

SESSION 4: *Private Water Well Basics*

T W O N
T E X A S
Well Owner
NETWORK



SESSION 4: *Well Basics*



Well Siting and Construction Basics

- Existing Information About Your Well
- Well Siting Regulations
- Well Construction (Materials)
- Water Supply System Failure and Maintenance

Information about Your Well

- Record the Locations (GPS)
- Keep Well Logs
- Registration or Permit with Groundwater Conservation District
- TWDB and TCEQ



Well Logs

NW 1/4 NE 1/4 SW 1/4 SE 1/4 of Section _____ Block No. _____ Survey _____
 (Circle as many as are shown)
 miles in _____ direction from _____ (Town) _____
 (NE, SW, etc.) (Town)

NORTH
↑

Well 29

Sketch map of well location with distances from adjacent section or survey lines, and to landmarks, roads, and creeks.

3) TYPE OF WORK (Check):
 New Well Deepening
 Reconditioning Plugging

4) PROPOSED USE (Check):
 Domestic Industrial Municipal
 Irrigation Test Well Other

5) TYPE OF WELL (Check):
 Rotary Driven Dug
 Cable Jetted Bored

6) WELL LOG:
 Diameter of hole ^{3 7/8"} 6 7/8" in. Depth drilled 388 ft. Depth of completed well 388 ft. Date drilled 10-3-65
 3 7/8" 246" - 388"
 All measurements made from _____ ft. above ground level.

From (ft.)	To (ft.)	Description and color of formation material	From (ft.)	To (ft.)	Description and color of formation material
0	53	Surface sand	77	92	Dark sandy clay + sand - rock
5	10	Red sandy clay			
10	17	Gray sandy clay	92	132	Light gray sandy clay
17	32	Gray sandy clay with sand	122	137	Thin plastic clay with streaks of dark sand
32	47	Gray sandy clay with white sand	137	192	Sandy shale + lignite
47	77	Light gray plastic clay with sand	192	193	Rock
			193	217	Shaly sandstone (shaly)

7) COMPLETION (Check):
 Straight well Gravel packed Other
 Under reamed Open hole

8) WATER LEVEL:
 Static level 110 ft. below land surface Date _____
 Artesian pressure _____ lbs. per square inch Date _____

9) CASING:
 Type: old New Steel Plastic Other
 Cemented from _____ ft. to _____ ft.

10) SCREENS:
 Type _____
 Perforated Slotted

Diameter (inches)	Setting		Gage	Diameter (inches)	Setting		Slot size
	From (ft.)	To (ft.)			From (ft.)	To (ft.)	
4"	0	246		2"	258	288	
2 1/2"	246	288					
2"	set with lead seal						

11) WELL TESTS:
 Was a pump test made? Yes No If yes by whom? _____
 Yield: _____ gpm with _____ ft. drawdown after _____ hrs
 Bailor test: _____ gpm with _____ ft. drawdown after _____ hrs
 Artesian flow: _____ gpm Date _____
 Temperature of water: _____
 Was a chemical analysis made? Yes No
 Did any strata contain undesirable water? Yes No
 Type of water? _____ depth of strata _____

12) PUMP DATA:
 Manufacturer's Name Howlds
 Type submersible H.P. 1 1/2
 Designed pumping rate 800 gpm gph
 Type power unit: _____
 Depth to bowls, cylinder, jet, etc., _____ ft. below land surface.

- Well number
- Owner and location information
- Well construction and driller information
- Well testing data
- Geologic formation



Wells in TWDB Groundwater Database - Texas

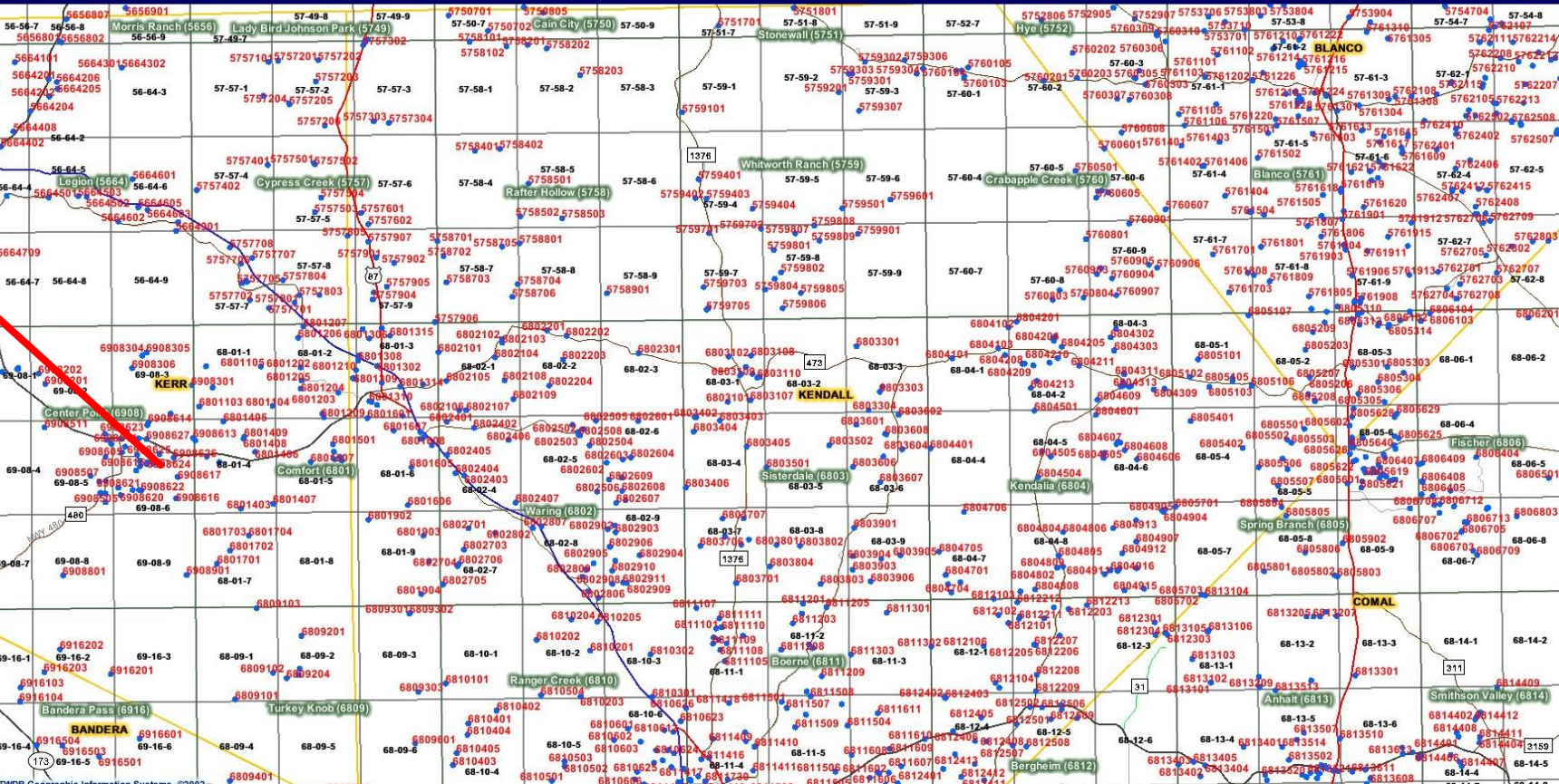
MAP TOOLS

Show Help on Tools

Move Selected

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100

- Visible Active
- TWDB Groundwater Data
 - Submitted Driller's Reports
 - Brackish
 - Groundwater Database
 - Submitted Driller's Reports - D.I.M.s
 - Groundwater Districts (updated Aug. 2010)
 - Major Aquifers
 - Minor Aquifers
 - Regional Water Planning Areas
 - Groundwater Management Areas
 - River Basins
 - State Hwy
 - FM & RM Roads
 - Other State Roads
 - Interstate Hwy
 - US Hwy
 - 7.5' USGS Grid
 - 2.5' State Grid
 - Counties
 - Major Streets



TWDB Groundwater Data is now the Active Layer

Search by State Well No.

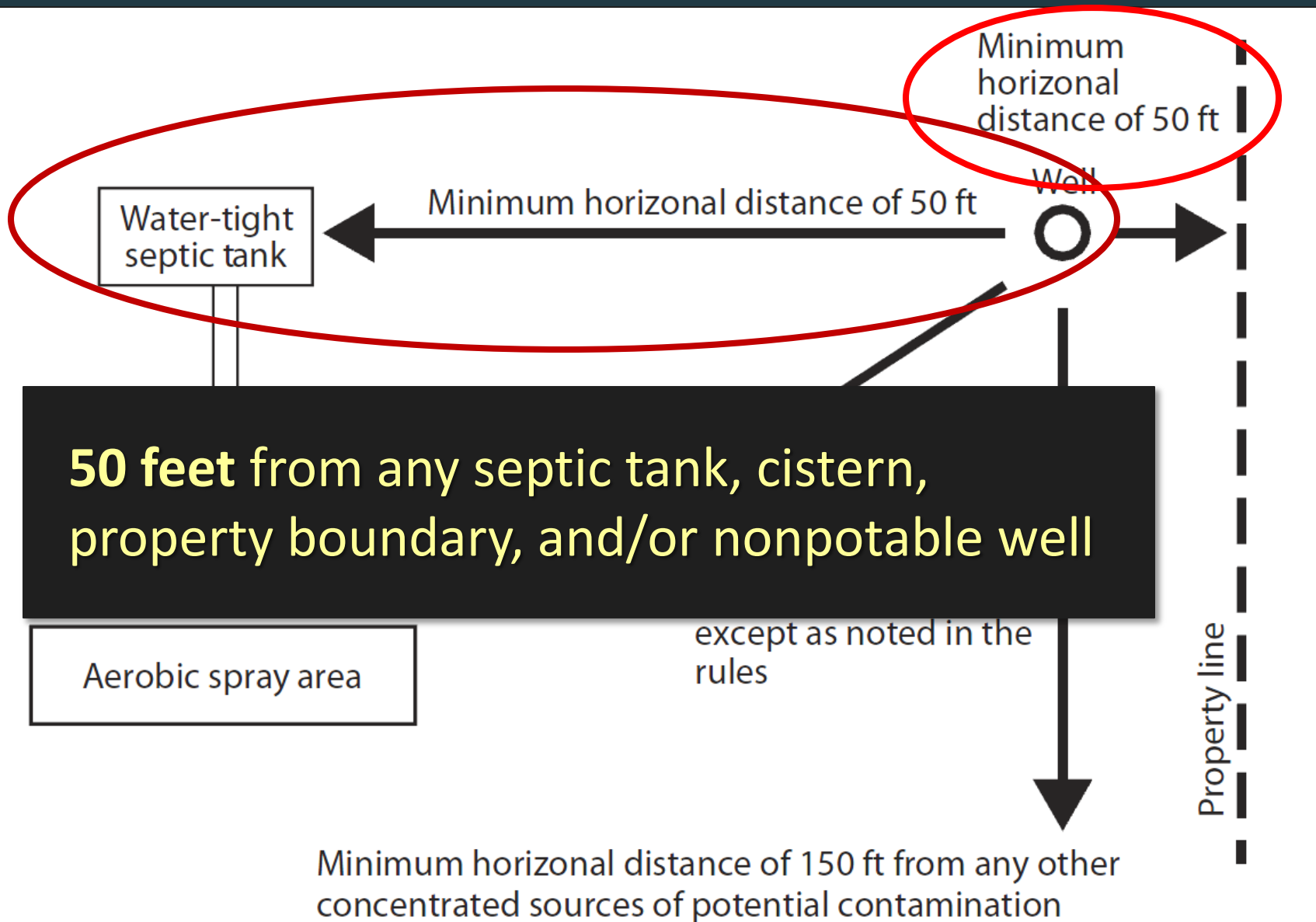
Type a well number Go

Search by Location

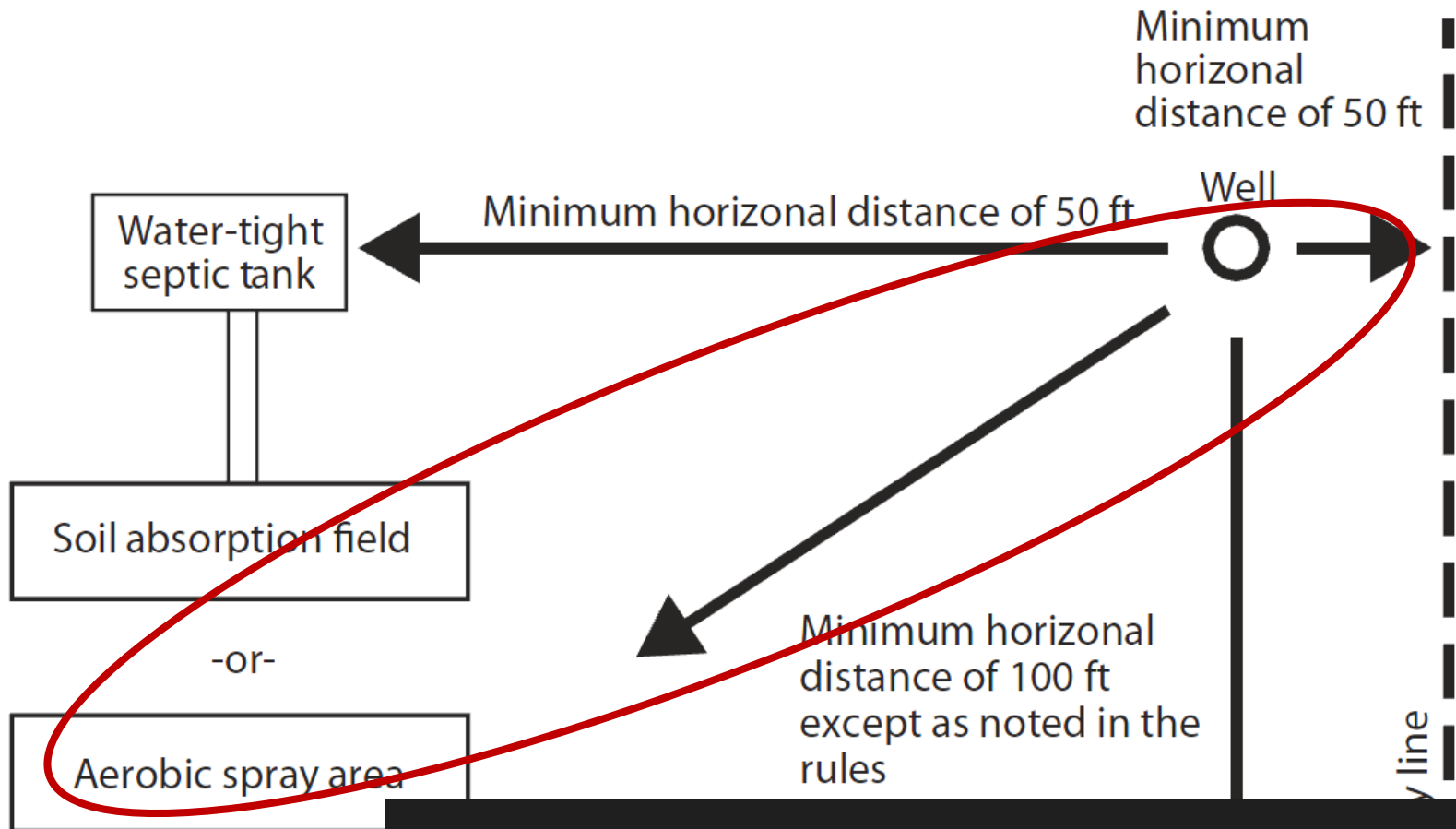
From: All

<http://wiid.twdb.texas.gov/>

Well Siting Regulations



Well Siting Regulations



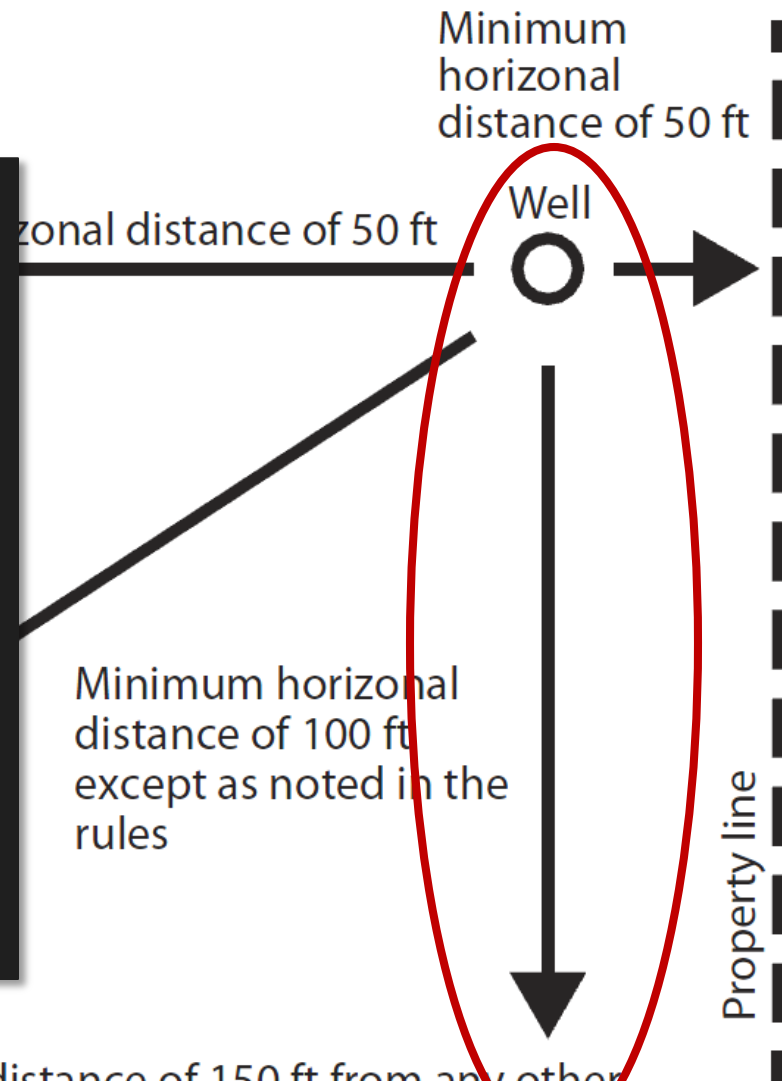
100 feet from a septic drain field or leach field

M
cc

Well Siting Regulations

150 feet from:

- Pet shelter
- Livestock yard
- Feed storage facility
- Pesticide storage
- Fertilizer storage



Minimum horizontal distance of 150 ft from any other concentrated sources of potential contamination

Proper Well Construction

- Contract a licensed driller
- Water Well Drillers and Pump Installers
Administrative Rules
 - 76.1000. Technical Requirements. Locations and Standards for Completion for Wells (TDLR)
- Well Construction
 - Ten feet of annular cement
 - Sloping cement slab that extends 2 feet in all directions
 - Casing extending 12 inches above land surface



Texas Department of Licensing and Regulation

The umbrella licensing agency of the State of Texas

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Inquire by License Type	Inquire by License #
<input type="text" value="Water Well Drillers, Pump Installers"/>	<input type="text"/> (Numeric only)
Inquire by Expiration Date	
<input type="text"/> (mmddyyyy)	<input type="text" value="All"/>
Inquire by Name (Last, First)	
<input type="text"/>	
Inquire by Location (City)	
<input type="text" value="Choose One (Optional)"/>	Type the first letter to scroll down.
Inquire by County	
<input type="text" value="Choose One (Optional)"/>	Type the first letter to scroll down.
Inquire by Zip Code	
<input type="text"/>	equals to

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Water Well Drillers, Pump Installers 4 Records Found

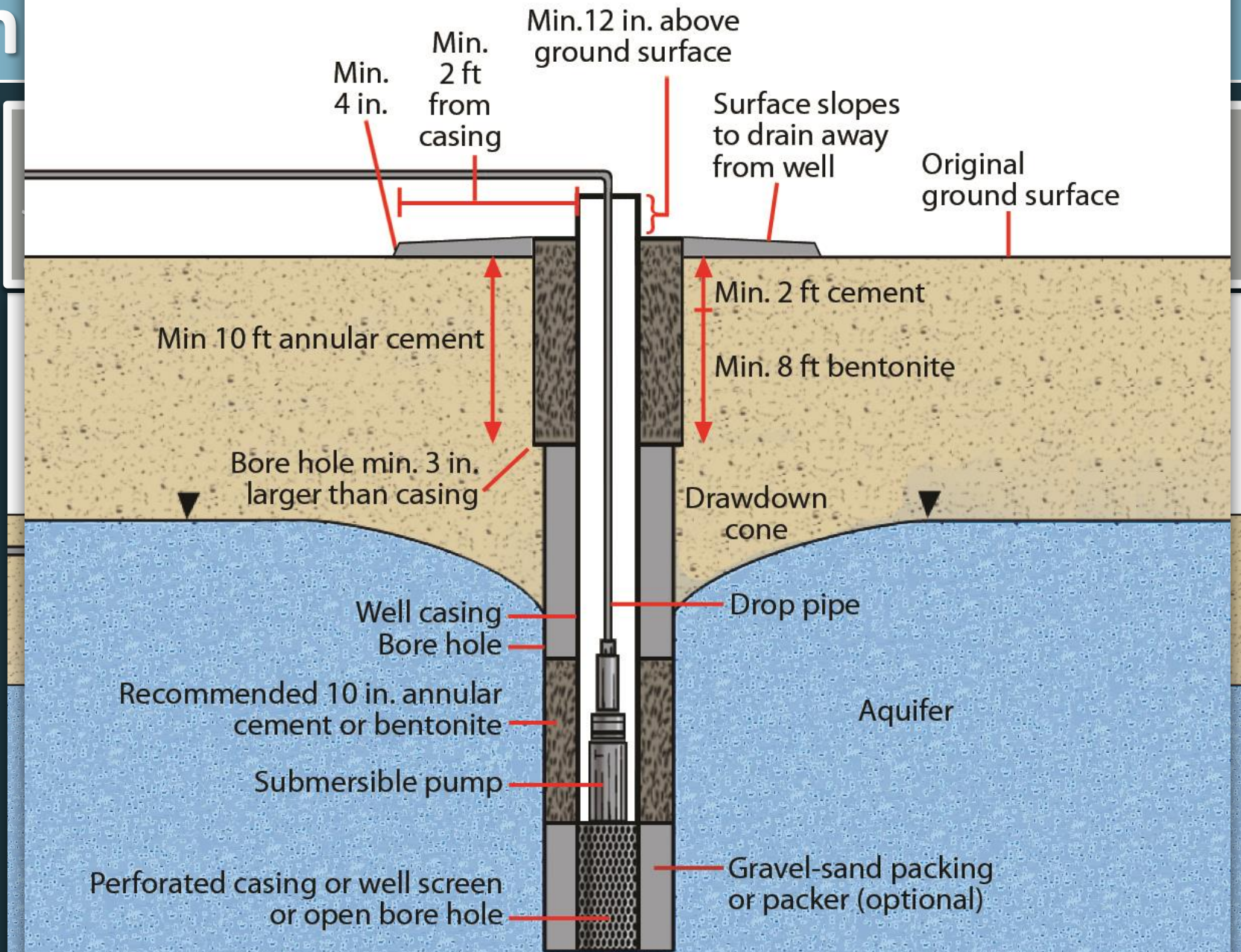
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WWD - 989	12/03/2013	REEL, WILLIAM C	BURKEVILLE TX	75932	NEWTON	(409) 565-2569
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WWD - 1449	07/07/2013	BISHOP, NATHAN L	NEWTON TX	75966	NEWTON	(409) 379-8186
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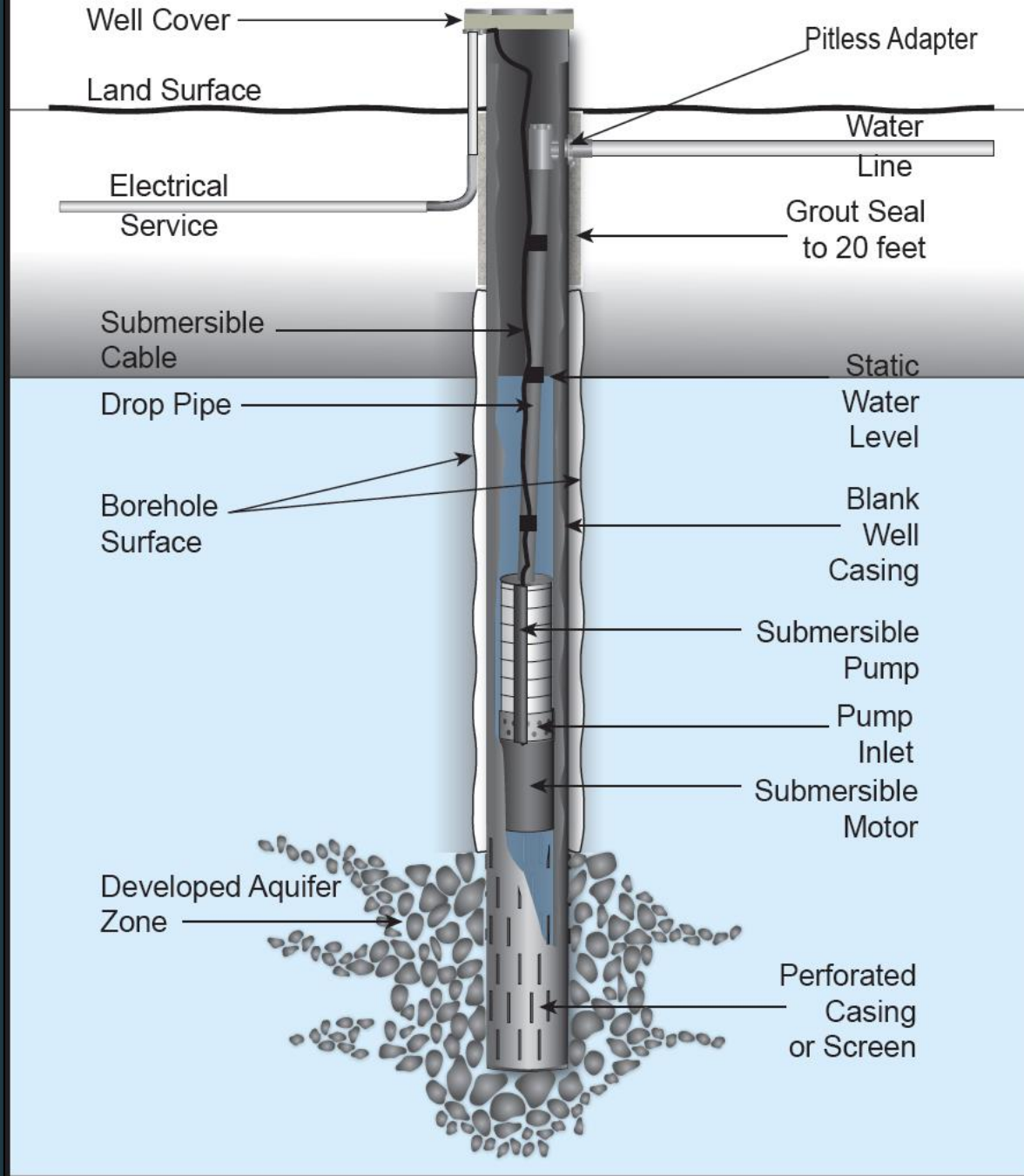
Why Does Well Construction Matter?



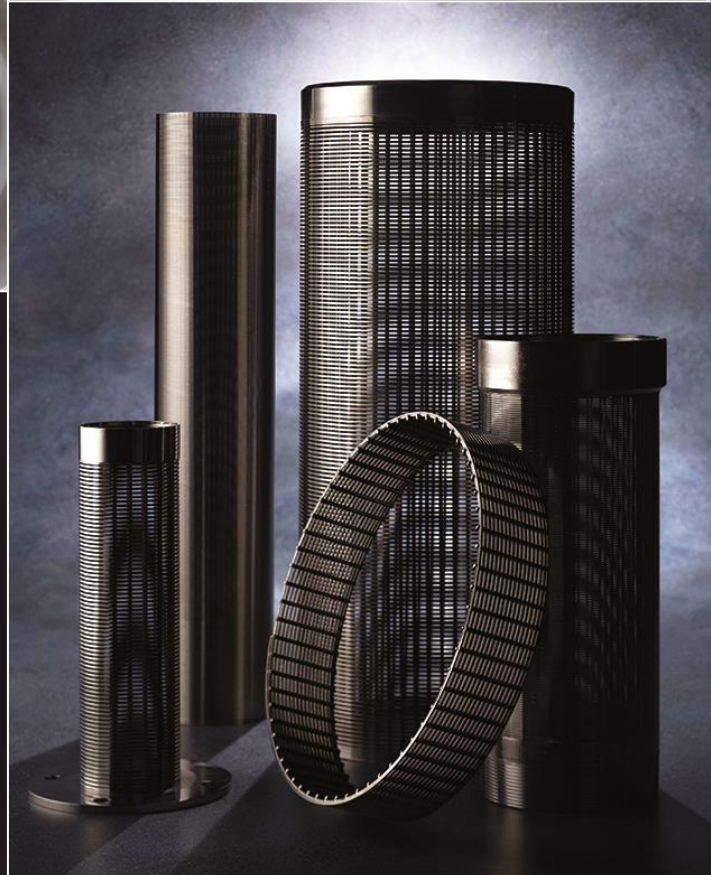
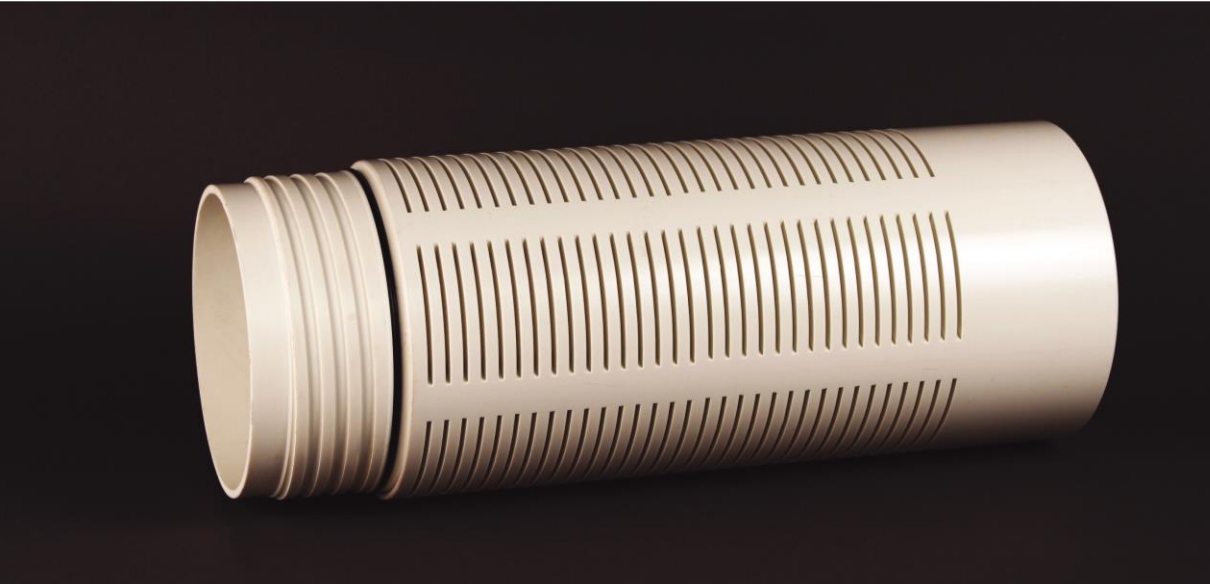
- Poor construction can affect drinking water quality
- Poor construction can contribute to groundwater pollution
- Proper construction can prolong the life and yield of the well and protect groundwater quality
- Casing extending all the way

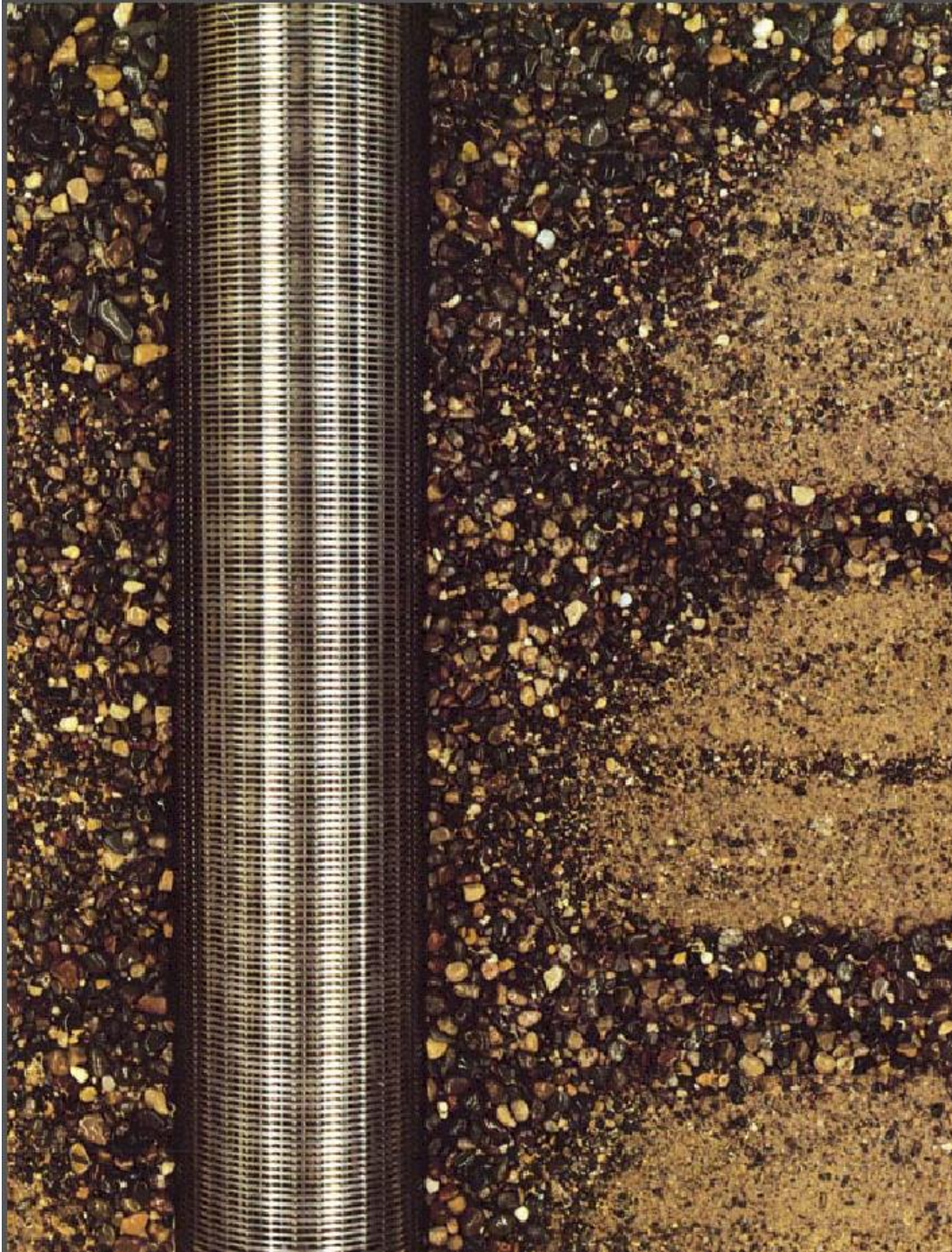


- Well Casing
- Grout
- Well Screen
- Gravel Packs



Typical domestic water well completed with a pitless adapter.

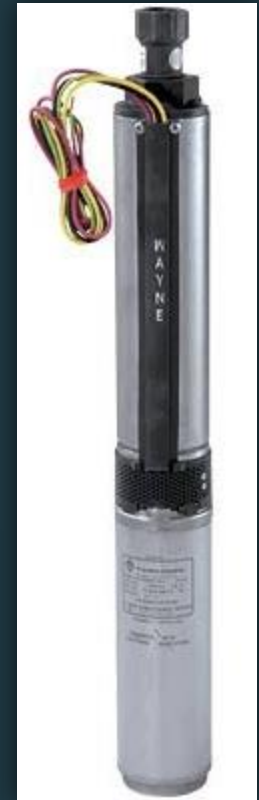




Gravel Pack

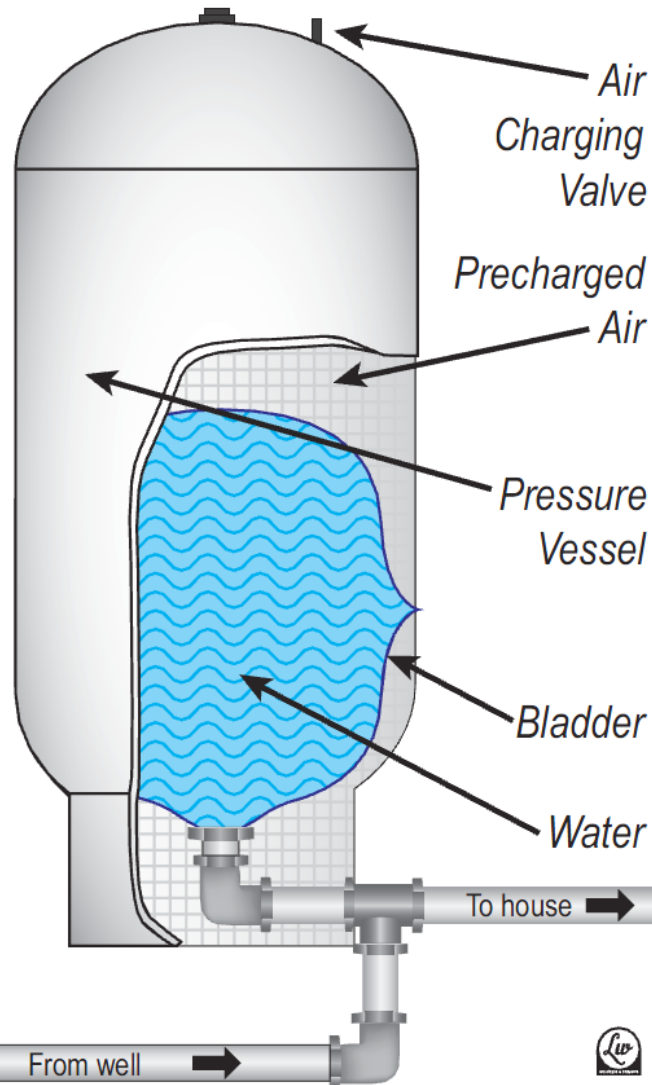
Protecting Your Pump

- **Help your pump last longer**
 - Reduce cycling more than it needs
 - Be aware of sediment issues
- **Common Problems**
 - Rapid Cycling
 - Pump running excessively
 - Pump breaker trips

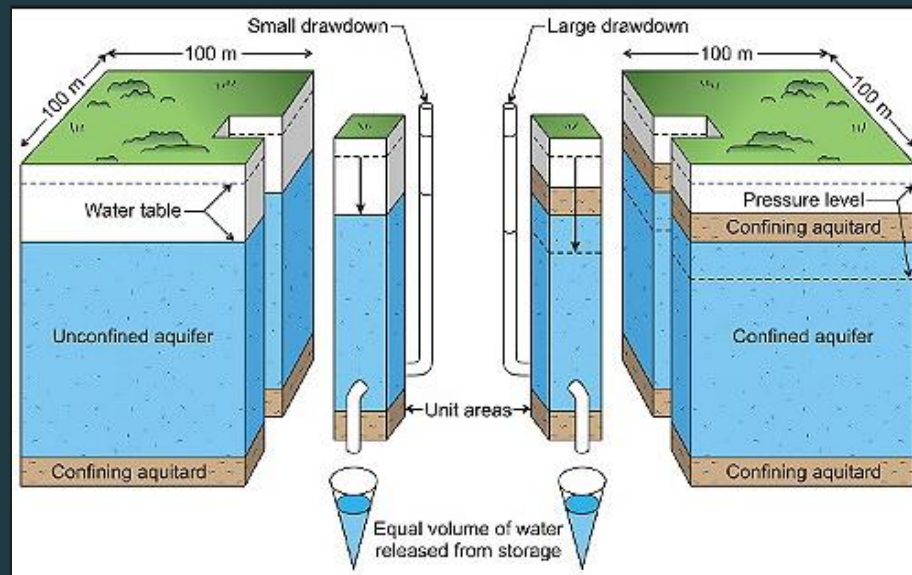
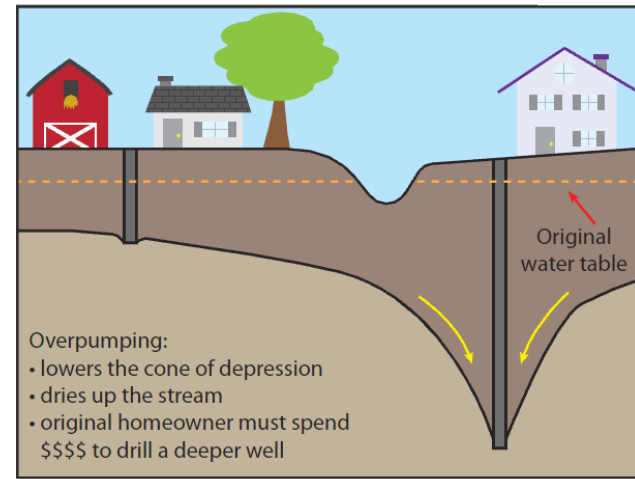
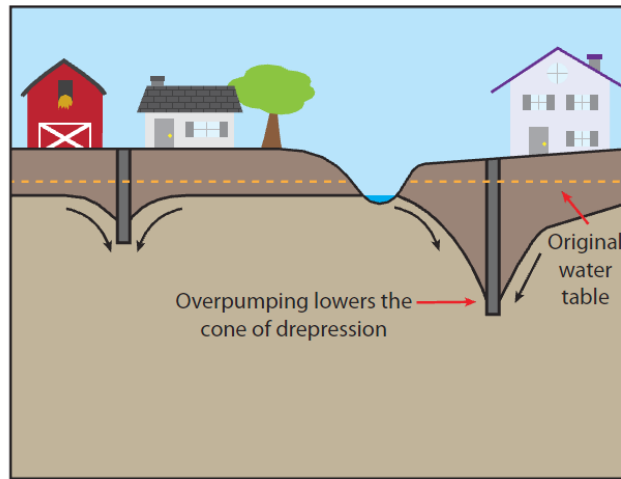
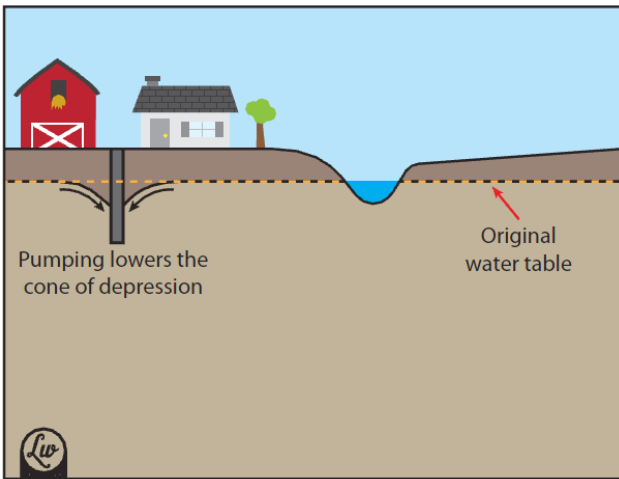


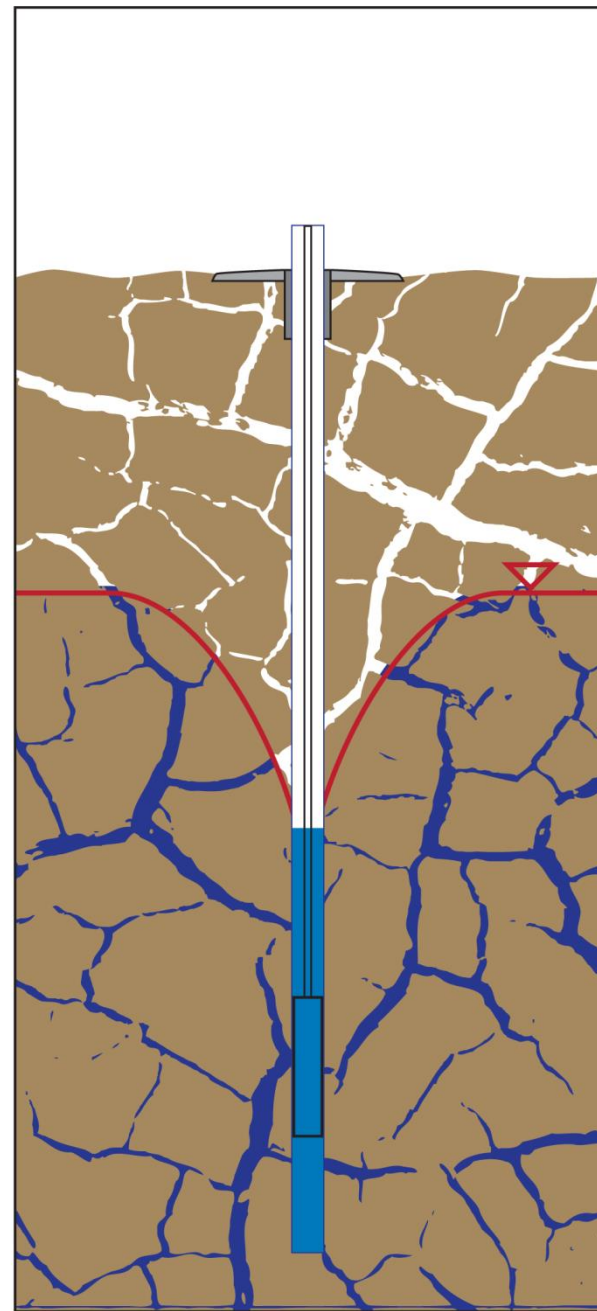
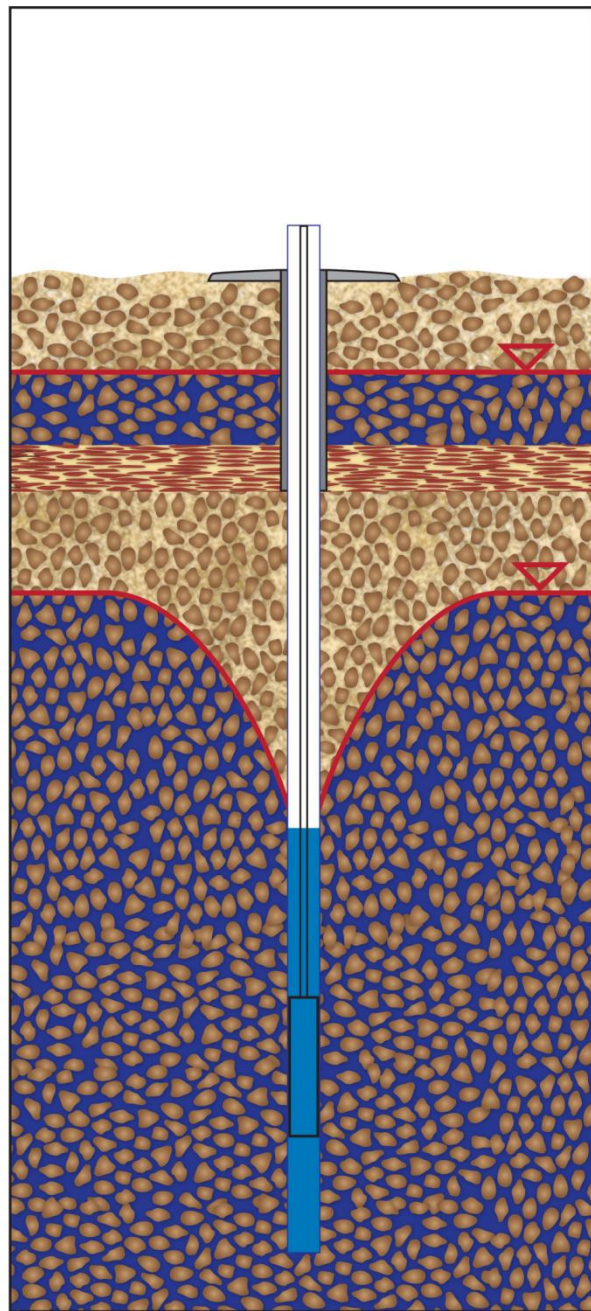
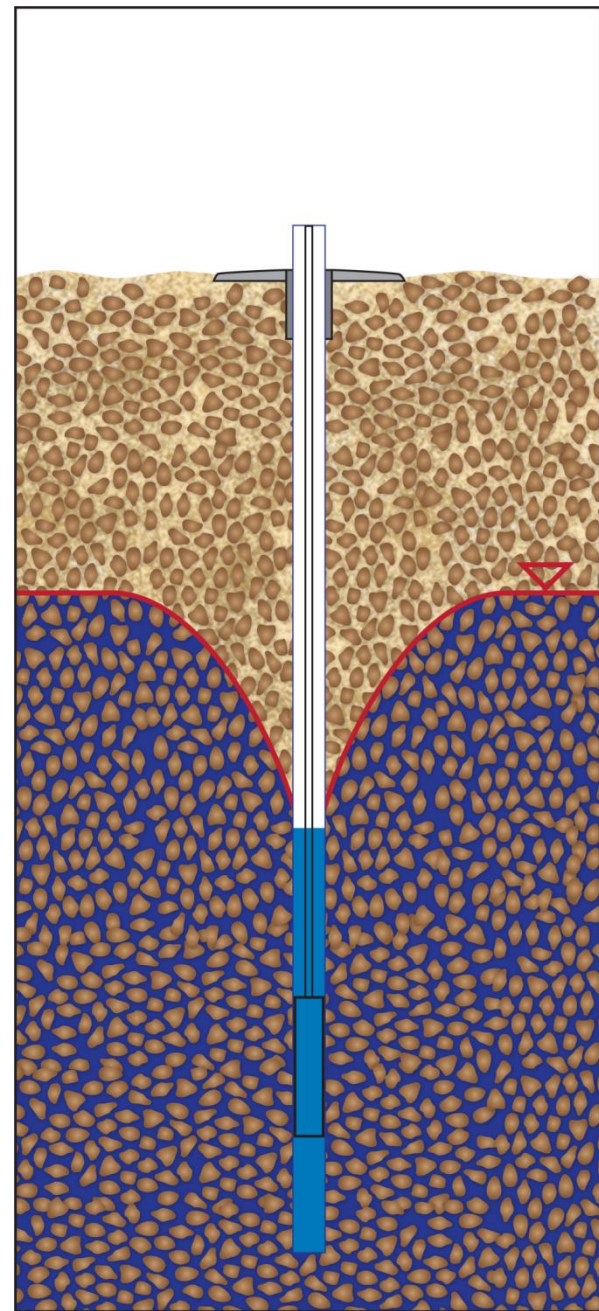
Storage Tanks

Bladder Pressure Tank



How Wells Affect Aquifers: Cones of Depression





Well Maintenance Tips

- Keep all records
 - Well log, water test, maintenance/repair information
- Do not use or store fertilizers, pesticides, oil or paint around well
- Keep area around the well clean and accessible
- Conduct a monthly, thorough visual inspection for cracks, cap, soil disturbance, flooding, damage
- Well inspection by a licensed well driller every 5 -10 years





Questions?

