

## APPENDIX 1

### Additional Requirements by Other State Agencies of Oregon

In the administration of ORS 537.505 to 537.795, the Director of the Water Resources Department has statutory authority under the provisions of ORS 537.780 "to prescribe and enforce general standards for the construction and maintenance of wells and their casings, fittings, valves, and pumps ..." Other agencies of the state have statutory responsibilities that relate either directly or indirectly to the construction and operation of public water supply systems and their source of water supply. These agencies and their responsibilities are listed as follows:

OREGON HEALTH DIVISION 800 NE Oregon Street Portland, OR 97232 (serving more than three single residents) <a href="http://www.ohd.hr.state.or.us">www.ohd.hr.state.or.us</a>	ORS Chapter 448	Municipal Water Supply Systems Public Water Supply Systems Community Water Supply Systems Source Water Protection
BUILDING CODES AGENCY 1535 Edgewater NW Salem, OR 97304-4635 <a href="http://www.cbs.state.or.us/external/bcd">www.cbs.state.or.us/external/bcd</a>	ORS Chapter 446	Electrical and Plumbing for all Commercial Enterprises Mobile Home Park Water Supply Systems
OREGON PUBLIC UTILITY COMMISSIONER 550 Capitol St NE Salem, OR 97301-2551 <a href="http://www.puc.state.or.us">www.puc.state.or.us</a>	ORS Chapter 757	Private Owners (water supply systems, 200 homes or more)
DEPARTMENT OF ENVIRONMENTAL QUALITY 811 SW 6 <sup>th</sup> Portland, OR 97204-1390 <a href="http://www.deq.state.or.us">www.deq.state.or.us</a>	ORS Chapter 468	Water Quality Monitoring Underground Injection Systems Source Water Protection
SECRETARY OF STATE CORPORATION DIVISION Business Services Division Public Service Bldg., Suite 180 Salem, OR 97310 <a href="http://www.sos.state.or.us">www.sos.state.or.us</a>		Business Registry for Water Districts

## **APPENDIX 1- CONTINUED**

All wells constructed in Oregon, including those to serve as a source of ground water to municipal, community, public, or public utility water supply systems, must be constructed in accordance with the rules and regulations prescribing general standards for the construction and maintenance of wells in Oregon (OAR 690 Divisions 205, 210, 215, 220 and 240). Additional construction standards for water supply systems may be required by the above listed agencies. Such rules and regulations generally include the source of water supply to the systems and may affect well construction requirements. Copies of the various agency rules may be obtained by contacting the responsible agency. Well constructors planning to construct a well as a source of water supply for any of the above systems are advised to contact the responsible agency prior to the beginning of well construction.

## **APPENDIX 200-2**

### **METHODS FOR ATTACHING WELL IDENTIFICATION TAG**

#### **WATER SUPPLY WELLS**

Tags should be placed in an accessible and visible location.

Place tags at least 6 inches above ground level.

Attach tags to permanent items such as well casing or monuments, NOT to pumps, pump equipment, water delivery lines or sanitary well seals (well caps).

The following methods are recommended by the Oregon Water Resources Department:

- A. Strap the tag to the well casing or access port. Stainless steel bands or large hose clamps designed for exterior use are recommended. Straps may be available at electrical, auto supply or construction supply stores. Ultra violet resistant nylon straps are also acceptable. Any band used should be designed for exterior applications.
- B. Rivet or bolt the tag to the well casing. Stainless steel rivets may be used.

Other options may be used provided the installation is permanent and visible. Please contact the Water Resources Department for other options.



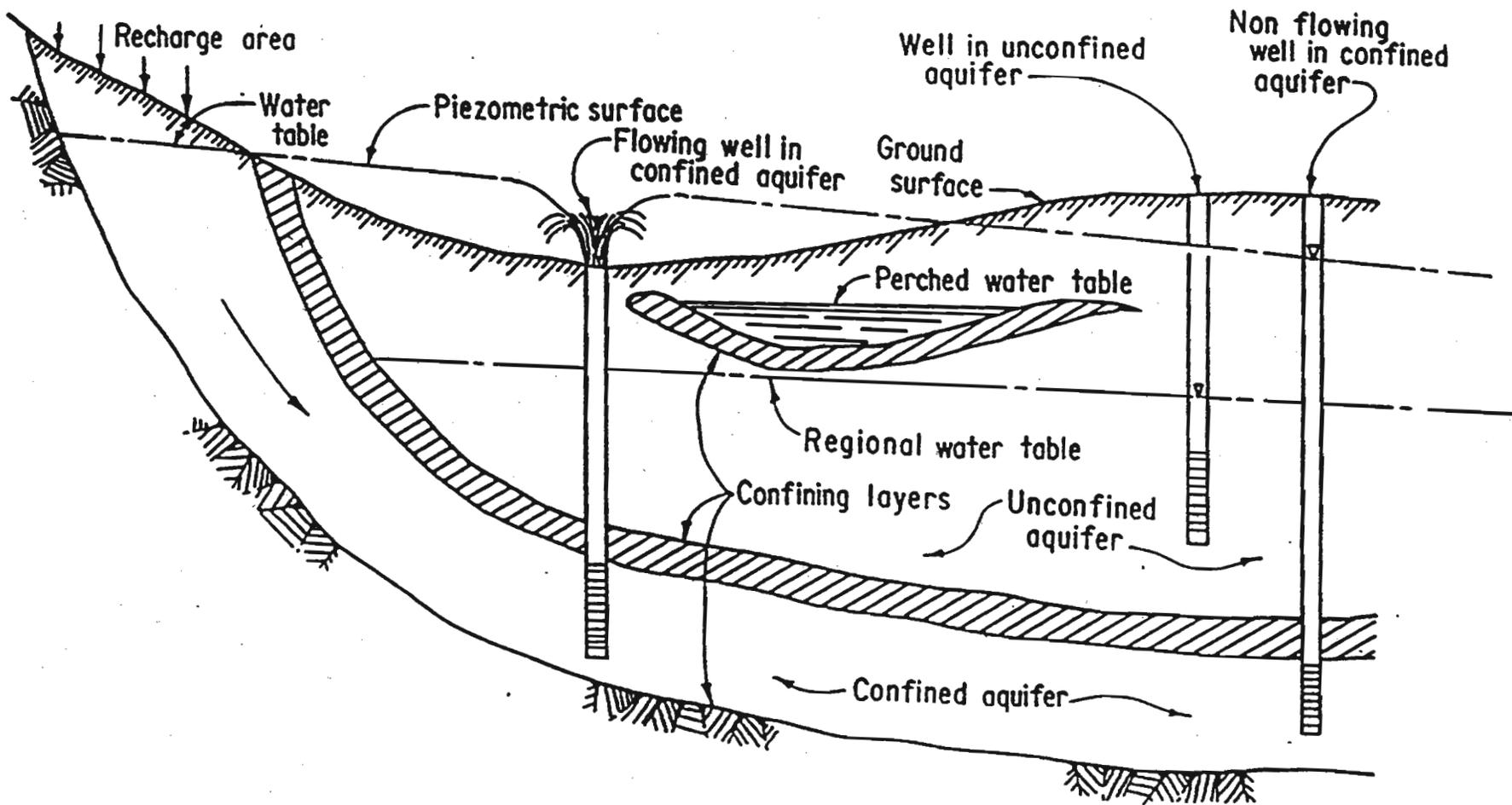


FIGURE 1-2.—Types of aquifers. 103-D-1401.

FIGURE 200-3

Special Area Standards  
"Lakeview Area"  
OAR 690-200-0028

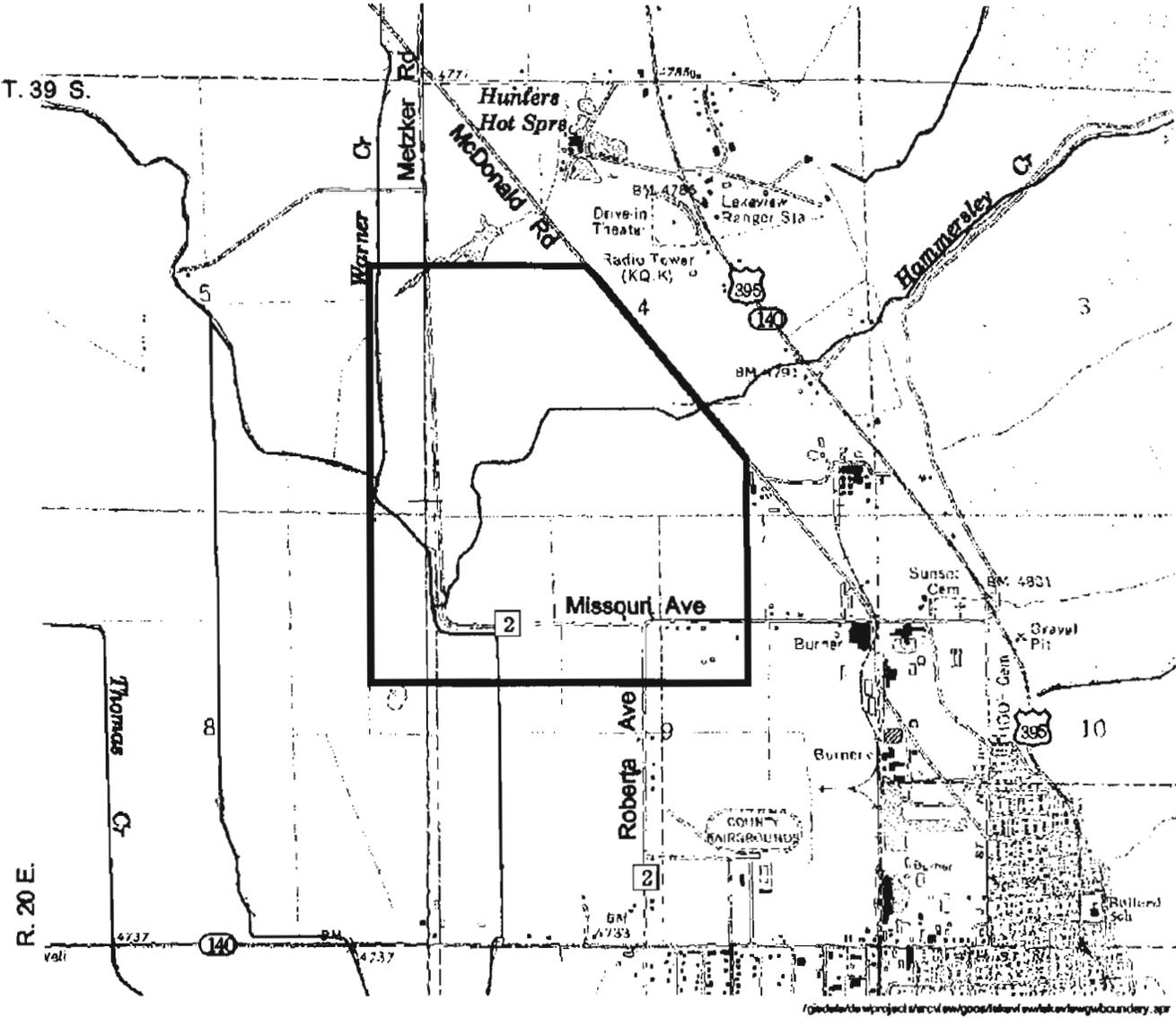
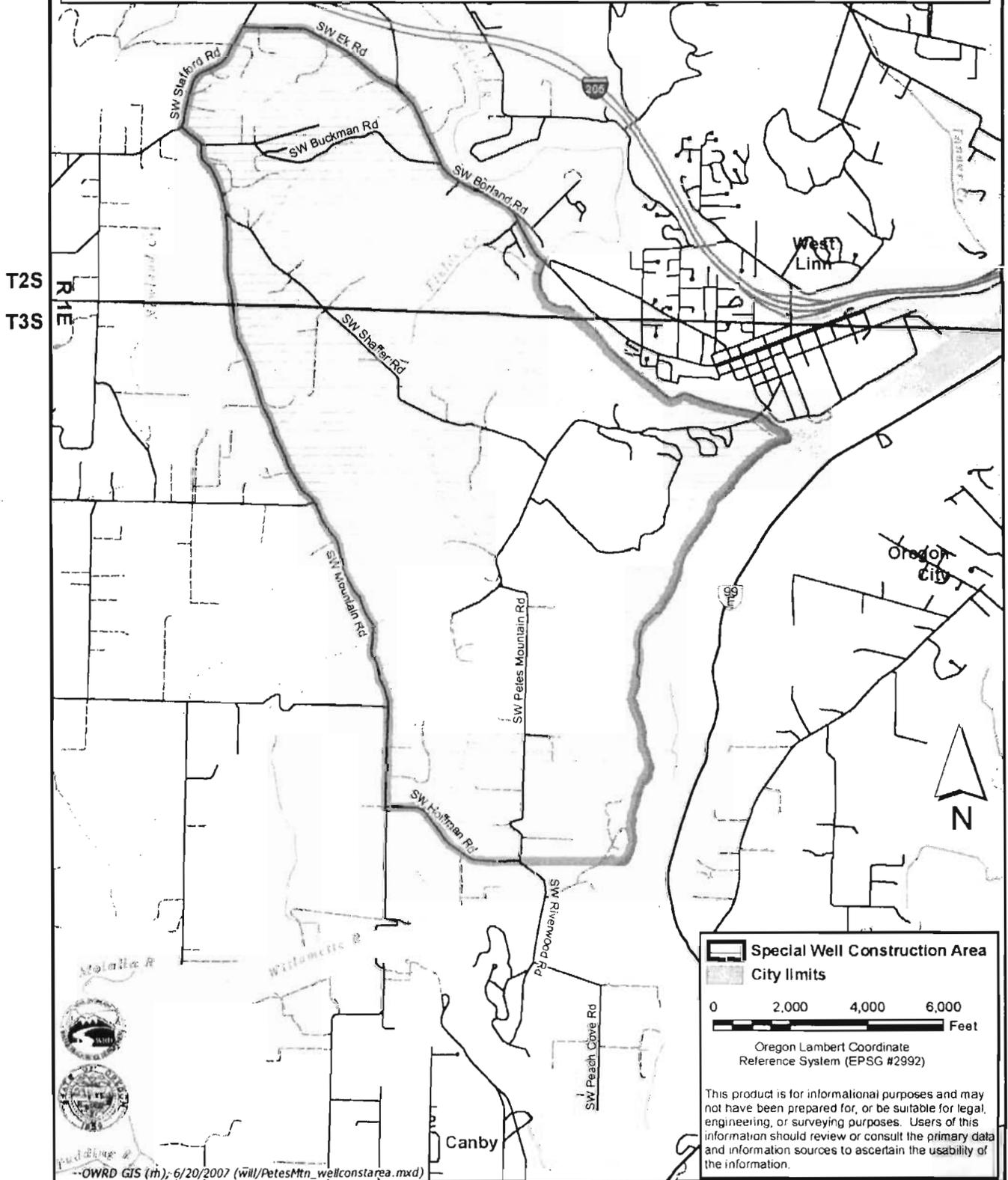


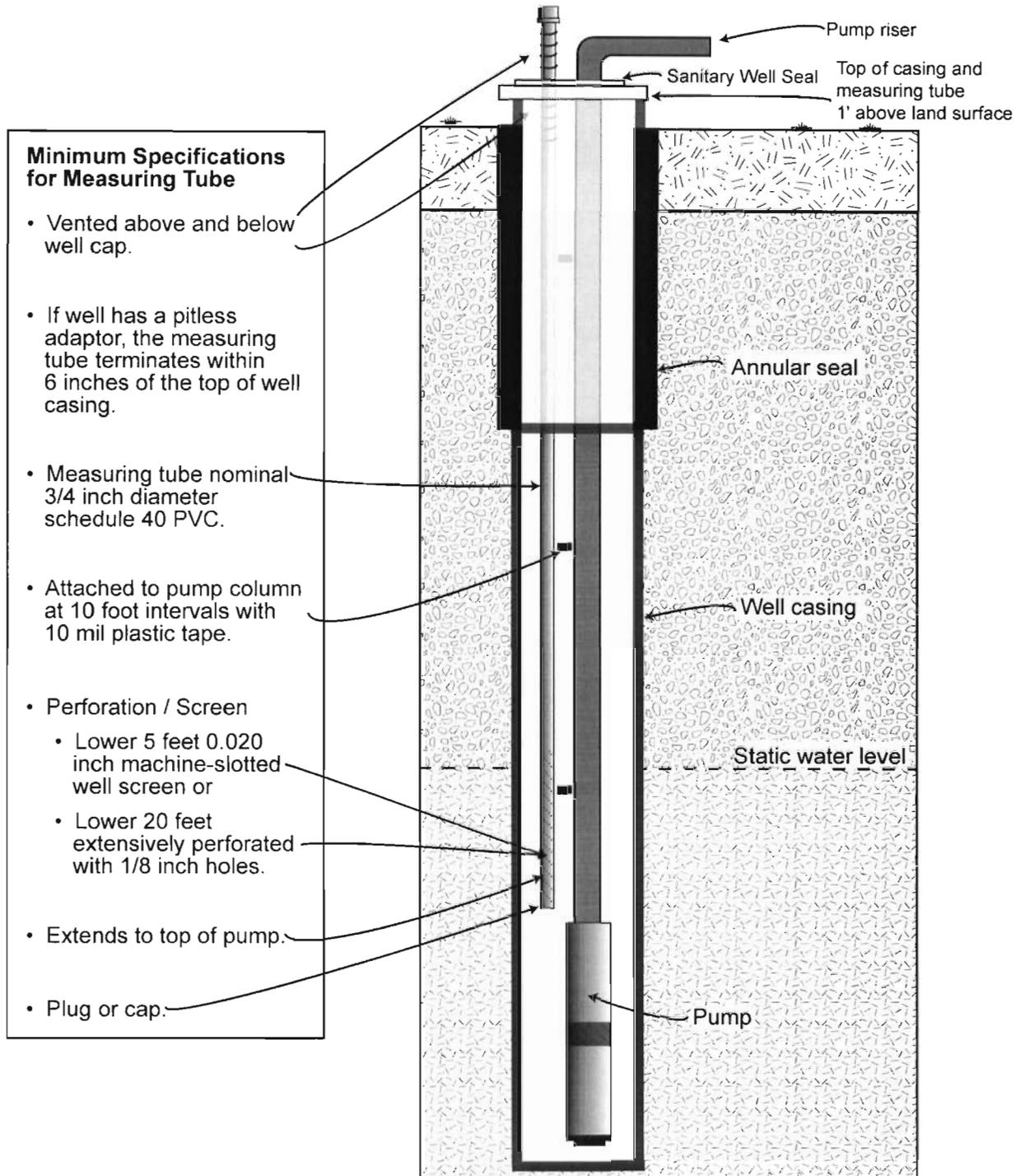
Figure 200-4

# Special Area Standards: Petes Mountain Area



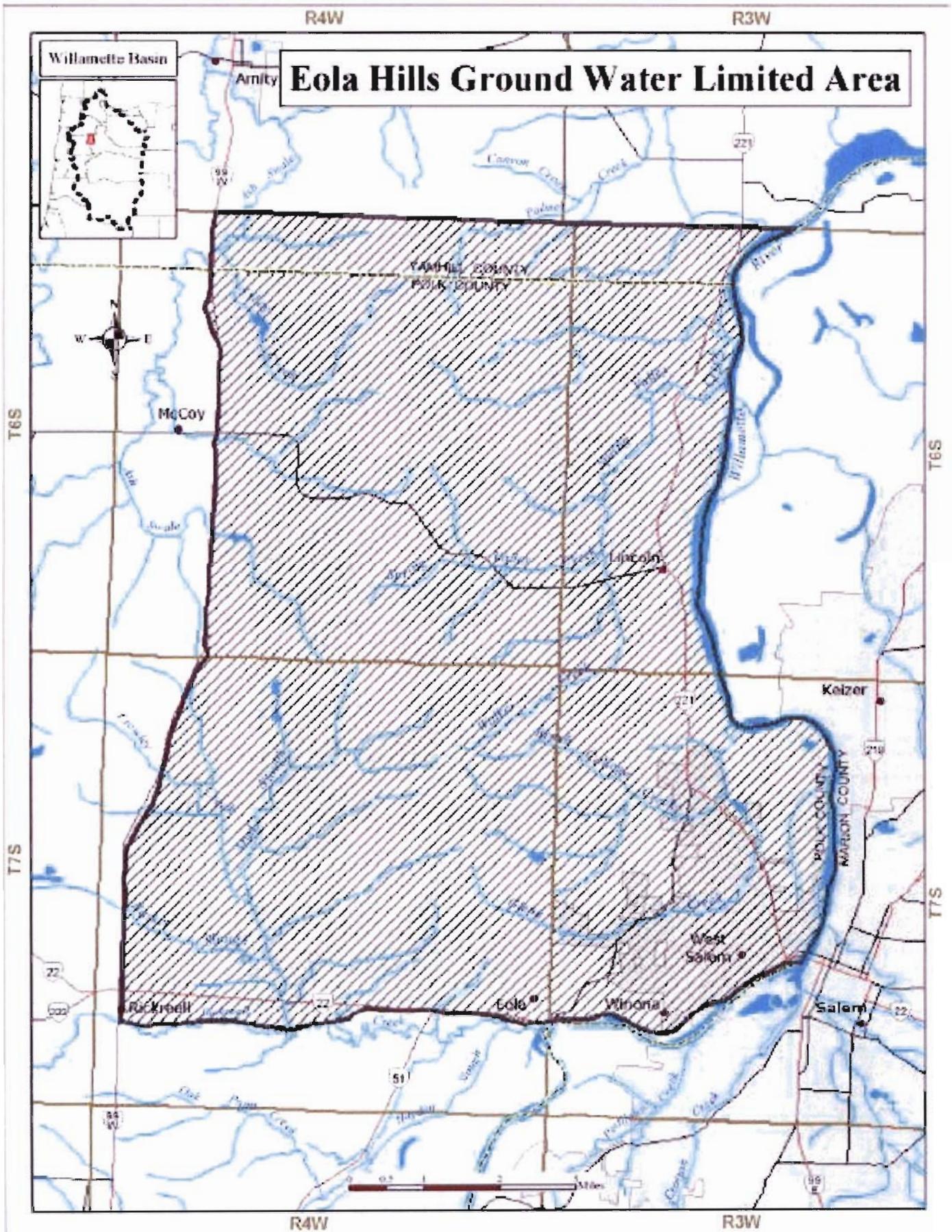
## Measuring Tube Diagram and Specifications

Figure 200-5



*This diagram details the recommended minimum standards for a dedicated measuring tube. A measuring tube may be constructed in a manner that exceeds these standards without prior Department approval. The dedicated measuring tube shall not be reduced in size over the length of the pipe and shall remain free from wires or any other obstruction.*

Special Area Standards  
OAR 690-200-0028



**TABLE 200-1**

**WHICH SET OF STANDARDS APPLIES?**

The Department currently regulates the construction of borings through which ground water could become contaminated. The type of boring (and its purpose) will determine which set of regulations apply. Questions often arise as to how a certain boring is to be regulated. In general, if the purpose of a boring is to seek water then it is considered a well. The table below lists common types of holes and which category they fall into. This is not a complete list of borings and there are other types of borings regulated by other agencies. Contact the Water Resources Department if there is a question as to what standard applies or what agency may need to be contacted.

The general standards and their Oregon Administrative Rule reference are:

Water Supply Wells	OAR 690-200 through 690-235
Monitoring Wells	OAR 690-240
Other Holes	OAR 690-240-0030
Geotechnical Holes	OAR 690-240-0035

<b>Description of Boring</b>	<b>Standards that Apply</b>
Air Sparging Hole	Geotechnical Hole
Aquifer Storage and Recovery Well	Water Supply Well
Cathodic Protection Hole	Geotechnical Hole
Community Well	Water Supply Well
Construction Hole	Other Hole
Dewatering Well	Water Supply Well
Domestic Well	Water Supply Well
Drive Point (Coring)	Geotechnical Hole
Drive Point Well (Dewatering)	Water Supply Well
Drive Point (Water Sampling)	Monitoring Well
Drive Point (Water Supply)	Water Supply Well
Dry (Disposal) Well	Other Hole
Elevator Shaft	Other Hole
Extraction Well	Monitoring Well
Gas Migration Hole	Geotechnical Hole
Geothermal Well	Water Supply Well
Gravel Pit	Other Hole
Heat Exchange Hole (Closed Loop)	Geotechnical Hole
Heat Exchange Hole (Open Loop)	Water Supply Well
Horizontal Drain (Slope Stability)	Geotechnical Hole
Horizontal Well (Monitoring)	Monitoring Well
Horizontal Well (Water Supply)	Water Supply Well
Hydrologic Data Hole	Geotechnical Hole
Inclinometer	Geotechnical Hole
Industrial Well	Water Supply Well

Injection Well (Water)	Water Supply Well
Irrigation Well	Water Supply Well
Monitoring Well (>72 Hours)	Monitoring Well
Municipal Well	Water Supply Well
Observation Hole	Monitoring Well
Permeability Test Hole	Geotechnical Hole
Piezometer (Electric)	Geotechnical Hole
Piezometer (Pneumatic)	Geotechnical Hole
Piezometer Well	Monitoring Well
Piling Hole	Other Hole
Post Hole	Other Hole
Power Pole Hole	Other Hole
Public Supply Well	Water Supply Well
Remediation Or Recovery Well	Monitoring Well/Water Supply Well
Rock Boring (<10 Feet)	Other Hole
Rock Boring (>10 Feet)	Geotechnical Hole
Seismic Shot Hole	Geotechnical Hole
Slope Stability Hole	Geotechnical Hole
Soil Boring (<10 Feet)	Other Hole
Soil Boring (>10 Feet)	Geotechnical Hole
Soil Vapor Hole	Geotechnical Hole
Sparging Hole	Geotechnical Hole
Storm Water Disposal	Other Hole
Sump	Other Hole (if < 10 ft. deep and > 10 ft. dia.)
Temporary Monitoring Well (<72 Hours)	Geotechnical Hole
Trench	Other Hole
Underground Storage Tank (Ust) Pit	Other Hole
Vapor Extraction Hole	Geotechnical Hole
Wetland Delineation Hole	Other Hole

**TABLE 200-2  
(OAR 690-200)**

**Watermaster Office Phone Numbers**

<b>District</b>	<b>Watermaster Office</b>	<b>Phone Number</b>
01	Tillamook	(503) 842-2413
02	Springfield	(541) 682-3620
03	The Dalles	(541) 298-4110
04	Canyon City	(541) 575-0119
05	Pendleton	(541) 278-5456
06	La Grande	(541) 963-1031
08	Baker City	(541) 523-8224
09	Vale	(541) 473-5130
10	Burns	(541) 573-2591
11	Bend	(541) 388-6669
12	Lakeview	(541) 947-6038
13	Medford	(541) 776-7056
14	Grants Pass	(541) 471-2886
15	Roseburg	(541) 440-4255
16	Salem	(503) 378-8455
17	Klamath Falls	(541) 883-4182
18	Hillsboro	(503) 846-7780
19	Coquille	(541) 396-3121
20	Oregon City	(503) 722-1410
21	Condon	(541) 384-4207

Notes:

1. Watermaster phone numbers are subject to change.
2. A current version of this table is available from the Water Resources Department's Salem office.

**TABLE 205-1  
(OAR 690-205)**

**Region Office Fax Numbers**

<b>Region</b>	<b>Office Location</b>	<b>Fax Number</b>
Eastern	Baker City	(541) 523-7866
North Central	Pendleton	(541) 278-0287
Northwest	Salem	(503) 378-6203
South Central	Bend	(541) 388-5101
Southwest	Grants Pass	(541) 471-2876

Notes:

1. Fax numbers are subject to change.
2. A current version of this table is available from the Water Resources Department's Salem office.
3. See Figure 205-1 for a map of region boundaries.

**District Offices**

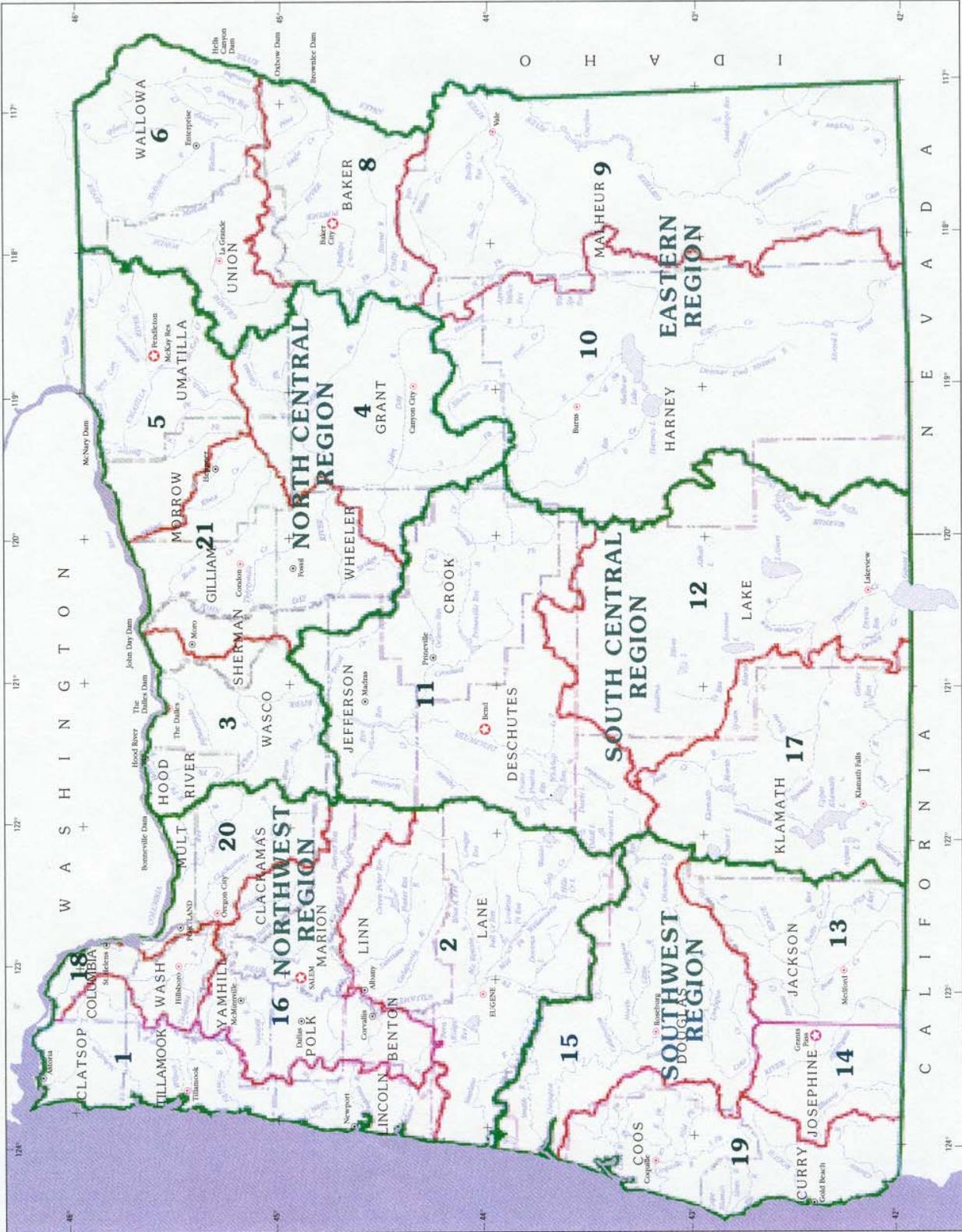
- 1 TILLAMOOK
- 2 EUGENE
- 3 THE DALLES
- 4 CANYON CITY
- 5 PENDLETON
- 6 LA GRANDE
- 8 BAKER CITY
- 9 VALE
- 10 BURNS
- 11 BEND
- 12 LAKEVIEW
- 13 MEDFORD
- 14 GRANTS PASS
- 15 ROSEBURG
- 16 SALEM
- 17 KLAMATH FALLS
- 18 HILLSBORO
- 19 COQUILLE
- 20 OREGON CITY
- 21 CONDON

District Office
   
 Region Office
   
 District Boundary
   
 Region Boundary



State of Oregon  
 Water Resources Department  
 158 12th Street NE  
 Salem, OR 97301-4172  
 (503)378-8455  
[www.wrd.state.or.us](http://www.wrd.state.or.us)

**Regions and  
 Watermaster  
 Districts**  
 2001



## APPENDIX 1

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## APPENDIX 2

### I. Recommendations For Disinfection of Wells (OAR 690-210-0380)

Every newly constructed, altered, or repaired well should be assumed to be contaminated by micro-organisms. Before the initiation of use, each well must be thoroughly and carefully cleaned and treated to ensure that all disease carrying organisms are eliminated. Care should be exercised to make certain that all areas of the well come into contact with a solution containing enough available chlorine to completely destroy all harmful bacteria. An initial chlorine concentration of 50 parts per million (ppm) with a residual chlorine requirement of 25 ppm after 24 hours is considered adequate for this purpose. Either domestic laundry bleaches containing sodium hypochlorite, such as Clorox or Purex, or calcium hypochlorite in powder or tablet form (Olin HTH) may be used.

Hypochlorite solutions should be thoroughly mixed throughout the well either by the use of drilling tools, a pump, or by placing a calculated number of HTH tablets at regular intervals on a nylon string and dissolving them in places throughout the well. In all cases, the well casing and pump column standing above the water table should be thoroughly cleaned of all grease and oil and should be carefully washed down with the hypochlorite solution.

The well should be allowed to remain undisturbed after the treatment for a period of 24 hours. Then it is recommended that the well be tested for residual chlorine (at least 25 ppm must remain). After successful treatment, all water remaining in the well and supply system should be run to waste and a sample of fresh water from the well tested by the local county sanitarian for bacteriological purity.

### SOLUTIONS CONTAINING HYPOCHLORITES

#### Laundry Bleach

Common domestic laundry bleaches contain from 5.25 percent to 6.00 percent sodium hypochlorite. These amounts are equivalent to approximately 2.5 percent available chlorine or about 25,000 ppm as originally purchased. A one gallon container of liquid bleach mixed with 500 gallons of water will dilute the original solution to approximately 50 ppm available chlorine.

#### High-Test Hypochlorite Compounds

Calcium hypochlorite (Olin HTH) in powder or tablet form contains about 50 percent active chlorine. One ounce of dry HTH powder mixed with 75 gallons of water will result in a solution containing approximately 50 ppm available chlorine. Eight tablets  $\frac{1}{8}$  oz. each) of HTH are equivalent to one ounce of dry powder or granules.

QUALITY OF HYPOCHLORITE NEEDED TO PROVIDE  
50 PPM ACTIVE CHLORINE IN WELL WATER

(1) If using liquid bleaches, the following formula is applicable:

$$\frac{\text{Feet of water in well} \times \text{Gallons per foot}}{62} = \text{Pints of bleach needed}$$

Feet of water = Total depth of well minus static water level multiplied by gallons per foot (See Table II).

(2) If using HTH compounds, the following formula is applicable:

$$\frac{\text{Feet of water} \times \text{Gallons per foot}}{75} = \text{Ounces HTH needed}$$

(3) If HTH tablets are used:

$$\frac{\text{Feet of water} \times \text{Gallons per foot}}{9} = \text{Number of 1/8 oz. tablets needed}$$

## APPENDIX 3

### I. Recommended Methods of Placement of Cement Grout (OAR 690-210-0320)

Method A - The well bore shall be plugged with a drillable plug or bridge at the lowest point to be sealed. A well casing with a float shoe at its lower end shall be placed in the well and suspended slightly above the point of bearing. A grout pipe shall be run inside the casing to the check valve. The grout pipe shall be connected to a suitable pump and water or drilling fluid shall first be circulated to clear the annular space. Grout shall be pumped through the grout pipe until clean grout completely fills the interval to be sealed. The grout pipe shall then be removed and the cement allowed to set. (See Figure 210-5)

Method B - Grout shall be placed by pumping or air pressure injection through a grout pipe installed inside the casing from the casing head to a point five (5) feet above the bottom of the casing. The grout pipe shall extend through an airtight sealed cap on the head of the well casing. The casing head shall be equipped with a relief valve and the grout pipe shall be equipped at the top with a valve permitting injection. The lower end of the grout pipe and the casing shall be open. Clean water shall be injected down the grout pipe until it returns through the casing head's relief valve. The relief valve is then closed and injection of water is continued to clean the hole until it flows from the bore hole outside the casing that is to be grouted in place. Without significant interruption, grout shall be substituted to water and, in a continuous manner, injected down the grout pipe until it returns to the surface outside of the casing. A small amount of water may be used to flush the grout pipe, but the pressure should remain constant on the inside of the grout pipe and the inside of the casing until the grout has set. Pressure shall be maintained for at least twenty-four (24) hours, or until such time as a sample of the grout indicates a satisfactory set. Cement grout shall be used for this procedure with a minimum annular space of one (1) inch completely surrounding the casing. (See Figure 210-5)

Method C - The well bore shall be plugged with a drillable packer or bridge at the lowest point to be sealed. The well casing shall be firmly seated at the bottom of the drillhole. A grout pipe shall be run to the bottom of the hole through the annular space between the casing and the well bore. After water or any other drilling fluid has been circulated in the annular space sufficiently to clear obstructions, the grout pipe shall be connected to a suitable pump and grout shall be pumped through the grout pipe until clean grout is circulated to land surface, or until grout completely fills the interval to be sealed. The lower end of the grout pipe shall remain submerged in grout while grout is being placed. The grout pipe shall be withdrawn before the initial set of the grout. (See Figure 210-5)

Method D - The well bore shall be plugged with a drillable packer or bridge at the lowest point to be sealed. After the casing is run and landed, a casing plug, having a length greater than the diameter of the casing, shall be placed in the casing. If the drillhole is free of mud or water, this lower separation plug may be eliminated. A measured amount of cement grout necessary to completely fill the annular space of the interval to be grouted is pumped or placed by bailer in the casing. A second casing plug, having a length greater than the diameter of the casing, shall be placed in the casing above the grout. The casing shall then be capped with a pressure cap and shut-off valve, and shall be connected to a suitable pump. The casing shall then be raised far

enough above the point of bearing to clear the first separation plug. Water or drilling mud shall then be pumped under pressure into the casing forcing the grout and upper casing plug down the casing. The position of the plug must be known at all times. A small amount of grout may remain in the lower end of the casing. When the plug reaches the point desired above the bottom of the casing, the pump shall be stopped and the casing seated. (See Figure 210-5)

Method E - The well bore shall be plugged with a drillable packer or bridge at the lowest point to be sealed. A sufficient amount of cement grout to completely fill the interval of the well to be sealed shall be placed at the bottom of the drillhole by pump bailer or grout pipe. The well casing shall have centering guides attached at appropriate intervals to keep the casing centered in the bore hole. The bottom of the well casing shall be fitted with a tight drillable plug and shall be lowered into the drillhole forcing the grout upward into the annular space. Gravity installation without the aid of a grout pipe shall not be used. In no instance shall this method be used deeper than thirty (30) feet and in no case for a municipal, community, or public water supply well. (See Figure 210-5)

**TABLE 210-1  
(690-210-0180)  
(Specifications for Drive Pipe)**

Nominal Size (inches)	Outside Diameter (inches)	Wall Thickness (inches)	Weight Per Foot (pounds)
1-1/2	1.900	0.145	2.72
2	2.375	0.154	3.65
2-1/2	2.875	0.203	5.79
3	3.500	0.216	7.58
3-1/2	4.000	0.226	9.11

**TABLE 210-2  
(690-210-0190)  
(Minimum specifications for steel well casing)**

Nominal Size (inches)	Outside Diameter (inches)	Wall Thickness (inches)	Weight Per Foot (pounds)
2	2.375	.154	3.56
2-1/2	2.875	.203	5.79
3	3.500	.216	7.58
3-1/2	4.000	.226	9.11
4	4.500	.237	10.79
5	5.563	.244	13.70
6	6.625	.250	17.02
8	8.625	.250	22.36
10	10.750	.250	28.04
*12	12.750	.312	41.45
*14	14.000	.312	45.68
*16	16.000	.312	52.27
*18	18.000	.375	70.59
*20	20.000	.375	78.60

\* Note: Steel casing installed in a well greater than a nominal diameter of ten (10) inches, having a wall thickness of .250 inch and meeting ASTM A-53 A or B specifications must not exceed the following depth limitations (Diameter - Maximum Depth, respectively):

- (a) 12 inches - 500 feet
- (b) 14 - 16 inches - 250 feet:
- (c) 18 - 20 inches - 100 feet

**Table 210-3  
Capacity of Drillhole or Casing**

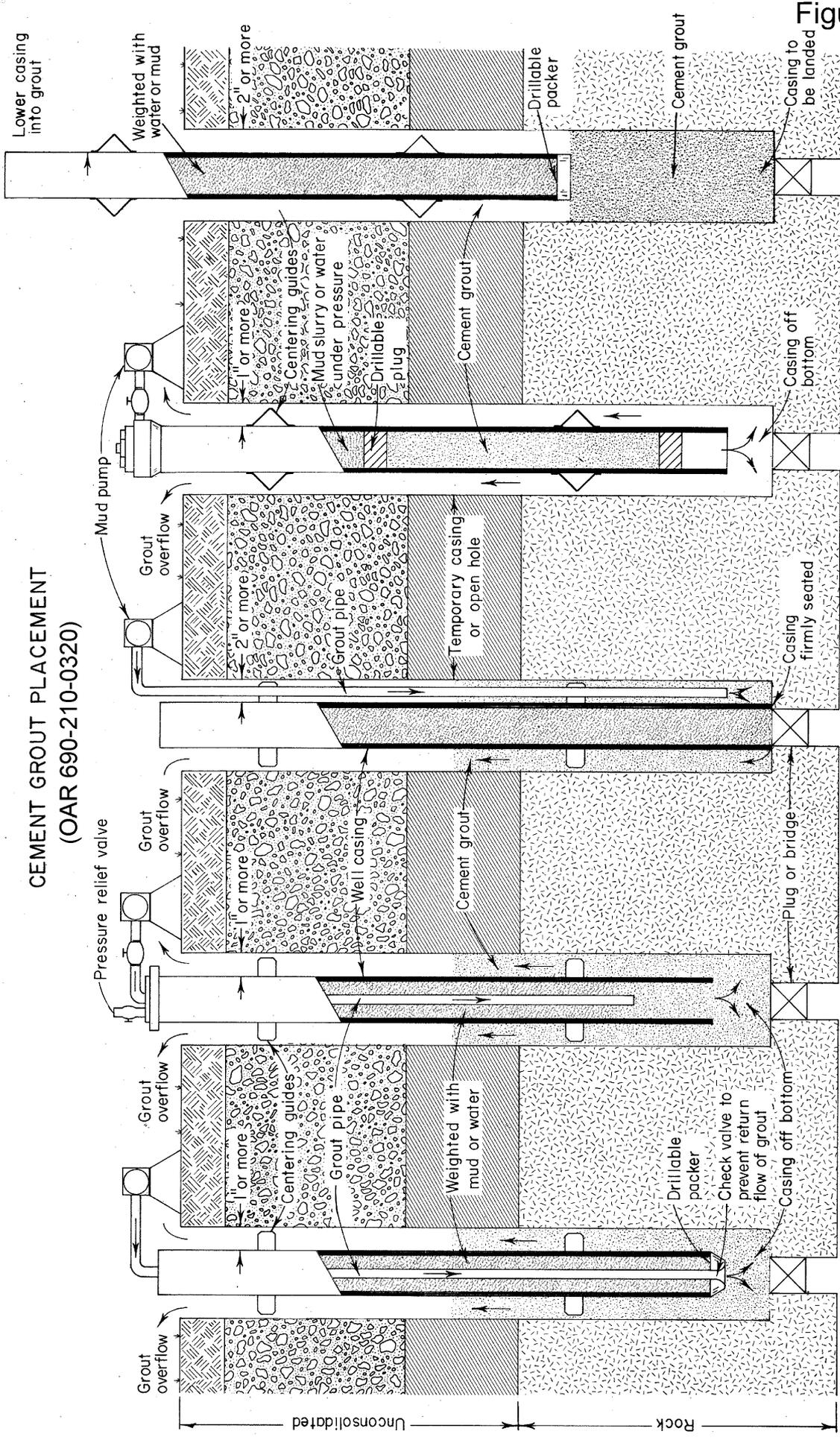
Nominal Size (in inches)	Gallons per Linear Foot
2	0.163
4	0.653
5	1.020
6	1.469
7	1.999
8	2.611
9	3.305
10	4.080
11	4.937
12	5.875
14	7.997
16	10.445
18	13.219
20	16.320
24	23.501

**Table 210-4  
Set time for plastic casing joints**

Temperature Range During Initial Set Time	Set Time for Various Pipe Sizes In Hours					
	3"	4"	6"	8"	10"	12"
60 F - 100 F	1/2	1/2	1/2	3/4	3/4	1
40 F - 60 F	2	2	4	4	4	4
0 F - 40 F	6	6	8	10	12	12

NOTE: After the initial set, the joints will withstand the stress of a normal installation. However, considerable care should be employed in handling the string.

CEMENT GROUT PLACEMENT  
(OAR 690-210-0320)



METHOD A

METHOD B

METHOD C

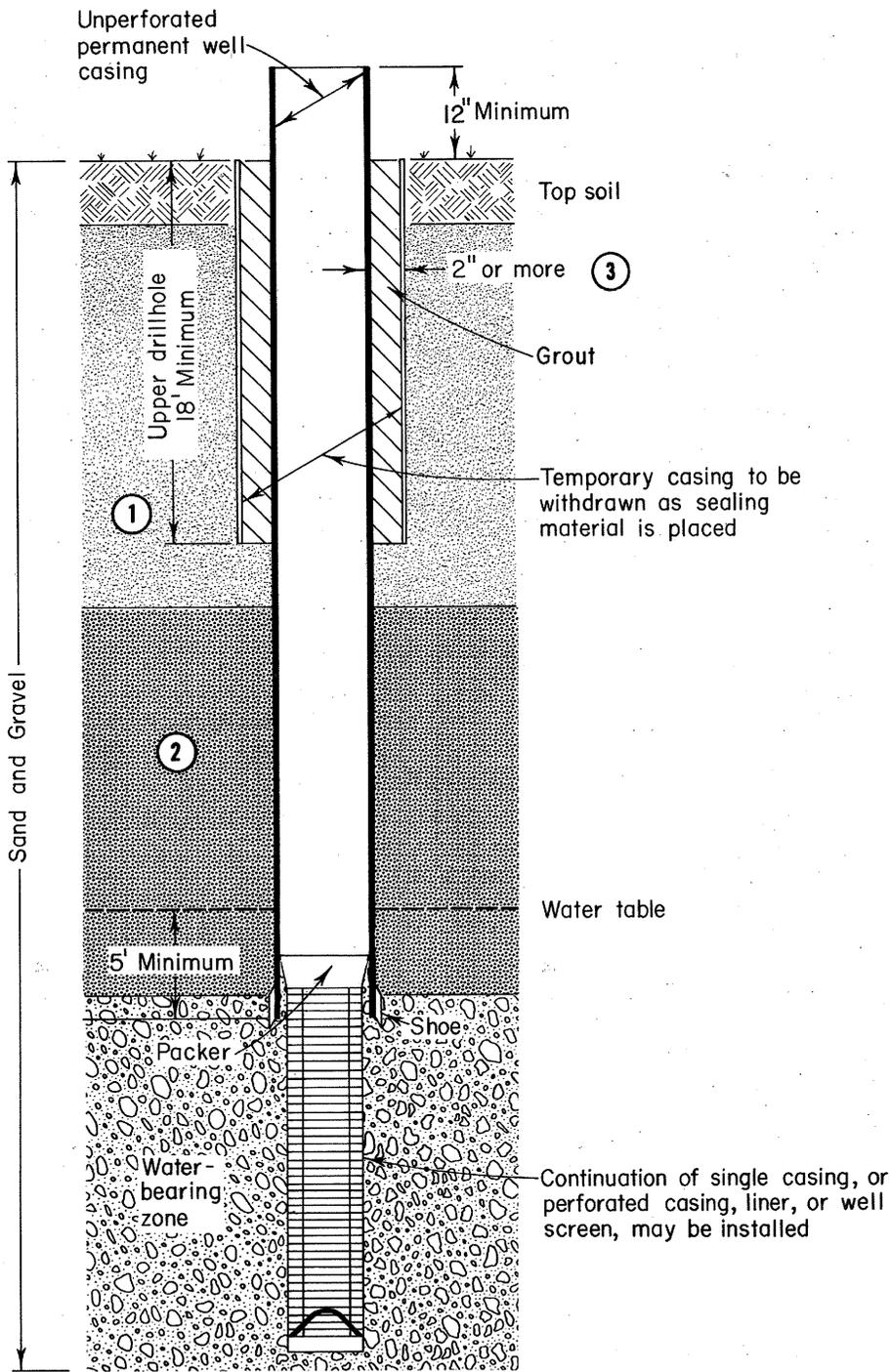
METHOD D

METHOD E

# SEALING OF WATER SUPPLY WELLS IN UNCONSOLIDATED FORMATIONS WITHOUT SIGNIFICANT CLAY BEDS (OAR 690-210-0130)

Overlying Material - Sand and Gravel without Clay

Water-bearing Formation - Sand and Gravel or Similar

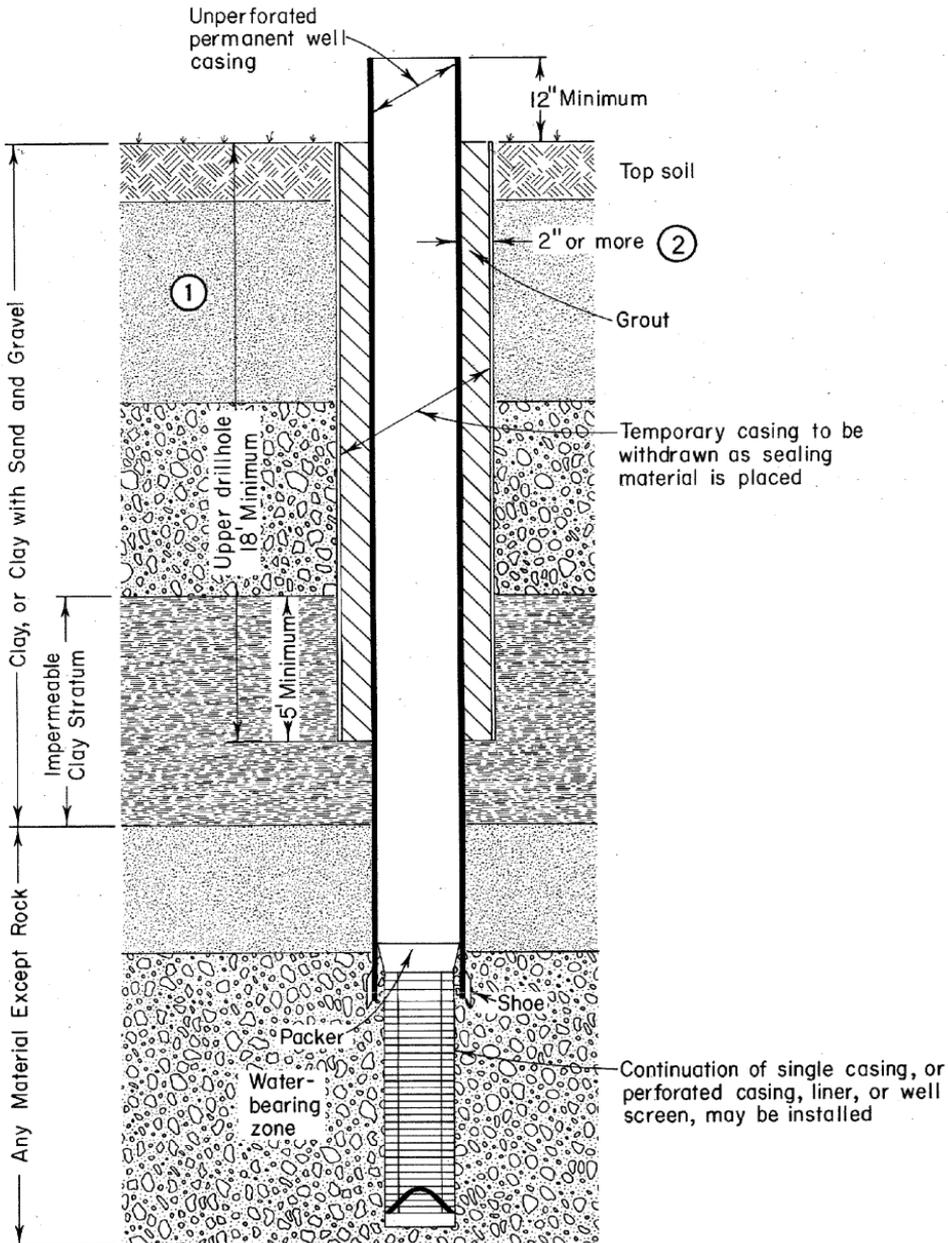


- (1) Upper oversize drillhole and annular seal must extend to a depth of at least 18 feet.
- (2) Unperforated watertight well casing must extend at least 5 feet below the water table and to a minimum depth of 18 feet.
- (3) Annular sealing space requirements are based on nominal casing sizes

# SEALING OF WATER SUPPLY WELLS IN UNCONSOLIDATED FORMATIONS WITH SIGNIFICANT CLAY BEDS (OAR 690-210-0140)

Overlying Material - Clay, or Sand and Gravel with Interbedded Clay

Water-bearing Formation - Any Material Except Rock

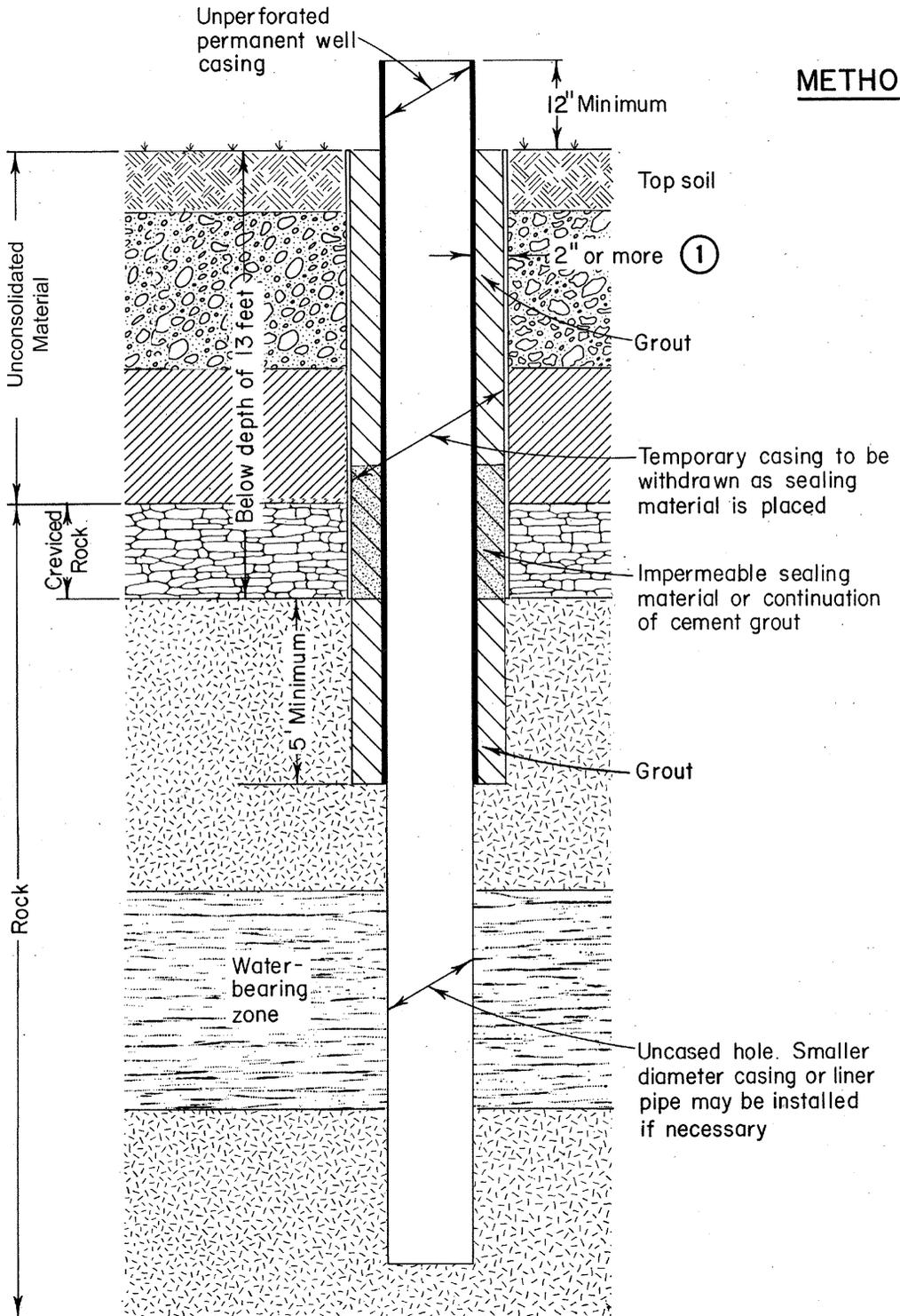


- ① Unperforated well casing and annular seal must extend at least 5 feet into impermeable stratum, and must extend at least 18 feet below land surface.
- ② 1" or more if cement grout is placed by grouting method A, B, or D. Annular sealing space requirements are based on nominal casing sizes

# SEALING OF WATER SUPPLY WELLS IN CONSOLIDATED FORMATIONS (OAR 690-210-0150)

Overlying Material – Unconsolidated Material  
 Water-bearing Formation – Rock

## METHOD 1



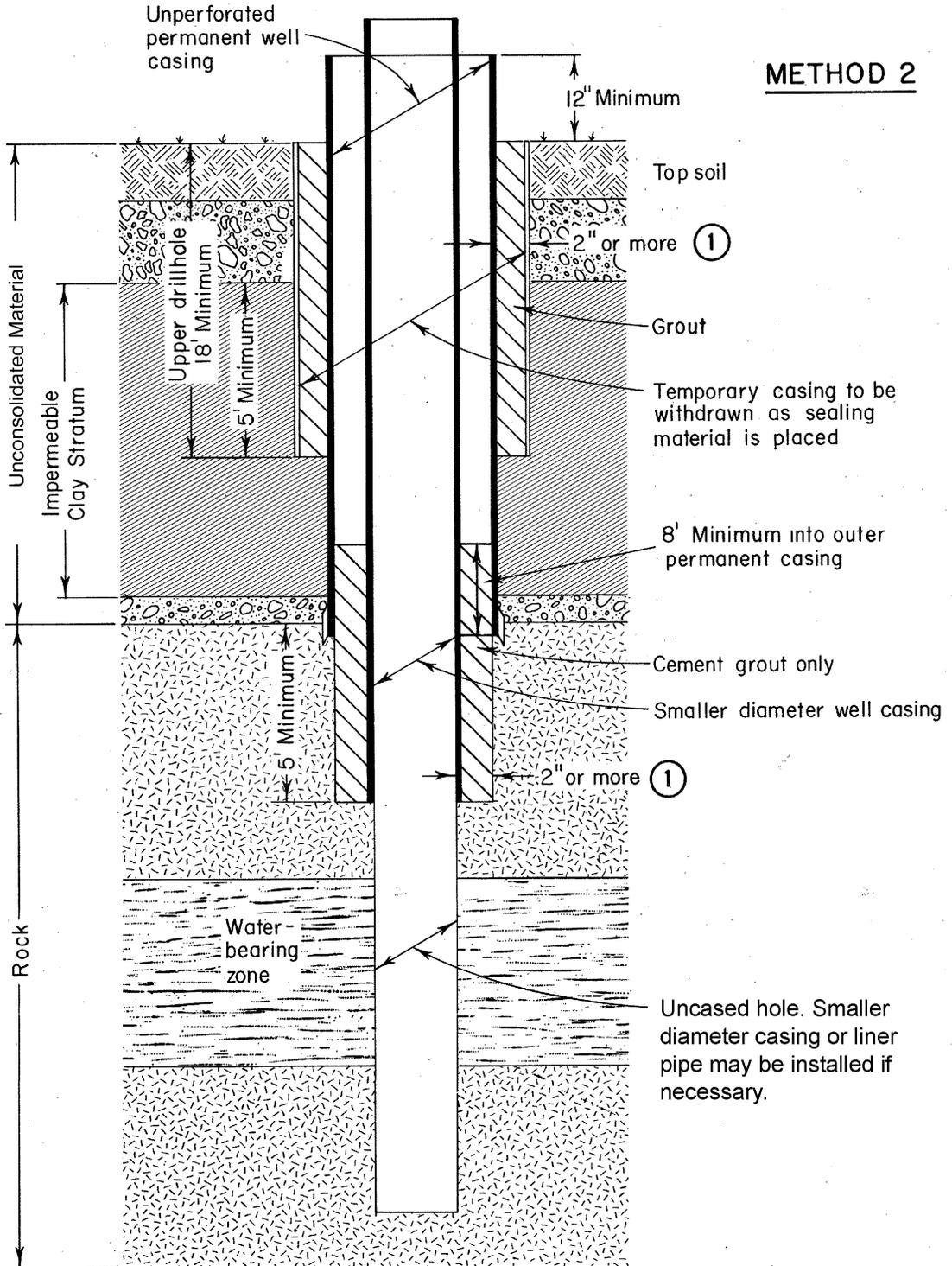
① 1" or more if cement grout is placed by grouting method A, B, or D.  
 Annular sealing space requirements are based on nominal casing sizes.

# SEALING OF WATER SUPPLY WELLS IN CONSOLIDATED FORMATIONS (OAR 690-210-0150)

Overlying Material – Unconsolidated Material

Water-bearing Formation – Rock

## METHOD 2



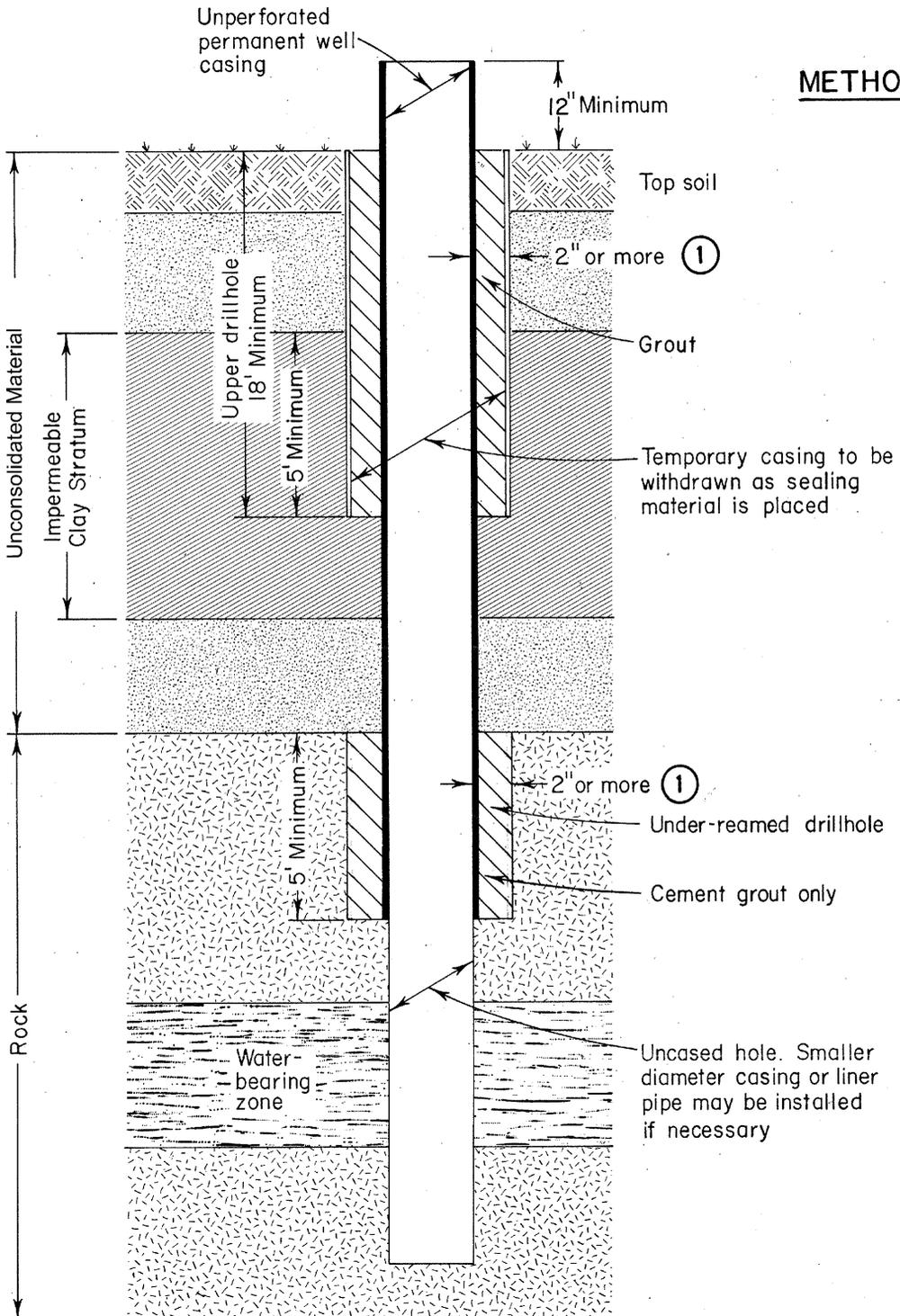
① 1" or more if cement grout is placed by grouting method A, B, or D. Annular sealing space requirements are based on nominal casing sizes.

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Overlying Material – Unconsolidated Material

Water-bearing Formation – Rock

## METHOD 3

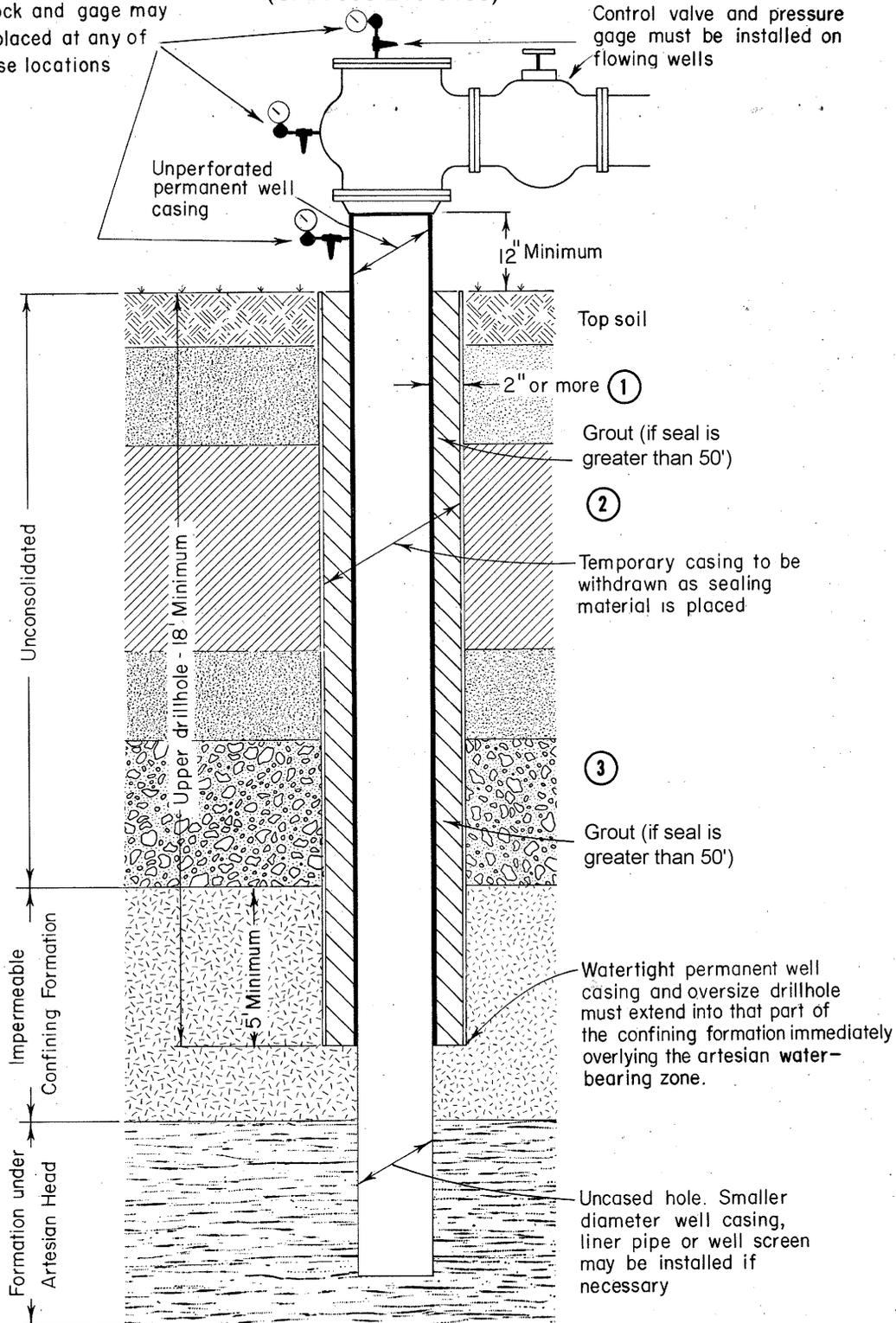


① 1" or more if cement grout is placed by grouting method A, B, or D. Annular sealing space requirements are based on nominal casing sizes.

**SEALING OF AN ARTESIAN WELL**  
(OAR 690-210-0155)

NOTE:  
Petcock and gage may  
be placed at any of  
these locations

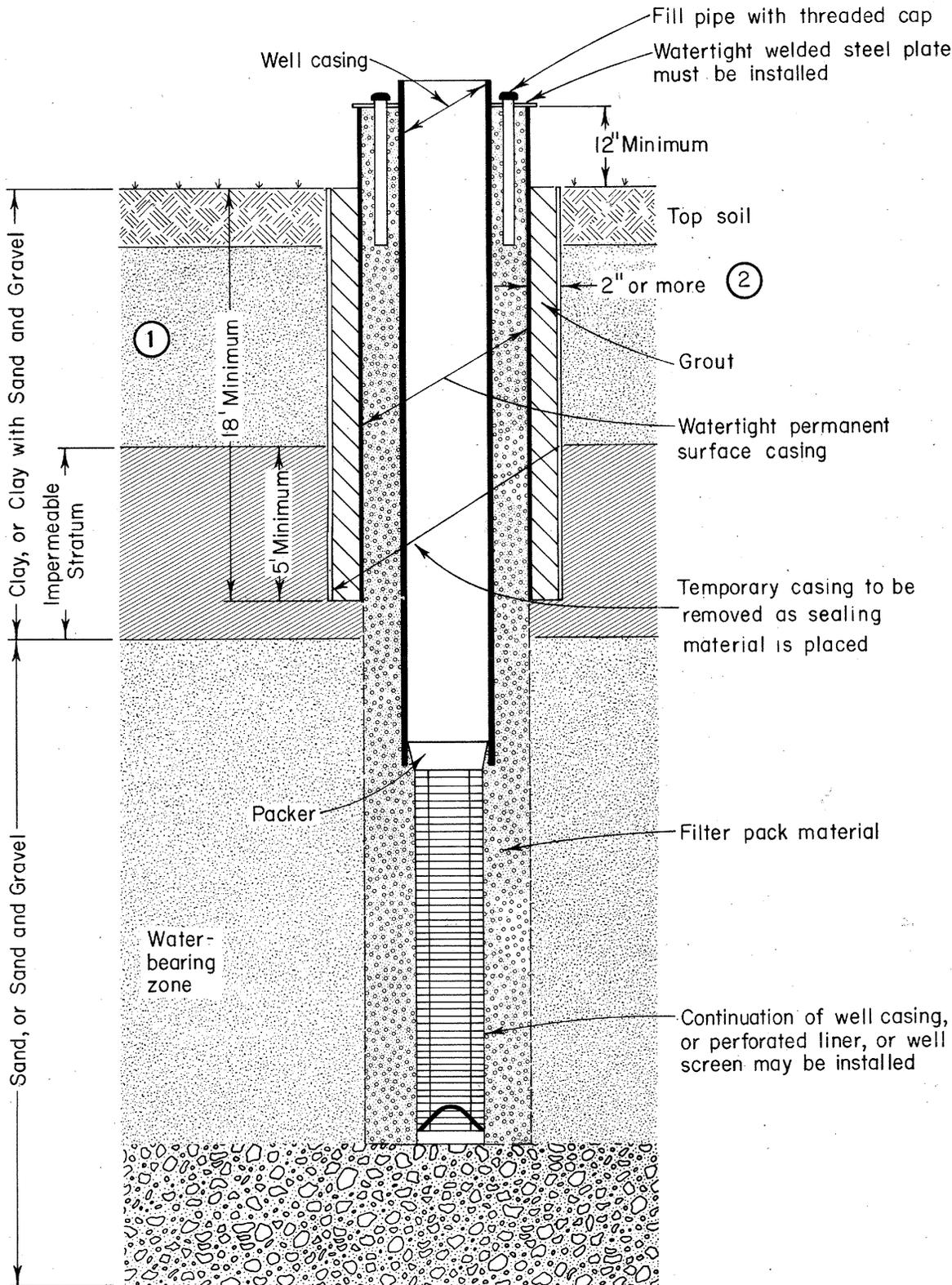
Control valve and pressure  
gage must be installed on  
flowing wells



- ① 1" or more if cement grout is placed by grouting method A, B, or D. Annular sealing space requirements are based on nominal casing sizes.
- ② Well must not be constructed in a manner that will allow water from an artesian zone to commingle with other confined or unconfined water-bearing zones.
- ③ Must be completed with the seals, packers, or casing necessary to eliminate subsurface or surface leakage.

# SEALING OF A FILTER PACKED WELL WITH SURFACE CASING

(OAR 690-210-0160)

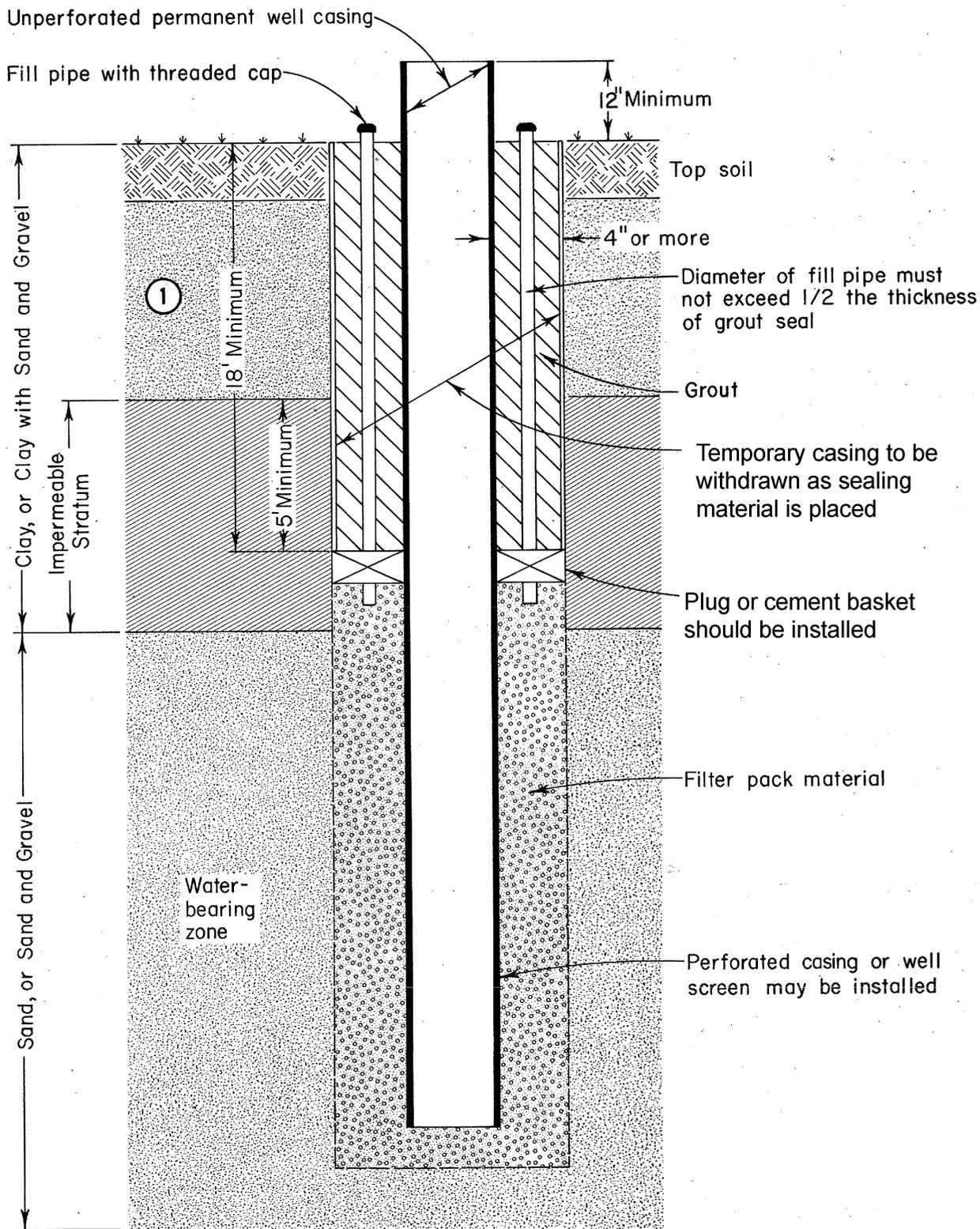


① Minimum of 18 feet provided that the impermeable stratum is at or near land surface.

② Annular sealing space requirements are based on nominal casing size.

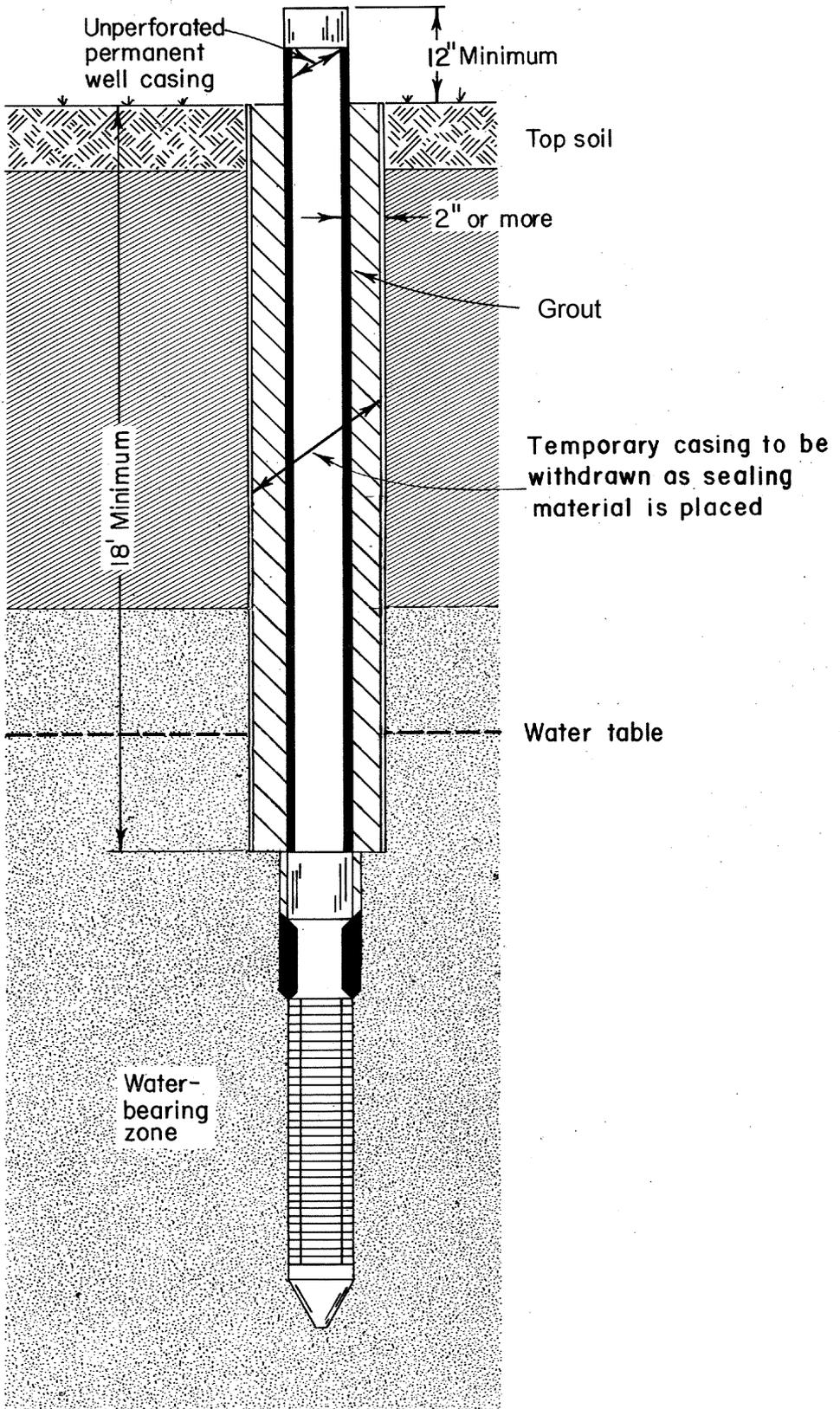
# SEALING OF A FILTER-PACKED WELL WITHOUT SURFACE CASING

(OAR 690-210-0170)



① Minimum of 18 feet provided that the impermeable stratum is at or near land surface.

# SEALING OF A DRIVEN OR JETTED WELL (OAR 690-210-0180)



RECOMMENDED USE OF CENTERING GUIDES  
(OAR 690-210-0240)

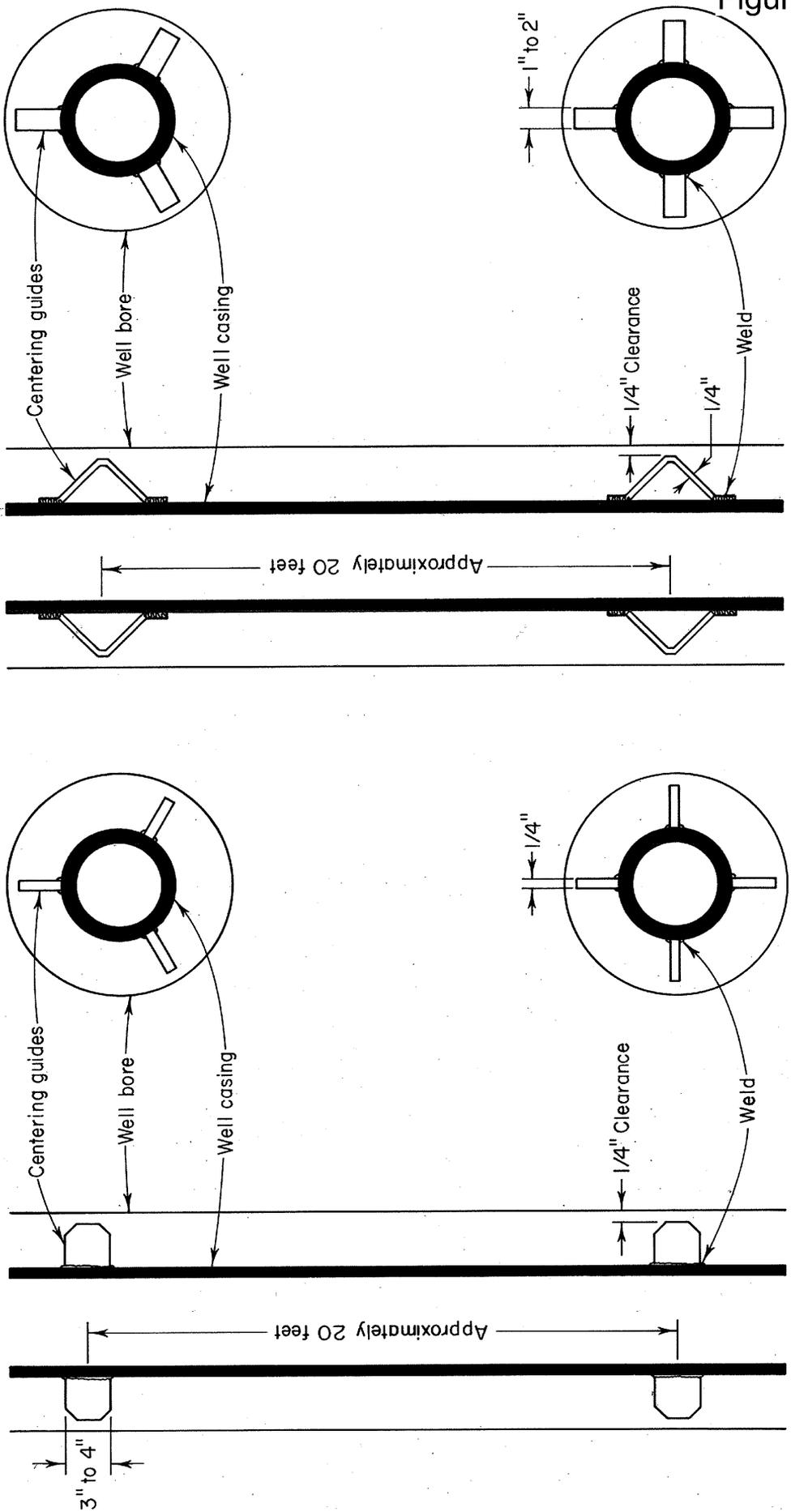
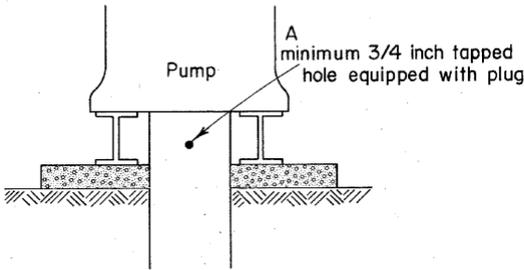


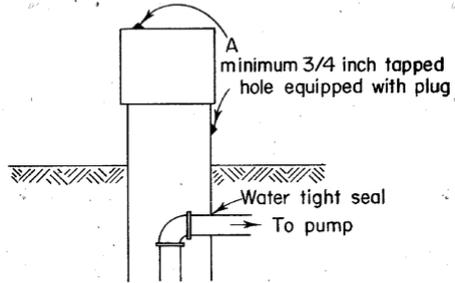
Figure 210-11

**NOTE:** Well casing, to be sealed into an oversize drillhole, should be equipped with a series of centering guides to insure proper centering of casing. Guides should be evenly spaced in groups of 3 or 4, and attached to the casing.

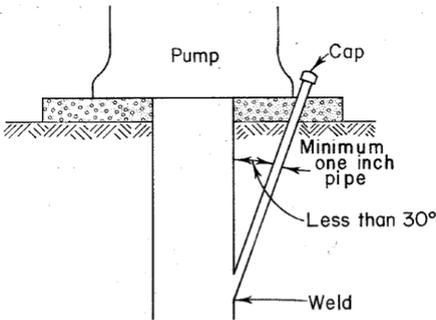
SUGGESTED METHODS OF INSTALLING  
 ACCESS PORTS, PRESSURE GAUGES, AND AIR LINES  
 FOR MEASURING WATER LEVELS IN WELLS  
 (OAR 690-210-0280)



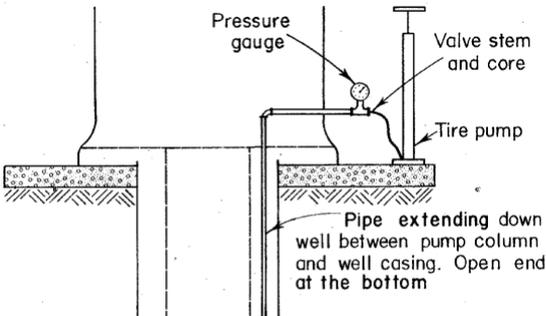
ACCESS PORT FOR MEASURING DEVICE



ACCESS PORT FOR MEASURING DEVICE



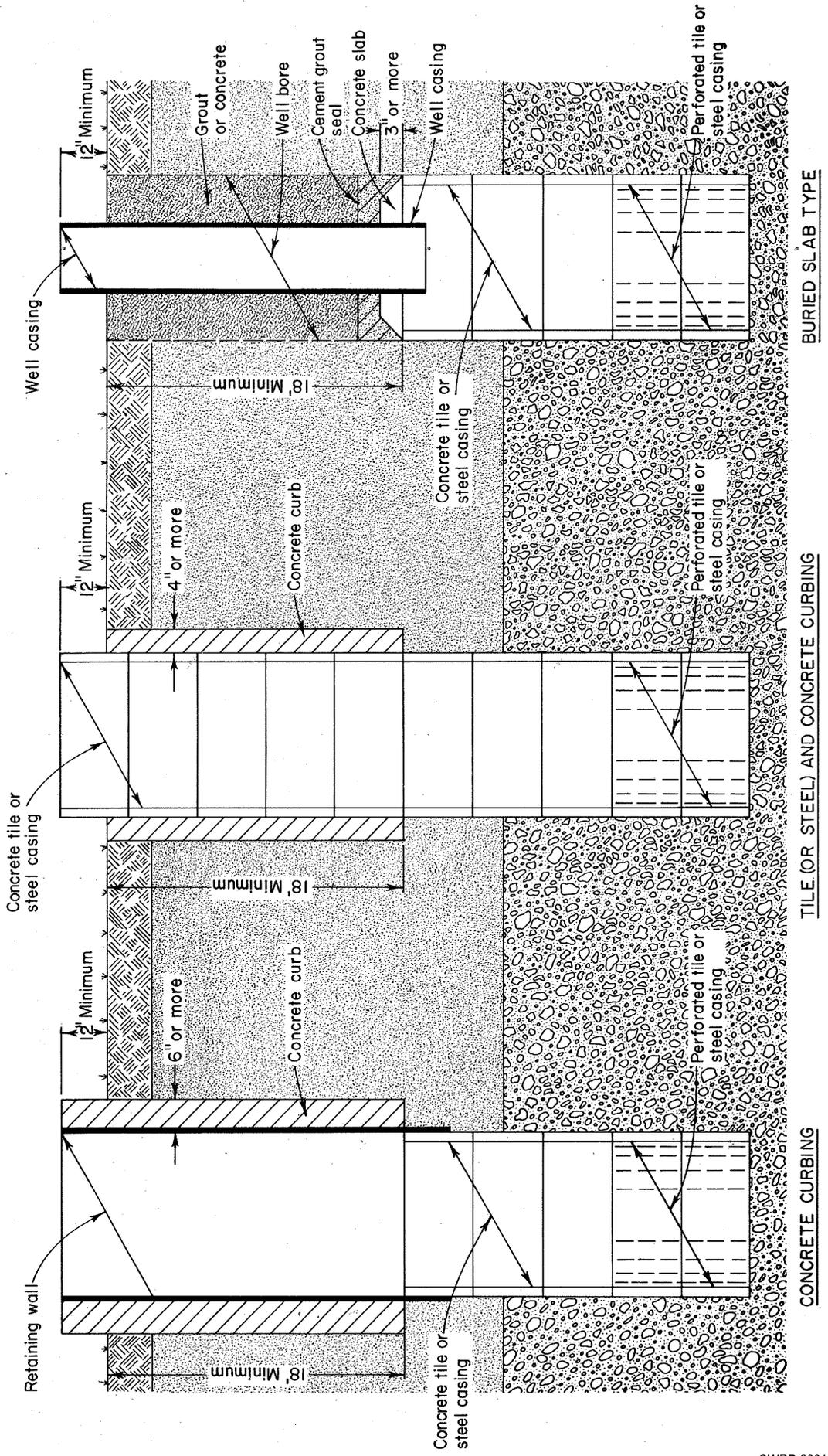
ACCESS PORT FOR MEASURING DEVICE



AIR LINE INSTALLATION

An air line installation is recommended where the water level lies at a considerable depth below land surface. The amount of air pressure that can be built up inside the air line will be equal to the depth of water standing above the bottom of the air line. The exact depth to the bottom of the air line is required to obtain an accurate measurement of the water level in the well. One pound per square inch pressure equals 2.31 feet of water.

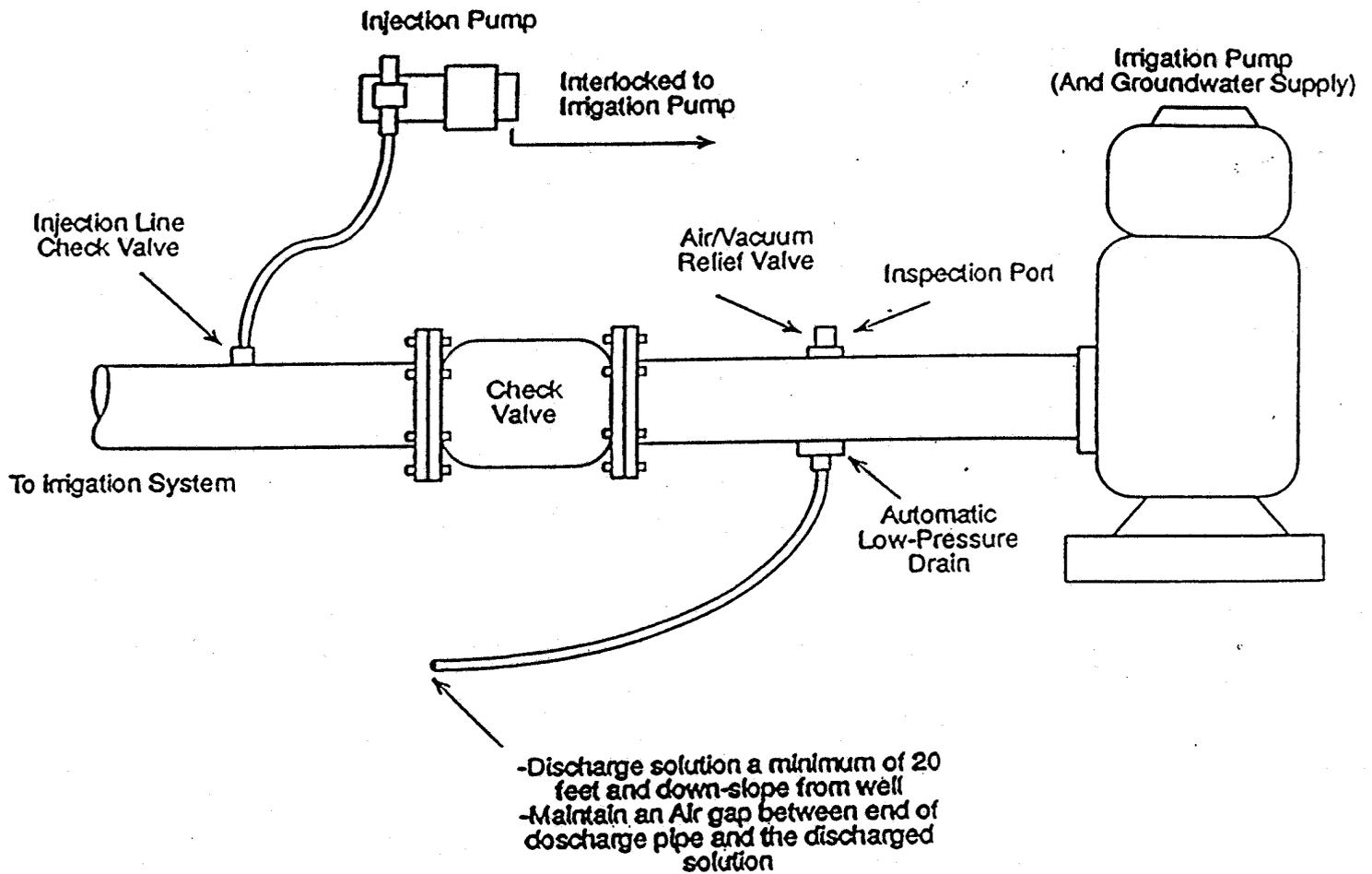
SEALING OF DUG WELLS  
(OAR 690-210-0400, 0410, 0420)



BURIED SLAB TYPE

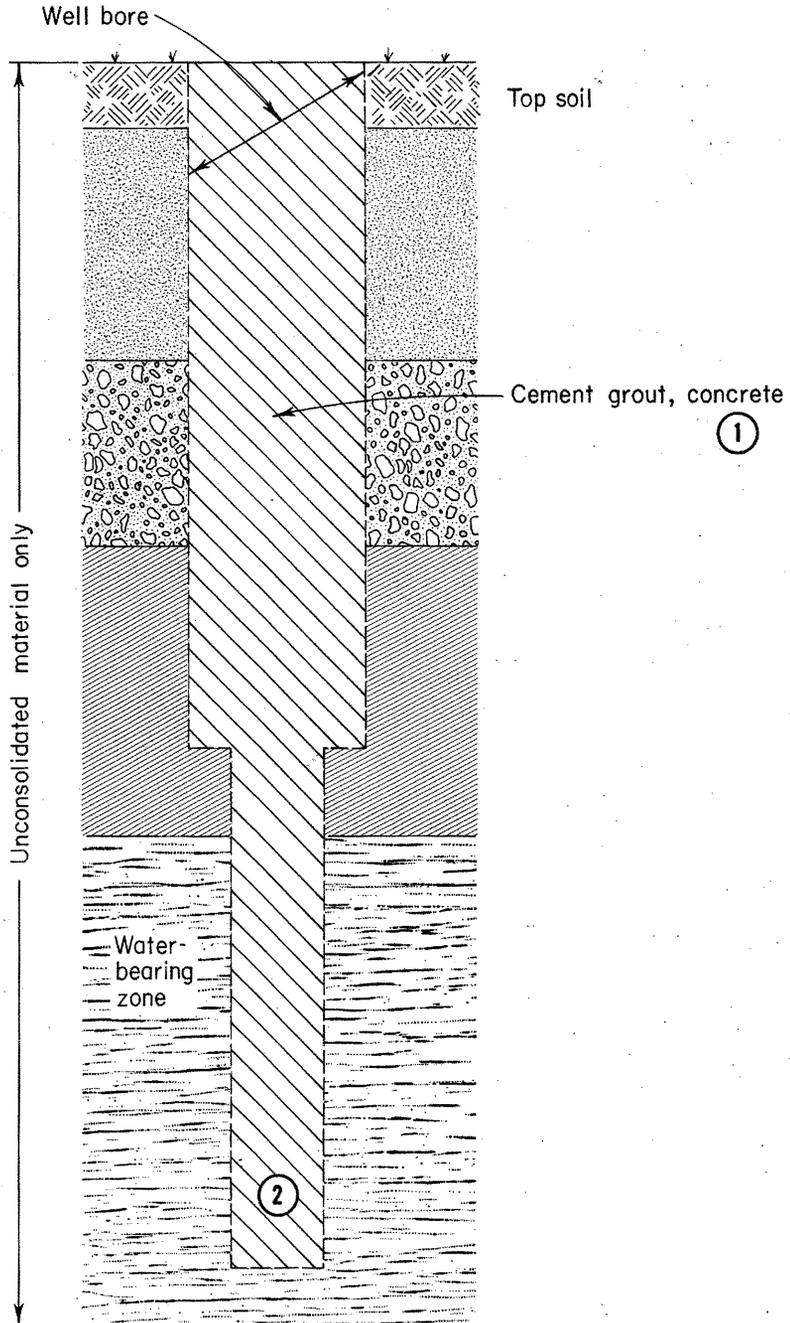
TILE (OR STEEL) AND CONCRETE CURBING

CONCRETE CURBING



Backflow prevention device using check valve with vacuum relief and low pressure drain.

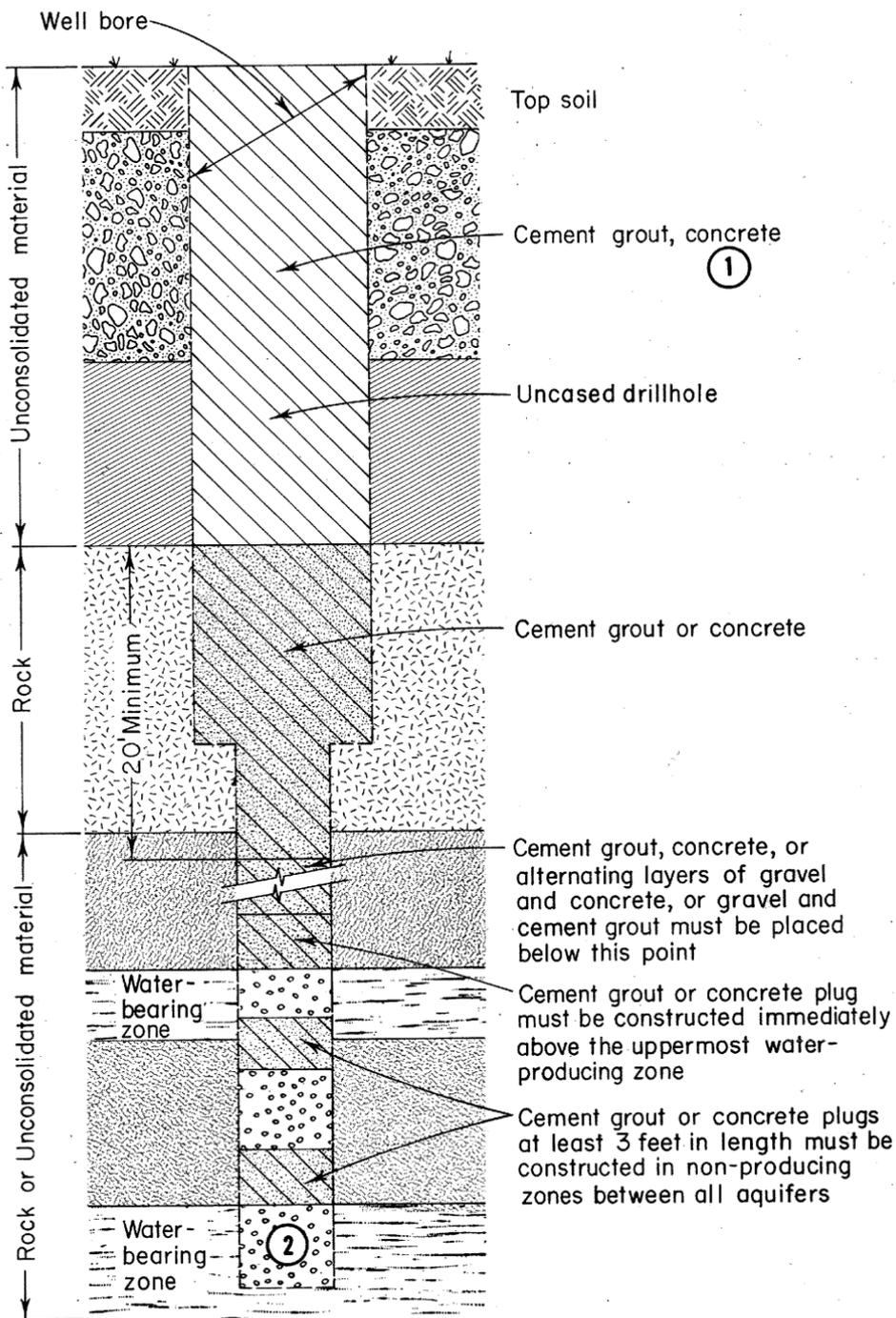
# ABANDONMENT OF UNCASED WELLS IN UNCONSOLIDATED FORMATIONS (OAR 690-220-0040)



- ① In all wells to be abandoned, cement grout and concrete must be placed by grout pipe, tremie, or dump bailer.
- ② In all wells to be abandoned, sealing material must be introduced at the bottom of the well and placed progressively upward.

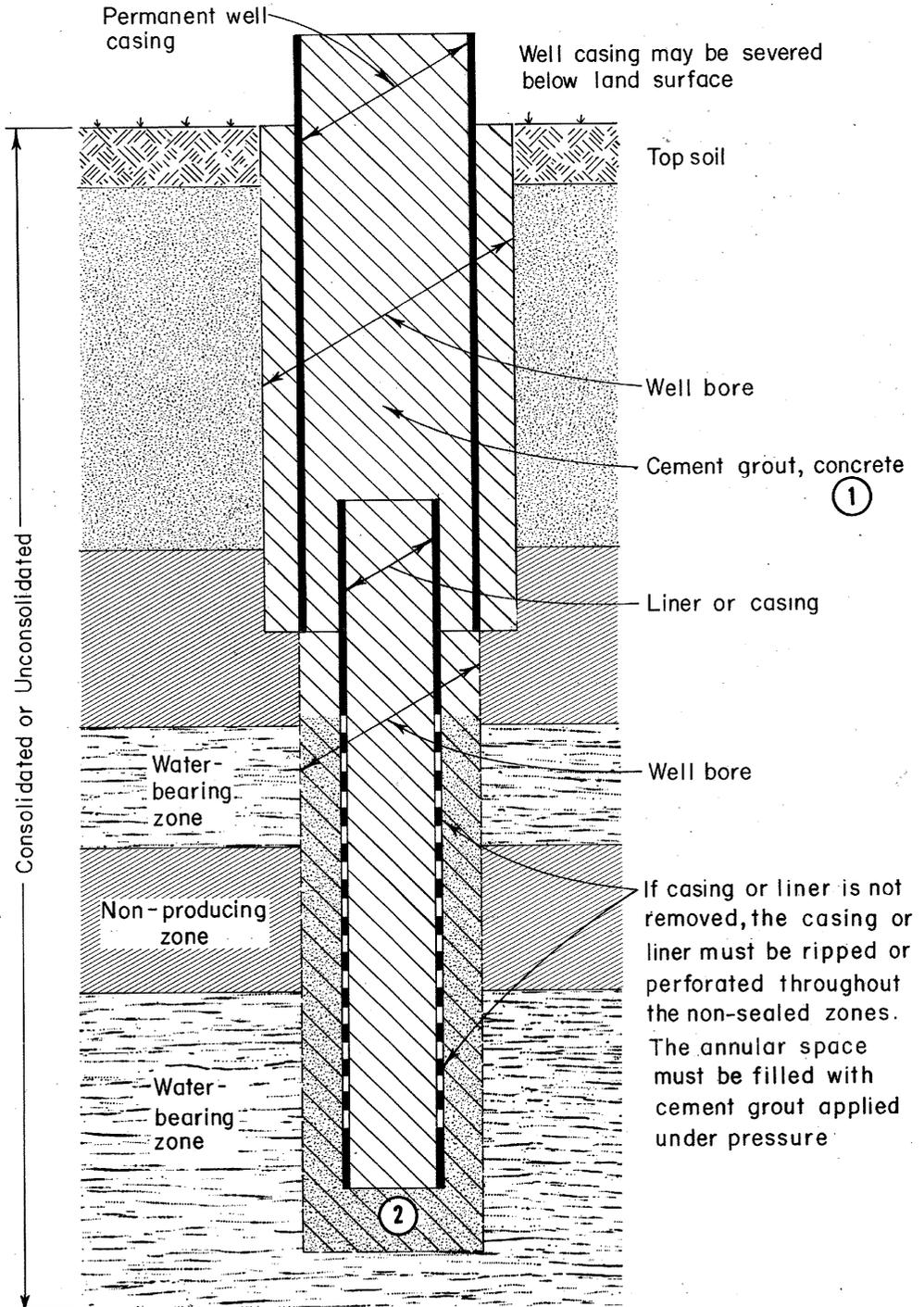
# ABANDONMENT OF UNCASED WELLS IN CONSOLIDATED FORMATIONS

(OAR 690-220-0050)



- ① In all wells to be abandoned, cement grout and concrete must be placed by grout pipe, tremie, or dump bailer.
- ② In all wells to be abandoned, sealing material must be introduced at the bottom of the well and placed progressively upward.

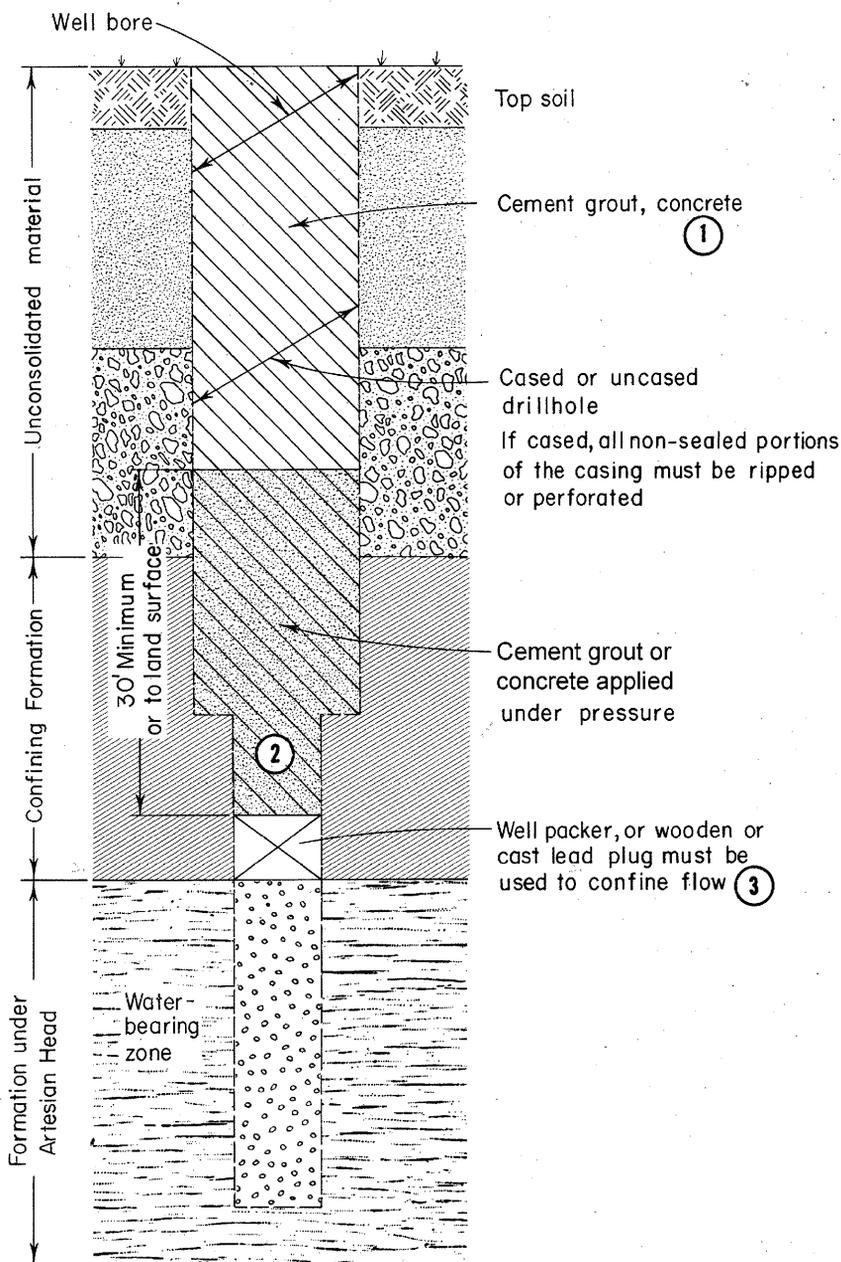
# ABANDONMENT OF CASED WELLS (OAR 690-220-0060)



- ① In all wells to be abandoned, cement grout and concrete must be placed by grout pipe, tremie or dump bailer.
- ② In all wells to be abandoned, sealing material must be introduced at the bottom of the well and placed progressively upward.

# ABANDONMENT OF ARTESIAN WELLS

(OAR 690-220-0070)



- ① In all wells to be abandoned, cement grout and concrete must be placed by grout pipe, tremie or dump bailer.
- ② In all wells to be abandoned, sealing material must be introduced at the bottom of the well and placed progressively upward.
- ③ Preshaped or precast plugs should be several times longer than the diameter of the well to prevent tilting.

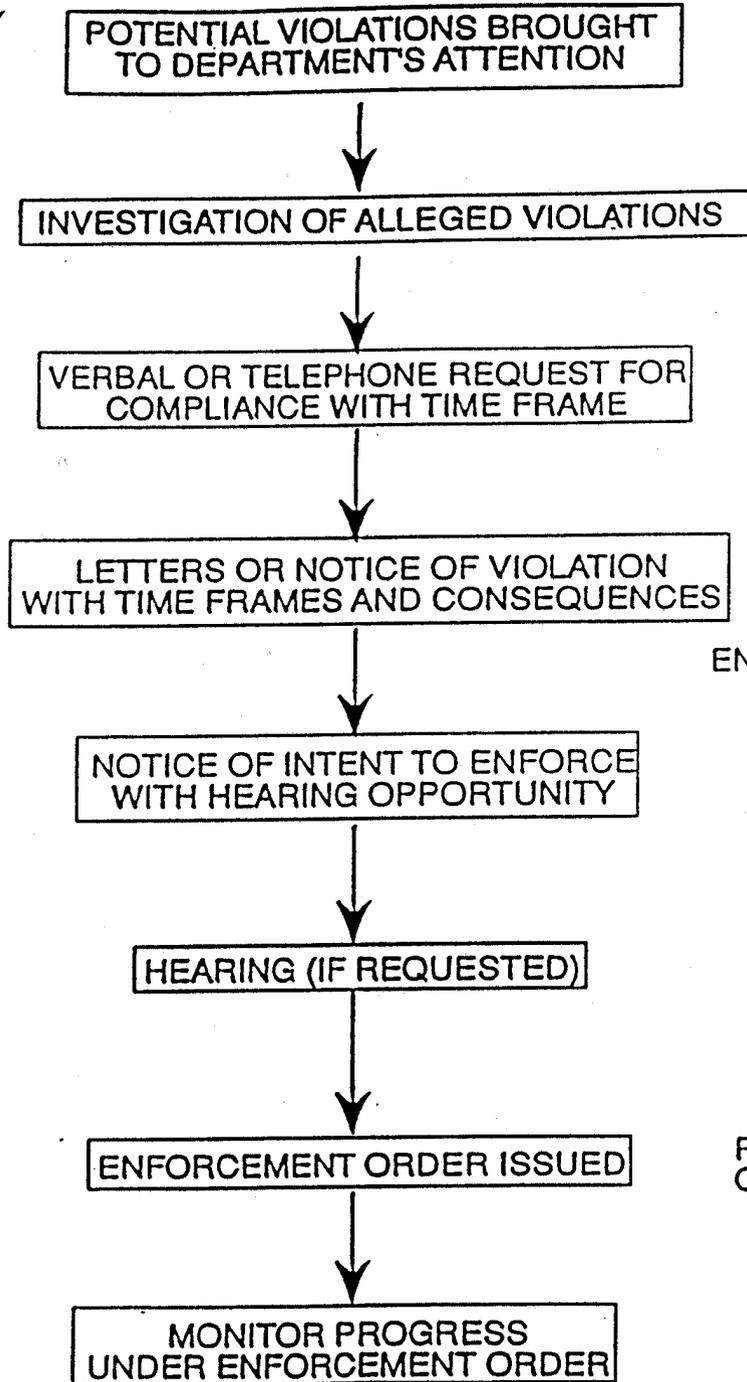
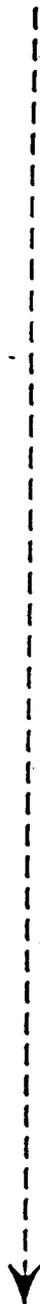
**TABLE 225-1****MINOR WELL CONSTRUCTION VIOLATIONS**

<b><u>Oregon Statute Reference</u></b>	<b><u>Value Assignment</u></b>	<b><u>Title</u></b>
ORS 537.762	Minor	REPORT OF COMMENCEMENT OF CONSTRUCTION
ORS 537.765	Minor	WELL REPORT
ORS 537.789	Minor	WELL IDENTIFICATION NUMBER
<b><u>Administrative Rule Reference</u></b>	<b><u>Value Assignment</u></b>	<b><u>Title</u></b>
690-200-0048	Minor	WELL IDENTIFICATION LABEL
690-205-0185	Minor	WATER SUPPLY WELL DRILLING MACHINES
690-205-0200	Minor	WATER SUPPLY WELL CONSTRUCTION NOTICE REQUIRED (START CARD)
690-205-0210	Minor	WELL REPORT REQUIRED (WATER SUPPLY WELL LOG)
690-210-0270	Minor	PITLESS WELL ADAPTERS AND UNITS
690-210-0280	Minor	ACCESS PORTS AND AIRLINES
690-210-0290	Minor	LINER PIPE
690-210-0370	Minor	WELL TEST
690-215-0055	Minor	WELL IDENTIFICATION LABEL MAINTENANCE
690-230-0050	Minor	DESCRIPTION OF PROPOSED WELL USE (START CARD)
690-230-0060	Minor	IDENTIFICATION OF INTENDED WELL USE (WELL LOG)
690-230-0080	Minor	PUMP TESTING OF LOW-TEMPERATURE GEOTHERMAL INJECTION WELLS WITH AN ANTICIPATED INJECTION RATE OF LESS THAN 15,000 GALLONS PER DAY
690-230-0090	Minor	WATER TEMPERATURE MEASUREMENT

EXAMPLE OF WELL ENFORCEMENT PROCESS  
(690-225)

Table 225-2

INCREASING SEVERITY  
OF ENFORCEMENT



(FALL BACK IF  
SUBSTANTIAL  
PROGRESS OR  
FULL COMPLIANCE  
ACHIEVED)



ENFORCEMENT ACTIONS  
EFFORT OR LEVEL

(ESCALATE IF NO  
PROGRESS ACHIEVED  
OR MORE VIOLATIONS  
OCCUR)

It is desirable to achieve compliance at the lowest possible level of enforcement. Escalation of enforcement can be expected if compliance does not result at the next lower level. Reduction of enforcement effort can be expected if substantial progress towards compliance is achieved.