

beginning of drilling of a new rock hole or at the beginning of deepening of any existing rock hole.

(f) *Liner pipe for caving zones.* Liner pipe installed during or subsequent to the initial well construction to seal off a caving zone in a well shall be new, unused and non-reclaimed pipe but may have a lesser thickness than shown in table 2 for the nominal diameter of pipe used and may have the largest practical diameter permitting installation in the well.

(g) *Rotary-air drilling.* When constructing wells with combination rotary and cable-tool equipment, the respective drilling methods shall comply with the requirements for rotary-air drilling and for cable-tool drilling.

(h) *Water used in drilling.* Water needed in the construction of drillholes shall be clear water obtained from an uncontaminated source. Such water should be disinfected with chlorine so as to reduce to a minimum the time and effort involved in the required final disinfection of the well. (Note: See NR 112.15(3) (a).)

(i) *Drilling delays following grouting.* Following placement of grout in the annular space between a protective well casing pipe and upper enlarged drillhole or between a protective liner pipe and lower drillhole and protective well casing pipe, drilling shall be delayed for a minimum of 24 hours, whether using either cable-tool or rotary equipment.

(3) **FLOWING WELLS.** The construction of flowing wells shall comply with the minimum requirements of NR 112.08(2) and the following special conditions:

(a) Every practicable effort shall be made to extend the watertight (cased and cement grouted) construction into the upper confining bed of the artesian basin.

(b) When it is impractical to extend the watertight construction in accordance with paragraph (a), an adequate packer shall be set and maintained in the confining bed with a flowpipe extending therefrom to a point at least one foot above the established grade.

(c) The driller shall temporarily install an approved well seal with overflow pipe extending therefrom, if necessary, in which case a control valve shall be installed in the overflow pipe and the flow therefrom either limited or stopped. (Note: See figure 1.)

History: Cr. Register, June, 1976, No. 234, eff. 10-1-76; am. table 1, Register, March, 1977, No. 255, eff. 4-1-77; am. (2) (intro.) and (a), Register, April, 1978, No. 268, eff. 5-1-78; r. and recr. (2) (d), Register, June, 1981, No. 306, eff. 10-1-81.

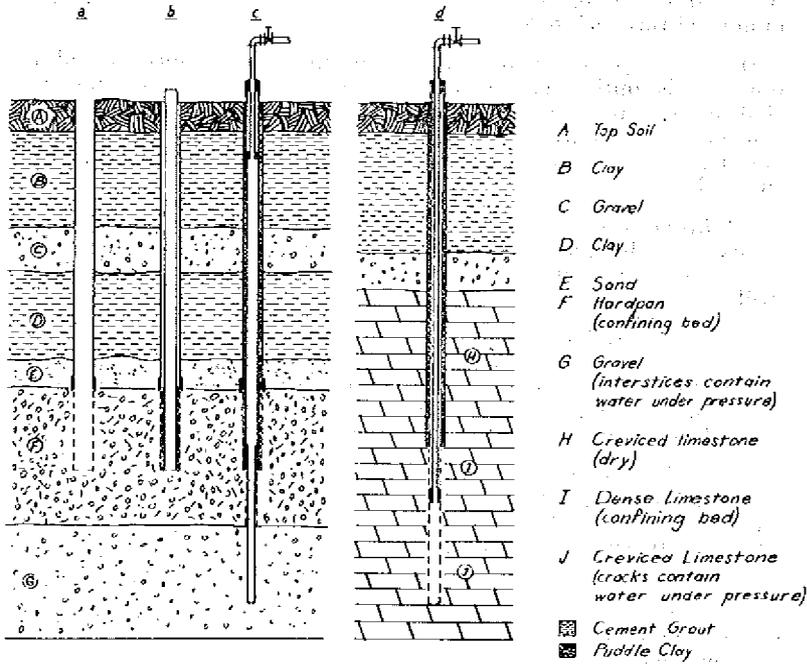


Figure 1. Principle of Construction and Control of Flowing Wells.

NR 112.09 Bored type well design and construction. (1) GENERAL. The general construction requirements are the same as NR 112.08(1).

(2) **SPECIFIC.** Through the vertical zone of contamination the construction of bored type wells shall conform to the specifications for drilled type wells prescribed by NR 112.08(2). They shall also conform to the following additional requirements:

- (a) The minimum diameter of the casing pipe shall be 6 inches.

basements be located above the ground level or be at least 2 feet above the floor.)

(b) *Pit setting.* A deep well reciprocating, turbine or jet pump and set-length type force pump located in a conforming pit shall be so installed as to permit the sealing of the top of the well with an approved type watertight sanitary well seal with gasket, or an equivalent watertight connection with the pump. Any well vent pipe shall extend to the ceiling of the pit and terminate with a return bend and shall have a screened outlet.

(c) *Hand type pumps.* Hand type pumps may be continued in service provided that the pump base flange rests upon a casing flange and the flanges are separated by a gasket. The casing flange must be placed at least 6 inches above the ground or a concrete pump platform. If water is pumped from a hand pump to a reservoir, the piping attachment to the pump shall be made with permanent pipe fittings. Whenever a reservoir exists, the discharge pipe from the pump shall enter the reservoir in a watertight manner through that portion of the structure extending above the ground grade unless a subsurface reservoir supply line is connected to the well by an approved type pitless adapter for a submersible or deep well reciprocating pump and the supply line can be maintained under a positive head of at least 5 feet. The supply pipe in such case shall terminate at or no more than a few inches above the bottom of the reservoir and a float control switch or low and high water level electrical pump-control rods shall exist. Any check valve shall exist only in the portion of the pump discharge pipe located within the well.

(d) *Reservoirs.* 1. The roof of any existing reservoir shall be crack-free, reinforced, poured concrete having a thickness of at least 5 inches. The floor of the reservoir normally shall be crack-free poured concrete at least 4 inches thick. The walls of the reservoir shall be crack-free, reinforced, poured concrete at least 5 inches thick or equivalent construction. A 3-inch thick reinforced concrete facing on substantial masonry walls may be accepted as equivalent wall construction. Exception to this requirement will be made where masonry with mortared joints has been used in the construction of the walls, or roof or both and the masonry is crack-free.

2. The manhole curbing shall extend at least 12 inches above the ground grade unless the reservoir roof terminates above the ground grade, in which case the curbing shall terminate at least 6 inches above the reservoir roof. The manhole shall be provided with a tight-fitting, overlapping cover with a minimum of 3-inch wide skirted sides. The manhole cover shall preferably be constructed of welded sheet steel but one constructed of concrete will be acceptable. The manhole cover shall be fitted snugly over the manhole curbing so as to prevent entrance of insects and vermin into the reservoir.

3. Any reservoir overflow pipe shall be located just under the roof of the reservoir and entirely above the ground grade and terminate with a down-turned pipe with a screened outlet at a point at least 12 inches above the ground grade. If an existing overflow pipe is totally buried between the reservoir and its outlet, it shall be eliminated by properly sealing the pipe with concrete back to the reservoir.

4. The reservoir location shall be equivalent to that required for an existing well.

(3) **INSPECTIONS.** Inspections of existing installations will be made for problem water supplies and also those requiring certification when staff are available to provide such service.

History: Cr. Register, June, 1975, No. 234, eff. 10-1-75.

NR 112.24 Severability. Should any section, paragraph, phrase, sentence, clause or word of this chapter be declared invalid or unconstitutional for any reason, the remainder of this chapter shall not be affected thereby.

History: Cr. Register, June, 1975, No. 234, eff. 10-1-75.

NR 112.25 Effective date. History: Cr. Register, June, 1975, No. 234, eff. 10-1-75; r. Register, June, 1981, No. 306, eff. 10-1-81.

NR 112.26 Well and pump installation approvals. (1) **HIGH CAPACITY WELL APPROVALS.** (a) No wells shall be constructed, reconstructed, rehabilitated, installed or operated to withdraw water from underground sources for any purpose where the operating capacity, either singly or in the aggregate with that of other wells on the property will be in excess of 70 gallons per minute, unless the owner, lessee, or any other person having a possessory interest obtains a written approval from the department. In any case involving an application by a person other than the owner of the subject property the owner shall join in the application.

(b) If the department finds that a proposed high capacity well will reduce the availability of groundwater to any public utility as defined by s. 196.01, Stats., it may deny approval or grant a limited approval under which it imposes such conditions as to locations, depth, pumping capacity or rate of flow and ultimate use so that the water supply of any public utility will not be impaired.

(c) Any well constructed pursuant to this subsection shall be constructed in accordance with NR 112.08.

(d) Approval applications shall provide the following basic information:

1. Description of property, including any contiguous property owned or leased by the applicant.
2. Property owner, giving names of partners, if a partnership, and officials if a corporation.
3. Proposed well owner, giving name of lessee if lessee is to construct well.
4. Proposed well operator, giving name of lessee if lessee is to operate well.
5. Existing well locations on property.
6. Description of designs of existing wells and pump installations on same and contiguous property owned or leased by the applicant.