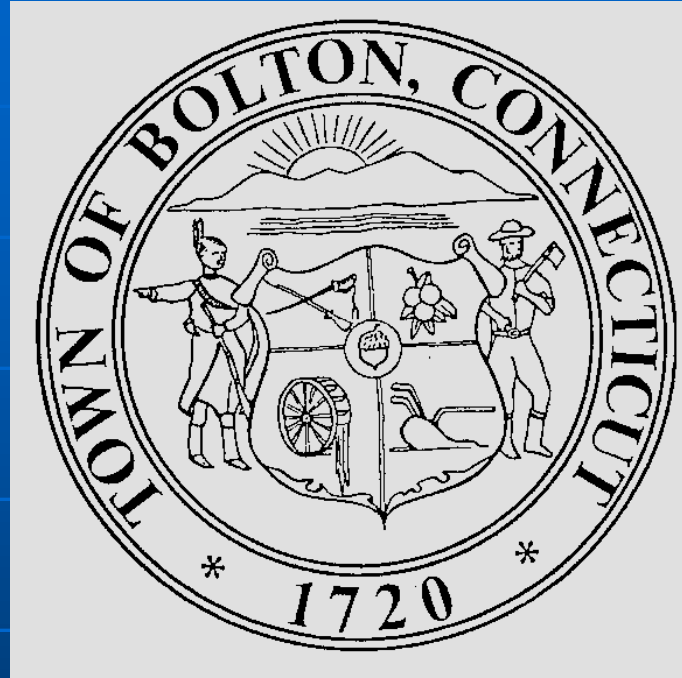


BOLTON AQUIFER PROTECTION AGENCY



Public Hearing

Draft Aquifer Protection Regulations

May 20, 2009



BOLTON AQUIFER PROTECTION AGENCY

WHY THIS PUBLIC HEARING?

- **The Bolton Aquifer Protection Agency is proposing Aquifer Protection Regulations**
- **It is required to hold a public hearing both by Statute**

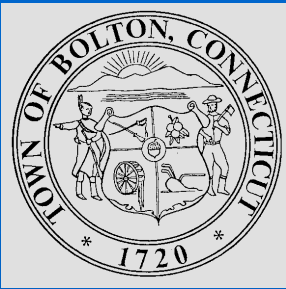


BOLTON

AQUIFER PROTECTION AGENCY

WHY AN AQUIFER PROTECTION REGULATION?

- **Public Act 88-324 & subsequent revisions established the Aquifer Protection Program administered by the Department of Environmental Protection**
- **Public Act 89-305 found that:**
 - **aquifers are an essential natural resource and a major source of public drinking water;**
 - **reliance on groundwater will increase because opportunities for development of new surface water supplies are diminishing due to the rising cost of land and increasingly intense development ;**
 - **numerous drinking water wells have been contaminated by certain land use activities and other wells are now threatened ;**
 - **protection of existing and future groundwater supplies demands greater action by state and local government , etc.**



BOLTON AQUIFER PROTECTION AGENCY

WHY AN AQUIFER PROTECTION REGULATION?

- **The Aquifer Protection legislation is embodied in CGS, § 22a-354a-bb**
- **The Regulations implementing the Statutory requirements are found in R.C.S.A., §22a-354i-1 through §22a-354i-10.**
- **The DEP has identified an Aquifer Protection Area located in the northwest quadrant of Bolton.**



BOLTON AQUIFER PROTECTION AGENCY

WHY AN AQUIFER PROTECTION REGULATION?

- CGS, § 22a-354o(a) requires that a municipality in which an Aquifer Protection Area is identified must establish an Aquifer Protection Agency
- The Bolton Planning & Zoning Commission was designated the Bolton Aquifer Protection Agency by Ordinance on December 10, 1993
- Any Water Company which serves 10,000 or more people must delineate a Level "A" Aquifer Area
- Manchester Water Company meets these criteria



BOLTON AQUIFER PROTECTION AGENCY

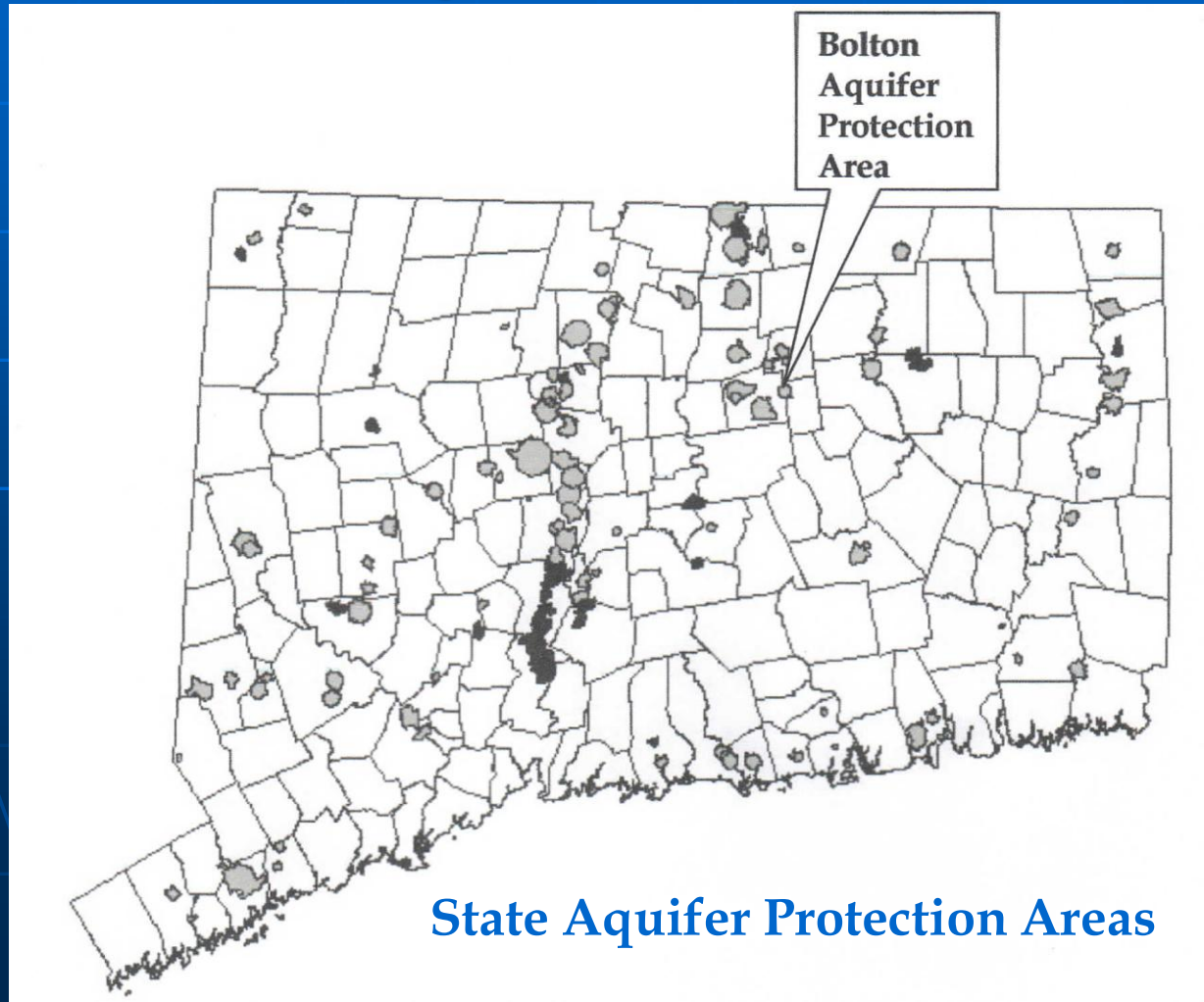
WHY AN AQUIFER PROTECTION REGULATION?

- CGS, § 22a-354o(b) requires that within 6 months that Level "A" mapping has been approved by the Commissioner of DEP, the community within which an Aquifer Protection Area is located must adopt Aquifer Protection Regulations which meet the requirements of the DEP
- Bolton received notice of approval of Level "A" mapping in October, 2008
- Bolton Must Adopt Regulations by May, 2009



BOLTON AQUIFER PROTECTION AGENCY

WHERE IS THE AQUIFER PROTECTION AREA?

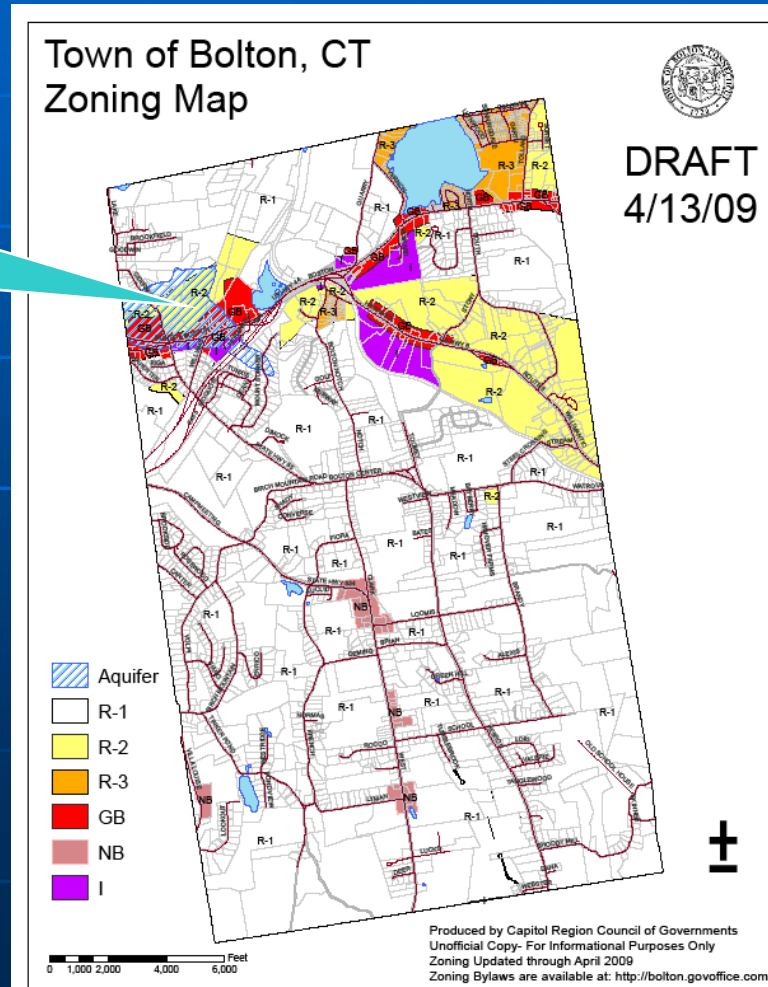




BOLTON AQUIFER PROTECTION AGENCY

WHERE IS THE AQUIFER PROTECTION AREA?

**Bolton
Aquifer
Protection
Area**

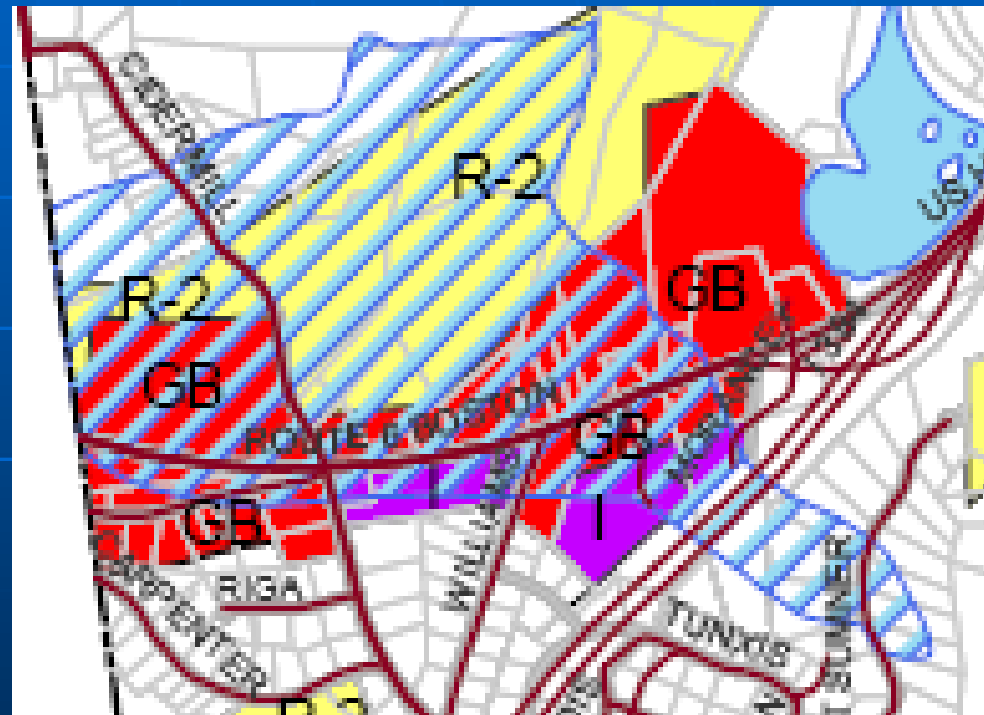




BOLTON AQUIFER PROTECTION AGENCY

WHERE IS THE AQUIFER PROTECTION AREA?

- Level "A" Mapping superimposed on Zoning
- Level "A" Mapping adopted January, 2009





BOLTON AQUIFER PROTECTION AGENCY

Why is this Area Designated an Aquifer, and the Rest of Bolton is Not?

■ Definition of "Aquifer":

- A geologic formation, group of formations or part of a formation that contains sufficient saturated, permeable materials to yield significant quantities of water to wells and springs;

■ Definition of "Stratified Drift":

- a predominantly sorted sediment laid down by or in meltwater from glaciers and includes sand, gravel, silt and clay arranged in layers



BOLTON AQUIFER PROTECTION AGENCY

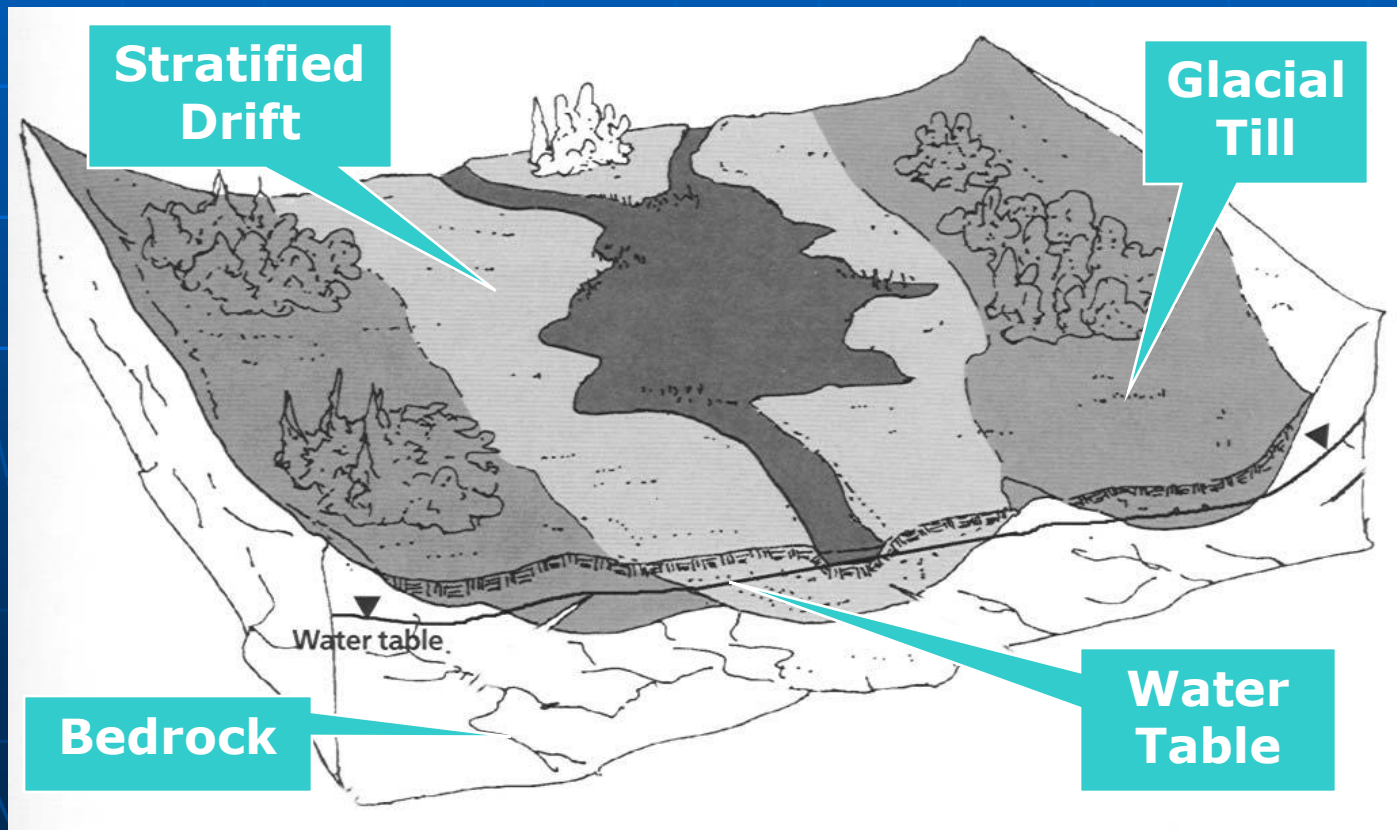
Why is this Area Designated An Aquifer, and the Rest of Bolton is Not?

- **Manchester Water Company has three wells within this Stratified Drift Aquifer**



BOLTON AQUIFER PROTECTION AGENCY

Characteristics of a Stratified Drift Aquifer





BOLTON AQUIFER PROTECTION AGENCY

Why Is It Necessary to Regulate Land Uses?

- **Certain land uses and associated activities contain contaminants which may enter the Aquifer and adversely affect the drinking water supply**



BOLTON AQUIFER PROTECTION AGENCY

Contaminants

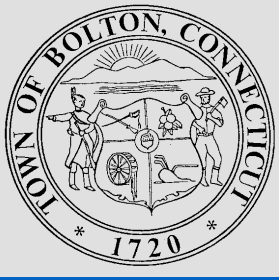
- **Solvents**
- **Petroleum Products**
- **Pesticides**
- **Nitrates**
- **Biological Pollutants**
- **Salt (Sodium Chloride)**
- **Metals**
- **Acids / Bases**



BOLTON AQUIFER PROTECTION AGENCY

Regulated Activities

**Uses and Activities that may or do pose a
contamination threat**



BOLTON AQUIFER PROTECTION AGENCY

Regulated Activity

28 Categories

(waste disposal, industrial, commercial uses)

**New Activities
Prohibited**

Exceptions
(will not be regulated)

**Existing activities
must Register**
(DEP or Municipality)

Comply with BMPs
Can expand
Can add new regulated
activity subject to permit

Exemption
(by DEP)

**Demonstrate Hazardous
Materials will not impair
groundwater**

Source: Connecticut Department of Environmental Protection



BOLTON AQUIFER PROTECTION AGENCY

28 Regulated Activities

- (A) Underground storage or transmission of oil or petroleum**, to the extent such activity is not preempted by federal law, or hazardous material, except for (i) an underground storage tank that contains number two (2) fuel oil and is located more than five hundred (500) feet from a public supply well subject to regulation under §22a-354c or §22a-354z of the Connecticut General Statutes, or (ii) underground electrical facilities such as transformers, breakers, or cables containing oil for cooling or insulation purposes which are owned and operated by a public service company,



BOLTON AQUIFER PROTECTION AGENCY

28 Regulated Activities (cont'd)

- (B) Oil or petroleum dispensing for the purpose of retail, wholesale or fleet use,**
- (C) On-site storage of hazardous materials for the purpose of wholesale sale,**
- (D) Repair or maintenance of vehicles or internal combustion engines of vehicles, involving the use, storage or disposal of hazardous materials, including solvents, lubricants, paints, brake fluids, transmission fluids or the generation of hazardous wastes,**



BOLTON AQUIFER PROTECTION AGENCY

28 Regulated Activities (cont'd)

- (E) Salvage operations of metal or vehicle parts,
- (F) Wastewater discharges to ground water other than domestic sewage and stormwater, except for discharges from the following that have received a permit from the Commissioner pursuant to §22a-430 of the Connecticut General Statutes: (i) a pump and treat system for ground water remediation, (ii) a potable water treatment system, (iii) heat pump system, (iv) non-contact cooling water system, (v) swimming pools,



BOLTON AQUIFER PROTECTION AGENCY

28 Regulated Activities (cont'd)

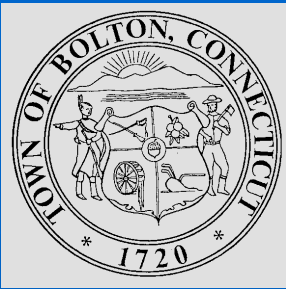
- (G) **Car or truck washing**, unless all waste waters from such activity are lawfully disposed of through a connection to a publicly owned treatment works,
- (H) **Production or refining of chemicals**, including without limitation hazardous materials or asphalt,
- (I) **Clothes or cloth cleaning service** which involves the use, storage or disposal of hazardous materials including without limitation dry-cleaning solvents,



BOLTON AQUIFER PROTECTION AGENCY

28 Regulated Activities (cont'd)

- (J) **Industrial laundry activity that involves the cleaning of clothes or cloth contaminated by hazardous material, unless all waste waters from such activity are lawfully disposed of through a connection to a publicly owned treatment works,**
- (K) **Generation of electrical power by means of fossil fuels, except for (i) generation of electrical power by an emergency engine as defined by §22a-174-22(a)(2) of the Regulations of Connecticut State Agencies, or (ii) generation of electrical power by means of natural gas or propane,**



BOLTON AQUIFER PROTECTION AGENCY

28 Regulated Activities (cont'd)

- (L) **Production of electronic boards, electrical components, or other electrical equipment** involving the use, storage or disposal of any hazardous material or involving metal plating, degreasing of parts or equipment, or etching operations,
- (M) **Embalming or crematory services** which involve the use, storage or disposal of hazardous material, unless all waste waters from such activity are lawfully disposed of through a connection to a publicly owned treatment works,



BOLTON AQUIFER PROTECTION AGENCY

28 Regulated Activities (cont'd)

- (N) **Furniture stripping operations** which involve the use, storage or disposal of hazardous materials,
- (O) **Furniture finishing operations** which involve the use, storage or disposal of hazardous materials, unless all waste waters from such activity are lawfully disposed of through a connection to a publicly owned treatment works,
- (P) **Storage, treatment or disposal of hazardous waste** subject to a permit under §22a-449(c)-100 to §22a-449(c)-110, inclusive, of the Regulations of Connecticut State Agencies,



BOLTON AQUIFER PROTECTION AGENCY

28 Regulated Activities (cont'd)

- (Q) **Biological or chemical testing, analysis or research** which involves the use, storage or disposal of hazardous material, unless all waste waters from such activity are lawfully disposed of through a connection to a publicly owned treatment works, and provided that on-site testing of a public supply well by a public water utility is not a regulated activity,
- (R) **Pest control services** which involve storage, mixing or loading of pesticides or other hazardous materials,



BOLTON AQUIFER PROTECTION AGENCY

28 Regulated Activities (cont'd)

- (S) **Photographic finishing** which involves the use, storage or disposal of hazardous materials, unless all waste water from such activity are lawfully disposed of through a connection to a publicly owned treatment works,
- (T) **Production or fabrication of metal products** which involves the use, storage or disposal of hazardous materials including (i) metal cleaning or degreasing with industrial solvents, (ii) metal plating, or (iii) metal etching,



BOLTON AQUIFER PROTECTION AGENCY

28 Regulated Activities (cont'd)

- (U) Printing, plate making, lithography, photoengraving, or gravure, which involves the use, storage or disposal of hazardous materials,**
- (V) Accumulation or storage of waste oil, anti-freeze or spent lead-acid batteries which are subject to a general permit issued by the Commissioner under §22a-208(i) and §22a-454(e)(1) of the Connecticut General Statutes,**



BOLTON AQUIFER PROTECTION AGENCY

28 Regulated Activities (cont'd)

- (W) **Production of rubber, resin cements, elastomers or plastic**, which involves the use, storage or disposal of hazardous materials,
- (X) **Storage of de-icing chemicals**, unless such storage takes place within a weather-tight water-proof structure for the purpose of retail sale or for the purpose of de-icing parking areas or access roads to parking areas,



BOLTON AQUIFER PROTECTION AGENCY

28 Regulated Activities (cont'd)

- (Y) **Accumulation, storage, handling, recycling, disposal, reduction, processing, burning, transfer or composting of solid waste** which is subject to a permit issued by the Commissioner pursuant to §22a-207b, §22a-208a, and §22a-208c of the Connecticut General Statute, except for a potable water treatment sludge disposal area,
- (Z) **Dying, coating or printing of textiles, or tanning or finishing of leather**, which activity involves the use, storage or disposal of hazardous materials,



BOLTON AQUIFER PROTECTION AGENCY

28 Regulated Activities (cont'd)

- (AA) Production of wood veneer, plywood, reconstituted wood or pressure-treated wood, which involves the use, storage or disposal of hazardous material, and**
- (BB) Pulp production processes that involve bleaching.**



BOLTON AQUIFER PROTECTION AGENCY

Exceptions

1. Any activity conducted at a residence without compensation;
2. Any activity involving the use or storage of no more than two and one-half (2.5) gallons of each type of hazardous material on-site at any one time, provided the total of all hazardous materials on-site does not exceed fifty-five (55) gallons at any one time;
3. Any agricultural activity regulated pursuant to §22a-354m(d) of the Connecticut General Statutes;



BOLTON AQUIFER PROTECTION AGENCY

Exceptions (cont'd)

4. Any activity provided all the following conditions are satisfied:

(A) Such activity takes place solely within an enclosed building in an area with an impermeable floor,

(B) Such activity involves no more than 10% of the floor area in the building where the activity takes place,

(C) Any hazardous material used in connection with such activity is stored in such building at all times,



BOLTON

AQUIFER PROTECTION AGENCY

Exceptions (cont'd)

4. Any activity provided all the following conditions are satisfied:

(D) All waste waters generated by such activity are lawfully disposed through a connection to a publicly owned treatment works, and

(E) Such activity does not involve (i) repair or maintenance of internal combustion engines, including without limitation, vehicles, or equipment associated with such vehicles, (ii) underground storage of any hazardous material, or (iii) above ground storage of more than one hundred and ten (110) gallons of hazardous materials;



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AQUIFER PROTECTION AGENCY

Exceptions (cont'd)

- 5. Any activity solely involving the use of lubricating oil provided all the following conditions are satisfied:**
 - (A) Such activity does not involve cleaning of metals with chlorinated solvents at the facility,**
 - (B) Such activity takes place solely within an enclosed building in an area with an impermeable floor,**
 - (C) Any hazardous material used in connection with such activity is stored in such building at all times, and**



BOLTON

AQUIFER PROTECTION AGENCY

Exceptions (cont'd)

5. Any activity solely involving the use of lubricating oil provided all the following conditions are satisfied:
 - (D) Such activity does not involve: (i) repair or maintenance of internal combustion engines, including without limitation, vehicles, or equipment associated with such vehicles, (ii) underground storage of any hazardous material, or (iii) above ground storage of more than one hundred ten (110) gallons of such lubricating oil and associated hazardous waste; and



BOLTON

AQUIFER PROTECTION AGENCY

Exceptions (cont'd)

- 6. Any activity involving the dispensing of oil or petroleum from an above-ground storage tank or tanks with an aggregate volume of two thousand (2000) gallons or less provided all the following conditions are satisfied:
 - (A) Such dispensing activity takes place solely on a paved surface which is covered by a roof,**
 - (B) The above-ground storage tank (s) is a double-walled tank with overfill alarms, and**
 - (C) All associated piping is either above ground, or has secondary containment.****



BOLTON AQUIFER PROTECTION AGENCY

Regulated Activities Are Prohibited

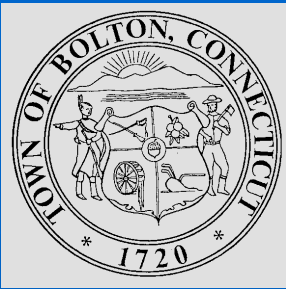
- Only existing Regulated Activities are allowed to continue to exist, and to expand by permit, subject to compliance with Best Management Practices



BOLTON AQUIFER PROTECTION AGENCY

Existing Regulated Activities

- **Must Register with the Bolton Aquifer Protection Agency**
- **Must Demonstrate Compliance with Best Management Practices (BMPs)**
- **May Seek Permits for Expansion or for the establishment of additional Regulated Activities**



BOLTON AQUIFER PROTECTION AGENCY

Registration

- Regulated Activities must register with the Bolton Aquifer Protection Agency within 180 days of the adoption of the Aquifer Protection Regulations
- Assuming May 20, 2009 will be the date of Regulation adoption, the deadline for registration will be November 16, 2009
- Such registration must be on a form prescribed by the Agency



BOLTON AQUIFER PROTECTION AGENCY

Registration (cont'd)

- The registrant must certify as to compliance with Best Management Practices as contained in Section 12 of the Regulations.
- The Agency, upon written notice, may require the submission of a Storm Water Management Plan and /or Materials Management Plan when deemed necessary to protect a public supply .
- The Registration will be deemed to be complete if the registrant has not received a notice of rejection within 180 days of the submission of the Registration.



BOLTON AQUIFER PROTECTION AGENCY

Best Management Practices (BMPs)

- Generally defined as: “procedures or methods of reducing or eliminating wastes, wastewaters, spills, leaks, or other releases to the environment”
- Commonly called pollution prevention
- They can be:
 - Structural/Design (sewers, containment, basins)
 - Procedural (housekeeping, handling)
 - Process (operation, equipment, materials)

Source: Connecticut Department of Environmental Protection



BOLTON AQUIFER PROTECTION AGENCY

Best Management Practices (BMPs)

- Apply to outside areas & inside buildings
- 4 BMPs
 1. Hazardous material storage
 2. Wastewater disposal
 3. Material Management Plan
 4. Stormwater Management Plan
- They are structural/design, procedural & process



Source: Connecticut Department of Environmental Protection



BOLTON AQUIFER PROTECTION AGENCY

Best Management Practices (BMPs)

1. Hazardous material storage

- above-ground
- inside (or roofed) & secondary containment
- no new underground storage tanks
 - Limited expansion (25% capacity) of existing tanks, with conditions



2. Wastewater disposal

- restricted wastewater discharges (domestic sewage, clean waters only)
- restricted use of floor drains & infiltration devices



BOLTON AQUIFER PROTECTION AGENCY

Best Management Practices (BMPs)

3. Materials Management Plan

- pollution prevention
- inventory & audit system
- inspection, emergency response

4. Stormwater Management Plan

- measures to prevent groundwater pollution
- meet the DEP Commercial Stormwater GP requirements



BOLTON AQUIFER PROTECTION AGENCY

Materials Management Plans

- Part of the BMP requirements
 - Certified for all permits
 - May be required to be certified for registrations

- Specific for the subject facility

- 6 required elements

- DEP Model Form

Source: Connecticut Department of Environmental Protection



BOLTON AQUIFER PROTECTION AGENCY

Materials Management Plans: Contents / Elements

- 1. ID Storage, handling, processing & disposal areas**
- 2. Inventory of hazardous materials, wastes & wastewaters**
- 3. Potential pollution sources & protection measures**
- 4. Pollution prevention assessment**
 - 1. Minimize amount, hazard, or waste**

Source: Connecticut Department of Environmental Protection



BOLTON AQUIFER PROTECTION AGENCY

Materials Management Plans: Contents (cont'd)

- 5. Inspection and audit system to prevent and abate releases**
 - 1. inspection schedule, record keeping of materials & releases**
- 6. Spill/emergency response plan**
 - 1. contact person, procedure, employee training**



BOLTON AQUIFER PROTECTION AGENCY

Storm Water Management Plans:

- Part of the Bolton Aquifer Protection Agency BMPs
- Specific to the site
- Requirements
 - Required for all permits, may be required for registrations
 - Manage stormwater to prevent groundwater pollution
 - Meet the DEP Commercial Stormwater General Permit requirements
- DEP Model Form
- Guidance Fact Sheets



BOLTON AQUIFER PROTECTION AGENCY

Storm Water Management Plans: To Infiltrate or not to Infiltrate...

- **Emphasis on protecting groundwater quality**
 - **Manage stormwater “hot spots” aboveground**
 - **Restrict subsurface infiltration structures**

Source: Connecticut Department of Environmental Protection



BOLTON AQUIFER PROTECTION AGENCY

Storm Water Management Plans: Aquifer Protection Principles

- 1. Source controls**
Prevent spills & non-stormwater discharges
- 2. Provide necessary pavement in “hot spots”**
Storage, loading, fueling, intense parking & roads
- 3. Direct paved surfaces to aboveground treatment structures**
Sheetflow, swales, basins, pipes, separators, etc.



BOLTON AQUIFER PROTECTION AGENCY

Storm Water Management Plans: Aquifer Protection Principles

4. **Restrict subsurface infiltration structures**
Use drywells & leaching trenches for recharge of clean runoff- roof & other clean surfaces
5. **Minimize deicing chemicals**
6. **Other measures to consider where possible**
 - **Minimize or disconnect paved areas**
 - **Use alternative site designs & low impact development (LID) techniques**

Source: Connecticut Department of Environmental Protection



BOLTON AQUIFER PROTECTION AGENCY

Storm Water Management Plan Contents:

- Stormwater discharge information
 - Number and type of storm water conveyances
- Source controls (MMP)
 - No exposed materials
 - No outside washing/processing, or illicit discharges or releases
 - Minimize or alternative deicing chemicals
 - Emergency response, employee training

Source: Connecticut Department of Environmental Protection



BOLTON AQUIFER PROTECTION AGENCY

Storm Water Management Plan Contents:

- **Runoff management and treatment measures**
 - **ID Areas of Concern**
 - **Measures**
 - **Pavement in stormwater “hot spots”**
 - **Convey paved surfaces to aboveground type treatment structures**
 - **Restrict the use of subsurface recharge structures**

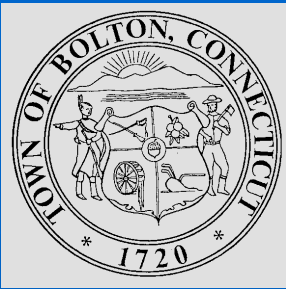


BOLTON AQUIFER PROTECTION AGENCY

Storm Water Management Plan Contents:

- **Inspection & maintenance**
 - Areas of Concern
 - Pavement areas, sweeping
 - Stormwater collection & treatment structures

- **Other measures to consider where possible**
 - Minimize or disconnect paved areas
 - Use alternative site designs or low impact development techniques



BOLTON

AQUIFER PROTECTION AGENCY

Storm Water Management Plan Guidance

- **DEP Stormwater Quality Manual (2004)**
 - **Site planning, source controls, design, treatment practices, retrofits**
- **APA and Related Guidance Factsheets**
 - **Stormwater Management Plans**
 - **Sites with Subsurface Infiltration Structures**
 - **Considerations for Requiring Registrants to Prepare a SWMP**
 - **Sand & Gravel Operations**
 - **Road Salt Storage**
 - **Lawn & Garden Centers**
 - **Road & Highway Construction**

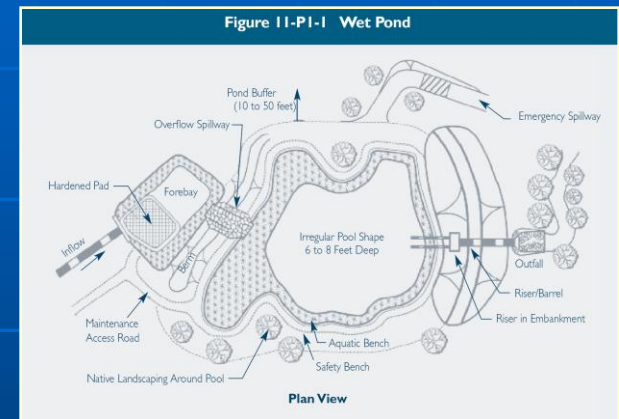


BOLTON AQUIFER PROTECTION AGENCY

Storm Water Management Plan: Practices

- Stormwater Pond (Primary)
- Dry Detention Basin (Secondary)

Source: Connecticut Department of Environmental Protection





BOLTON AQUIFER PROTECTION AGENCY

Storm Water Management Plan: Secondary Practice

- Grass Drainage Channels

Source: Connecticut Department of
Environmental Protection





BOLTON AQUIFER PROTECTION AGENCY

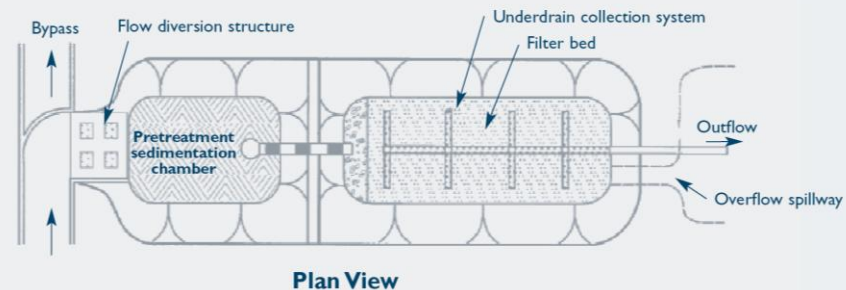
Storm Water Management Plan: Primary Practice

- Infiltration

Source: Connecticut Department of
Environmental Protection



Figure 11-P4-1 Earthen Surface Sand Filter



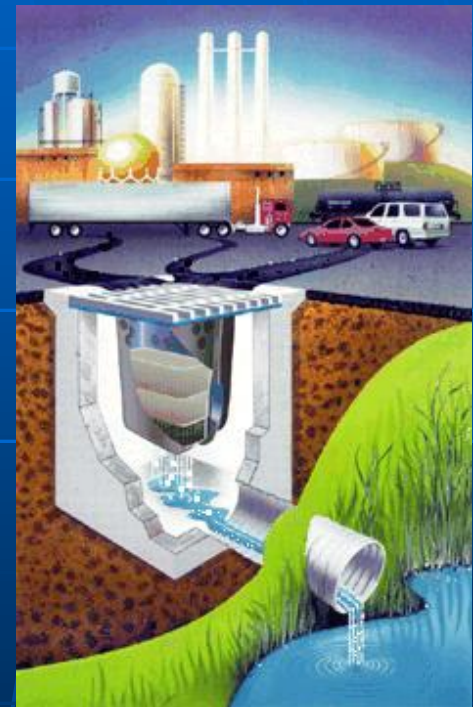


BOLTON AQUIFER PROTECTION AGENCY

Storm Water Management Plan: Secondary Practice

- Catch Basin Inserts

Source: Connecticut Department of
Environmental Protection





BOLTON AQUIFER PROTECTION AGENCY

QUESTIONS?