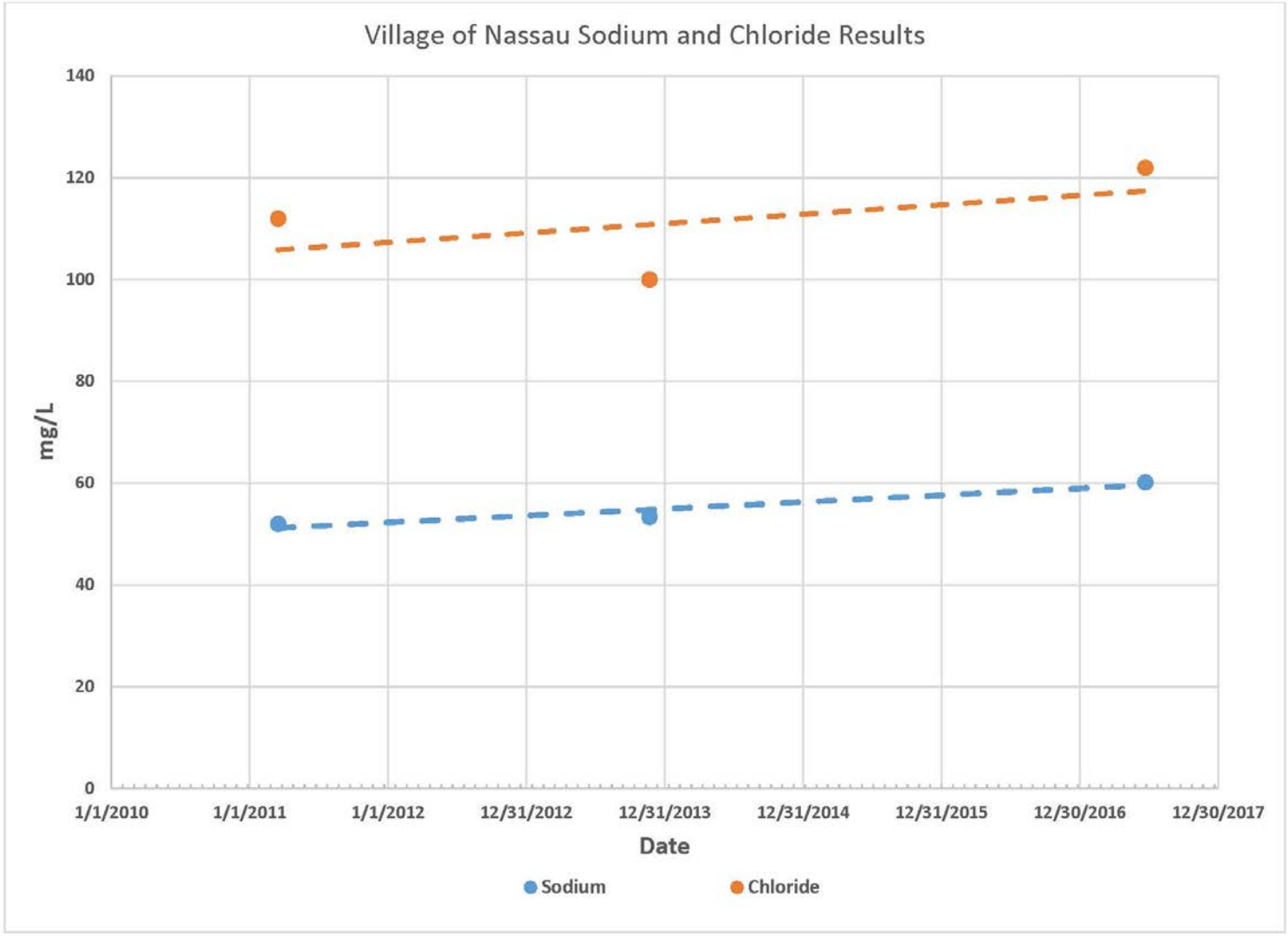

Figure 4. Historical Sodium and Chloride Levels in the Village of Nassau Water Supply Wells

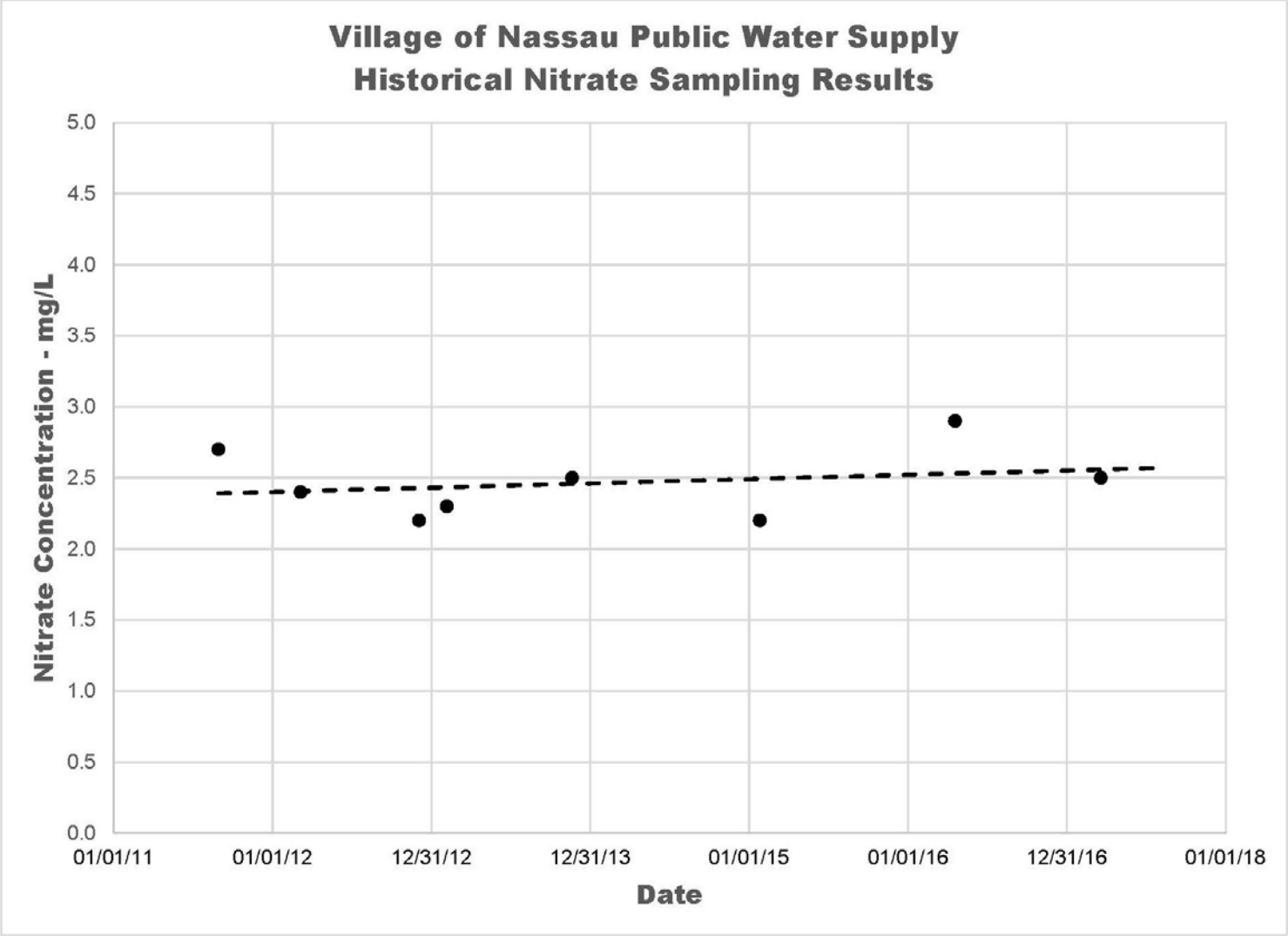

Figure 5. Historical Nitrate Levels in the Village of Nassau Water Supply Wells

water testing by the state or federal government. The result from this initial test conducted in early 2016, and collected from the distribution system, was 6.3 parts per trillion (Rich Elder, RCHD, personal communication). The Village of Nassau subsequently tested for PFOA in the raw well water in August 2016. The result was 5.9 parts per trillion. These test results for PFOA are below the USEPA's health advisory level of 70 parts per trillion. Note that the August 2016 test collected by the Village indicated a PFOS result of 5.8 parts per trillion. PFOS (perfluorooctyl sulfonate) is related to PFOA and is used in fire-fighting foam. When both PFOA and PFOS are found in drinking water, the combined concentrations of PFOA and PFOS should be compared with the 70 parts per trillion health advisory level.

The chemical 1,4-dioxane has also not been regulated for water testing and was used as an industrial chemical in paints, primers, varnishes, degreasers, and inks. The treatment plant at the Dewey Loeffel Landfill in the Town of Nassau has been discharging levels of 1,4-dioxane to the Valatie Kill upstream of Nassau Lake. Concerns over this from members of the Village's Source Water Protection Committee prompted the Village to test the supply wells for 1,4-dioxane. The January 2018 test indicated that levels of 1, 4-dioxane were below 0.07 parts per trillion, the test's method detection limit.

Although no Maximum Contaminant Level (MCL) exceedances have occurred for any organic chemicals from the public supply wells, low levels of MTBE (a gasoline additive banned in 2004) was found in Well 3 during initial sampling of this well after completion in December 2000. MTBE was initially found at 4.8 ppb (the MCL is 10 ppb). By June 2001, levels had decreased to 3.0 parts per billion. In July 2001, levels were down to 2.7 parts per billion. By October 2001, MTBE was found at only 0.8 parts per billion and the chemical was not detectable by 2002. NYSDEC concluded after a brief investigation that the most likely cause of this low level contamination was a drainage swale adjacent to Well 3. This swale is fed, in part, by a stormwater catch basin located directly north of Wells 1 and 3. This catch basin was installed by the Village shortly before the drilling of Well 3 in order to alleviate a periodic flooding situation.

4.0 SOURCE WATER PROTECTION AREA

A source water protection area for a water well supply is defined as the area that supplies a public water supply well through which contaminants are likely to pass and eventually reach the water well(s). NYRWA delineated the source water protection area for the Village of Nassau to include three zones (see Figure 6). These zones include: (1) the inner well zone from the 2004 New York State Department of Health (NYSDOH) source water assessment (a calculated 1,379-foot radius circle from the supply wells); (2) the zone of contribution representing the aquifer area where groundwater flow is directed toward the supply wells; and (3) the tributary watershed zone, the area where runoff is tributary to the inner well zone and zone of contribution. NYRWA used the Uniform Flow Feature of the EPA's WhAEM (Wellhead Analytical Element Model) to define the zone of contribution. An uncertainty of +/- 15 degrees in the inferred groundwater flow direction was assumed. The model uses input data such as pumping rate (assumed to be the average daily demand), aquifer characteristics (see above), water level elevation data, aquifer boundaries, etc. Figure 6A is a close-up of the zone of contribution, with approximate groundwater time-of-travels (TOT) to the supply wells.

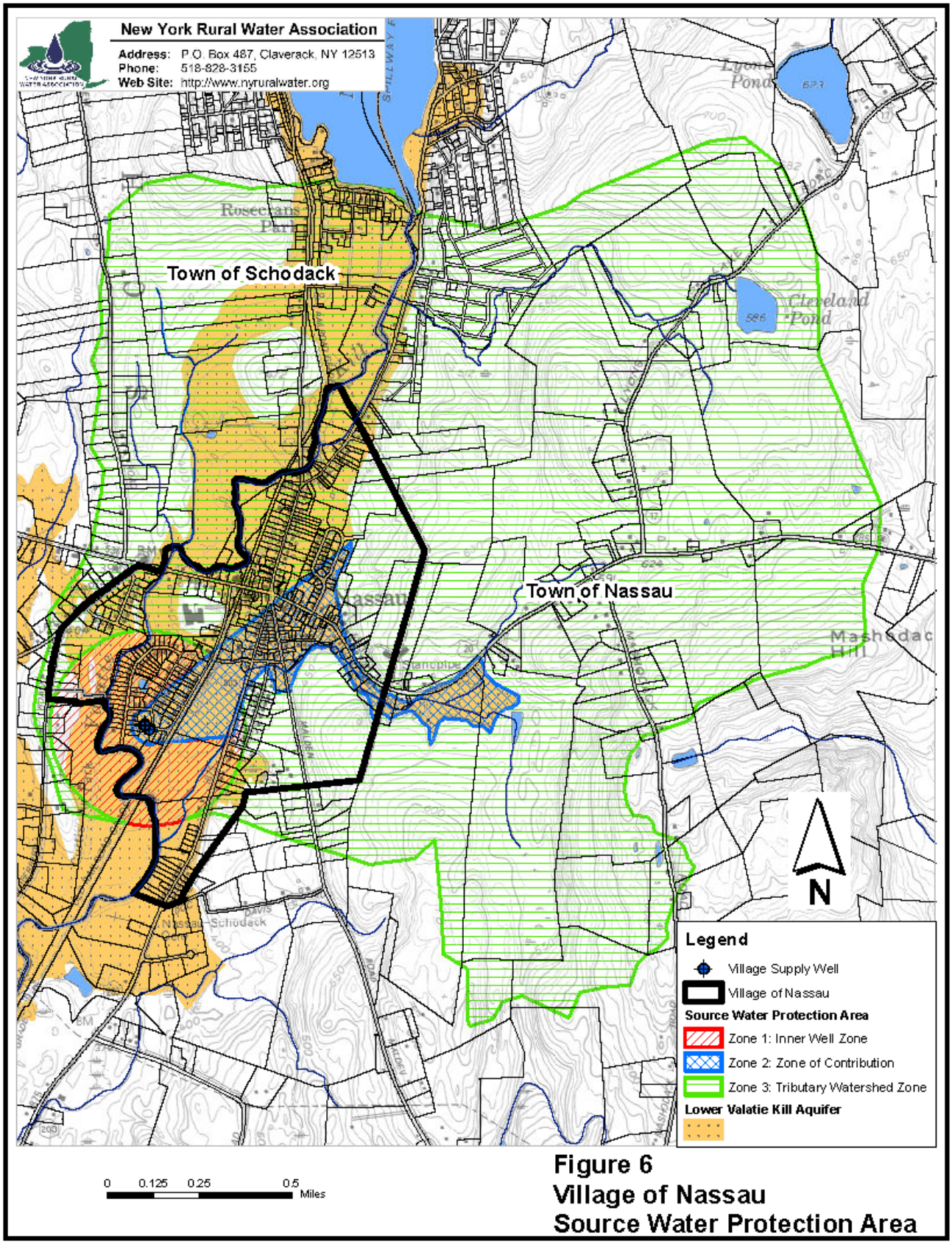

Figure 6
Village of Nassau
Source Water Protection Area

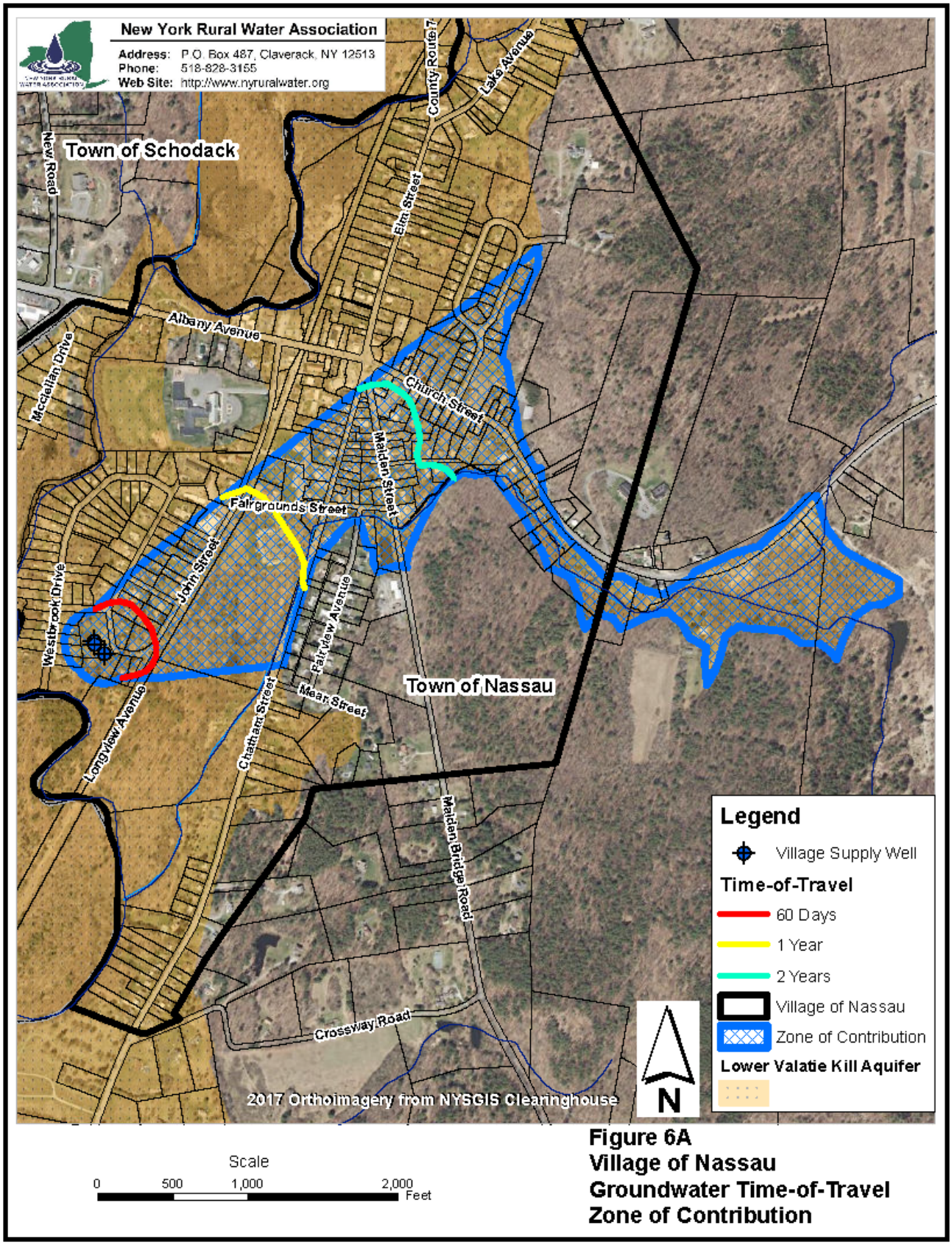

Figure 6A
Village of Nassau
Groundwater Time-of-Travel
Zone of Contribution

419 acres of the source water protection area is situated within the Village of Nassau, 483 acres is within the Town of Schodack, and 1,465 acres of the protection area falls within the Town of Nassau (outside of the Village limits).

5.0 POTENTIAL CONTAMINANT SOURCE INVENTORY

5.1 Regulated Facilities

Figure 7 is an inventory of potential contaminant sources taken from available online regulatory databases of the EPA and the NYSDEC. It shows applicable environmental facilities that are regulated by these agencies. Two P/C/I SPDES- Groundwater Discharge permits have been issued for the source water protection area. These are private, commercial and institutional facilities that discharge between 1,000 gallons per day and 10,000 gallons per day of treated sanitary sewage to groundwater. The two facilities with P/C/I SPDES permits are the Donald P. Sutherland Elementary School and the Nassau Senior Citizen Housing complex. The latter is located within the public wells' zone of contribution.

In addition to the State Pollution Discharge Elimination System (SPDES) permits, there are petroleum bulk storage facilities within the source water protection area. These are facilities that store more than 1,100 gallons of petroleum in aboveground and/or underground storage tanks. Within the source water protection area this includes several gas stations/convenience stores as well as the Donald P. Sutherland Elementary School (12,000 gallon underground fuel oil tank according to database records).

5.2 Other Higher Risk Land Uses

Figure 8 shows higher risk land uses that are not regulated but have been defined by NY Rural Water Association using real property classification codes. These types of land uses have historically been linked to groundwater contamination (though not specifically in Nassau). Seven parcels of higher risk were identified within the zone of contribution of the source water protection area. These include an auto body shop, an auto dealer, two mini-marts, a fire station, a highway garage, and a business classified as a storage, warehouse and distribution facility that is associated with a water well drilling business.

5.3 Household Threats

Based upon an inventory of land uses, discussion with the Rensselaer County Health Department, and review of water quality data, several specific household threats were identified that include:

- Observed dumping of yard clippings, leaves, wood, etc. in the immediate vicinity of the supply wells (these materials may contain trace amounts of oil, gasoline, etc.). This dumping has occurred despite a no dumping sign immediately adjacent to the Well 1 well house.
- The potential for contaminated runoff from potential spills infiltrating into the ground in the vicinity of the supply wells. This was cited as the cause of the low levels of MTBE found in 2000-2001.

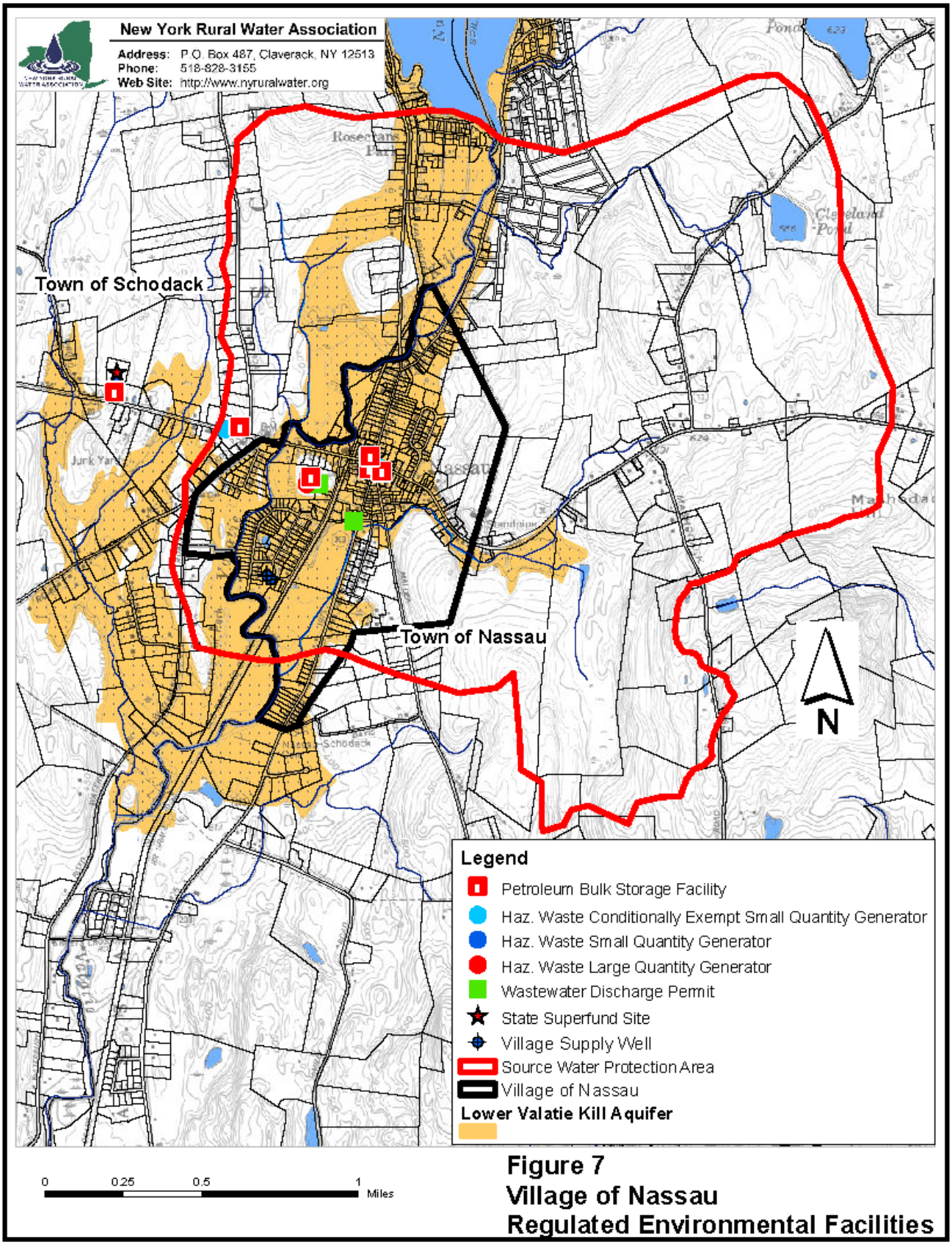

Figure 7
Village of Nassau
Regulated Environmental Facilities

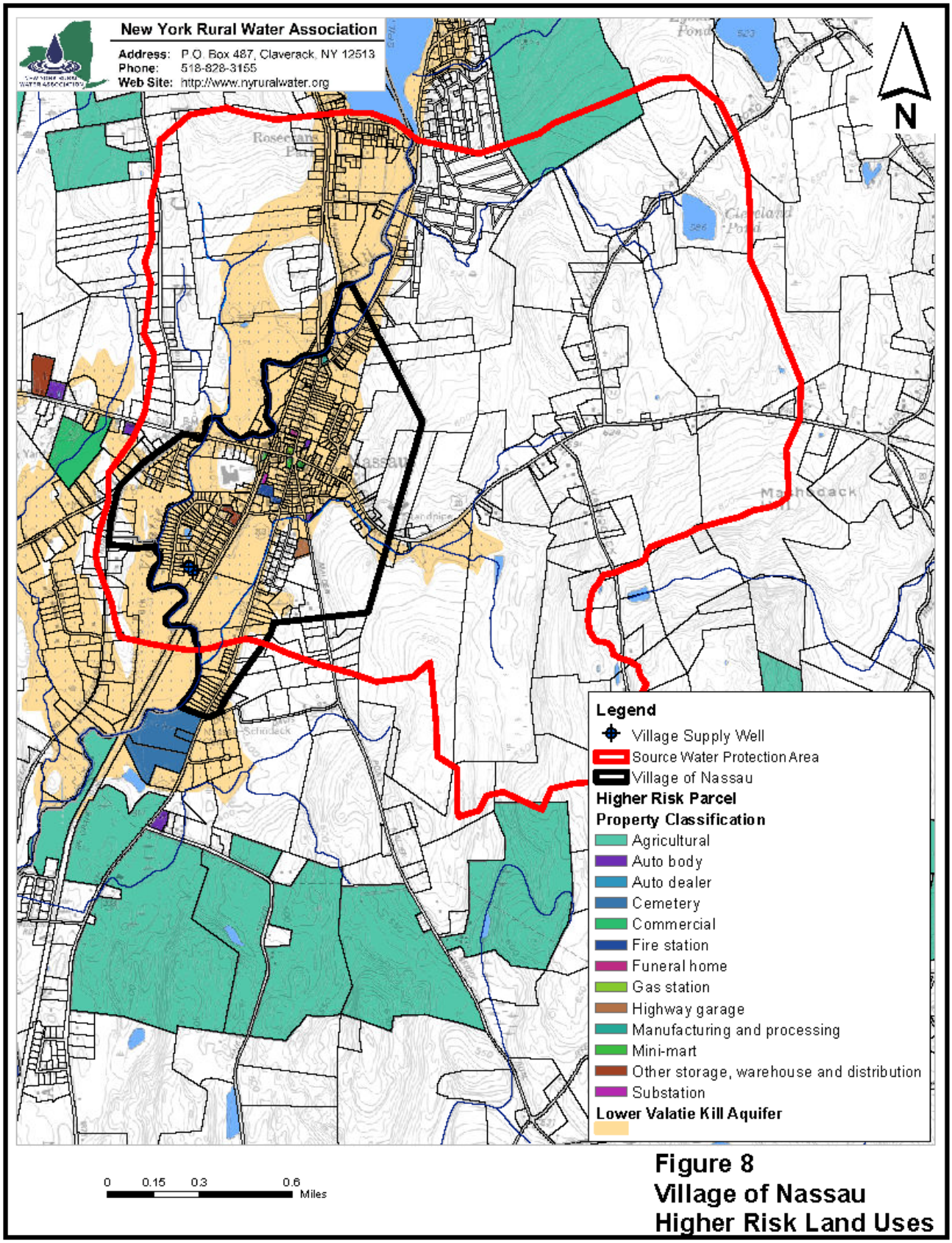

Figure 8
Village of Nassau
Higher Risk Land Uses

- Reliance on septic systems for wastewater disposal in close proximity to the Village supply wells (i.e. within 200 feet of the wells). The lots that these seven systems were built on range in size from 0.23 to 0.55 acres. The homes were built from 1950 to 1967.
- Storage and use of fuel oil for heating in close proximity to supply wells. In the past 20 years, there have been 5 reported spills in the neighborhood immediately adjacent to the wells. Four of these have involved home heating oil. Some of these spills have been due to tank or other equipment failure, and others from delivery issues. The most recent spill occurred in July 2017. The Village was not notified of this most recent or other spills in the vicinity.

6.0 PROTECTION STRATEGIES

Management of source water protection areas to minimize the threat of contamination can involve regulatory and/or non-regulatory approaches. Regulatory approaches involve passing new laws or regulations. Non-regulatory approaches do not.

6.1 Non-Regulatory Strategies

Land Acquisition

In 2017, NYSDEC introduced the first year of a five year initiative under the Water Quality Improvement Project (WQIP) Program *"for funding to purchase land or conservation easements adjacent to groundwater wellheads actively used for public drinking water."* Grant funds are available for up to 75 percent of the total project costs, and applicants must provide match funds of at least 25 percent of the requested grant amount. Land acquisition costs are eligible, as is the value of the land or development rights being acquired, transactional costs (e.g. property surveys, appraisals, baseline documentation reports, filing fees or other closing costs). WQIP Round 15 applications are not available at the time of this plan completion. However, in 2017, applications were accepted from May 1st through July 28th.

WQIP funding could be used by the Village to offset the costs of purchasing undeveloped portions of parcel(s) within 100 feet and 200 feet of the supply wells (see Figure 1). One large parcel in the area could be subdivided, with the Village purchasing the undeveloped portion of this parcel. This purchase would amount to 0.95 acres to 1.24 acres, depending how the lot is subdivided. The result of this possible purchase would be that the Village would own/control the vast majority of the area within 100 feet of the supply wells, as well as remaining undeveloped land within 200 feet of the wells.

Education and Outreach

It is entirely possible that residents within 200 feet of the supply wells and other portions of the source water protection area have no idea that actions on their property could possibly impact the quality of the water that they drink and use. Village residences and businesses rely upon septic systems for wastewater disposal. All septic systems have a life expectancy. Septic system failure can be prolonged with proper operation and maintenance. For example, chemicals such as paints, solvents, oils, etc. should never be flushed down the drain since these can disrupt septic system operation and directly lead to groundwater contamination.

Real property records indicate that 6 of 7 homes within 200 feet of the Village supply wells also rely upon fuel oil for heating. These homes are now 50 to 70 years old, and it is not known if the original tanks still remain in these homes and/or if they are buried underground. In addition to concerns over septic systems and oil tanks, it is important to note that other activities such as fueling, oil changing, etc. lead to spills that could eventually reach groundwater considering the permeable soils and stormwater flow in the area.

It is vital to let people know that they have an important role in protecting the water they consume. Appendix A contains a brochure developed by the NYSDOH that can be distributed with the Village water bills. In the absence of a similar brochure for home heating oil tanks, NYRWA is developing one that can similarly be distributed.

Notification

Eighty-two percent of the source water protection area for the Village of Nassau is outside of the Village's jurisdiction. Thus, it is very important to inform the Town of Nassau and the Town of Schodack of the Village's source water protection area and ask that they consider potential impacts upon the water supply when making decisions to approve projects within this critical area. This notification can be in the manner of a simple letter or a formal resolution and request for consideration as an interested agency under SEQR for future projects. Below is an example of such a resolution:

RESOLUTION FOR NOTIFYING THE TOWN OF NASSAU AND THE TOWN SCHODACK OF THE VILLAGE OF NASSAU SOURCE WATER PROTECTION AREA

At a regular meeting of the Board of Trustees of Village of Nassau, Rensselaer County, New York, held at the Village Hall, 40 Malden Street, in said Village of Nassau, on the ___ day of _____, 2018, at ____ o'clock, there were:

PRESENT:

ABSENT:

Mr./Ms. _____ offered the following resolution and moved its adoption:

WHEREAS, it is within the responsibility of the Village of Nassau as a public water supplier to protect the health and safety of its customers; and

WHEREAS, groundwater contamination can and does occur as a consequence of a variety of land use activities; and

WHEREAS, it is desirable to preserve and protect the quantity and quality of our groundwater resources to ensure a continued safe, adequate, and usable supply, now and in the future; and

WHEREAS, the Source Water Protection Area of the Village of Nassau extends into the Towns of Nassau and Schodack; and

NOW, THEREFORE, BE IT RESOLVED that the Board of Trustees of the Village of Nassau requests that the Town of Nassau Town Board, Planning Board, and Zoning Board of Appeals, as well as the Town of Schodack Town Board, Planning Board, and Zoning Board of Appeals consider water supply protection when making decisions to approve, fund, or directly undertake an action within the source water protection area of the Village of Nassau as indicated on the attached map; and be it further

RESOLVED, that the Village of _____ wishes to be considered an Interested Agency as defined in 6 NYCRR Part 617.2 (t) with respect to any and all proposed actions occurring within the source water protection area of the Village of Nassau. The Village of Nassau also requests notification for the purpose of commenting on all proposed actions occurring within the source water protection area as indicated on the attached map.

Seconded by Mr./Ms. _____ and duly put to a vote, which resulted as follows:

_____ AYES
_____ NAYS

Security Improvements

In order to prevent continued dumping in the area adjacent to and south of the supply wells, the Village could install approximately 100 feet of fencing with locking gates. This fencing need not be so-called “security fencing”, and could be similar to existing fencing in the area in order to discourage entry.

In addition to the added fencing, the Village could erect additional “No Dumping” signs at the dead-end of Westbrook Drive and along the road immediately north of wells. This will serve to further inform the public and discourage entry into the area adjacent to the wells.

Finally, security camera systems will allow the Village to monitor the well facilities at any time of day. Wireless video feeds can be sent to smart phones, computer, law enforcement agencies, etc.

Stormwater Runoff

Due to the presence of a stormwater outfall some 200 feet north of the supply wells, the Village has considered stormwater enhancements near wellfield. One approach would be to pipe this drainage downgradient of the supply wells. Due to the difficulties involved with this task and securing certified clean fill, it is not considered to be justified at this time based upon the apparent lack of drainage that is involved. For now, visual monitoring of the outfall from the catch basin by Village personnel will be conducted. If a substantial amount of flow is noted from this outfall, drainage improvements should be reconsidered.

6.2 Regulatory Strategies

CEA Designation

Local agencies such as the Village of Nassau may designate specific geographic areas within their boundaries as "Critical Environmental Areas" (CEAs). To be designated as a CEA, an area must have an exceptional or unique character with respect to one or more of the following:

1. A benefit or threat to human health;
2. A natural setting (e.g., fish and wildlife habitat, forest and vegetation, open space and areas of important aesthetic or scenic quality);
3. An agricultural, social, cultural, historic, archaeological, recreational, or educational values; or
4. An inherent ecological, geological or hydrological sensitivity to change that may be adversely affected by any change.

The Village’s source water protection area or any portion of it within the Village limits would meet criteria 1 and 4 listed above. Following designation, the potential impact of any SEQR Type I or Unlisted Action on the environmental characteristics of the CEA is a relevant area of environmental concern and must be evaluated in the determination of significance prepared pursuant to Section 617.7 of SEQR. CEA designation would make potential project applicants

(and other government agencies that have to approve, fund or directly undertake an action which may affect the environment) aware of the Village of Nassau's concern for the resources within the CEA. The process of adopting a CEA involves public notice, a public hearing, and filing the designation and maps with the NYSDEC.

Zones 1 and 2 of the delineated source water protection area are to be designated as a CEA. This is the priority portion of the source water protection area for protection purposes. It includes that portion of the aquifer where groundwater is understood to flow toward the Village public supply wells.

A sample public notice, as well as resolutions for a public hearing and for designating the CEA are found in Appendix B.

Amendment of Village's Anti-Littering Law

Part of the Village of Nassau's Code is the "Anti-litter Law", Chapter 70. In order to address illegal dumping in the area of the public water supply wells, this Chapter could be amended. A new section §70-10A or §70-12 that could be entitled *Littering Adjacent to Public Supply Wells* could read "*No person shall throw or deposit litter located within 200 feet of the water supply wells owned and operated by the Village of Nassau in order to protect the public health, safety and welfare. A map showing the area adjacent to the public water supply wells is on file in the office of the Village Clerk.*" This map would be Figure 1 of this plan. Note that Chapter 70 defines litter as including, among other items, yard clippings, leaves, and wood. Alternatively, the area regulated could be restricted to only vacant and public property within 200 feet of the supply wells.

7.0 FUTURE PLANNING

7.1 Emergency Response Planning

In New York State, all community water systems that serve more than 3,300 people are required by State Public Health Law to prepare and submit a water supply emergency response plan (ERP). Although not required, smaller community water systems such as Nassau are encouraged to prepare an ERP. Nassau has an ERP on-file in the Village offices and regular updates are encouraged.

The relatively shallow unconfined nature of the aquifer, the proximity of U.S. Route 20 and N.Y. Route 203, the proximity of residences and businesses to the supply wells, and the lack of a sewer system means that the water supply is more susceptible to spills of petroleum and hazardous materials. Under state law, all petroleum and most hazardous material spills must be reported to the NYSDEC's Bureau of Spill Prevention and Response (BSPR). BSPR in turn are to notify the local fire department, local and/or state police, and health department officials if they have not already arrived on-site. In order to have the Village be informed as soon as possible of any spills in zones 1 and 2 of the source water protection area, a copy of this protection plan should be forwarded to the NYSDEC Region 4 Spill Response Unit, as well as

the local fire department, the Rensselaer County Health Department, and the Rensselaer County Emergency Management Office.

7.2 Alternative Water Supplies

The Village supply wells are less than 100 feet apart, of similar relatively shallow depth. A contamination event would likely impact both wells. Ideally, an alternative water supply should be available to the Village in the event of contamination (or depletion).

The *ideal* site for a new ground water supply source for Nassau would be located such that it is:

- On accessible property where a minimum 200-foot protective radius could be maintained (including purchase of a 100-foot radius of ownership and an additional 100 feet of control in the form of ownership, protective easement, local laws, etc.);
- Reasonably close to existing water mains (for the sake of this plan, a maximum distance of one-half mile from existing mains was assumed to define the water supply search area);
- Not subject to the direct influence of surface water (>200 feet away from surface water and wetlands to reduce threat);
- Positioned upgradient and away from as many potential sources of contamination as possible; and
- Located over the productive sand and gravel aquifer.

Using these criteria, NYRWA evaluated local ground water resources to determine if there are site(s) where a new public water supply well could be located. Using real property data, preference was initially given to Village-owned properties. Although a number of sites were tentatively identified, only one of these was deemed to be possibly realistic. That site is illustrated in Figure 9. The site is owned by Nassau Ambulance, is relatively accessible, and it is adjacent to the Village's water distribution system. The site does have some issues, however. Geologically, a number of bedrock outcrops occur in this area. The depth (thickness) of the Lower Valatie Kill Aquifer is thus in question here. Also of concern is the proximity of the Nassau Ambulance building's septic system (which is east of the building). It is very possible that this system is within the 200-foot buffer area of a potential well site.

A preferred alternative to this possible well site may be an interconnection between the Village of Nassau water system and the Town of Schodack Water District. There is approximately one-mile of separation between the systems along U.S. Route 20. A physical interconnection would involve extension of the Schodack water system and other modifications. Residential water wells in this area historically had shown some bacterial contamination (Rich Elder, RCHD, personal communication), possibly warranting this extension. The area is very shallow to bedrock and contamination may have been from agriculture, septic systems, etc. A preliminary engineering study would help evaluate the feasibility and costs of the water main extension project. Funding sources may be available to offset some of the expense of such a project.

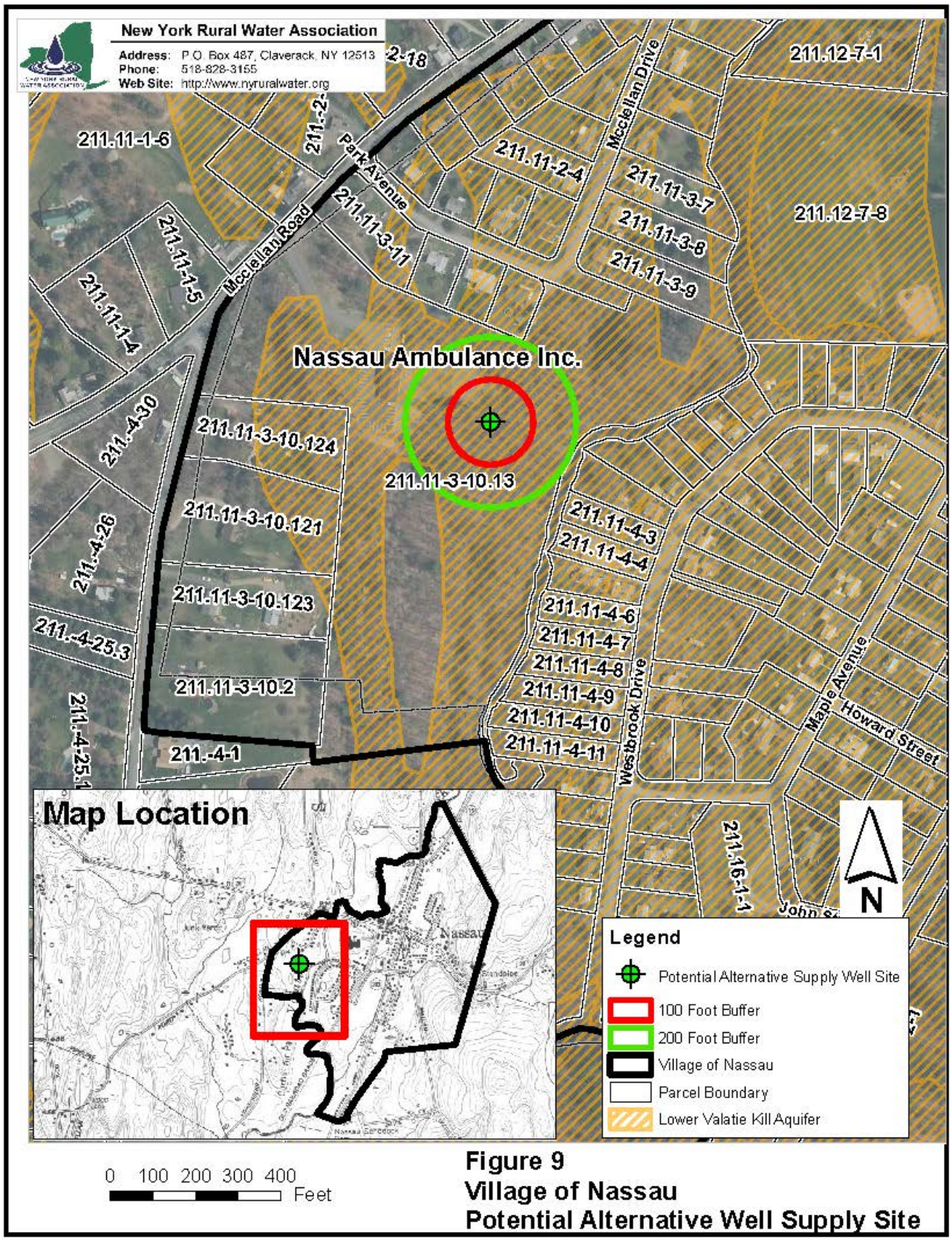

Figure 9
Village of Nassau
Potential Alternative Well Supply Site

APPENDIX A

SEPTIC SYSTEM OPERATIONS AND MAINTENANCE BROCHURE

SAMPLE LETTER TO ACCOMPANY NYSDOH BROCHURE

Dear Village Resident,

The Village of Nassau has recently developed a source water protection plan to help ensure that residents have a safe, high-quality, and affordable water supply for now and future generations. This premise of such a plan is the old adage *"an ounce of protection is worth a pound of cure"*. Here in Nassau, we are fortunate to have a productive sand and gravel aquifer that feeds our public water supply wells.

The groundwater withdrawn by our supply wells begins as rain and melted snow which falls across the land and seeps into the ground. Since this water was once at or near the land surface, human activities can affect the quality of groundwater. We need to be aware that the things we do can affect the quality of the water we cook with, wash with, and of course, drink.

All residents and businesses in the Village rely on septic systems. Many of these systems are older and are located on parcels that do not meet today's size requirements for septic system design. In order to prolong the life of these septic systems and prevent the contamination of groundwater, it is critical that septic systems are operated and maintained properly.

Enclosed is a brochure that has been developed by the New York State Department of Health. It provides information about septic systems and how they should be operated and maintained. We hope that you spend a few minutes and review this brochure. If you have any questions about the brochure, you can contact the Rensselaer County Health Department at (518) 270-2626. If you would like to learn more about the recently developed source water protection plan, please feel free to call the Village Hall at (518) 766-3044.

Sincerely,

Village Board of Trustees

Maintain Your System

Regularly pump-out your septic tank when needed.

Keep a record of pumping, inspections, maintenance and repairs.

Map out septic tank and other system components. Either have a map or locate components with permanent stakes. This is useful for accessing the system and will prevent damaging system components when doing home maintenance or yard work.

Don't park or drive heavy vehicles or equipment over the septic system or any of its components.

Don't build structures, such as decks, patios or swimming pools, that would cover the absorption field or limit access to the septic tank and distribution box.

Don't flush or use strong chemicals and bacteria-destroying products, such as drain cleaners, solvents, paint, paint thinners, floor cleaners, sink cleaners, motor oil, antifreeze, pesticides, and photo chemicals. These may disrupt septic tank or absorption system operation. Household bleach, disinfectants, cleansers, antibacterial soaps, when used in normal household applications should not affect system operations.

Don't flush materials that don't easily degrade, such as paper towels, cotton swabs, personal hygiene products, condoms, medications, disposable diapers, coffee grounds, cat litter, cooking fats/oils, facial tissues, dental floss, cigarette butts, plastics, grease or bones.

Avoid septic tank additives. A septic tank that is properly sized and maintained will adequately manage household wastewater without the use of additives.

Avoid garbage disposals or grinders because these substantially increase the accumulation of solids in the septic tank and in the absorption field. If they are used, the septic tank size should be increased and pumped-out more often.

Direct water treatment system discharges to a separate soil absorption system, if possible, to minimize discharges to the septic system. However, as long as the system is well maintained and can accommodate the additional flow, water treatment system discharges can be directed to the septic tank in many cases.

Direct drainage away from the septic system from roof, cellar/footing (sump pump) and surface water run-off.

Plant grass and other shallow-rooted plants over the absorption field. Keep trees and long-rooted plants and shrubs away from the immediate area of the absorption area. Roots can grow into the pipes and clog the system.

Conserve water. Check for defective toilet tank valves, repair leaky fixtures, and install appliances and fixtures that use less water and avoid wasteful practices.

Regularly inspect and maintain any effluent pumps and alarms that may be part of your septic system.

Find Out More

New York State Department of Health
health.ny.gov/environmental/outdoors/septic
Residential Sanitation & Recreational Engineering Section, Bureau of Water Supply Protection
ph: (518) 402-7650, E-mail: bpwsp@health.state.ny.us

Contact Your Local Health Department
health.ny.gov/environmental/water/drinking/doh_pub_contacts_map.htm

NEW YORK state department of HEALTH

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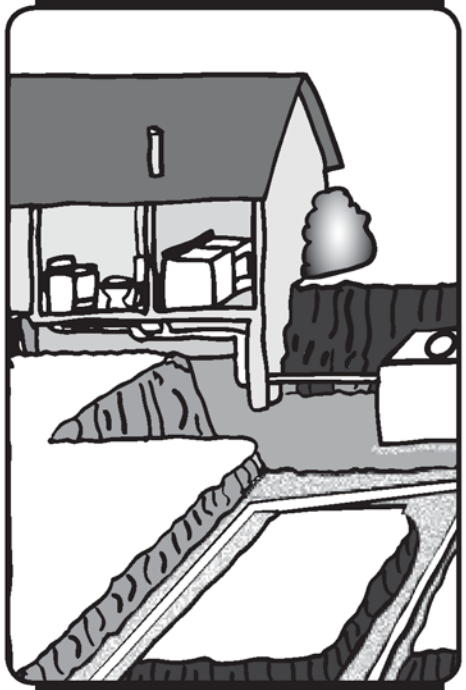
Septic System

Operation and Maintenance



A septic system will serve a home for a long time if it is properly located, designed, constructed and maintained. However, even the best designed and installed septic system will eventually fail without periodic maintenance. This guide briefly describes septic system components and how they should be maintained.

Septic System Components

A septic system, also called an onsite wastewater treatment system (OWTS), is made up of a **house sewer drain, septic tank, distribution box** and **soil absorption (leach) field** *(see Typical Septic System diagram, right).*

❶**The house sewer drain** collects all the discharge from home fixtures, such as toilets, sinks, showers and laundry and connects to the septic tank.

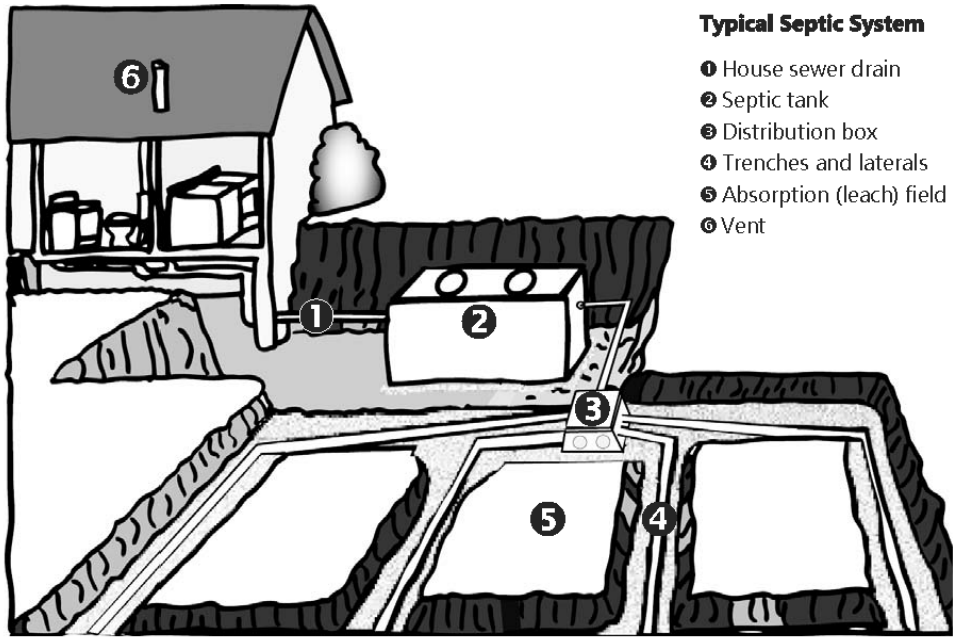
❷**The septic tank** collects all the discharges from household plumbing and provides the needed time for wastes to settle or float. The heavy solids settle to the bottom of the tank where they are broken down by bacteria to form sludge. The lighter solids, fats and grease, partially decompose and rise to the surface to form a layer of scum. This process allows the partially treated wastewater to be released to the absorption field.

❸**The distribution box** evenly distributes wastewater from the septic tank to pipes in the trenches of the absorption field. It is important that each trench receives an equal amount of flow to prevent overloading to one part of the absorption field.

❹**Trenches** receive partially treated sewage.

❺**The absorption (leach) field** is a system of trenches and distribution pipes where wastewater is biologically treated by the surrounding soil. The system is partially filled with washed gravel, stone or a gravelless product. The absorption field must be properly sized, constructed and maintained to assure satisfactory operation and long life.

❻**The vent** permits gases that build up in the plumbing to exit the system.



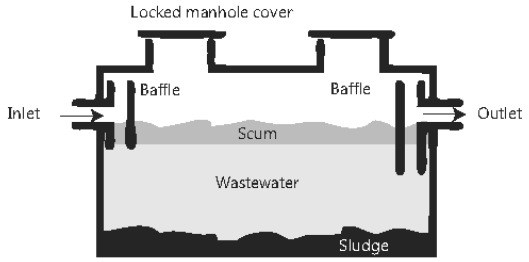
Typical Septic System

❶ House sewer drain
❷ Septic tank
❸ Distribution box
❹ Trenches and laterals
❺ Absorption (leach) field
❻ Vent

Septic Tank Maintenance

A septic tank should be pumped out every two to three years.

A septage waste transporter (septic tank pumper) that is licensed by the New York State Department of Environmental Conservation can inspect, measure tank layers and pump out the tank when necessary.



Typical Septic Tank

CAUTION! Never enter a septic tank because it contains toxic gases that can be deadly.

APPENDIX B

SAMPLE CEA DOCUMENTS

The steps in the CEA designation process are:

1. Submit a written public notice that identifies the CEA boundaries and the specific environmental characteristics of the area warranting CEA designation.

2. Conduct a public hearing regarding CEA designation.

3. Follow the SEQR process for the action of designating the CEA. Since this is an Unlisted Action, a Short Environmental Assessment Form (SEAF) would be filled out. In all likelihood, the act of designating the CEA only warrants a negative determination of significance. A negative declaration must contain:

   - A statement that it is a negative declaration for purposes of Article 8 of the Environmental Conservation Law;
   - The name and address of the lead agency;
   - The name, address and telephone number of a person who can provide further information;
   - The SEQR classification for the action;
   - A brief and precise description of the nature, extent and location of the action; and
   - A brief statement of the reasoning that supports the determination.

4. Pass a resolution to designate the CEA.

5. File the notification of the CEA designation with the commissioner of the NYSDEC, the NYSDEC regional office, and any other agencies regularly involved in undertaking, funding or approving actions in the area. The notification should include a suitably scaled map, written justification, along with proof of the public hearing. It may also be sensible to include a copy of the approved resolution, the public notice, the Short Environmental Assessment Form (SEAF), and the negative declaration.

Written Public Notice

NOTICE OF PUBLIC HEARING ON DESIGNATION OF ZONES 1 AND 2 OF THE VILLAGE OF NASSAU SOURCE WATER PROTECTION AREA AS A CRITICAL ENVIRONMENTAL AREA

LEGAL NOTICE IS HEREBY GIVEN that pursuant to 6 NYCRR Part 617 (the State Environmental Quality Review Act), and pursuant to a resolution of the Board of Trustees of the Village of Nassau, adopted _____ ___, 2018, the said Board of Trustees will hold a public hearing at the Village Hall, 40 Malden Street, Nassau, on the _____ day of _____, 2018 at _____ o'clock PM., to hear all interested parties and citizens regarding the designation of a portion of the Village of Nassau source water protection area within the boundaries of the Village of Nassau as a critical environmental area.

The portion of the Village of Nassau that is proposed as a critical environmental area (CEA) is zones 1 and 2 of the source water protection area as delineated by the New York Rural Water Association. This is where groundwater is reasonably likely to move toward and reach the Village's drinking water supply wells. As a primary area that supplies the Village's public wells, zones 1 and 2 of the Village of Nassau source water protection area have exceptional or unique environmental characteristics under Section 6 NYCRR Part 617.14 (g) in that it is an area that represents a benefit or threat to human health and also is an area of inherent geological or hydrological sensitivity to change. The source water protection area Critical Environmental Area would include all or portions of the following streets in the Village of Nassau: Chatham Street, Church Street, Fairgrounds Street, Fairview Avenue, Griswold Street, Howard Street, John Street, Kaunameek Street, Kosey Street, Longview Avenue, Malden Street, Maple Avenue, Mear Street, Phillips Street, Tremont Drive, Water Street, Westbrook Drive, Alter Alley Way, and Bullis Way.

Further information, including a map of the Village of Nassau source water protection area CEA, may be obtained at the Village Clerk's Office, 40 Malden Street, Nassau, New York.

BOARD OF TRUSTEES OF THE VILLAGE OF NASSAU.

By _____, Village Clerk

Sample Resolution for Public Hearing

RESOLUTION FOR A PUBLIC HEARING REGARDING DESIGNATION OF A PORTION OF THE VILLAGE OF NASSAU SOURCE WATER PROTECTION AREA PURSUANT TO 6 NYCRR Part 617

At a regular meeting of the Board of Trustees of Village of Nassau, Rensselaer County, New York, held at the Village Hall, 40 Malden Street, in said Village of Nassau, on the ___ day of _____, 2018, at ____ o'clock, there were:

PRESENT:

ABSENT:

Mr./Ms. _____ offered the following resolution and moved its adoption:

WHEREAS, zones 1 and 2 of the Village of Nassau source water protection area is where groundwater is reasonably likely to move toward and reach the Village's critical drinking water supply wells; and

WHEREAS, the boundaries of zones 1 and 2 of the Village of Nassau source water protection area are shown on the attached map titled "CEA: zones 1 and 2 of the Village of Nassau source water protection area (Within Village Jurisdiction)," prepared by the New York Rural Water Association; and

WHEREAS, 6 NYCRR Part 617.14, the State Environmental Quality Review Act (SEQRA), allows a local agency to designate a specific geographical area within its boundaries as a critical environmental area (CEA); and

WHEREAS, the Board of Trustees of the Village of Nassau believes that zones 1 and 2 of the Village of Nassau source water protection area have exceptional or unique environmental characteristics under Section 6 NYCRR Part 617.14 (g); and

WHEREAS, the Board of Trustees of the Village of Nassau believes that the unique environmental characteristics of zones 1 and 2 of the Village of Nassau source water protection area merit designation as a CEA; and

WHEREAS, designation of a CEA must be preceded by a public hearing pursuant to 6 NYCRR Part 617.14 (g).

NOW, THEREFORE, BE IT RESOLVED, a public hearing on designation of zones 1 and 2 of the Village of Nassau source water protection area within the boundaries of the Village of Nassau shall be held on the _____ day of _____, 2018 at ___ o'clock PM, at the Village Hall, 40 Malden Street in the Village of Nassau, New York, and that notice of the time and place of such hearing along with the location and the specific environmental characteristics of the area, be published once on or before the ____ day of _____, 2018, in the _____, a newspaper circulating in said Village of Nassau.

Seconded by Mr./Ms. _____ and duly put to a vote, which resulted as follows:

_____ AYES
_____ NAYS

Sample Resolution for CEA Designation

RESOLUTION FOR APPROVING THE DESIGNATION OF ZONES 1 AND 2 OF THE VILLAGE OF NASSAU SOURCE WATER PROTECTION AREA AS A CRITICAL ENVIRONMENTAL AREA PURSUANT TO 6 NYCRR PART 617

At a regular meeting of the Board of Trustees of Village of Nassau, Rensselaer County, New York, held at the Village Hall, 40 Malden Street, in said Village of Nassau, on the ___ day of _____, 2018, at ____ o'clock, there were:

PRESENT:

ABSENT:

Mr./Ms. _____ offered the following resolution and moved its adoption:

WHEREAS, it is within the responsibility of the Village of Nassau as a public water supplier to protect the health and safety of its citizens; and

WHEREAS, it is desirable to preserve and protect the quantity and quality of our groundwater resources to ensure a continued safe, adequate, and usable supply, now and in the future; and

WHEREAS, zones 1 and 2 of the Village of Nassau source water protection area is that portion of the aquifer where groundwater is understood to flow toward the Village's critical drinking water supply wells; and

WHEREAS, 6 NYCRR Part 617.14, the State Environmental Quality Review Act (SEQRA), allows a local agency such as the Village of Nassau to designate a specific geographical area within its boundaries as a critical environmental area (CEA); and

WHEREAS, the Board of Trustees of the Village of Nassau believes that zones 1 and 2 of the Village of Nassau source water protection area has exceptional or unique environmental characteristics under Section 6 NYCRR Part 617.14 (g); and

WHEREAS, the Board of Trustees of the Village of Nassau believes that the unique environmental characteristics of zones 1 and 2 of the Village of Nassau source water protection area merit designation as a CEA; and

WHEREAS, the boundaries of the Village of Nassau CEA are shown on the attached map titled "CEA: zones 1 and 2 of the Village of Nassau source water protection area (Within Village Jurisdiction)," as prepared by the New York Rural Water Association; and

WHEREAS, previously pursuant to 6 NYCRR Part 617.3 and 6 NYRCRR Part 617.14(g), the Board of Trustees of the Village of Nassau as Lead Agency determined the proposed action of

CEA designation would not have a significant adverse impact or effect on the environment such that a negative declaration was approved; and

WHEREAS, the Board of Trustees of the Village of Nassau held a public hearing on _____ pursuant to the requirements of 6 NYCRR Part 617.14 and at such hearing, all members of the public were heard on the proposed action of designating the CEA.

NOW, THEREFORE, BE IT RESOLVED, the Board of Trustees of the Village of Nassau hereby determines that it is appropriate and in the best interests of its citizens to designate zones 1 and 2 of the Village of Nassau source water protection area within the boundaries of the Village of Nassau as shown on the attached map as a critical environmental area (CEA) pursuant to 6 NYRCRR Part 617.14; for the following reasons:

Reasons Supporting the Designation of CEA

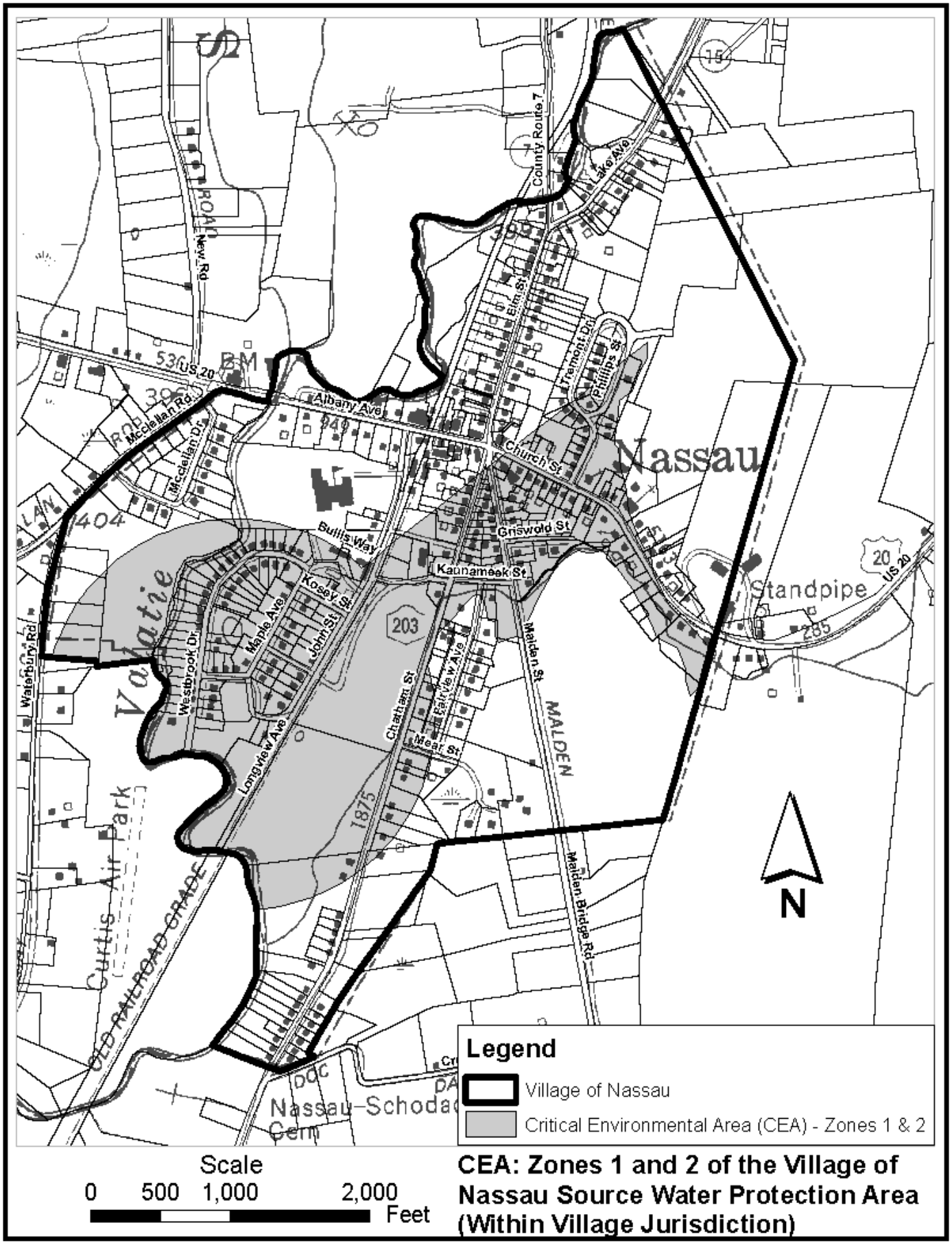
1. The designation of zones 1 and 2 of the Village of Nassau source water protection area will assist in protecting and preserving this area that has inherent geologic and hydrological sensitivity to change; and

2. Designation of zones 1 and 2 of the Village of Nassau source water protection area as a CEA will benefit the health and safety of Nassau's citizens through increased awareness of critical groundwater resources; and it is further

RESOLVED, that the Village Attorney is hereby directed to provide a copy of this determination to the New York State Department of Environmental Conservation and to file all necessary paperwork pursuant to 6 NYCRR Part 617.14 (g) in support of this action.

Seconded by Mr./Ms. _____ and duly put to a vote, which resulted as follows:

_____ AYES
_____ NAYS



CEA: Zones 1 and 2 of the Village of Nassau Source Water Protection Area (Within Village Jurisdiction)