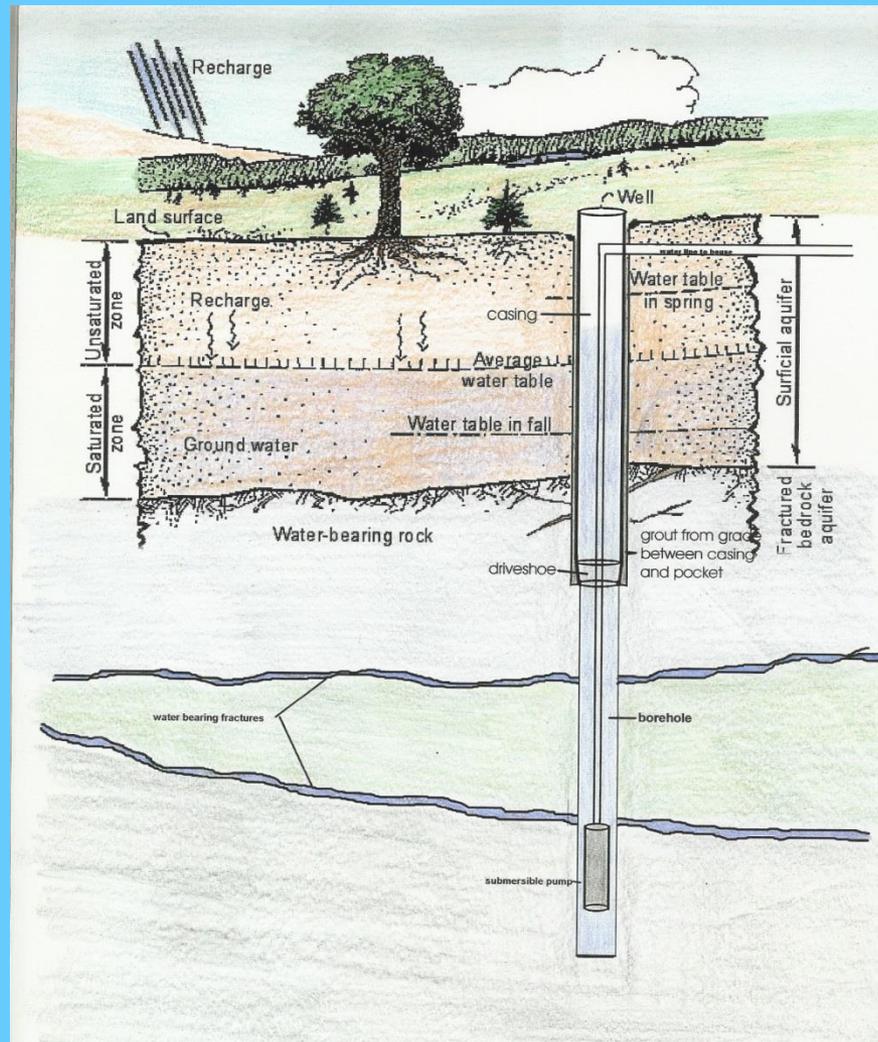


# New Water Well Board Rules

## Effective March 1, 2017



# Background to New Rules

- Rules expire every 8 years
- This rule making process began several years ago and was finalized in January 2017
- Well Siting Committee- worked to coordinate rules between the Water Well Board and the Subsurface Systems Bureau (starting in 2012)
- New published rule book is forthcoming.
- Rules go into effect on March 1, 2017,
- A link to the rules can be found on the Water Well Board website: <http://www.des.nh.gov/organization/divisions/water/dwgb/www/index.htm>

# Summary of Rules: We 100 - 1000

Chapter	Title	Update to Rules
100	Organizational Rules and Definitions	New definitions added
200	Rules of Practice and Procedure	none
300	License Requirements, Qualifications, Fees and Application Procedures	Reorganized chapter
400	Continued Status	Added continuing education subject matter
500	Ethics Status	none
<b>600</b>	<b>Standards for the Construction Maintenance and Abandonment of Wells</b>	<b>Significant changes</b>
700	Standards for the Installation, Maintenance, Repair or Replacement of Pumps	Bonding requirements
800	Reports	none
900	Administrative Fines	none
1000	Registry of Complaints	none

## 402.04: Continuing Education Subject Matter

- (1) Water wells;
- (2) Water pumps;
- (3) Water conditioning and treatment systems;
- (4) Occupational safety;**
- (5) Business management;**
- (6) Hydrogeology; and**
- (7) Water resources management and protection.**

More flexibility: Added subjects used to satisfy the 2-hour annual training requirement.

# Summary of Major Changes to Well Construction Rules

- Alignment with Subsurface Systems Bureau Rules
- New protective well radius rules
  - Situations that allow for reduced setbacks
  - Two dimensional approach
- New well construction rules when protective well radius cannot be met
- New well abandonment rules

# State Approved Septic Plans

## DES – Subsurface Systems Bureau

- A water well contractor shall review the state approved septic plan to confirm the well location.
- The water well contractor shall install the well in the approved location as shown on the state approved plan.
- If a well cannot be installed in the location shown on the approved plan, a water well contractor shall consult with the property owner, or the property owner's agent, to determine an acceptable location for the well.

# Critical Well Locations

- “Critical Well Location” means an actual or proposed well location delineated on state approved plans and specifications, pursuant to RSA 485-A:30-b, with a conditional approval requiring the location not be moved, usually a result of lot loading requirements.
- Where site conditions prevent construction of a well in the approved critical well location, the water well contractor shall consult with the septic system designer and property owner, or owner’s agent, to determine an acceptable location for the well.
- The well shall not be constructed in an alternate location prior to the issuance of an approved amended plan by DES.

# Protective Well Radius

## RSA 485-A:30-b

A protective well radius shall be contained:

1. Wholly on-lot
2. On a recorded easement, including cross-easements to facilitate overlapping well radii
3. Within land that is included in state and locally mandated property line setbacks to septic systems, generally 10 feet

Special methods of construction are not required for scenarios 1-3 above

4. On lands which are permanently precluded from development

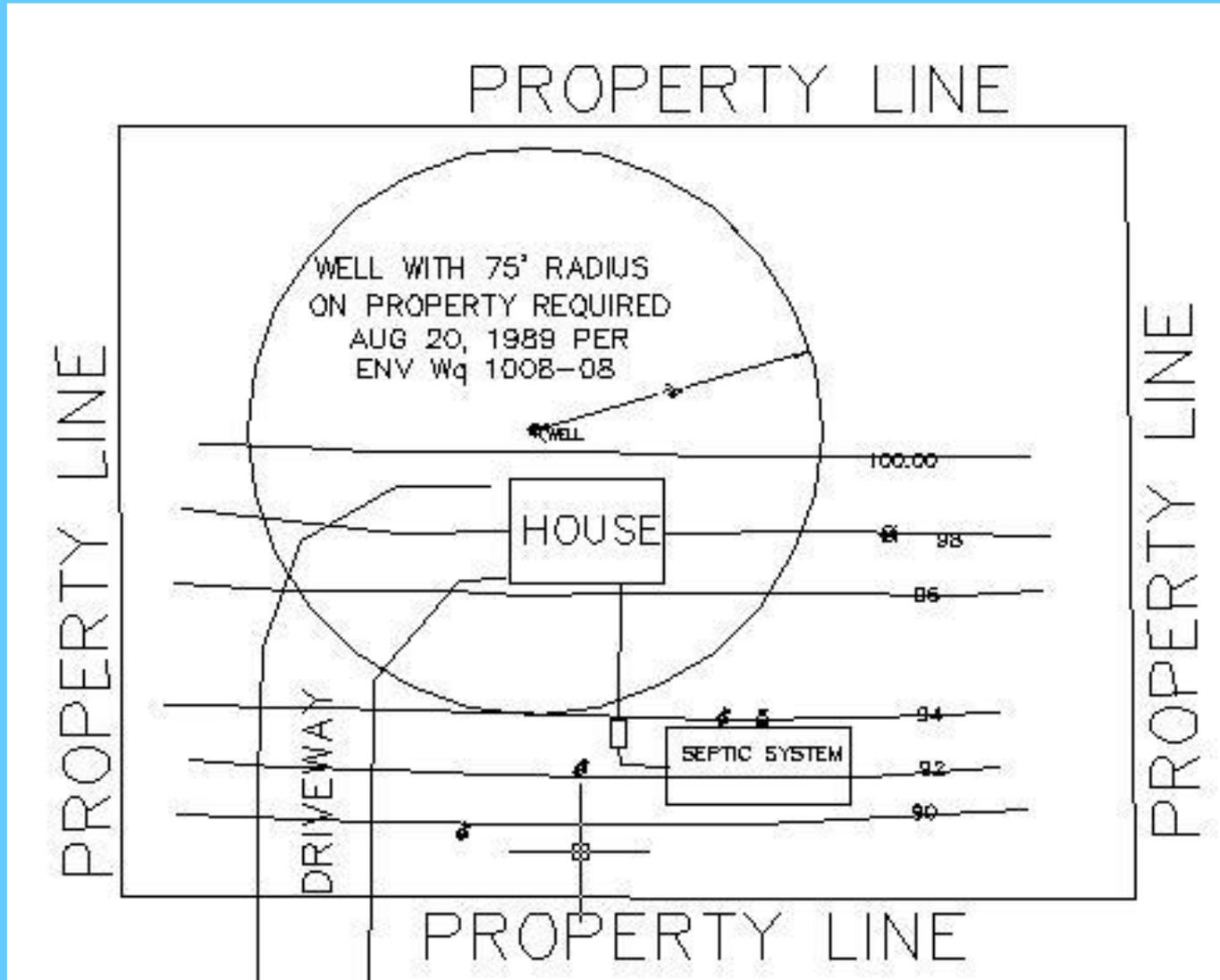
# Protective Well Radius -Table

## Property Lines – Septic Systems

<b>Daily Sewage Flow (GPD)</b>	<b>Radius (ft.)</b>
0-750	75
751-1440	100
1441-4320	125
4321-14,400	150
14,401-28,800	175
28,801-57,600	200
57,601-86,400	250
86,401-115,200	300
115,201-144,000	350
greater than 144,001	400

# Protective Well Radius

RSA 485-A:30-b



## We 602.08(c) **Lands Precluded from Development**

- Any Surface Waters
- Any Public Road, see exception below
- Any Wetland
- State Forests - RSA 227-H:5
- Conservation Lands - RSA 477:45-47
- Protected Lands - RSA 227-M

(Land and Community Heritage Investment Program)

We 602.08(d) A protective well radius shall not extend onto a public road unless use of other lands listed above, is not available, or not practicable.

SOIL DATA

SOIL TYPE FROM GRAFTON CO. SOIL SURVEY  
SHEET 57C IS BECKET FINE SANDY LOAM  
PERCOLATION TEST ●  
RATE 12 MIN/IN  
DEPTH @ 20"

Protective Well Radius Goes Off  
Lot Onto Lands Precluded From  
Development

Roads

Surface Waters

Wetlands

LOT LOADING

GROUP 3 SOIL 8-15% SLOPE

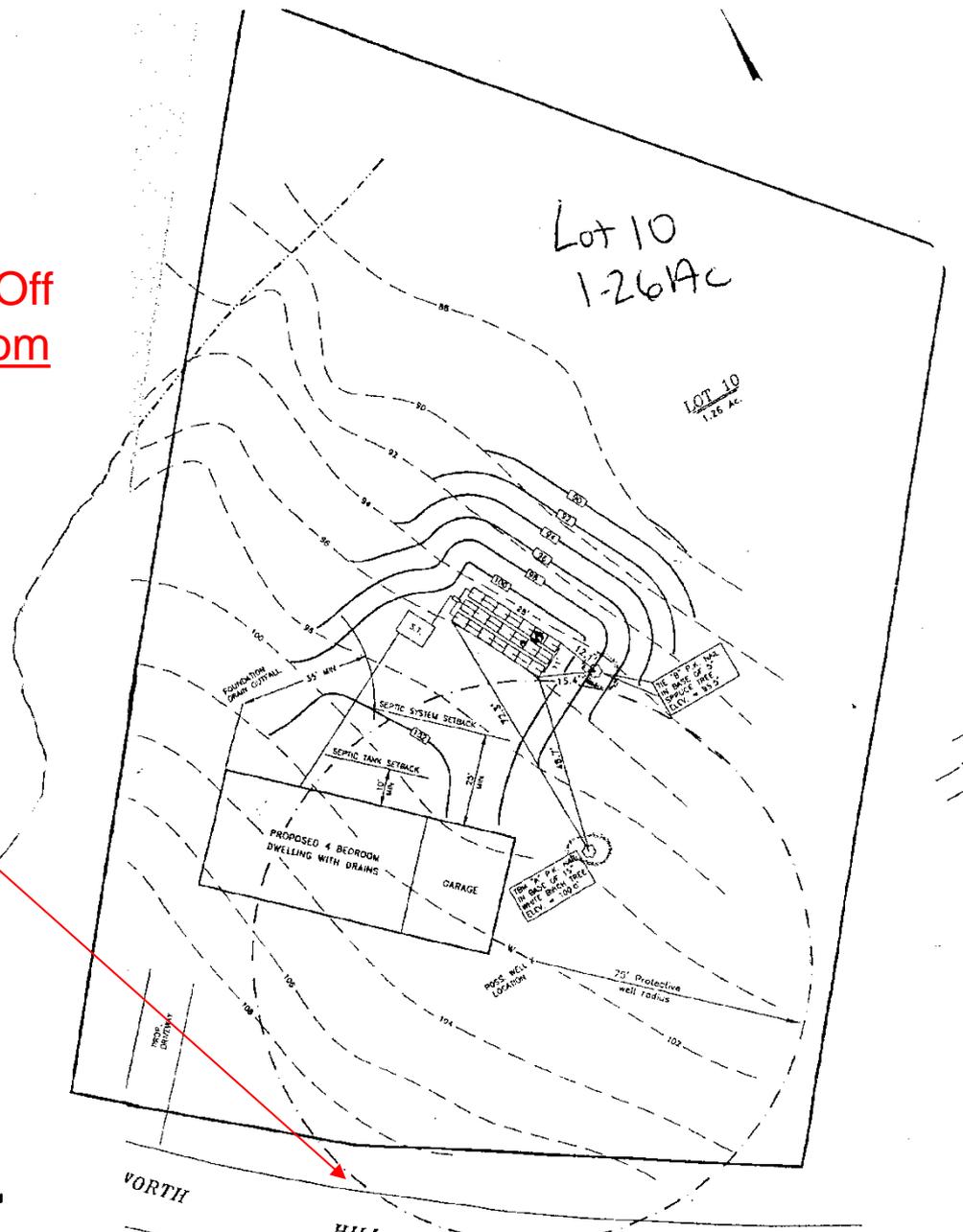
TOTAL AREA 1.26 Ac.

DEDUCTIONS:	WELL RADIUS	0.40 Ac.
	WET AREA	0.14 Ac.
	<hr/>	<hr/>
		0.54 Ac.

REMAINING COUNTABLE AREA = 0.72 Ac.

$\frac{0.72 \text{ Ac.} \times 2000}{1.76} = 818 \text{ GPD}$

4 BR = 600 GPD PROPOSED



# Setback Requirements for Domestic Wells

- Property Boundaries 75 ft
- Effluent Disposal Areas (leach fields) 75 ft
- Septic Tanks 75 ft
  - Exception: May be reduced to 50 ft when tanks are sealed and sewer pipe is SDR 26 or equivalent
  - Sealed means coated with a sealant or a plastic tank
- Public Road Surface 75 ft
- State Highway R-O-W 50 ft
- Surface Water 50 ft
- Livestock Pens (Drilled wells) 75 ft  
(Dug wells) 100 ft
- Underground Storage Tanks
  - Gasoline 250 ft
  - All Other Regulated Substances 75 ft

# State Highway Rights of Way

- We 602.09 - 50 foot minimum setback from state highway rights of way.

## NHDOT Rights of Way

## Required Setback

### a. Common r-o-w's:

- 3 Rod (49.5')                      25 feet from centerline + 50 =    75' from CL
- 4 Rod (66')                         33 feet from centerline + 50 =    83' from CL

### b. Prescriptive r-o-w's:

- 15 feet from the edge of pavement + 50 = 65 feet
- Commonly Identified by Landmarks:  
(Stone walls - Tree lines - Old fences)

# Small Lots w/ Reduced Setbacks

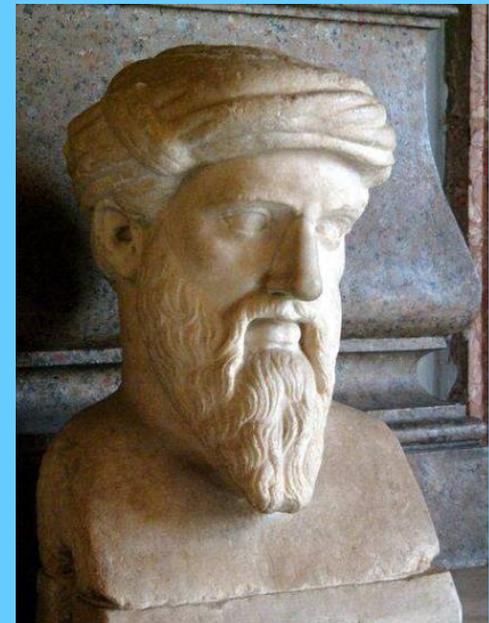
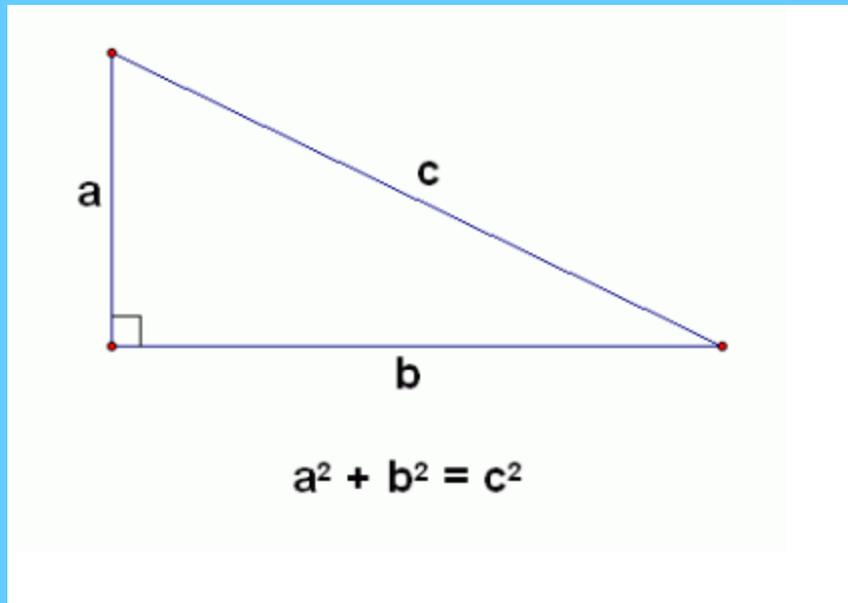
## Lake Front Properties

Reduced Setbacks to: Septic Systems  
Property Boundaries  
Roads  
Lakes and Ponds

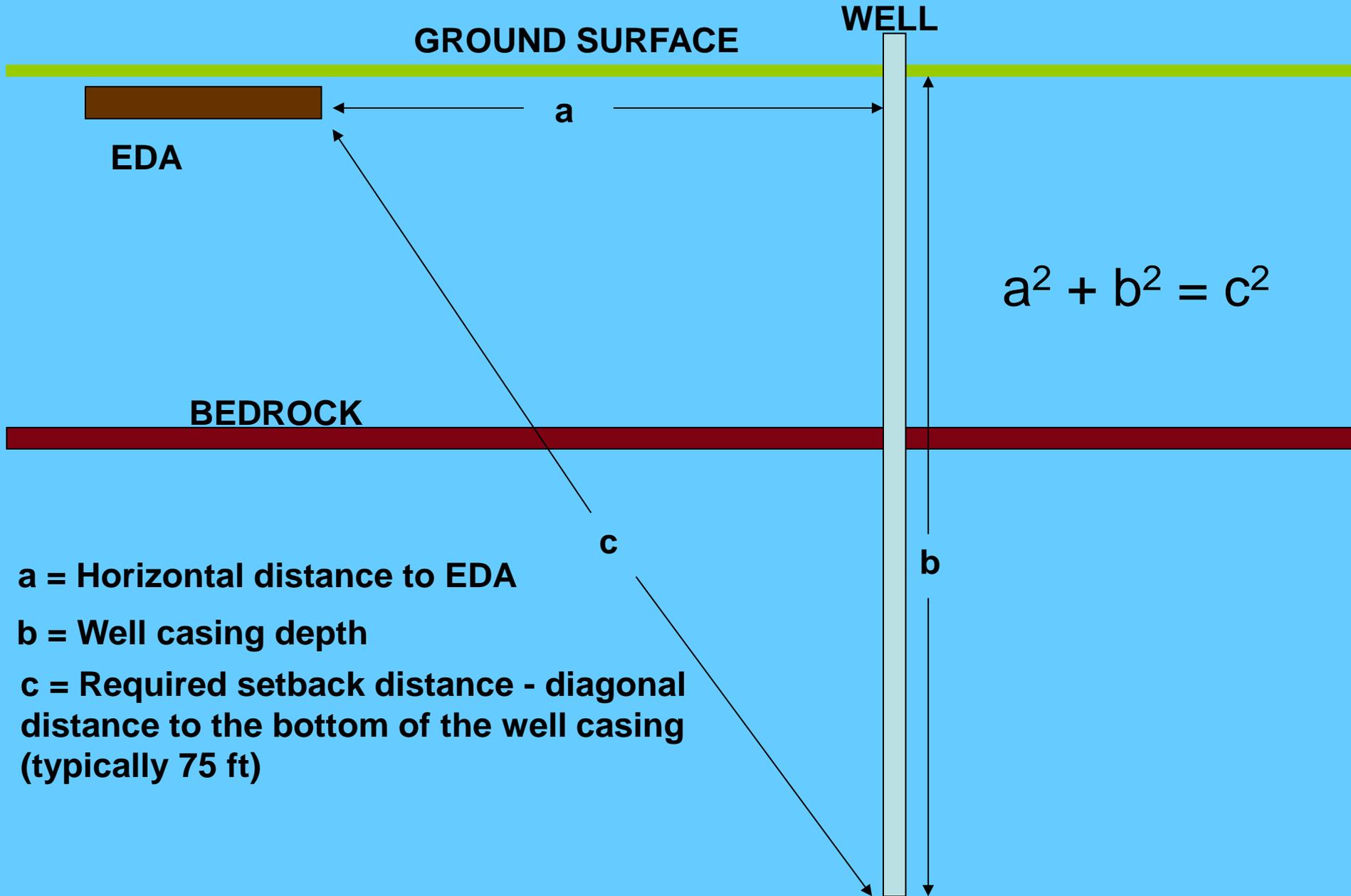
- Special Methods of Construction Required:
  - ✓ Additional Casing Installed
  - ✓ Casing Sealed 10 feet into Competent Bedrock
  - ✓ Casing Annulus Grouted

Special methods of construction when setbacks cannot be met.

A two dimensional approach based on the  
Pythagorean Theorem



Required setback distance from EDA to bottom of well casing



**a = Horizontal distance to EDA**

**b = Well casing depth**

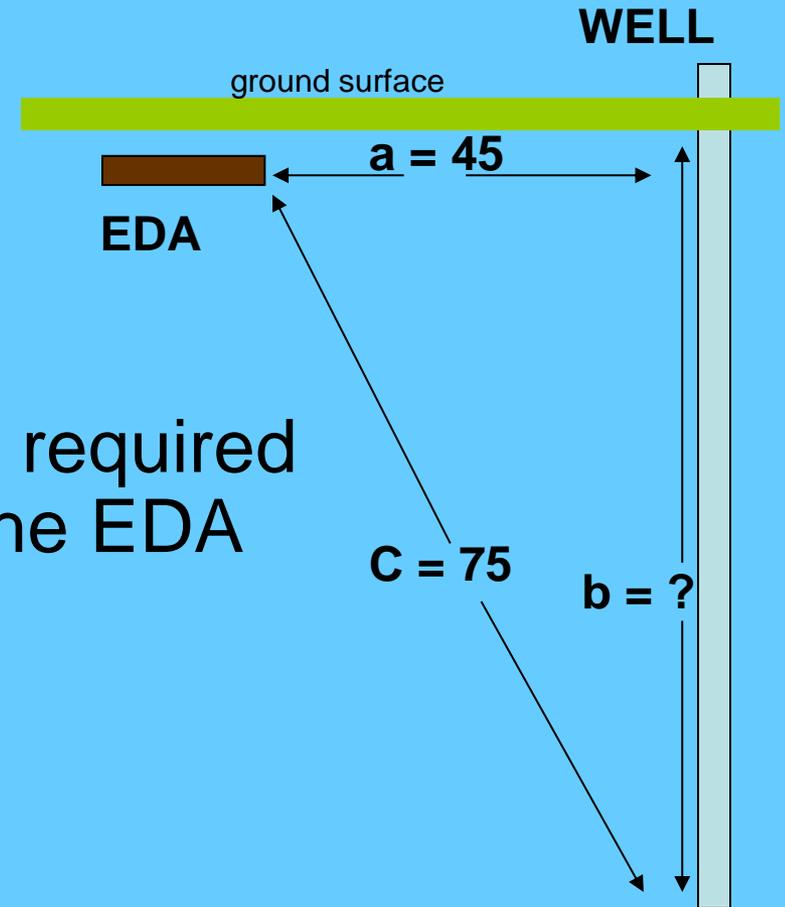
**c = Required setback distance - diagonal distance to the bottom of the well casing (typically 75 ft)**

# Minimum casing length when setbacks are not met

Example: Well is 45' from EDA

$$b = 60'$$

A minimum of 60 feet of casing required at a distance of 45 ft from the EDA



**Table 602-1**

**Horizontal Setbacks and Minimum Casing Length**  
**Two Dimensional Setback Equal to 75 Feet.**

**Horizontal Setback [Ft]**

**Required Minimum Casing [Ft]**

**75 or greater**

**20**

**70 to 74**

**27**

**65 to 69**

**37**

**60 to 64**

**45**

**55 to 59**

**51**

**50 to 54**

**56**

**45 to 49**

**60**

**40 to 44**

**63**

**35 to 39**

**66**

**30 to 34**

**69**

**\*25 to 29**

**71**

Less casing required

Note: If the well is located at a higher elevation than the EDA (septic), the difference in elevation shall be added to the minimum required casing length.

**Table 602-2**

**Minimum Casing Length Where a 50-foot Setback is Required**

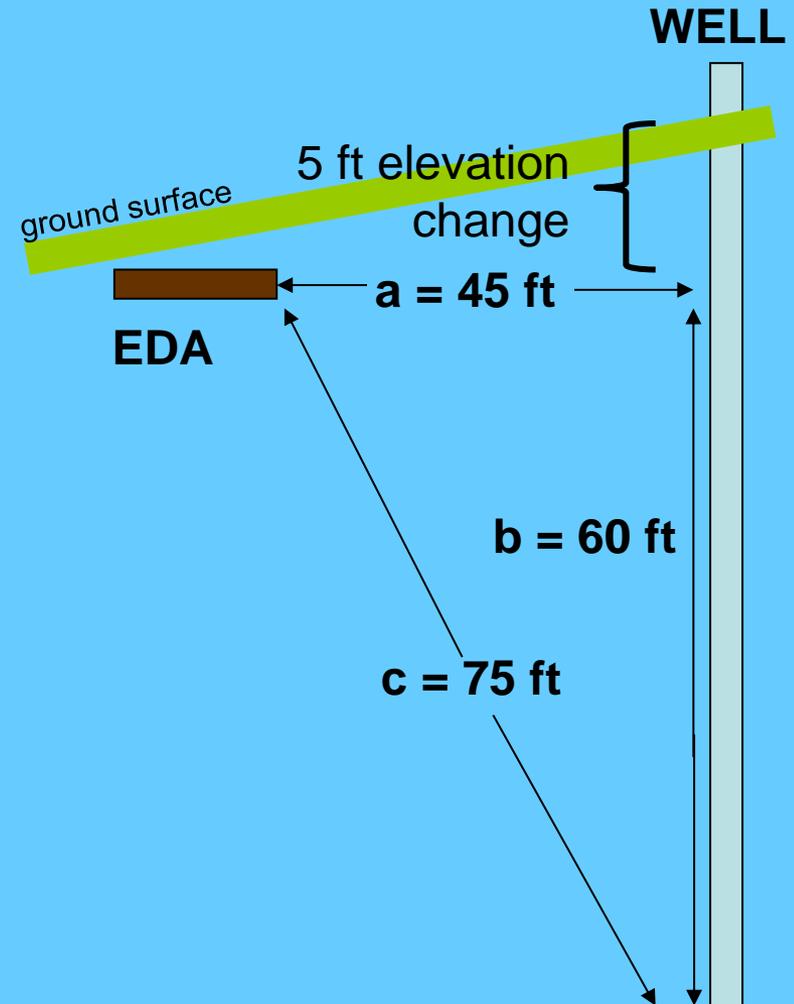
<b><u>Horizontal Setback (ft.)</u></b>	<b><u>Minimum Length of Casing (ft.)</u></b>
<b>50 or greater</b>	<b>20</b>
<b>45-49</b>	<b>22</b>
<b>40-44</b>	<b>30</b>
<b>35-39</b>	<b>36</b>
<b>30-34</b>	<b>40</b>
<b>25-29</b>	<b>43</b>

# Calculating minimum casing length when the well is uphill of EDA

Example: Well is 45 ft from EDA and 5 ft above

Additional 5 feet of casing required due to elevation change

A minimum of 65 ft of casing is required.



# Setback Reductions to Effluent Disposal Areas

- Shall not apply to new construction, generally
- ✓ Permitted on pre 1967 lots of record, with no proposed additional loading.
- ✓ Permitted on lots w/ existing structures, and an existing approved septic system.
- Where there is no practicable alternative location that meets the required setback, due to the size, geography, or existing buildings on the lot.

# Setback Reductions to Effluent Disposal Areas

- Must apply special methods of construction (installing the minimum casing from Table 602-1)
- ❖ Inspection and approval from DES required for setback reductions 25 feet or less from an effluent disposal area.

# Setback Reductions to Property Lines

We 602.14 For bedrock wells with reduced setbacks to property boundaries a water well contractor shall

either:

- Use Special Methods of Construction  
(installing the minimum casing from Table 602-1)

or:

- Obtain a signed Setback Reduction Form  
(formerly Non-Conforming Well Location Form)
- Install no less than 40 ft of casing, with 10 ft into competent bedrock
- Grout the casing annulus

# Setback Reduction Form replaces the Non-conforming Location Form

NHDES-W-03-108p



## SETBACK REDUCTION FORM

State of New Hampshire  
Water Well Board  
Please Attach Copy to the Well Completion Report



Required under We 602.14(b)(2)

Property Owner \_\_\_\_\_  
Permanent Mailing Address

Water Well Contractor \_\_\_\_\_  
Name License Number

Location of Property \_\_\_\_\_  
Street Address City/Town

Subdivision Name \_\_\_\_\_ Subdivision Lot # \_\_\_\_\_

Town Tax Map and Parcel #: Map # \_\_\_\_\_ Parcel # \_\_\_\_\_

Well Number \_\_\_\_\_

### REASON FOR SETBACK REDUCTION (Check appropriate box)

- The property size is not sufficient to allow for the required setback;
- Sufficient setbacks from other potential sources of contamination cannot be met;
- Excessive slopes prohibit access;
- The location of permanent structures would result in unreasonable impacts or damage to the structures;
- The location of lakes, ponds, streams or wetlands prohibits meeting the required setbacks;
- The presence of bedrock at or within four vertical feet of the surface would result in unreasonable offset trenching requirements; or
- Other (Explain) \_\_\_\_\_

### ADDITIONAL CONSTRUCTION METHODS USED

- Extra casing installed into bedrock: Casing depth \_\_\_\_\_ Depth to bedrock \_\_\_\_\_
- Casing annulus grouted with bentonite grout; Other grout \_\_\_\_\_
- Additional well seals:
  - Jaswell type; Depth setting \_\_\_\_\_ feet below land surface;  Annulus grouted
  - Shale packer; Depth setting \_\_\_\_\_ feet below land surface;  Annulus grouted
  - Other (Explain) \_\_\_\_\_
- Other Construction Methods \_\_\_\_\_

### SETBACK DISTANCES

Setback to on-site septic system leach field \_\_\_\_\_ ft; Septic tank \_\_\_\_\_ ft  
 Setback to off-site septic system leach field \_\_\_\_\_ ft; Septic tank \_\_\_\_\_ ft  
 Setback to property line(s) \_\_\_\_\_ ft  
 Setback to other potential observed source(s) of contamination \_\_\_\_\_ ft

dwginfo@des.nh.gov or phone (603) 271-2947  
 PO Box 95, Concord, NH 03302-0095  
 www.des.nh.gov

NHDES-W-03-108p

### \*\*\* Property Owners Please Take Notice \*\*\*

Pursuant to RSA 228:34 Private Water Supplies, property owners who have wells constructed within 50 feet of State Highway rights-of-way, drainage ditches, or where the location does not allow or provide for adequate surface drainage, lose the possibility of receiving compensation from the NH Department of Transportation for damages to their drinking water supply from construction or maintenance operations on the state highway systems.

Setbacks to Property Lines and Septic Systems. RSA 485-A:30-b and State regulations require a 75 foot setback from wells, serving homes up to 5 bedrooms, to property lines and septic systems. Where site conditions prevent compliance with the required setback, special methods of construction, in accordance with We 602.14, must be used to protect the water supply. For lots developed after July 1989, a Standard Release form issued by the NH Department of Environmental Services ("DES") must also be filed. Please note, reduced setbacks to septic systems are not recommended. For new construction, site plans may not be approved by DES where wells are located less than 75 feet from septic systems.

### Sketch map of on-lot well location:

Indicate exact distances to at least three permanent reference points.

\_\_\_\_\_  
 Property Owner Signature Date

\_\_\_\_\_  
 Water Well Contractor License Number

dwginfo@des.nh.gov or phone (603) 271-2947  
 PO Box 95, Concord, NH 03302-0095  
 www.des.nh.gov

# Closed Loop Geothermal Well Setbacks

- (b) A closed loop geothermal well shall be located no less than:
  - (1) Fifty feet from a well used for potable water supply; and
  - (2) **Twenty five feet from a septic tank or effluent disposal area.**

# Grouting of Well Casings

Where grouting is required, the void area outside the well casing shall be filled with:

- a. Neat cement;
- b. Cement-sand grout;
- c. Cement bentonite grout, containing no more than 5 percent bentonite; or
- d. High solids bentonite grout.

# Grouting of Well Casings

## Gravel Wells

- Grout shall extend from 5 feet below the pitless adapter to a depth, based on well design, sufficient to prevent surface water from channeling along the casing to groundwater.
- This section shall not apply to:
  - (1) Wells constructed by excavation; and
  - (2) Driven and drive-and-wash wells.

We 602.05

# Sealing Abandoned Bedrock Wells

- (1) The bore hole shall be filled with clean ½ inch diameter crushed stone at intervals of 100 feet or less, to a depth of 20 feet below the bottom of the well casing;
- (2) A 4-foot seal comprised of bentonite pellets, chips, or cement shall be installed between each layer of crushed stone; and
- (3) The remainder of the borehole and casing shall be grouted using materials specified for grouting casings, in We 602.05.
- (4) Abandoned drilled wells penetrating bedrock may be sealed by grouting the entire length of the well.

# Sealing Abandoned Gravel Wells

- (1) The screened area and casing shall be filled with sand, gravel, washed stone, or cement up to 15 feet below finished grade;
- (2) A 4-foot seal comprised of bentonite, pellets, chips, or cement shall be installed; and
- (3) The remainder of the casing shall be grouted using materials specified for grouting, in We 602.05.

# **Sealing Gravel Wells**

## **w/ Casing Diameters 2" or Less**

- (1) The casing shall be removed from the ground, to the extent possible, and any remaining casing shall be cut away to a depth of one foot below the ground surface;
- (2) The hole, and any remaining casing and screen, shall be filled with bentonite pellets or chips, with a maximum diameter of  $\frac{3}{8}$  of an inch, up to the ground surface; and
- (3) The remaining hole shall be backfilled with materials similar to the adjacent ground up to the surrounding surface grade.

# We 702.04: Grounding and Bonding of Pumps

- (i) Submersible pump motors shall be grounded as specified in the National Electrical Code
  
  - (j) Submersible pump branch circuit equipment grounding conductors shall be bonded and mechanically connected to the well casing, if metal casing is used, using one of the following methods:
    - (1) Pressure connectors listed in the National Electrical Code
    - (2) Pressure connectors listed for use as grounding and bonding equipment
    - (3) Machine screw-type fasteners that engage not less than 2 threads or are secured with a nut\*\*
- \*\*Drill a minimum ¼ inch diameter hole through the well casing and connecting the grounding conductor to the casing using a stainless steel bolt and nut fastened wrench tight.
- (4) Thread-forming machine screws that engage not less than 2 threads in the enclosure
  - (5) Connections that are part of a listed assembly
  - (6) Other listed methods.
- 
- (n) Nonconductive coatings, such as paint, lacquer, and enamel, on well casing or equipment to be grounded shall be removed from contact surfaces to ensure electrical continuity unless the grounding equipment is connected by means of fittings designed to make such removal unnecessary.