

Location and construction of ponds.

- (A) Ponds shall be considered as a source of water for human consumption at the discretion of the board of health, based on available ground water sources being adequate for the intended use or unacceptable due to the presence of naturally occurring or man-made contaminants that are not economically or technically feasible to treat, and on the ability of the property owner to meet all of the following requirements of this rule. A pond shall not be acceptable as a new water supply source when a public water supply is readily accessible to the property as determined by the board of health. The board of health can choose not to approve an application for a permit for a pond as a private water system if there is incomplete or inconclusive information about the suitability for a pond system at a specific site.

Surface water sources including, but not limited to, rivers, streams, creeks, lakes, quarry's, and drainage ditches shall not be considered for construction as private water systems because there is no control of the water source by the owner off of the individual property.

- (B) The pond and the watershed shall be under the complete control of one pond owner and the watershed shall be located on a parcel or parcels under one deed with the dwelling to which it is supplying water. If control of the watershed can not be maintained on parcels under the same deed then other private water system sources shall be considered. The board of health shall not consider a variance to this rule.
- (C) The pond shall be located at the minimum distances from sources of contamination as specified in rule 3701-28-07 of the Administrative Code. In addition, the following criteria shall be met:
- (1) For purposes of this rule "watershed" means the area up gradient from the water supply that drains, channels, or otherwise directs surface water toward the water source
 - (2) The watershed shall have a permanent growth of vegetation.
 - (3) The watershed shall be free of barns, poultry yards, sewage treatment systems, privies, orchards, cultivated fields, and other sources of contamination;
 - (4) The watershed shall not be used for pasture;
 - (5) Livestock shall be fenced or otherwise prohibited from entering the pond and watershed area;
 - (6) The pond shall not be used for public recreational purposes such as swimming, fishing, or boating;
 - (7) The minimum distance from the nearest building shall be ten feet; and
 - (8) Diversion ditches or similar devices shall be used to direct water of unsuitable quality out of the watershed and away from the pond.

- (D) Any person intending to install a pond to be used as a water source shall submit a plan to the board of health as required under paragraph (E) of rule 3701-28-03 of the Administrative Code. The pond and watershed shall conform to the following basic design criteria:
- (1) The watershed shall be of sufficient size to meet the requirements for pond water recharge based on local conditions as determined by the board of health. The board of health may require the watershed plan to be submitted by a professional engineer or soil scientist in accordance with paragraphs (E) and (F) of rule 3701-28-03 of the Administrative Code.
 - (2) A pond shall not be recharged by pumping water from field drain tiles or drainage ditches. Ponds shall not be recharged from onsite wastewater system discharges, curtain drains, sump pumps or washing machines.
 - (3) A pond may be recharged from roof water runoff. The roof area may be calculated as part of the total watershed area if it is to be included as a recharge source.
 - (4) A pond may be filled by a water well constructed in compliance with this chapter.
 - (5) Sealing materials and liners designed to reduce water loss from pond leakage shall meet the following requirements:
 - (a) Meet all of the requirements of ANSI/NSF standard 54 for flexible membrane liners, or
 - (b) Be composed of bentonite or native clay materials sufficient to reduce pond permeability to less than ten to the minus eight centimeters per second and meet ANSI/NSF standard 60.
 - (6) Ponds with a surface area of between one quarter acre and one half acres shall have more than fifty percent of the available pond area a minimum of at least eight feet deep at the designed full water level. For ponds with a surface area of more than one half acre at least twenty-five per cent of the pond area at the design normal water level shall have a minimum depth of eight feet;
 - (7) Ponds shall have side slopes no steeper than 2:1;
 - (8) When a dam is part of the pond construction the minimum top width of a dam shall be eight feet. The side slopes of the dam for a pond shall be no steeper than 3:1 on the dry side, and 2:1 on the wet side; and
 - (9) One or more spillways shall be provided so as to allow for the passage of normal water flow and of excess storm runoff around the dam. The spillways shall pass water safely to the outlet channel below without damage to the dam, or to life, structures, or property. Where applicable, spillway construction shall comply with requirements of section 1501:14-3-11 of the Administrative Code.

- (E) The size of the pond shall be adequate to meet the intended needs of the household, but shall have a minimum surface area of approximately one quarter of an acre regardless of the pond shape.
- (F) The intake for the private water system from the pond shall conform to one of the following design criteria:
 - (1) The intake for the water system shall be attached to a flotation device at the deepest end of the pond and shall be suspended not less than eighteen inches and not more than three feet below the water surface;
 - (a) A noncorroding permeable filter material or screen with openings for forty-three-thousandths of an inch or smaller shall be incorporated into the intake; and
 - (b) The intake for the water system shall be connected by not less than an one-and-one-quarter-inch diameter flexible pipe to the waterline and shall either pass through the bank at a depth adequate to prevent freezing, or pass through the dam and be protected by a galvanized steel pipe. Or
 - (2) A submersible pump may be used with a cased pond intake constructed for the sole purpose of delivering water from the pond to the household. A cased pond intake shall not be deeper than the deepest portion of the pond. A cased pond intake shall not be used when there is any risk of contaminating an aquifer from the inflow of pond water.
- (G) Antiseep collars shall be provided for durably and solidly installed intake and spillway inlets when such devices pass through the pond dam. For purposes of this rule antiseep collar means a projecting collar of concrete or other material built around the outside of a tunnel or conduit, under an embankment dam, to reduce the seepage potential along the outer surface of the conduit.
- (H) All pond water shall be continuously filtered by one of the following methods:
 - (1) A slow sand filter which meets the requirements of this rule;
 - (2) A pressurized rapid sand filter system that meets the requirements of this rule;
 - (3) A pre-coat filter that meets the requirements of this rule; or
 - (4) A filter approved by the director as providing for a logarithmic 3 reduction of giardia, and a logarithmic 4 reduction of viruses when used with disinfection, and sufficient to handle the water needs of a household based on seventy gallons per person per day.
- (I) All filter tanks and treatment components required in this section shall have a legible label place on the tank or component describing the specific function of the device. It shall be the responsibility of the installing contractor to ensure that the tanks or components are properly labeled.

- (J) All filter and disinfection systems shall be designed so as to meet the calculated peak demand flow requirements of a household, but be capable of no less than a ten gallon per minute flow.
- (K) All filter systems shall be installed so that a backflow device protects the water system from the filter system backwashing discharge in accordance with rule 3701-28-08 of the Administrative Code.
- (L) For the purpose of this rule "slow sand filtration" means a process of passing raw water through a porous granular medium by gravity, at a rate of less than seventy-five gallons per day per square foot of sand area, with substantial removal of particles by physical and biological mechanisms. Slow sand filters shall meet the following criteria:
- (1) The filter tank shall be watertight and durable with a smooth, clean interior surface;
 - (2) All joints, connections, and other seems between component parts shall be sealed with non-toxic waterproof material that meets NSF standard sixty-one to prevent the loss of stored water and the infiltration of surface water;
 - (3) The lower distribution system shall be non-clogging and resistant to corrosion, physical deformation and wear, provide adequate flow and distribution to uniformly collect filtered water during the filter cycle, and except for filters having dome or similar type under drains, have openings three-sixteenths inch (4.8 millimeter) or larger;
 - (4) All components shall be replaceable through a manhole in the filter tank.
 - (5) Only washed sand and gravel shall be used. Filter sand shall be hard angular silicon material free of carbonates or other foreign material. Beach sand shall not be used. The effective sand size shall be between .30 and .45 millimeters. Sand uniformity coefficient shall not be greater than two and a half. Gravel used to support filter sand shall be rounded material, free of limestone and clay, and consist of at least three layers graded to prevent intermixing;
 - (6) Sand shall be placed from the surface to a minimum depth of thirty inches. Three-eighths inch gravel shall be placed three inches thick below the sand. One-half inch gravel shall be placed three inches below the three-eighths inch gravel. One inch gravel shall be placed six inches thick below the one-half inch gravel. A fabric pre-filter may be used on the surface of the sand;
 - (7) Maximum flow rate shall not exceed seventy-five gallons per day per square foot of the filter surface area;
 - (8) The minimum filter size dimensions shall be based on water usage of one hundred-twenty gallons per bedroom per day from the following chart;

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Water needed Gallons per day	Bedrooms	Filter surface area (square feet)	Square or rectangular (feet)	Round diameter (feet)

360	3	5.7	2 x 3	3
480	4	7.1	2 x 4	3
600	5	8.6	3 x 3	4

- (9) A water storage tank shall be used with ponds using slow sand filtration and shall be adequate to meet the intended needs of the household, but it shall have a capacity of no less than two hundred gallons.
- (M) In addition to the requirements of paragraph (H) of this rule, pressurized rapid sand filter systems shall meet the following criteria
- (1) For the purposes of this rule a rapid sand filter means a filter system for treating water passing through a granular medium of approximately twelve to twenty micron filtration capability that includes additional components for filtration and/or coagulation of smaller material while maintaining pressure throughout the system and distribution line.
 - (2) A pressurized rapid sand filter system shall include;
 - (a) Chemical coagulation meeting NSF standard 60 followed by a retention tank specifically for coagulation, followed by the rapid sand filter, and if ultraviolet light is not being utilized for continuous disinfection, followed by a cyst reduction cartridge filter(s) meeting NSF standard 53 or equivalent; or
 - (b) A pressurized rapid sand filter, followed by an nominal ten micron cartridge filter followed by an absolute five micron cartridge filter, and if ultraviolet light is not being utilized for continuous disinfection, followed by a cyst reduction cartridge filter(s) of absolute one or two microns meeting NSF standard fifty-three or equivalent.
 - (3) All cartridge filter housings shall be clearly labeled for the specific required replacement filter size in absolute and nominal microns.
 - (4) Any chemical used for coagulation shall be listed on NSF standard sixty.
 - (5) The rapid sand filter component shall contain at least 1.5 cubic feet of sand or 1.5 cubic feet of equivalent filter material listed on NSF standard 61. The effective sand size shall be between 30 and 45 millimeters. The sand uniformity coefficient shall not be greater than 2.5. Granular activated carbon or other treatment media that meets NSF standard 61 may be used in the filter tank in addition to the required filtering media. The filter media tank shall be labeled describing all filter material enclosed, including type(s), size, and uniformity coefficient.
- (N) In addition to the requirements of paragraph (H) of this rule, pre-coat filters shall meet the following criteria;
- (1) The pre-coat material shall be diatomaceous earth or processed perlite and be United States environmental protection agency graded material suitable for use with potable water;

- (2) The pre-coat layer shall be one-eighth to one-fifth inches thick or equivalent to 0.2 pound per square foot;
 - (3) The designed filtration rate shall not exceed two gallons per minute per square foot of septum area; and
 - (4) The size of the filter shall be sufficient to meet the intended household usage per person per day.
- (O) Mechanical in-line cartridge filters shall not be used in lieu of the filter designs required under this rule. However, mechanical in-line cartridge filter systems tested against ANSI/NSF standard 53, may be used in addition to the filter designs required under this rule.
- (P) Valves shall be protected from frost damage and installed so that they are accessible from the surface of the ground by means of an open stack.
- (Q) All water treatment components shall be protected from weather, freezing, and contamination, and also located in such a way so as to be easily inspected, cleaned, and serviced. With the exception of basement installation, all water treatment components of the system shall be stored above ground and housed in an enclosed area.
- (R) All ponds in use as a private water supply source before January 1, 2000 shall comply with disinfection requirements of rule 3701-28-15 of the Administrative Code and paragraph (G) of this rule when the pond is altered or repaired or as determined by the board of health in accordance with paragraph (A) of rule 3701-28-08 of the Administrative Code.
- (S) Water obtained from ponds used as a private water supply source shall be continuously disinfected as prescribed in rule 3701-28-15 of the Administrative Code. The owner shall maintain a written service agreement with a registered private water system contractor for the continuous disinfection and filtration of the pond system for the first two years of system operation. A copy of this service agreement shall be on file at the local health department prior to approval of the pond system.
- (T) In addition to the requirements of paragraph (H) rule 3701-28-04 of the Administrative Code the turbidity of the pond water shall be one NTU or less after filtration and disinfection collected at the sample port. If the water quality measures greater than one NTU then the filtration system shall be modified by the installer until that requirement can be achieved.

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