

# Springs

A spring is a place where ground water emerges naturally from the earth's surface, usually along hillsides, at the base of slopes, or in low areas. The following should be considered when developing or improving a spring.

## LOCATION

It is easy for springs to become contaminated if they are located downhill from a source of contamination. For this reason, all sewage systems, barnyards, livestock pastures, fuel tanks, and other sources of pollution must be located at least 100 feet away from springs. Depending on the soils, geology, and slope of the land, an even greater distance may be needed. Also avoid extremely wet areas when locating a new spring, because saturated soil can't filter out bacteria.

## CONSTRUCTION

Springs should be constructed in a way that protects against surface water contamination and prevents rodents and insects from entering. If the property around the spring is sloped so that rain water can pool around or enter the spring, consider regrading or constructing a diversion ditch so that surface water runoff is kept away from the spring.

(For proper spring construction, refer to the diagram on the back of this sheet.)

## DISINFECTION

All newly constructed or repaired springs should be disinfected because the handling of construction material can contaminate the spring water. Please read the Vermont Department of Health handout, *Disinfection*, for instructions on how to disinfect your spring.

Generally, one gallon of household bleach is enough to disinfect a 10-foot spring. For overflowing springs, consider using calcium hypochlorite tablets as an alternative to bleach. Tablets can be purchased at a pool supply store. Be sure to follow manufacturers' directions.

## TESTING

The spring water should be tested for bacteria several days after the chlorine odor disappears. Springs that are newly constructed or have persistent problems with bacteria should also have a complete chemical analysis. You may purchase test kits at the Vermont Department of Health Laboratory or by calling the laboratory at 802-863-7335 or 800-660-9997 (in Vermont).

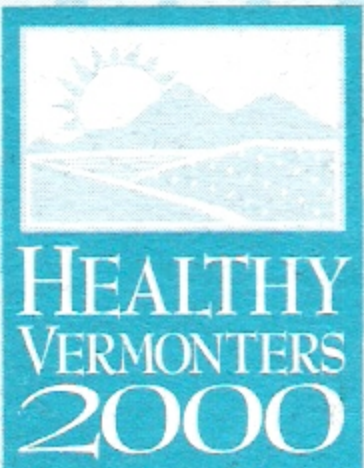
## BACTERIOLOGICAL CONTAMINATION

The most common way to determine drinking water quality is to test for total coliform bacteria which includes *E. coli* bacteria. These organisms are found in plants, soil, surface water, and in some cases, the intestines of warm-blooded animals. They do not naturally inhabit springs.

The presence of coliform bacteria in ground water (wells and springs) does not necessarily mean that disease-causing organisms (pathogens) are present. However, the presence of coliform bacteria means there is a pathway for disease-causing organisms to enter the spring.

If a water test results show that bacteria are present, construction of the spring should be thoroughly checked (see diagram). In addition, the surrounding area should be checked for likely sources of contamination.

Do not drink the water from a spring that has been contaminated until the problem is corrected, the system is disinfected, and a follow-up test shows that no coliform bacteria are present, or unless the water is boiled for five minutes.



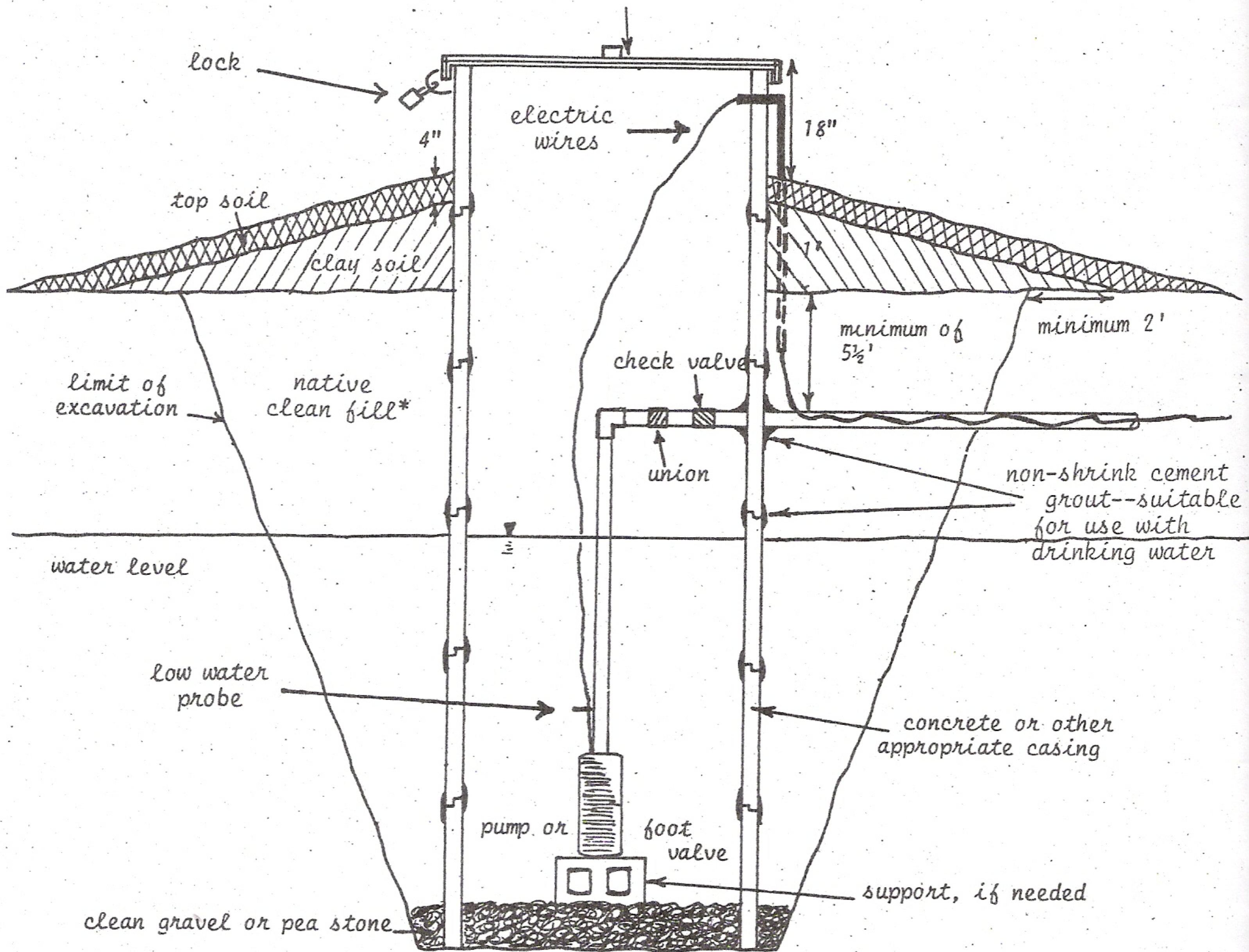
VERMONT DEPARTMENT  
OF HEALTH

ENVIRONMENTAL  
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863-7220  
800-439-8550



Easily removable, over-lapping  
tight-fitting and locking cover  
metal preferred



"DUG WELL"

\*do not substitute gravel or sand