
ENVIRONMENTAL Fact Sheet



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Extending Bedrock Well Casings

The most common reason of bacterial contamination in bedrock water wells (also called artesian or drilled wells) is from the top of the well. Buried wellheads, casings too close to ground level, faulty well casing extensions and non-code compliant well caps all present the opportunity for potential contamination of the water supply. The purpose of this document is to provide information relative to extending/raising the top of a well casing (commonly called the wellhead) above the ground level.

New Hampshire well construction rule We 602.02(e)(1) requires private well casings extend above the ambient ground level a minimum of 8 inches or more. This requirement has been in effect since 1985. Heights greater than 8 inches may be warranted in areas where seasonal high water can impact the top of the well. Public water supply well casings must be at least 12 inches above ground level.

Wells constructed before July 2, 1985, were not required to conform to this rule. However, it is highly recommended that older wells be upgraded to current New Hampshire standards where possible. In addition, New Hampshire law RSA 482-B:15 states, "all materials and construction practices used in the construction of a new well or pump installation, or in the maintenance, repair or replacement of any well or pump installation, shall conform with rules adopted by the Water Well Board."

Discharge lines (the pipe which the pumped water flows from the well to a house) must be buried below frost zone to prevent freezing. Since the late 1960s, pitless adapters have been used providing the ability to extend well casings above ground level, while leaving the discharge line buried. A pitless adaptor is a fitting that is installed in the well casing, below frost zone (typically 4 feet depth or more). The discharge line is connected to this fitting on the inside and outside of the casing. Prior to the use of pitless adaptors, the top of the well casing was finished below the frost zone, either in a pit or buried, and the discharge line came out the top of a sealing cap. (see diagram on the next page). Often seasonal high water table will allow water to be present above this wellhead, and could allow surface water or unfiltered groundwater to enter the well. Sometimes these wells were installed in a circular piece of concrete (called a well tile) or just buried below ground level. Well pits have been found to be susceptible to rodent infestation as they age and become deteriorated.

The Water Well Board rules allow bedrock wellheads to be buried only if extension of the wellhead would create a safety hazard (the well is located in a driveway or parking area). If a safety hazard exists, per the Water Well Board rules, the well can be finished below ground level in a pit that drains to daylight, is vented and the code compliant well cap is located just below the top of the well pit cover. A

licensed water well contractor can advise you on the construction requirements if a well head needs to be below ground level.

For older wells, the extension of the well casing may arguably be deferred at the discretion of the owner. However, extending the casing is highly recommended if the well is subject to flooding. To determine if an existing buried wellhead is subject to flooding one can look for staining caused by flood waters on the inside walls of the well pit, the surrounding soils, and the top of the well seal. If there is staining above the top of the casing the area floods and the risk of bacterial contamination is high. If you choose not to extend the casing, the pit should be inspected periodically during spring snow melt and after very heavy rain events to determine the flood level.

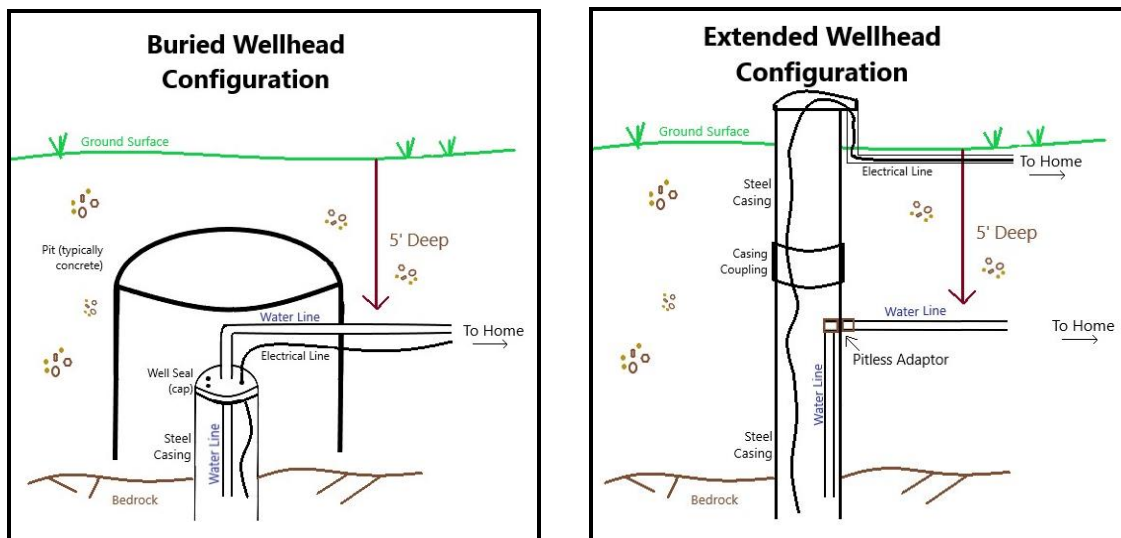
OPTIONS FOR EXTENDING A WELL CASING

Well casings must be extended with the same material (steel, plastic) as the existing casing and be of sufficient strength and weight to ensure adequate performance.

Acceptable methods for steel casing extensions on existing steel casing include the use of a:

- Threaded steel coupling.
- Welded pipe joint.
- Weld to threaded steel slip coupling.
- Mechanical steel bolted restraining pipe coupling, commonly referred to as a *Dresser* coupling.

Plastic (PVC, ABS, HDPE) well casing extensions should be joined to existing plastic casing only by either solvent welds or with threaded couplings. Plastic well casing extensions must be constructed of a schedule 40 PVC material or better and NSF approved. Note: The use of PVC or steel with a no hub rubber coupling and stainless steel clamps is **not allowed**. History has shown frost and soils movement separates these over time and wells become contaminated.



For More Information

Please contact the Drinking Water and Groundwater Bureau Water Well Program at (603) 271-1974 or dwgbinfo@des.nh.gov or visit our website at www.des.nh.gov.

Note: This fact sheet is accurate as of September 2019. Statutory or regulatory changes or the availability of additional information after this date may render this information inaccurate or incomplete.