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Sent: Tuesday, June 30, 2009 9:52 PM
To: TownClerk@TownofDover.us
Cc: Peter Rostenberg
Subject: DOVER KNOLLS JUNE 3, 2009 TESTIMONY

Attachments: Waterworld WRMO (two level aquifer) 090417 (3).doc; 090417 Water ResourceManagement Law Summary.doc; Waterworld WRMO (simple aquifer) 090417.doc

Peter O. Rostenberg
58 Briggs Hill Road
Sherman, CT 06784

TESTIMONY DOVER KNOLLS
JUNE 3, 2009

TOWN OF DOVER SUPERVISOR, TOWN BOARD, WILLIE JANEWAY,
REGION 3 DIRECTOR, CITIZENS AND GUESTS,

For the past few years the Town of Dover has been evaluating Dover Knolls, which, if approved, would be the largest commercial/residential development in the Town's history, indeed in Dutchess County's history. More recently, the American Power Company has proposed its 1,000mw Cricket Valley natural gas plant about 3 miles north of Dover Knolls.

These entities will be located near the prized Swamp River, which flows by both projects from the Great Swamp to the Ten Mile River.

I am a resident of your neighboring town, Sherman CT. We are downstream from you, so we receive water flowing through the Town of Dover, once you are finished with it. Beyond that, I have an additional interest in what takes place in the Town of Dover.

As the former Public Health Director of Sherman, CT in 1976, I wrote a surface and groundwater protection Code for the Town. It is arguably one of the strictest health codes in the entire state, and its strictly enforced. Since its implementation, the Town has almost tripled in population. Mistrust of the regulation has been replaced by pride in our water quality. Fishing sites remain productive.

Because of my continuing interest in water quality, I obtained a copy of Chazen Cos' Town of Dover Water Assessment, 1998, when it was published. Authored by the highly regarded hydrogeologist Russell Urban Mead, your Assessment is more up-to-date and more sophisticated than our regulations, and as such it has great appeal for our Health Department. See attachments above.

The Town of Dover has not implemented these forward-looking regulations. If your most precious resource is to be protected during this period of explosive period of growth, I urge you to pursue Mead's recommendations. The two-zone model concept is well suited for Dover. I understand the cost would be between \$3 to \$5K after meetings and drafts, with a timeframe of about 30-60 days.

Respectfully,

Peter Rostenberg MD

LOCAL ZONING LAW; WATER QUALITY AND CAPACITY PROTECTION AMENDMENT

Version I - Two-levels of aquifer protection, requires a map suitable for adoption in your Town's zoning law which identifies high-priority groundwater protection areas.

A. Legislative Findings, Intent, and Purpose

The purpose of the Water Resource Management Local Zoning Ordinance is to protect the health and welfare of residents of the Town of Waterworld by minimizing the potential for aquifer contamination and aquifer depletion in the Town, and by taking steps to limit the severity of stream flooding and low flow drought conditions in streams.

The Town of Waterworld lies over aquifers covering the entire Town. The Town of Waterworld contains an aquifer system that covers the entire Town and, for purposes of this Section, has been divided into two areas described in Subsection B. These provide drinking water in some areas, and their natural discharge is essential to the maintenance of healthy aquatic and associated terrestrial ecosystems in wetlands, streams and lakes. The Town has determined that a limiting factor on the residential and commercial carrying capacity of Waterworld is its capability to provide groundwater in sufficient quality and quantity so that water use by some users does not adversely affect other users. Also, where subsurface disposal systems (septic systems) are used, another limiting carrying capacity factor is the subsurface' ability to absorb wastewater without adversely affecting the quality of groundwater and surface water. The purposes of this Section is to protect public health and safety by safeguarding the Town's groundwater aquifer system, to provide the most protective standards to those areas of the aquifer at greatest risk of contamination, and to manage development so that Town-wide groundwater supplies are not depleted or degraded.

The Town of Waterworld also has streams and lakes which can be affected by land uses in ways that increase the severity of both floods and droughts. When infiltration capacity is lost throughout a watershed, the health and welfare of the public are threatened by worsening flood events, and significant infrastructure costs can be incurred. Flows in streams and water levels in ponds can also be reduced by over-consumption of water or by lost recharge due to impervious surfaces, threatening aquatic and related terrestrial ecosystems and reducing residential quality of life and tourism opportunities. Every effort should be made to infiltrate all possible aquifer recharge both to reduce flooding severity and to provide baseflow reserves for ponds and streams during droughts.

B. Applicability of Ordinance

1. The Aquifer Overlay (AQO) District encompasses the entire Town of Waterworld and is divided into two primary subdistricts to protect different types of aquifer conditions, as follows:
 - a. The Community Core Aquifer (CCA) subdistrict, which is extensively developed and fully dependent on groundwater as a source of water supply, and
 - b. The Regional Aquifer (RA) subdistrict, which covers the remainder of the Town. Within the RA subdistrict, most areas depend upon groundwater as the primary source of potable water supply.
2. The CCA and RA subdistricts are delineated on the Aquifer Overlay District Map adopted as part of this Chapter. These subdistricts may be further divided into additional protective areas. These would include Buffered Community Core Aquifer (BCCA) subdistricts, which will cover any areas within the CCA which may be served by a distant public water supply (now or in the future) such that a contaminant spill would not jeopardize any water supply well, and Regional Aquifer Wellhead Protection (RAWP) subdistricts within the RA subdistrict which provide wellhead

protection for community water system wellfields. The BCCA and RAWP subdistrict categories have been established in this Section for present and possible future mapping as circumstances require.

3. The official AQO District Map is located at the Town offices with the other official zoning maps. Any reduction of this map attached to this chapter is for reference purposes only. The Aquifer Overlay AQO District map and any amendments to it must be reviewed and approved by a hydrogeologist working for the Town prior to adoption by the Town Board.
4. The official AQO District Map shall be used to determine the boundaries of subdistricts within the AQO District. In case of a question or dispute as to the exact location of a boundary on a specific parcel of land, the Town may retain a qualified hydrogeologist at an applicant's expense to make such a determination in the field based upon the criteria in this §XXX-XX. An applicant may challenge the Town's determination by retaining a qualified hydrogeologist to make such determination independently based upon these criteria. In the event of such a challenge, the Town's hydrogeologist shall review the report of the applicant's hydrogeologist at the applicant's expense and shall make the final determination as to the location of the specific boundary. Any such boundary delineation shall not, by itself, effect a change in the AQO District Map. The AQO District Map may only be changed by action of the Town Board as provided in Subsection XXX-16H.
5. Within the AQO District, all of the underlying land use district rules shall remain in effect except as specifically modified by this §XXX-16. In case of a conflict between this §XXX-16 and the underlying use regulations, the more restrictive shall control. Nothing in this §XXX-16 shall be construed to allow uses that are not permitted by the underlying land use district.
6. With the exception of the prohibition on underground fuel tanks in §X-XE(1) and the infiltration minimization loss standard in §X-XD(6), this §X-X does not apply to any single-family, two-family, or multi-family residential use of land on a single lot containing five or fewer dwelling units, to any residential minor subdivision plat as defined in Chapter xxx of the Town Code, or to any home occupation unless such residential use or home occupation includes one of the activities listed in subsection E below. This Section does apply to all other subdivisions of land.
7. This §X-X shall not apply to farm operations covered by the agricultural zoning exemptions in §X-X.

C. Definitions

For purposes of this §X-X, the following definitions shall apply:

Action: A project or physical activity as defined in the SEQR Regulations of the NYS Department of Environmental Conservation, 6 NYCRR Part 617, including all actions subject to SEQR that are covered by this Chapter, as well as subdivision applications and other actions requiring local government approval under SEQR.

Aquifer: A consolidated or unconsolidated geologic formation, group of formations or part of a formation capable of yielding a significant or economically useful amount of groundwater to wells, springs or infiltration galleries.

Aquifer Overlay (AQO) District Map: The Town's overlay map showing Aquifer Overlay District subdistricts.

Buffered Community Core Aquifer (BCCA) Subdistrict: Areas which may be delineated now or in the future as Buffered Community Core Aquifer (BCCA) subdistrict(s) on the Aquifer Overlay AQO District Map. As defined or approved by a hydrogeologist working for the Town, the BCCA consists of areas within the Community Core Aquifer CCA served by community water systems, where the sources of water supply for the community water system and for any other wells would not be substantially threatened by a contaminant release occurring within the BCCA. No portion of the BCCA may lie in a location that is hydrogeologically upgradient of any wells, including wells used by the community water system.

Community Core Aquifer (CCA) Subdistrict: The area delineated as the Community Core Aquifer

(CCA) subdistrict on the Aquifer Overlay AQO District Map.

Community Water System: A Public Water System defined by and regulated by the New York State Department of Health, typically understood to serve at least five service connections used by year-round residents or regularly serving at least 25 year-round residents.

Conditionally Exempt Small Quantity Generators: As defined by the Resource Conservation and Recovery Act and amendments thereto, sites generating or storing less than 100 kilograms per month and 1000 kilograms of listed and /or characteristic wastes, and generating and storing less than 1 kilogram per month and 1 kilogram of acutely hazardous waste.

Consumption of Water: The net loss of water from a site or a watershed through local groundwater export to a surfacewater discharge or through evaporation and transpiration processes caused by human land use activities, including evaporative losses from septic system leaching lines. The definition of Consumption of Water also includes water which must be allocated to dilute subsurface wastewater discharges such that groundwater quality at the downgradient property line of sites are unlikely to exceed 50% of the New York State Department of Environmental Conservation's Title 10 Part 703 Groundwater (GA) Water Standard for nitrate.

Discharge: Any intentional or unintentional action or omission resulting in substances or materials entering the waters of the State either directly or by passing through other land, or in any other way resulting in damage to the lands, waters, or natural resources of the State.

Generator of Hazardous Waste: Any person or site whose act or process produces hazardous waste.

Groundwater: Water contained in interconnected pores and fractures in the saturated zone in an aquifer.

Hazardous Substance: Any substance, including any petroleum by-product, which may cause harm to humans or the environment when improperly managed. A complete list of all hazardous substances except for petroleum by-products can be found in 6 NYCRR Part 597.2(b) Tables 1 and 2 and amendments thereto.

Hazardous Waste: See 6 NYCRR Part 371 and amendments thereto for the identification and listing of hazardous wastes.

Herbicide: Any substance or mixture of substances intended to prevent, destroy, repel, or mitigate any weed, including those substances defined as herbicides pursuant to Environmental Conservation Law § 33-0101, and amendments thereto.

Large Quantity Generator: As defined by the Resource Conservation and Recovery Act and amendments thereto, sites either (1) generating more than 1000 kilograms per month of listed and/or characteristic hazardous wastes, or (2) generating or storing more than 1 kilogram per month of acutely hazardous waste.

Major Oil Storage Facilities: Facilities with a storage capacity of 400,000 gallons or more of petroleum.

Natural Recharge: The normal rate at which precipitation replenishes groundwater, without interruption or augmentation by human intervention.

Non-point Discharge: Discharges of pollutants not subject to SPDES (State Pollutant Discharge Elimination System) permit requirements.

Pesticide: Any substance or mixture of substances intended to prevent, destroy, repel, or mitigate any pest, including any substances defined as pesticides pursuant to Environmental Conservation Law § 33-0101 et seq. and amendments thereto.

Petroleum: Oil or petroleum of any kind and in any form including but not limited to oil, petroleum fuel oil, oil sludge, oil refuse, oil mixed with other waste, crude oil, gasoline, and kerosene, as defined in 6 NYCRR Part 597.1(7) and amendments thereto.

Point Source Discharge: Pollutants discharged from a point source as defined in Environmental Conservation Law §17-0105 and amendments thereto.

Pollutant: Any material or byproduct determined or suspected to be hazardous to human health or the environment.

Radioactive Material: Any material that emits radiation.

Regional Aquifer (RA) Subdistrict: The area delineated as the Regional Aquifer (RA) subdistrict on the AQO District Map. As defined or approved by a hydrogeologist working for the Town, the RA subdistrict consists of all areas on the AQO District Map not included in the CCA, BCCA, or RAWP subdistricts.

Regional Aquifer Wellhead Protection (RAWP) Subdistrict: Areas to be delineated in the future as a

Regional Aquifer Wellhead Protection (RAWP) subdistrict on the AQO District Map. As defined or approved by a hydrogeologist working for the Town, RAWP areas will consist of wellhead protection areas for community water system wells not located within the CCA subdistrict. At a minimum, wellhead protection areas enclose all lands situated within 60-days travel time (seepage velocity) from the community water system's wells, and enclose sufficient land that average annual Natural Recharge in the RAWP area matches the average water demand of the community water system.

Small Quantity Generator: As defined by the Resource Conservation and Recovery Act and amendments thereto, sites that do not qualify as Conditionally Exempt Small Quantity Generators and that generate and store less than 1000 kilograms per month of listed and /or characteristic wastes, , and that generate or store less than 1 kilogram per month of acutely hazardous waste.

Solid Waste: Generally refers to all putrescible and non-putrescible materials or substances, except domestic sewage, sewage treated through a publicly owned treatment works, or irrigation return flows, that is discarded or rejected as being spent or otherwise worthless, including but not limited to garbage, refuse, industrial and commercial waste, sludges from air or water treatment facilities, rubbish, tires, ashes, contained gaseous material, incinerator residue, construction and demolition debris, and discarded automobiles, as defined in 6 NYCRR Part 360-1.2(a) and amendments thereto.

State Pollutant Discharge Elimination System ("SPDES"): The system established pursuant to Article 17 Title 8 of Environmental Conservation Law for issuance of permits authorizing discharges to the waters of the state of New York.

Wastewater: Aqueous-carried solid or hazardous waste.

Watershed: All land contributing surface runoff and groundwater flow to the flow of a particular stream.

Water Supply: The groundwater resources of the Town of Waterworld, or the groundwater resources used for a particular well or community water system.

Well: Any present or future artificial excavation used as a source of public or private water supply which derives water from the interstices of the rocks or soils which it penetrates including bored wells, drilled wells, driven wells, infiltration galleries, and trenches with perforated piping, but excluding ditches or tunnels, used to convey groundwater to the surface.

D. General Provisions for Groundwater and Surface Water

1. Non-Degradation Standard: No use shall be allowed which can be calculated or anticipated to degrade the quality of groundwater or surfacewater in a manner that poses a potential danger to public health or safety and no permits or approvals shall be issued for any use which violates this standard. Compliance with applicable standards, requirements, and permit conditions imposed by federal, state, or county agencies shall be deemed to constitute compliance with this standard.
2. The manufacture, use, storage, or discharge of any products, materials, or by-products subject to these regulations, such as wastewater, solid waste, hazardous substances, or any pollutant, must conform to the requirements of these regulations.
3. In addition to the list of Statewide Type I Actions contained in §617.4(b) of 6 NYCRR, all proposed actions resulting in discharges calculated to exceed groundwater effluent standards provided in 6 NYCRR Part 703.6(e) and amendments thereto, or calculated to exceed surface water effluent limitations developed in accordance with 6 NYCRR Part 702.16(b) and amendments thereto, shall be designated as Type I Actions under the Implementing Regulations of the State Environmental Quality Review Act (6 NYCRR Part 617), unless the action is listed as a Type II action under such regulations.
4. Usage of any groundwater for proposed actions shall be examined pursuant to SEQRA in accordance with the water budget methodology in Subsections F and G of this §X-X.
5. All proposed actions where Consumption of water from site aquifers or from any stream other than the Hudson River exceeds Natural Recharge, as defined in Subsections F and G herein, shall be designated as Type I Actions under the Implementing Regulations of the State Environmental Quality Review Act (6 NYCRR Part 617), unless the action is listed as a Type II action under such regulations.

6. Design requirements for stormwater control measures:
 - a. Infiltration practices shall be used such that there will be no increase in stormwater runoff volume from a ten-year-frequency/twenty-four-hour duration storm event following development over the undeveloped site condition (eg. native soil with modest vegetation) in the following zoning districts: (insert the names of zoning districts except hamlet and town center districts or equivalent mixed-use core districts). For sites in the (insert all hamlet/town center or equivalent mixed-use core districts) zoning districts, all reasonable opportunities to use infiltration practices must be explored, regardless of soil type or design storm thresholds, before meeting the balance of stormwater management obligations using other practices.
 - b. To alleviate flooding during storms exceeding the ten-year design storm, stormwater control measures shall function in all zoning districts to attenuate peak runoff flow rates to be equal to or less than flow rates under undeveloped site conditions.
7. In addition to any testing requirements of the NYS Department of Health and/or NYS Department of Environmental Conservation Testing for new wells, the following specific requirements apply when installing new sources of water supply in the Town of Watertown:
 - a. for new Community Water System wells the following monitoring and analyses are required when testing new wells:
 - i. monitoring and impact analysis on staff gages and mini-wells installed in open surface waters and wetlands on or abutting the site;
 - ii. monitoring and impact analysis on water levels in all volunteered existing wells in reasonable physical condition on abutting parcels;
 - iii. the test flow rate shall be increased proportionally above the design peak demand rate whenever precipitation during the 4 months prior to the test exceeds one third of the Town's long-term average precipitation of XXX inches/year (insert annual average rainfall from DCWWA 2006 Aquifer Recharge Rate report available on the Dutchess County Water & Wastewater website);
 - iv. the water supply report should include a calculated site water budget using the methodology outlined in Subsections F and G herein.
 - b. for major subdivisions with individual domestic wells, a site-wide pumping test is required if i) either offsite wastewater treatment service or onsite community wastewater treatment with a surfacewater discharge are proposed and average parcel sizes are less than those listed below, or ii) if parcels using individual septic systems average less than one quarter the following sizes:
 - i. XX acres over Hydrologic Soil Group A and A/D soils,
 - ii. XX acres over Hydrologic Soil Group B soils,
 - iii. XX acres over Hydrologic Soil Group C and C/D soils, and,
 - iv. XX acres over Hydrologic Soil Group D soils. (insert values from DCWWA 2006 Aquifer Recharge Rate report available on the Dutchess County Water & Wastewater website)

This site-wide pumping test must be conducted simultaneously using wells on 10% (rounded up) of proposed parcels, with each test well discharging at a minimum rate of 5 gallons per minute. All monitoring and reporting requirements in §X-X D(7)(a) apply except for proportional pumping test increases during wet periods. The simultaneous flow test must last a minimum of 24 hours and must be extended as necessary until stabilization is observed in test wells, wetland, streams and any off-site wells.
 - c. for any other projects requiring withdrawals of more than 1,500 daily gallons of water from wells or surfacewater sources, and where onsite recharge as defined in Subsection F herein is less than the proposed water withdrawal, the following apply:
 - i. If the proposed water source is a well, a minimum 24-hour flow test of proposed wells is required including impact analysis including water level monitoring in

- wells on abutting parcels and nearby streams and wetlands.
 - ii. If the proposed water source comes from surface water, an evaluation is required of potential impacts on connected or adjacent streams, ponds or wetlands.
8. The following approaches should be considered when developing clustered subdivisions with individual domestic wells and septic systems on parcels averaging less than values in X-XD(7)(b).
- a. Limit the degree to which parcels are under the sizes in §X-X D(7)(b) above to reduce the likelihood of well water interference from septic system discharges.
 - b. Clustered parcels should be arranged along a hillside rather than up and down a hillside so septic discharges below ground level do not flow downhill toward adjacent parcels.
 - c. Clustered parcels cluster near ponds, streams or perennial wetlands may consider use of well casings extending at least 50 feet deeper than the water table to tap groundwater below the shallow groundwater flows receiving and transporting septic discharges to the adjacent water bodies.
 - d. Clusters situated on hillside or upland areas (e.g. not in proximity to ponds, streams or perennial wetlands as in §X-X D(7)(d) should consider the following:
 - i. Use of enhanced treatment units in individual septic systems to release cleaner wastewater to the subsurface, or;
 - ii. use of community wells from a groundwater source distant from the cluster and/or use of collective wastewater treatment with either an aboveground discharge or subsurface disposal with collective enhanced pre-treatment prior to discharge.
 - e. On large cluster subdivision project, several sub-clusters may ensure reliable well water quality better than one large cluster.

E. Prohibitions, Restrictions, and Permit Requirements for Aquifer Management

In accordance with Article IX of this Chapter, “Special Permits and Site Plan Review,” the Planning Board shall review and act upon Special Permit applications within the Town of Watertown. If the uses listed below are regulated by any state or federal agency, the definitions and regulations of such uses contained in applicable state or federal laws and regulations shall apply.

1. Prohibited Uses
 - a. Installation of an underground fuel tank or tanks, whose combined capacity is less than 1,100 gallons. This applies to all uses throughout the Town, including single-family, two-family, and multi-family dwellings.
 - b. Land application of septage, sludge, or human excreta, including land application facilities defined in 6 NYCRR Part 360-4. This prohibition shall not apply to land application of treated wastewater for irrigation when duly approved by county, state, or federal agencies with regulatory jurisdiction.
2. Prohibited uses within the CCA and RAWP subdistricts only:
 - a. Municipal, private, and construction and demolition landfills as defined in 6 NYCRR Part 360-2 and 6 NYCRR Part 360-7.
 - b. Disposal, by burial, of any hazardous waste, as defined in 6 NYCRR Part 371
 - d. Large Quantity Generators of Hazardous Waste
 - e. Junkyards and automobile cemeteries
 - f. Gas stations and Major Oil Storage Facilities.
 - g. On-site dry cleaning.
3. Special Permits within the Community Core Aquifer (CCA) and Regional Aquifer Wellhead Protection (RAWP) subdistricts. The following uses, if permitted in the underlying land use district, shall require the issuance of a Special Permit within the CCA and the RAWP subdistricts:
 - a. Photo labs;
 - b. Auto repair facilities and truck terminals, including engine repair and machine shops
 - c. Furniture stripper/painter, metal works, wood preservers
 - d. Printers and the use of printing presses

- e. Conditionally Exempt or Small Quantity Generators of Hazardous Waste.
 - f. Solid waste management facilities not involving burial, including incinerators, composting facilities, liquid storage, regulated medical waste, transfer stations, recyclables handling & recovery facilities, waste tire storage facilities, used oil, C&D processing facilities, each as defined in 6 NYCRR Part 360.
 - g. Salt storage facilities
 - h. Residential uses using wells and septic systems where average parcel sizes are below those listed in section X-X(D)(7)(b), or other uses and land subdivisions where Water Consumption exceeds Natural Recharge calculated using water budget methods described in subsections F and G.
 - i. Cemeteries, including pet cemeteries
 - j. Veterinary hospitals and offices
 - k. Funeral parlors engaging in embalming
 - l. Storage or disposal of manure, fertilizers, pesticides/herbicides. No special permit shall be required for storage of less than 500 pounds or where such storage or disposal is conducted in connection with a farm operation that is covered by the exemptions in Section 175-37E.
4. Special Conditions for proposed uses within the CCA and RAWP subdistricts requiring a Special Permit:
- a. Storage of chloride salts is prohibited except in structures designed to minimize contact with precipitation and constructed on low permeability pads designed to control seepage and runoff.
 - b. Upon request by the Town, generators of Hazardous Waste shall provide the Town with copies of all applicable permits provided by State and/or Federal regulators and copies of all annual, incident, and remediation-related reports.
 - c. Any projects where Water Consumption exceeds Natural Recharge, as defined in Subsections F and G herein, or where average residential parcel sizes using wells and septic systems are below those listed in X-X(D)(7)(b) shall demonstrate through SEQRA how such water budget and quality impacts will be mitigated. Mitigation measures may include identifying compensatory recharge to permanently prevent adverse impacts to water supply on adjoining and downgradient land. Such compensatory recharge may be located either upgradient or downgradient of the project. Where the project is located adjacent to a wetland, watercourse, parkland, or other land that is permanently protected from development, the recharge or dilution capacity of such adjacent protected land may be counted toward the required mitigation of the impact of the project, provided that such recharge capacity is not claimed in connection with another project.
 - d. embalming byproducts may not be discharged to a septic system.
 - e. The Town may require additional monitoring and reporting.
5. Special Permits within the RA and BCCA subdistricts. The following uses, if permitted in the underlying land use district, shall require the issuance of a Special Permit within the RA and BCCA:
- a. Gasoline service stations
 - b. Major Oil Storage Facilities
 - c. Junkyards and automobile cemeteries
 - d. Salt storage facilities
 - e. Conditionally Exempt, Small Quantity, or Large Quantity Generators of Hazardous Waste
 - f. Disposal of any hazardous waste, as defined in 6 NYCRR Part 371, by burial.
 - g. Cemeteries, including pet cemeteries
 - h. Veterinary hospitals and offices
 - i. Funeral parlors engaging in embalming
 - j. Storage or disposal of manure, fertilizers, pesticides/herbicides. No special permit shall be required for storage of less than 500 pounds or where such storage or disposal is conducted in connection with a farm operation that is covered by the exemptions in §175-37E.

- k. Residential uses using wells and septic systems where average parcel sizes are below those listed in section X-X(D)(7)(b), or other uses and land subdivisions where Water Consumption exceeds Natural Recharge calculated using water budget methods described in subsections F and G.
6. Special Conditions for proposed uses within the BCCA areas and the RA subdistricts requiring a Special Permit:
- a. Upon request by the Town, gasoline service station operators shall provide the Town with copies of all applicable permits provided by State and/or Federal regulators and copies of all annual, incident, and remediation-related reports.
 - b. Junkyard operators shall drain fuels, lubricants, and coolants from all cars stored on site to properly permitted above-ground holding tanks, and upon request by the Town, provide to the Town copies of all applicable permits provided by State and/or Federal regulators and copies of all annual and incident reports, provide the Town with an annual summary of numbers of vehicles on site and total gallons of various classes of fluids drained from vehicles and disposal manifests or other documentation of disposition of such fluids.
 - c. Storage of chloride salts, coal, and/or cinders is prohibited except in structures designed to minimize contact with precipitation and constructed on low permeability pads designed to control seepage and runoff.
 - d. Upon request by the Town, generators of Hazardous Waste shall provide the Town with copies of all applicable permits provided by State and Federal regulators and copies of all annual, incident, and remediation-related reports.
 - e. Within the RA subdistrict, any projects allowed hereunder where Water Consumption exceeds Natural Recharge, or where average residential parcel sizes using wells and septic systems are below those listed in X-X(D)(7)(b) as defined in Subsections F and G herein, shall demonstrate through SEQRA how such quality and capacity impacts will be mitigated. Mitigation measures may include identifying compensatory recharge to permanently prevent adverse impacts to water supply on adjoining and downgradient land. Such compensatory recharge may be located either upgradient or downgradient of the project. Where the project is located adjacent to a wetland, watercourse, parkland, or other land that is permanently protected from development, the recharge or dilution capacity of such adjacent protected land may be counted toward the required mitigation of the impact of the project, provided that such recharge capacity is not claimed in connection with another project.
 - f. The Town may require additional monitoring and reporting.
7. Application Requirements for Special Permits: In addition to the Special Permit application requirements set forth in Article IX, applicants proposing actions listed in subsections (3) and (5) above shall identify the following as part of their applications:
- a. The source of water to be used
 - b. The quantity of water required
 - c. Water use minimization measures to be implemented
 - d. Water recycling measures to be implemented
 - e. Wastewater discharge measures
 - f. Grading and/or storm water control measures to enhance on-site recharge of surface water;
 - g. Point Source or Non-Point Discharges;
 - h. A certified statement indicating that only waste characteristic of domestic waste will be released to any septic systems.
 - i. A complete list of any Hazardous Substances to be used on site along with quantity to be used and stored on site; and
 - j. A description of Hazardous Substance storage or handling facilities and procedures.

F. Determination of a Parcel's Natural Rate of Aquifer Recharge

The natural recharge rate for a parcel shall be determined by identifying the soil types on the property, classifying them by hydrologic soil groups (A through D, A/D and C/D), and applying a recharge rate of XX inches/year for A and A/D soils, XX inches/year for B soils, XX inches/year for C and C/D soils, and XX inches/year for D soils, and multiplying the recharge rate(s) by the number of acres in the parcel for each soil group. (rates to be taken from DCWWA 2006 Aquifer Recharge Rate report available on the Dutchess County Water & Wastewater website)

G. Consumption of Water

The following table establishes the method to calculate projected site or watershed consumption of water, as defined in §X-XC. Consumption may be considered to be zero where the source of water used on a proposed site is the Hudson River.

<u>Use</u>	<u>Gallons per day</u>	<u>Multiplied by Dilution factor</u>	<u>Consumption/day</u>
Irrigated Lands (non-agricultural)	Irrigated Acres x 4,000 ⁽¹⁾	x 1	= _____
Uses with Surface Discharge of Wastewater if Source water is from surfacewater	Calculated Demand	x 0.2	= _____
Uses with Surface discharge of Wastewater if Source water is from On-Site Groundwater Wells	Calculated Demand	x 1	= _____
Residential Uses with Conventional Subsurface Wastewater Discharge ⁽²⁾	70 gpd/capita	x 8	= _____
Nonresidential Uses with Conventional Subsurface Wastewater Discharge ⁽²⁾	Daily Use	x 8	= _____

- (1) Applicable for vegetation requiring 1 inch/week irrigation. May be adjusted for vegetation with other water requirements.
- (2) Calculate use per NYSDEC intermediate wastewater disposal guide. Discharge must not exceed NYSDEC Title 10, Part 703 effluent limits.
- (3) where projects meet more than one condition listed on the table above, the calculation resulting in the greatest Consumption value must be used.

H. Reporting of Discharges

Any person or organization responsible for any discharge of a Hazardous Substance, Solid Waste, Hazardous Waste, petroleum product, or radioactive material shall notify the Town Clerk of such discharge within 24 hours of the time of discovery of the discharge. This notification does not alter other applicable reporting requirements under existing law and applies to all uses, whether conforming or non-conforming in any respect.

I. Non-conforming Uses, Structures, and Lots

See Article VI of this Chapter. For any non-conformity which requires a special permit to expand or change, all requirements of this §X-X shall apply to such expansion or change.

A Model Local Zoning Law for Municipal Water Resource Management

Presented by Russell Urban-Mead, CPG, LEED AP
Senior Hydrogeologist, The Chazen Companies, Poughkeepsie, NY
Contact email: rum@chazencompanies.com

Background

Dutchess County government previously worked with communities in eastern Dutchess County to develop a model aquifer protection law for municipal adoption. The ordinance was intended to provide protection where gaps existed in State or Federal protection programs. Based on discussion with community members and legal and hydrogeologic experts, the ordinance was crafted to provide town-wide aquifer protection, with a higher level of protection for priority areas (present or future high-capacity aquifer areas and the recharge areas for particular wells or well clusters) and more modest protection throughout all other areas. This ordinance language has been adopted within Amenia's new zoning and is currently being considered by several other communities.

This model law has now been expanded to include several broader water resource aspects. The revised model zoning law now addresses site infiltration capacity, pumping test requirements, and guidance on how to position septic systems and wells in cluster subdivisions. These changes make this a more a comprehensive water resource zoning section, which can be merged with a local wetland or riparian corridor law to provide a full watershed protection program in any municipality.

The following brief description of the model law does not precisely follow the format of the model law but briefly describes key components and how they function.

Groundwater protection:

- a. Two versions of the model zoning law are now available for adoption. The first adheres to the original concept of town-wide aquifer protection with priority protection for heavily used areas and/or high capacity aquifers. Adoption of this version of the model law requires preparation of a reference aquifer map, usually completed collaboratively with a town committee and a hydrogeologist. The second version of the model zoning law has been simplified to extend one set of rules throughout a town. This alleviates the need for a map but may place unnecessary administrative burdens on less-densely developed areas and provides weaker protection in areas which might warrant priority protection. Table 1 contrasts how different proposed land uses receive more or less management under the two-zone versus the one-zone aquifer protection ordinance.
- b. The groundwater section of either model law provides the following types of Groundwater Quality protection:
 - i. No new buried heating oil tanks under 1100 gallons are allowed.
 - ii. Various uses are protected in the two-zone option, see Table
 - iii. Special permits are needed for many land uses under both options, see Table
 - iv. A process for applying for special permits is given is provided, and Special Conditions are suggested for some uses.
- c. The groundwater portion of both model laws provide protection of Aquifer Capacity:
 - i. Any project that consumes more groundwater than is recharged on the site is designated a SEQRA Type I action. A method for calculating recharge and consumption is provided in the ordinance based on Dutchess County's Aquifer Recharge Rate Study and based on estimated water consumption rates for

residential, commercial & irrigation. Consumption of water is defined to include the volumes of groundwater needed to adequately dilute septic system discharges.

2. Flooding & Recharge Management - the model law has been expanded to include techniques to alleviate flooding and which preserve recharge capacity which both extends aquifer capacity and supports dry-season discharges of groundwater to support wetlands and streams. Infiltration practices are also recognized to filter sediments from stormwater runoff:
 - a. The model law requires total runoff volume not to change during precipitation events up to the 10-year storm for any new land use in most zoning districts in the town. Only in dense hamlet or town center zones is this requirement relaxed for practical purposes. Over 80% of precipitation falls during events of less than 1-inch, so preserving infiltration of most rainfall events protects a majority of recharge necessary to support wells and to provide groundwater flows to wetlands and streams. Only in core zoning districts (usually mixed use core districts) is this recharge requirement loosened somewhat.
 - b. Peak stormwater discharges must not change from undeveloped condition during +10-year storm events in any district.
3. Cluster Subdivision Layout Guidance – the model law has been expanded to provide guidance intended to limit well water quality risks when wells and septic systems are placed close together in clustered subdivisions.
 - a. Avoid parcels with wells and subdivision under 1 acre
 - b. Where landscape, access and biodiversity allow, consider using several small clusters over one large cluster
 - c. Arrange clusters along a hillside rather than up-and-down the hillside so discharges from septic systems do not migrate directly to an adjacent well.
 - d. Consider extending the protective steel casings used in wells within clusters near aquifer discharge areas. Septic system discharges near surfacewater bodies typically migrate directly to these waterbodies such that wells designed to draw water from deeper aquifer horizons may avoid withdrawing sanitary wastes.
 - e. Consider mandating enhanced septic system treatments or community wells for cluster developments that are located a short distance from aquifer discharge areas, since sanitary discharge will probably travel downward toward well intakes.
4. Pumping Test Criteria
The NYSDEC and NYSDOH have specific responsibilities for certain types of well tests. The following additional requirements fill program gaps between NYSDEC and NYSDOH review authorities.
 - a. For any proposed development project where withdrawals exceed 1,500 gpd and exceed recharge, well pumping tests must include monitoring of off-site wells, and surface water takings must include evaluation of wetland and open water body impacts.
 - b. For Community Water System wells, applicants must provide the following in addition to satisfying NYSDOH and NYSDEC:
 - i. Monitor wetlands and open water bodies on and abutting the site from before to after the pumping test period.
 - ii. Monitor available off-site existing wells from before to after the pumping test period.
 - iii. Increase the test flow rate used for testing if weather before and during the test period is unusually wet. The increased test premium may be proportional to the above-average precipitation experienced in prior 4 months.
 - iv. For comparison purposes, evaluate recharge and consumption using the method provided in the ordinance.
 - c. For major subdivisions with undersized lots as defined in the ordinance, a pumping test is required using wells pre-drilled to satisfy NYSDOH. The test must involve wells on 10%

of site parcels, all pumped simultaneously at 5 gpm for a minimum of 24 hours or until stabilization occurs. Preparation of a water budget and monitoring of wetlands, surface waters and off-site wells for a period beginning before and ending after the well tests are required.

* There are two aquifer protection versions of the model ordinance available for adoption. One provides a common level of protection throughout a municipality (Single Aquifer). The other provides high priority (High Priority) protection to key aquifer areas and mapped wellhead protection areas, and moderate protection elsewhere (Moderate). The version with two levels of protection provides more focused and area-sensitive protection but requires preparation of an aquifer zone map. The different levels of protection between the two-layer and the unified approaches in prohibited and special permit uses are identified below.

Land Use	Single Aquifer	High Priority	Moderate
Landfills (C&D & municipal)	Special Permit	Prohibited	Not Addressed
Burial of Haz Wastes	Special Permit	Prohibited	Special Permit
Large Capacity Haz Waste Generators	Special Permit	Prohibited	Special Permit
Gas Stations & Major Oil Storage Facilities	Special Permit	Prohibited	Special Permit
Junk Yards	Special Permit	Prohibited	Special Permit
Dry Cleaners (on site)	Special Permit	Prohibited	Not Addressed
Photo labs	Special Permit	Special Permit	Not Addressed
Auto Repair	Special Permit	Special Permit	Not Addressed
Furniture stripper/metal	Special Permit	Special Permit	Not Addressed
Printing presses	Special Permit	Special Permit	Not Addressed
Small Haz Waste Generators	Special Permit	Special Permit	Special Permit
Solid Waste Handling Facilities	Special Permit	Special Permit	Not Addressed
Salt Storage	Special Permit	Special Permit	Special Permit
Water uses where consumption > recharge	Special Permit	Special Permit	Special Permit
Cemeteries	Special Permit	Special Permit	Special Permit
Veterinary hospitals	Special Permit	Special Permit	Special Permit
Funeral Homes with Embalming	Special Permit	Special Permit	Special Permit
Pesticides/herbicides/manures	Special Permit	Special Permit	Special Permit

Model local laws are currently available (free) from CCEDC offices in Millbrook and from Russell Urban-Mead at The Chazen Companies (rum@chazencompanies.com) Dutchess County's aquifer recharge report providing precipitation, recharge rate and recommended minimum average parcel size data can be downloaded from the Dutchess County Water & Wastewater Authority home page on the Dutchess County website.

LOCAL ZONING LAW; WATER QUALITY AND CAPACITY PROTECTION AMENDMENT

Version II - One-level of aquifer protection.

A. Legislative Findings, Intent, and Purpose

The purpose of the Water Resource Management Local Zoning Ordinance is to protect the health and welfare of residents of the Town of Waterworld by minimizing the potential for aquifer contamination and aquifer depletion in the Town, and by taking steps to limit the severity of stream flooding and low flow drought conditions in streams.

The Town of Waterworld lies over aquifers covering the entire Town. These provide drinking water in some areas, and their natural discharge is essential to the maintenance of healthy aquatic and associated terrestrial ecosystems in wetlands, streams and lakes. The Town has determined that a limiting factor on the residential and commercial carrying capacity of Waterworld is its capability to provide groundwater in sufficient quality and quantity. Also, where subsurface disposal systems (septic systems) are used, another limiting carrying capacity factor is the subsurface' ability to absorb wastewater without adversely affecting the quality of groundwater and surface water.

The Town of Waterworld also has streams and lakes which can be affected by land uses in ways that increase the severity of both floods and droughts. When infiltration capacity is lost throughout a watershed, the health and welfare of the public are threatened by worsening flood events, and significant infrastructure costs can be incurred. Flows in streams and water levels in ponds can also be reduced by over-consumption of water or by lost recharge due to impervious surfaces, threatening aquatic and related terrestrial ecosystems and reducing residential quality of life and tourism opportunities. Every effort should be made to infiltrate all possible aquifer recharge both to reduce flooding severity and to provide baseflow reserves for ponds and streams during droughts.

B. Applicability of Ordinance

1. With the exception of the prohibition on underground fuel tanks in §X-XE(1) and the infiltration minimization loss standard in §X-XD(6), this §X-X does not apply to any single-family, two-family, or multi-family residential use of land on a single lot containing five or fewer dwelling units, to any residential minor subdivision plat as defined in Chapter xxx of the Town Code, or to any home occupation unless such residential use or home occupation includes one of the activities listed in subsection E below. This Section does apply to all other subdivisions of land.
2. This §X-X shall not apply to farm operations covered by the agricultural zoning exemptions in §X-X.

C. Definitions

For purposes of this §X-X, the following definitions shall apply:

Action: A project or physical activity as defined in the SEQR Regulations of the NYS Department of Environmental Conservation, 6 NYCRR Part 617 , including all actions subject to SEQR that are covered by this Chapter, as well as subdivision applications and other actions requiring local government approval under SEQR.

Aquifer: A consolidated or unconsolidated geologic formation, group of formations or part of a formation capable of yielding a significant or economically useful amount of groundwater to wells, springs or infiltration galleries.

Community Water System: A Public Water System defined by and regulated by the New York State Department of Health, typically understood to serve at least five service connections used by year-round residents or regularly serving at least 25 year-round residents.

Conditionally Exempt Small Quantity Generators: As defined by the Resource Conservation and Recovery Act and amendments thereto, sites generating or storing less than 100 kilograms per month and 1000 kilograms of listed and /or characteristic wastes, and generating and storing less than 1 kilogram per month and 1 kilogram of acutely hazardous waste.

Consumption of Water: The net loss of water from a site or a watershed through local groundwater export to a surfacewater discharge or through evaporation and transpiration processes caused by human land use activities, including evaporative losses from septic system leaching lines. The definition of Consumption of Water also includes water which must be allocated to dilute subsurface wastewater discharges such that groundwater quality at the downgradient property line of sites are unlikely to exceed 50% of the New York State Department of Environmental Conservation's Title 10 Part 703 Groundwater (GA) Water Standard for nitrate.

Discharge: Any intentional or unintentional action or omission resulting in substances or materials entering the waters of the State either directly or by passing through other land, or in any other way resulting in damage to the lands, waters, or natural resources of the State.

Generator of Hazardous Waste: Any person or site whose act or process produces hazardous waste.

Groundwater: Water contained in interconnected pores and fractures in the saturated zone in an aquifer.

Hazardous Substance: Any substance, including any petroleum by-product, which may cause harm to humans or the environment when improperly managed. A complete list of all hazardous substances except for petroleum by-products can be found in 6 NYCRR Part 597.2(b) Tables 1 and 2 and amendments thereto.

Hazardous Waste: See 6 NYCRR Part 371 and amendments thereto for the identification and listing of hazardous wastes.

Herbicide: Any substance or mixture of substances intended to prevent, destroy, repel, or mitigate any weed, including those substances defined as herbicides pursuant to Environmental Conservation Law § 33-0101, and amendments thereto.

Large Quantity Generator: As defined by the Resource Conservation and Recovery Act and amendments thereto, sites either (1) generating more than 1000 kilograms per month of listed and/or characteristic hazardous wastes, or (2) generating or storing more than 1 kilogram per month of acutely hazardous waste.

Major Oil Storage Facilities: Facilities with a storage capacity of 400,000 gallons or more of petroleum.

Natural Recharge: The normal rate at which precipitation replenishes groundwater, without interruption or augmentation by human intervention.

Non-point Discharge: Discharges of pollutants not subject to SPDES (State Pollutant Discharge Elimination System) permit requirements.

Pesticide: Any substance or mixture of substances intended to prevent, destroy, repel, or mitigate any pest, including any substances defined as pesticides pursuant to Environmental Conservation Law § 33-0101 et seq. and amendments thereto.

Petroleum: Oil or petroleum of any kind and in any form including but not limited to oil, petroleum fuel oil, oil sludge, oil refuse, oil mixed with other waste, crude oil, gasoline, and kerosene, as defined in 6 NYCRR Part 597.1(7) and amendments thereto.

Point Source Discharge: Pollutants discharged from a point source as defined in Environmental Conservation Law §17-0105 and amendments thereto.

Pollutant: Any material or byproduct determined or suspected to be hazardous to human health or the environment.

Radioactive Material: Any material that emits radiation.

Small Quantity Generator: As defined by the Resource Conservation and Recovery Act and amendments thereto, sites that do not qualify as Conditionally Exempt Small Quantity Generators and that generate and store less than 1000 kilograms per month of listed and /or characteristic wastes, and that generate or store less than 1 kilogram per month of acutely hazardous waste.

Solid Waste: Generally refers to all putrescible and non-putrescible materials or substances, except

domestic sewage, sewage treated through a publicly owned treatment works, or irrigation return flows, that is discarded or rejected as being spent or otherwise worthless, including but not limited to garbage, refuse, industrial and commercial waste, sludges from air or water treatment facilities, rubbish, tires, ashes, contained gaseous material, incinerator residue, construction and demolition debris, and discarded automobiles, as defined in 6 NYCRR Part 360-1.2(a) and amendments thereto.

State Pollutant Discharge Elimination System (“SPDES”): The system established pursuant to Article 17 Title 8 of Environmental Conservation Law for issuance of permits authorizing discharges to the waters of the state of New York.

Wastewater: Aqueous-carried solid or hazardous waste.

Watershed: All land contributing surface runoff and groundwater flow to the flow of a particular stream.

Water Supply: The groundwater resources of the Town of Waterworld, or the groundwater resources used for a particular well or community water system.

Well: Any present or future artificial excavation used as a source of public or private water supply which derives water from the interstices of the rocks or soils which it penetrates including bored wells, drilled wells, driven wells, infiltration galleries, and trenches with perforated piping, but excluding ditches or tunnels, used to convey groundwater to the surface.

D. General Provisions for Groundwater and Surface Water

1. Non-Degradation Standard: No use shall be allowed which can be calculated or anticipated to degrade the quality of groundwater or surfacewater in a manner that poses a potential danger to public health or safety and no permits or approvals shall be issued for any use which violates this standard. Compliance with applicable standards, requirements, and permit conditions imposed by federal, state, or county agencies shall be deemed to constitute compliance with this standard.
2. The manufacture, use, storage, or discharge of any products, materials, or by-products subject to these regulations, such as wastewater, solid waste, hazardous substances, or any pollutant, must conform to the requirements of these regulations.
3. In addition to the list of Statewide Type I Actions contained in §617.4(b) of 6 NYCRR, all proposed actions resulting in discharges calculated to exceed groundwater effluent standards provided in 6 NYCRR Part 703.6(e) and amendments thereto, or calculated to exceed surface water effluent limitations developed in accordance with 6 NYCRR Part 702.16(b) and amendments thereto, shall be designated as Type I Actions under the Implementing Regulations of the State Environmental Quality Review Act (6 NYCRR Part 617), unless the action is listed as a Type II action under such regulations.
4. Usage of any groundwater for proposed actions shall be examined pursuant to SEQRA in accordance with the water budget methodology in Subsections F and G of this §X-X.
5. All proposed actions where Consumption of water from site aquifers or from any stream other than the Hudson River exceeds Natural Recharge, as defined in Subsections F and G herein, shall be designated as Type I Actions under the Implementing Regulations of the State Environmental Quality Review Act (6 NYCRR Part 617), unless the action is listed as a Type II action under such regulations.
6. Design requirements for stormwater control measures:
 - a. Infiltration practices shall be used such that there will be no increase in stormwater runoff volume from a ten-year-frequency/twenty-four-hour duration storm event following development over the undeveloped site condition (eg. native soil with modest vegetation) in the following zoning districts: (insert the names of zoning districts except hamlet and town center districts or equivalent mixed-use core districts). For sites in the (insert all hamlet/town center or equivalent mixed-use core districts) zoning districts, all reasonable opportunities to use infiltration practices must be explored, regardless of soil type or design storm thresholds, before meeting the balance of stormwater management obligations using other practices.
 - b. To alleviate flooding during storms exceeding the ten-year design storm, stormwater

control measures shall function in all zoning districts to attenuate peak runoff flow rates to be equal to or less than flow rates under undeveloped site conditions.

7. In addition to any testing requirements of the NYS Department of Health and/or NYS Department of Environmental Conservation Testing for new wells, the following specific requirements apply when installing new sources of water supply in the Town of Watertown:
 - a. for new Community Water System wells the following monitoring and analyses are required when testing new wells:
 - i. monitoring and impact analysis on staff gages and mini-wells installed in open surface waters and wetlands on or abutting the site;
 - ii. monitoring and impact analysis on water levels in all volunteered existing wells in reasonable physical condition on abutting parcels;
 - iii. the test flow rate shall be increased proportionally above the design peak demand rate whenever precipitation during the 4 months prior to the test exceeds one third of the Town's long-term average precipitation of XXX inches/year (insert annual average rainfall from DCWWA 2006 Aquifer Recharge Rate report available on the Dutchess County Water & Wastewater website);
 - iv. the water supply report should include a calculated site water budget using the methodology outlined in Subsections F and G herein.
 - b. for major subdivisions with individual domestic wells, a site-wide pumping test is required if i) offsite wastewater service or community wastewater treatment with a surfacewater discharge are proposed and average parcel sizes are less than those listed below, or ii)) if parcels using individual septic systems average less than one quarter the following sizes:
 - i. XX acres over Hydrologic Soil Group A and A/D soils,
 - ii. XX acres over Hydrologic Soil Group B soils,
 - iii. XX acres over Hydrologic Soil Group C and C/D soils, and,
 - iv. XX acres over Hydrologic Soil Group D soils. (insert values from DCWWA 2006 Aquifer Recharge Rate report available on the Dutchess County Water & Wastewater website)

This site-wide pumping test must be conducted simultaneously using wells on 10% (rounded up) of proposed parcels, with each test well discharging at a minimum rate of 5 gallons per minute. All monitoring and reporting requirements in §X-X D(7)(a) apply except for proportional pumping test increases during wet periods. The simultaneous flow test must last a minimum of 24 hours and must be extended as necessary until stabilization is observed in test wells, wetland, streams and any off-site wells.
 - c. for any other projects requiring withdrawals of more than 1,500 daily gallons of water from wells or surfacewater sources, and where onsite recharge as defined in Subsection F herein is less than the proposed water withdrawal, the following apply:
 - i. If the proposed water source is a well, a minimum 24-hour flow test of proposed wells is required including impact analysis including water level monitoring in wells on abutting parcels and nearby streams and wetlands.
 - ii. If the proposed water source comes from surface water, an evaluation is required of potential impacts on connected or adjacent streams, ponds or wetlands.
8. The following approaches should be considered when developing clustered subdivisions with individual domestic wells and septic systems on parcels averaging less than values in X-XD(7)(b).
 - a. Limit the degree to which parcels are under the sizes in §X-X D(7)(b) above to reduce the likelihood of well water interference from septic system discharges.
 - b. Clustered parcels should be arranged along a hillside rather than up and down a hillside so septic discharges below ground level do not flow downhill toward adjacent parcels.
 - c. Clustered parcels cluster near ponds, streams or perennial wetlands may consider use of well casings extending at least 50 feet deeper than the water table to tap groundwater

- below the shallow groundwater flows receiving and transporting septic discharges to the adjacent water bodies.
- d. Clusters situated on hillside or upland areas (e.g. not in proximity to ponds, streams or perennial wetlands as in §X-X D(7)(d) should consider the following:
 - i. Use of enhanced treatment units in individual septic systems to release cleaner wastewater to the subsurface, or;
 - ii. use of community wells from a groundwater source distant from the cluster and/or use of collective wastewater treatment with either an aboveground discharge or subsurface disposal with collective enhanced pre-treatment prior to discharge.
 - e. On large cluster subdivision project, several sub-clusters may ensure reliable well water quality better than one large cluster.

E. Prohibitions, Restrictions, and Permit Requirements for Aquifer Management

In accordance with Article IX of this Chapter, “Special Permits and Site Plan Review,” the Planning Board shall review and act upon Special Permit applications within the Town of Watertown. If the uses listed below are regulated by any state or federal agency, the definitions and regulations of such uses contained in applicable state or federal laws and regulations shall apply.

1. Prohibited Uses

- a. Installation of an underground fuel tank or tanks, whose combined capacity is less than 1,100 gallons. This applies to all uses throughout the Town, including single-family, two-family, and multi-family dwellings.
- b. Land application of septage, sludge, or human excreta, including land application facilities defined in 6 NYCRR Part 360-4. This prohibition shall not apply to land application of treated wastewater for irrigation when duly approved by county, state, or federal agencies with regulatory jurisdiction.

2. Special Permits. The following uses, if permitted in the underlying land use district, shall require the issuance of a Special Permit:

- a. Photo labs;
- b. Auto repair facilities and truck terminals, including engine repair and machine shops
- c. Furniture stripper/painter, metal works, wood preservers
- d. Printers and the use of printing presses
- e. Conditionally Exempt, Small Quantity and Large Quantity Generators of Hazardous Waste.
- f. Municipal, private, and construction and demolition landfills as defined in 6 NYCRR Part 360-2 and 6 NYCRR Part 360-7.
- g. Solid waste management facilities not involving burial, including incinerators, composting facilities, liquid storage, regulated medical waste, transfer stations, recyclables handling & recovery facilities, waste tire storage facilities, used oil, C&D processing facilities, each as defined in 6 NYCRR Part 360.
- h. Salt storage facilities
- i. Residential uses using wells and septic systems where average parcel sizes are below those listed in section X-X(D)(7)(b), or other uses and land subdivisions where Water Consumption exceeds Natural Recharge calculated using water budget methods described in subsections F and G.
- j. Cemeteries, including pet cemeteries
- k. Veterinary hospitals and offices
- l. Funeral parlors engaging in embalming
- m. Storage or disposal of manure, fertilizers, pesticides/herbicides. No special permit shall be required for storage of less than 500 pounds or where such storage or disposal is conducted in connection with a farm operation that is covered by the exemptions in Section 175-37E.
- n. Disposal, by burial, of any hazardous waste, as defined in 6 NYCRR Part 371
- o. Gas stations and Major Oil Storage Facilities.

- p. On-site dry cleaning.
 - q. Junkyards and automobile cemeteries
3. Special Conditions for select proposed uses requiring a Special Permit:
- a. Storage of chloride salts for road de-icing is prohibited except in structures designed to minimize contact with precipitation and constructed on low permeability pads designed to control seepage and runoff.
 - b. Upon request by the Town, generators of Hazardous Waste shall provide the Town with copies of all applicable permits provided by State and/or Federal regulators and copies of all annual, incident, and remediation-related reports as well as any required compliance sampling or monitoring data
 - c. Any projects where Water Consumption exceeds Natural Recharge, as defined in Subsections F and G herein, or where average residential parcel sizes using wells and septic systems are below those listed in X-X(D)(7)(b) shall demonstrate through SEQRA how such water budget and quality impacts will be mitigated. Mitigation measures may include identifying compensatory recharge to permanently prevent adverse impacts to water supply on adjoining and downgradient land. Such compensatory recharge may be located either upgradient or downgradient of the project. Where the project is located adjacent to a wetland, watercourse, parkland, or other land that is permanently protected from development, the recharge or dilution capacity of such adjacent protected land may be counted toward the required mitigation of the impact of the project, provided that such recharge capacity is not claimed in connection with another project.
 - d. Upon request by the Town, gasoline service station operators shall provide the Town with copies of all applicable permits provided by State and/or Federal regulators and copies of all annual, incident, and remediation-related reports as well as any required compliance sampling or monitoring data.
 - e. Junkyard operators shall drain fuels, lubricants, and coolants from all cars stored on site to properly permitted above-ground holding tanks. Upon request of the Town, junkyard operators shall provide to the Town copies of all applicable permits provided by State and/or Federal regulators and copies of all annual and incident reports, and provide the Town with an annual summary of numbers of vehicles on site and total gallons of various classes of fluids drained from vehicles and disposal manifests or other documentation of disposition of such fluids.
 - f. Upon request by the Town, generators of Hazardous Waste shall provide the Town with copies of all applicable permits provided by State and Federal regulators and copies of all annual, incident, and remediation-related reports.
 - g. The Town may require additional monitoring and reporting.
4. Application Requirements for Special Permits: In addition to the Special Permit application requirements set forth in Article IX, applicants proposing actions listed in subsections (3) and (5) above shall identify the following as part of their applications:
- a. The source of water to be used
 - b. The quantity of water required
 - c. Water use minimization measures to be implemented
 - d. Water recycling measures to be implemented
 - e. Wastewater discharge measures
 - f. Grading and/or storm water control measures to enhance on-site recharge of surface water;
 - g. Point Source or Non-Point Discharges;
 - h. A certified statement indicating that only waste characteristic of domestic waste will be released to any septic systems.

- i. A complete list of any Hazardous Substances to be used on site along with quantity to be used and stored on site; and
- j. A description of Hazardous Substance storage or handling facilities and procedures.

F. Determination of a Parcel’s Natural Rate of Aquifer Recharge

The natural recharge rate for a parcel shall be determined by identifying the soil types on the property, classifying them by hydrologic soil groups (A through D, A/D and C/D), and applying a recharge rate of XX inches/year for A and A/D soils, XX inches/year for B soils, XX inches/year for C and C/D soils, and XX inches/year for D soils, and multiplying the recharge rate(s) by the number of acres in the parcel for each soil group. (rates to be taken from DCWWA 2006 Aquifer Recharge Rate report available on the Dutchess County Water & Wastewater website)

G. Consumption of Water

The following table establishes the method to calculate projected site or watershed consumption of water, as defined in §X-XC. Consumption may be considered to be zero where the source of water used on a proposed site is the Hudson River.

<u>Use</u>	<u>Gallons per day</u>	<u>Multiplied by</u> <u>Dilution factor</u>	<u>Consumption/day</u>
Irrigated Lands (non-agricultural)	Irrigated Acres x 4,000 ⁽¹⁾	x 1	= _____
Uses with Surface Discharge of Wastewater if Source water is from surfacewater	Calculated Demand	x 0.2	= _____
Uses with Surface discharge of Wastewater if Source water is from On-Site Groundwater Wells	Calculated Demand	x 1	= _____
Residential Uses with Conventional Subsurface Wastewater Discharge ⁽²⁾	70 gpd/capita	x 8	= _____
Nonresidential Uses with Conventional Subsurface Wastewater Discharge ⁽²⁾	Daily Use	x 8	= _____

(1) Applicable for vegetation requiring 1 inch/week irrigation. May be adjusted for vegetation with other water requirements.
 (2) Calculate use per NYSDEC intermediate wastewater disposal guide. Discharge must not exceed NYSDEC Title 10, Part 703 effluent limits.
 (3) where projects meet more than one condition listed on the table above, the calculation resulting in the greatest Consumption value must be used.

H. Reporting of Discharges

Any person or organization responsible for any discharge of a Hazardous Substance, Solid Waste, Hazardous Waste, petroleum product, or radioactive material shall notify the Town Clerk of such discharge within 24 hours of the time of discovery of the discharge. This notification does not alter other applicable reporting requirements under existing law and applies to all uses, whether conforming or non-conforming in any respect.

I. Non-conforming Uses, Structures, and Lots

See Article VI of this Chapter. For any non-conformity which requires a special permit to expand or

Draft: April 17, 2009

change, all requirements of this §X-X shall apply to such expansion or change.