



Department of Environmental Protection

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MODEL

GROUNDWATER PROTECTION DISTRICT BYLAW

(updated 2011)

- This model was initially developed in 1991 to provide communities with an example of a bylaw that complies with MassDEP's Wellhead Protection Regulations (WHP), 310 CMR 22.21(2).
- This model is designed as a 'town' bylaw. It can easily be modified for use by cities pursuing a Groundwater Protection District Ordinance.
- Sections of this model are stricter than the WHP Regulations. Adoption of this model is not required for compliance with 310 CMR 22.21(2). Compliance may be achieved by adopting this model OR by adopting any combination of zoning bylaws, general bylaws and health regulations that sufficiently prohibit the land uses and activities in 310 CMR 22.21(2).
- This model does not include the floor drain prohibition, 310 CMR 22.21(2)(a)(8). Existing floor drains be addressed; therefore a zoning control cannot be used for compliance. A board of health floor drain regulation is recommended, however a general bylaw will also meet compliance. A Model Board of Health Floor Drain Regulation is available from MassDEP.
- For communities seeking to protect their drinking water supplies entirely through a Board of Health Regulation (rather than zoning), a Model Groundwater Protection Board of Health Regulation is also available.
- For more information, please visit <http://www.mass.gov/dep/water/drinking/sourcewa.htm>

How to Use this Model

1. Fill in the underlined blanks with the correct information for your community;
2. Remove all footnotes and endnotes; and
3. Modify model language as needed and appropriate for your community; refer to the attached WHP Regulations, 310 CMR 22.21(2).¹

GROUNDWATER PROTECTION DISTRICT BYLAW ²

1. PURPOSE OF DISTRICT

The purpose of this Groundwater Protection District is to:

- a. promote the health, safety, and general welfare of the community by ensuring an adequate quality and quantity of drinking water for the Town of _____ ;
- c. preserve and protect existing and potential sources of drinking water;
- d. conserve natural resources in the Town of _____; and
- e. prevent temporary and permanent contamination of the environment.

2. SCOPE OF AUTHORITY

The Groundwater Protection District is an overlay district superimposed on the zoning districts. This overlay district shall apply to all new construction, reconstruction, or expansion of existing buildings and new or expanded uses. Applicable activities and uses in a portion of one of the underlying zoning districts that fall within the Groundwater Protection District must additionally comply with the requirements of this bylaw. Uses prohibited in the underlying zoning districts shall not be permitted in the Groundwater Protection District.

3. DEFINITIONS

Automobile Graveyard: An establishment that is maintained, used, or operated for storing, keeping, buying, or selling wrecked, scrapped, ruined, or motor vehicle parts as defined in MGL c.140B, s.1.

Aquifer: A geologic formation composed of rock, sand or gravel that contains significant amounts of potentially recoverable water.

CMR: Code of Massachusetts Regulations.

Commercial Fertilizer: Any substance containing one or more recognized plant nutrients which is used for its plant nutrient content and which is designed for use, or claimed to have value in promoting plant growth, except un-manipulated animal and vegetable manures, marl, lime, limestone, wood ashes, and gypsum, and other products exempted by state regulations.

Discharge: The accidental or intentional disposal, deposit, injection, dumping, spilling, leaking, pouring, or placing of toxic or hazardous material or hazardous waste upon or into any land or water such that it may enter the surface or ground waters.

Dry Well: A subsurface pit with open-jointed lining or holes through which storm-water drainage from roofs, basement floors, foundations or other areas seep into the surrounding soil.

Groundwater Protection District: The land area consisting of aquifers and Zone II recharge areas as identified on a map and adopted pursuant to this bylaw.

Hazardous Material: Any substance in any form which because of its quantity, concentration, or its chemical, corrosive, flammable, reactive, toxic, infectious or radioactive characteristics, either separately or in combination with one or more substances, constitutes a present or potential threat to human health,

safety, welfare, or to the environment, when improperly stored, treated, transported, disposed of, used, or otherwise managed. Hazardous material includes, without limitation, synthetic organic chemicals, petroleum products, heavy metals, radioactive or infectious materials, and all substances defined as toxic or hazardous under MGL c. 21E. This term shall not include hazardous waste or oil.^{3,4}

Historical High Groundwater Table Elevation: A groundwater elevation determined from monitoring wells and historical water table fluctuation data compiled by the United States Geological Survey.

Hazardous Waste: A substance or combination of substances, which because of quantity, concentration, or physical, chemical or infectious characteristics may cause, or significantly contribute to an increase in mortality or an increase in serious irreversible, or incapacitating reversible illness or pose a substantial present or potential hazard to human health, safety, or welfare or to the environment when improperly treated, stored, transported, used or disposed of, or otherwise managed. This term shall include all substances identified as hazardous pursuant to the Hazardous Waste Regulations, 310 CMR 30.000.

Impervious Surface: Material or structure on, above, or below the ground that does not allow precipitation or surface water runoff to penetrate into the soil.

Interim Wellhead Protection Area (IWPA): The MassDEP designated protection radius around a public water well that lacks a Zone II.⁵

Junkyard: An establishment that is maintained, operated, or used for storing, keeping, buying, or selling junk, or for the maintenance or operation of an automobile graveyard, as defined in MGL c.140B, s.1.

Landfill: A facility established in accordance with a valid site assignment for the purposes of disposing solid waste into or on the land, pursuant to the Solid Waste Regulations, 310 CMR 19.006.

MassDEP: Massachusetts Department of Environmental Protection.

MGL: Massachusetts General Law.

Petroleum Product: Includes, but not limited to, fuel oil; gasoline; diesel; kerosene; aviation jet fuel; aviation gasoline; lubricating oils; oily sludge; oil refuse; oil mixed with other wastes; crude oils; or other liquid hydrocarbons regardless of specific gravity. Petroleum product shall not include liquefied petroleum gas including, but not limited to, liquefied natural gas, propane or butane.

Non-Sanitary Wastewater: Wastewater discharges from industrial and commercial facilities containing wastes from any activity other than collection of sanitary sewage including, but not limited to, activities specified in 310 CMR 15.004(6).

Open Dump: A facility operated or maintained in violation of the Resource Conservation and Recovery Act 42 U.S.C. 4004(a)(b), or state regulations and criteria for solid waste disposal.

Recharge Areas: Land areas, such as a Zone II or Interim Wellhead Protection Area, where precipitation and surface water infiltrates into the ground to replenish groundwater and aquifers used for public drinking water supplies.

Septage: The liquid, solid, and semi-solid contents of privies, chemical toilets, cesspools, holding tanks, or other sewage waste receptacles. This term shall not include any material that is a hazardous waste, as defined by 310 CMR 30.000.

Sludge: The solid, semi-solid, and liquid residue that results from a process of wastewater treatment or drinking water treatment including wastewater residuals. This term shall not include grit, screening, or grease and oil which are removed at the head-works of a facility

Treatment Works: Any and all devices, processes and properties, real or personal, used in the collection, pumping, transmission, storage, treatment, disposal, recycling, reclamation, or reuse of waterborne pollutants, but not including any works receiving a hazardous waste from off the site of the works for the purpose of treatment, storage, or disposal.

Utility Works: Regulated activities providing for public services, including roads, water, sewer, electricity, gas, telephone, transportation and their associated maintenance activities. This term shall include the installation of detention and retention basins for the purpose of controlling storm water.

Very Small Quantity Generator: Any public or private entity, other than residential, which produces less than 27 gallons (100 kilograms) a month of hazardous waste or waste oil, but not including any acutely hazardous waste as defined in 310 CMR 30.136.

Waste Oil Retention Facility: A waste oil collection facility for automobile service stations, retail outlets, and marinas which is sheltered and has adequate protection to contain a spill, seepage, or discharge of petroleum waste products in accordance with MGL c.21. s.52A. .⁶

Zone II: The delineated recharge area to a public drinking water well as approved by MassDEP and defined under the Massachusetts Drinking Water Regulations 310 CMR 22.00.⁷

4. ESTABLISHMENT AND DELINEATION OF GROUNDWATER PROTECTION DISTRICT

4.1. For the purposes of this bylaw, there are hereby established within the Town of _____ certain groundwater protection areas consisting of aquifers or recharge areas. These areas are delineated on a map entitled _____ dated _____ which is hereby made part of the Groundwater Protection District Bylaw and is on file in the office of the Town Clerk.

5. DISTRICT BOUNDARY DISPUTES

5.1. If the location of the Groundwater Protection District in relation to a particular parcel is in doubt, resolution of the boundary dispute shall be through a Special Permit application to the Special Permit Granting Authority. Any application for a special permit for this purpose shall be accompanied by adequate documentation.

5.2. Burden of proof shall be upon the land owner to demonstrate that the location of the Groundwater Protection District with respect to a particular parcel(s) of land is uncertain. At the request of the land owner, the Town may engage a professional engineer, hydrologist, geologist, or soil scientist to determine more accurately the boundaries of the Groundwater Protection District with respect to a particular parcel(s) of land, and may charge the owner for the cost of the investigation. Changes to the Groundwater Protection District require town meeting approval.⁸

5.3. Where the boundary line of the Groundwater Protection District divides a lot or parcel, the requirements established by this bylaw shall apply to the entire lot or parcel.⁹

6. PERMITTED USES

6.1. The following uses are permitted within the Groundwater Protection District, provided that all necessary permits, orders, or approvals required by local, state, or federal law are also obtained:

- a. conservation of soil, water, plants, and wildlife;
- b. outdoor recreation, nature study, boating, fishing, and hunting where otherwise legally permitted;
- c. foot, bicycle and/or horse paths, and bridges;
- d. normal operation and maintenance of existing water bodies and dams, splash boards, and other water control, supply and conservation devices;
- e. maintenance, repair, and enlargement of any existing structure, subject to Section 7 and Section 8 of this bylaw;
- f. residential development, subject to Sections 7 and 8 of this bylaw;
- g. farming, gardening, nursery, conservation, forestry, harvesting, and grazing, subject to Section 7 and Section 8 of this bylaw;
- h. construction, maintenance, repair, and enlargement of drinking water supply related facilities such as, but not limited to, wells, pipelines, aqueducts, and tunnels; and
- i. any use permitted in the underlying zoning except for those uses specifically prohibited in Sections 7 and 8 of this bylaw.

7. PROHIBITED USES

7.1. The following land uses and activities are prohibited unless designed in accordance with the specified performance standards :

- a. landfills and open dumps;
- b. automobile graveyards and junkyards,;
- c. landfills receiving only wastewater residuals and/or septage, including those approved by MassDEP pursuant to MGL c. 21 s.26 through s.53, MGL c.111 s.17, and MGL c.83 s.6 and s.7;¹⁰
- d. facilities that generate, treat, store, or dispose of hazardous waste that are subject to MGL c.21C and 310 CMR 30.000, except for:¹¹
 1. very small quantity generators as defined under 310 CMR 30.000;
 2. household hazardous waste centers and events under 310 CMR 30.390;
 3. waste oil retention facilities required by MGL c. 21, s.52A;
 4. water remediation treatment works approved by MassDEP for the treatment of contaminated waters.
- e. petroleum, fuel oil, and heating oil bulk stations and terminals including, but not limited to, those listed under North American Industry Classification System (NAICS) Codes 424710 and 454311, except for liquefied petroleum gas.¹²

- f. storage of liquid hazardous materials and/or liquid petroleum products unless such storage is above ground level and on an impervious surface and either:
 - 1. in container(s) or above ground tank(s) within a building; or
 - 2. outdoors in covered container(s) or above ground tank(s) in an area that has a containment system designed and operated to hold either; 10% of the total possible storage capacity of all containers or 110% of the largest container's storage capacity, whichever is greater.

however, these storage requirements shall not apply to the replacement of existing tanks or systems for the keeping, dispensing or storing of gasoline provided the replacement is performed in a manner consistent with state and local requirements;

- g. storage of sludge and septage, unless such storage is in compliance with 310 CMR 32.30 and 310 CMR 32.31;¹³
- h. storage of deicing chemicals unless such storage, including loading areas, is within a structure designed to prevent the generation and escape of contaminated runoff or leachate;
- i. storage of animal manure unless contained within a structure designed to prevent the generation and escape of contaminated runoff or leachate;¹⁴
- j. storage of commercial fertilizers unless such storage is within a structure designed to prevent the generation and escape of contaminated runoff or leachate;
- k. stockpiling and disposal of snow and ice containing deicing chemicals brought in from outside the Groundwater Protection District;
- l. earth removal, consisting of the removal of soil, loam, sand, gravel, or any other earth material to within 4 feet of historical high groundwater as determined from monitoring wells and historical water table fluctuation data compiled by the United States Geological Survey, except for excavations for building foundations, roads, utility works or wetland restoration work conducted in accordance with a valid Order of Condition issued pursuant to MGL c. 131, s.40;¹⁵ and
- m. treatment or disposal works subject to 314 CMR 5.00, for non-sanitary wastewater, including those activities listed under 310 CMR 15.004(6), except for:^{16, 17}
 - 1. treatment works approved by MassDEP designed for the treatment of contaminated ground or surface water and operating in compliance with 314 CMR 5.05(3) or 5.05(13); and
 - 2. publicly owned treatment works.

8. USES AND ACTIVITIES REQUIRING A SPECIAL PERMIT

8.1. The following uses and activities are permitted only upon the issuance of a Special Permit by the Special Permit Granting Authority (SPGA) under such conditions as they may require:

- a. enlargement or alteration of existing uses that do not conform to the Groundwater Protection District;

- b. except as prohibited under Section 7 of this bylaw, activities that involve the handling of toxic or hazardous materials in quantities greater than those associated with normal household use and which are permitted in the underlying zoning district;
- c. rendering impervious any lot or parcel more than 15% or 2,500 square feet, whichever is greater; unless artificial recharge, that will not degrade water quality, is provided using methods demonstrated to be capable of removing contaminants from storm water and which are consistent with methods described in MassDEP's Stormwater Handbook, Vol. I, II and III, as amended.¹⁸

9. PROCEDURES FOR ISSUANCE OF SPECIAL PERMIT

9.1. The Special Permit Granting Authority (SPGA) under this bylaw shall be the _____.¹⁹ A special permit shall be granted if the SPGA determines, in conjunction with the Town _____,²⁰ that the intent of this bylaw, as well as its specific criteria, is met. The SPGA shall not grant a special permit under this section unless the petitioner's application materials include, in the SPGA's opinion, sufficiently detailed, definite, and credible information to support positive findings in relation to the standards given in this section. The SPGA shall document the basis for any departures from the recommendations of the other municipal boards, departments or commissions in its decision.

9.2. Upon receipt of the special permit application, the SPGA shall transmit one copy to the Town _____.²¹ Failure to respond in writing within 35 days of receipt shall indicate approval, or no desire to comment. The necessary number of copies of the application shall be furnished by the applicant.

9.3. The SPGA may grant the required special permit only upon finding that the proposed use meets the following standards, those specified in Section 7 of this bylaw, and any regulations or guidelines adopted by the SPGA. The proposed use must:

- a. in no way, during construction or thereafter, adversely affect the quality or quantity of the water supplies protected by the Groundwater Protection District; and
- b. be designed to avoid substantial disturbance of the soils, topography, drainage, vegetation, and other water-related natural characteristics of the site to be developed.

9.4. The SPGA may adopt controls to govern design features of projects. Such controls shall be consistent with the Town's subdivision regulations.

9.5. The applicant shall file ___ copies of a site plan and attachments. The site plan shall be drawn at a proper scale as determined by the SPGA and be stamped by a professional engineer. All additional submittals shall be prepared by qualified professionals. The site plan and its attachments shall at a minimum include the following information where pertinent:

- a. a complete list of chemicals, pesticides, herbicides, fertilizers, fuels, and other potentially hazardous materials to be used or stored on the premises in quantities greater than those associated with normal household use; and
- b. for activities using or storing hazardous materials or wastes, a management plan shall be prepared and filed with the Fire Chief and Board of Health. The plan will be consistent with the requirements of Section 7 and shall include:

1. provisions to protect against the discharge of hazardous materials or wastes to the environment due to spillage, accidental damage, corrosion, leakage, or vandalism, including spill containment and clean-up procedures;
2. provisions for indoor, secured storage of hazardous materials or wastes with impervious floor surfaces;
3. evidence of compliance with the Massachusetts Hazardous Waste Regulations 310 CMR 30.000; and
4. proposed down-gradient location(s) for groundwater monitoring well(s), should the SPGA deem the activity a potential groundwater threat.

9.6. The SPGA shall hold a hearing, in conformity with the provision of MGL c.40A s. 9, within 65 days after the filing of the application. Notice of the public hearing shall be given by publication and posting and by first-class mailings to "parties of interest" as defined in MGL c.40A s.11. The decision of the SPGA and any extension, modification, or renewal thereof shall be filed with the SPGA and Town Clerk within 90 days following the closing of the public hearing. Failure of the SPGA to act within 90 days shall be deemed as a granting of the permit.

10. ENFORCEMENT

10.1. Written notice of any violations of this bylaw shall be given by the _____²² to the responsible person as soon as possible after detection of a violation or a continuing violation. Notice to the assessed owner of the property shall be deemed notice to the responsible person. Such notice shall specify the requirement or restriction violated and the nature of the violation, and may also identify the actions necessary to remove or remedy the violations and preventive measures required for avoiding future violations and a schedule of compliance.

10.2. A copy of such notice shall be submitted to the Town _____.²³ The cost of containment, clean-up, or other action of compliance shall be borne by the owner/operator of the premises.

11. SEVERABILITY

11.1. If any provision of this bylaw is held invalid by a court of competent jurisdiction, the remainder of the bylaw shall not be affected thereby. The invalidity of any section or sections or parts of any section or sections of this bylaw shall not affect the validity of the remainder of this bylaw.

END NOTES

¹ **(annotated) WELLHEAD PROTECTION REGULATIONS 310 CMR 22.21(2)**

(a) Wellhead protection zoning and non-zoning controls submitted to the Department in accordance with 310 CMR 22.21(1), shall collectively prohibit the siting of the following land uses within the Zone II of the proposed well/wellfield;

- (1). landfills and open dumps, as defined in 310 CMR 19.006;
- (2). landfills receiving only wastewater residuals and/or septage;
- (3). automobile graveyards and junkyards, as defined in MGL. c. 140B, s.1;

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- (4). stockpiling and disposal of snow or ice removed from highways and streets located outside of Zone II that contains sodium chloride, chemically treated abrasives or other chemicals used for snow and ice removal;
 - (5). petroleum, fuel oil and heating oil bulk stations and terminals, including, but not limited to, those listed under Standard Industrial Classification Codes 5171 and 5983, not including liquefied petroleum gas;
 - (6). treatment or disposal works subject to 314 CMR 5.00, for wastewater other than sanitary sewage. This prohibition includes, but is not limited to, treatment or disposal works related to activities under the Standard Industrial Classification (SIC) Codes set forth in 310 CMR 15.004(6) (Title 5), except for the replacement or repair of an existing system(s) that will not result in a design capacity greater than the design capacity of the existing system(s); and treatment works approved by the Department designed for the treatment of contaminated ground or surface waters and operated in compliance with 314 CMR 5.05(3) or 5.05(13); and publicly owned treatment works;
 - (7). facilities that generate, treat, store or dispose of hazardous waste that are subject to MGL. c. 21C and 310 CMR 30.000, except for very small quantity generators, as defined by 310 CMR 30.000; and household hazardous waste collection centers or events operated pursuant to 310 CMR 30.390; and waste oil retention facilities required by MGL. c. 21, s. 52A; and treatment works approved by MassDEP and designed in accordance with 314 CMR 5.00 for the treatment of contaminated ground or surface waters;
 - (8). floor drainage systems **in existing** industrial or commercial hazardous material facilities and/or hazardous waste process areas or storage areas, which discharge to the ground without a MassDEP permit or authorization. Any existing facility with such a drainage system shall be required to either seal the floor drain (in accordance with the state plumbing code, 248 CMR 10.001), connect the drain to a municipal sewer system or holding tank meeting all DEP regulations and requirements.

(b) Wellhead protection zoning and non-zoning controls submitted to the Department in accordance with 310 CMR 22.21(1), shall collectively prohibit the siting of the following land uses within the Zone II of the proposed well or wellfield unless designed in accordance with the specified performance standards:

- (1). storage of sludge and septage, unless such storage is in compliance with 310 CMR 32.30 and 310 CMR 32.31;
- (2). storage of sodium chloride, chemically treated abrasives or other chemicals used for the removal of ice and snow on roads, unless such storage is within a structure designed to prevent the generation and escape of contaminated runoff or leachate;
- (3). storage of commercial fertilizers; unless such storage is within a structure designed to prevent the generation and escape of contaminated runoff or leachate;
- (4). storage of animal manures, unless such storage is within a structure designed to prevent the generation and escape of contaminated runoff or leachate.
- (5). storage of liquid hazardous materials, as defined in MGL. c. 21E, and/or liquid petroleum products unless such storage is above ground level AND on an impervious surface in container(s) AND either in above ground tank(s) within a building on an impervious surface OR outdoors in covered container(s) or above ground tank(s) in an area that has a containment system designed and operated to hold either 10% of the total possible storage capacity of all containers, or 110% of the largest container's storage capacity, whichever is greater;
- (6). removal of soil, loam, sand, gravel or any other mineral substances within four feet of the historical high groundwater table elevation (as determined from monitoring wells and historical water table fluctuation data compiled by the United States Geological Survey), unless the substances removed are re-deposited within 45 days of removal on site to achieve a final grading greater than four feet above the historical high water mark, and except for excavations for the construction of building foundations, the installation of utility works, or wetland restoration work conducted in accordance with a valid order of condition issued pursuant to MGL. c. 131, s. 40

² Other common district names include Aquifer Protection District, Water Supply Protection District, and Wellhead Protection District. If changing the name of the protection district (from Groundwater Protection District), be sure the name is consistent throughout the bylaw.

³ Please note that *only* liquid hazardous materials are prohibited in the Zone II and *only* when not stored according to 310 CMR 22.21(2)(b)(5). The use/storage of dry hazardous materials is not prohibited under 310 CMR 22.21(2). If choosing to prohibit all hazardous materials, then provide an exception for activities related to the maintenance and operation of public water supply wells.

⁴ MGL c. 21E MA Oil and Hazardous Material Release Prevention and Response Act.

⁵ IWPA's are not required to be protected. Many communities choose to protect such wells because they often serve sensitive populations, such as schools, nursing homes and hospitals. If you do not have any IWPA's, or you choose not to include these in your protection district, then delete this term from the Definition section.

⁶ MGL.c. 21 s. 52A requires all auto service stations, marinas, and retail outlets that sell auto lubricating oil to accept waste oil and to install retention facilities properly sheltered and protected to prevent discharge of waste oil into storm or sanitary sewers or into the waters of the commonwealth and to properly dispose of accumulated waste oil.

⁷ Compliance with the wellhead protection requirements requires municipal bylaws and/or board of health regulations prohibit (within the Zone II) all of the land uses and activities cited in 310 CMR 22.21(2).

⁸ Changes to the Zone II boundaries require MassDEP approval.

⁹ All land located in the Zone II is subject to 310 CMR 22.21(2).

¹⁰ MGL c. 21 s.26 - s.53 Massachusetts Clean Waters Act, MGL.c. 111 s.17 Public Health Title XVI, and MGL. c.83, s.6, s.7 Public Ways and Works Title XIV

¹¹ MGL c. 21C Massachusetts Hazardous Waste Management Act

¹² In 1997 the North American Industry Classification System (NAICS) replaced the Standard Industrial Classification (SIC) system. Municipalities may reference either classification system.

¹³ Sludge and septage regulations 310 CMR 32.30, prohibit storage within a 2,500' radius of a public water supply well, *unless* storage is a watertight container, or if it is determined that such storage will not result in contamination.

¹⁴ Do not make an exception for agricultural activities.

¹⁵ MGL c.131 s.40 regulates the removal, filling, dredging or altering of land bordering waters.

¹⁶ 314 CMR 5.00 regulates groundwater discharges.

¹⁷ Sanitary wastewater discharges should be regulated by Boards of Health, rather than through zoning.

¹⁸ The Stormwater Handbook, Vol I, II and III is available on MassDEP's website.

¹⁹ SPGA is usually the Board of Selectmen, Planning Board or Board of Appeals.

²⁰ Identify the various boards, commissions, departments etc that will be included in the special permit review process.

²¹ Same entities identified in section 9.1.

²² Usually the zoning enforcement officer or building inspector

²³ Same entities identified in section 9.1