Homeowners of Septic Systems

Chatham County Environmental Health
Pittsboro, North Carolina

March 27, 2014

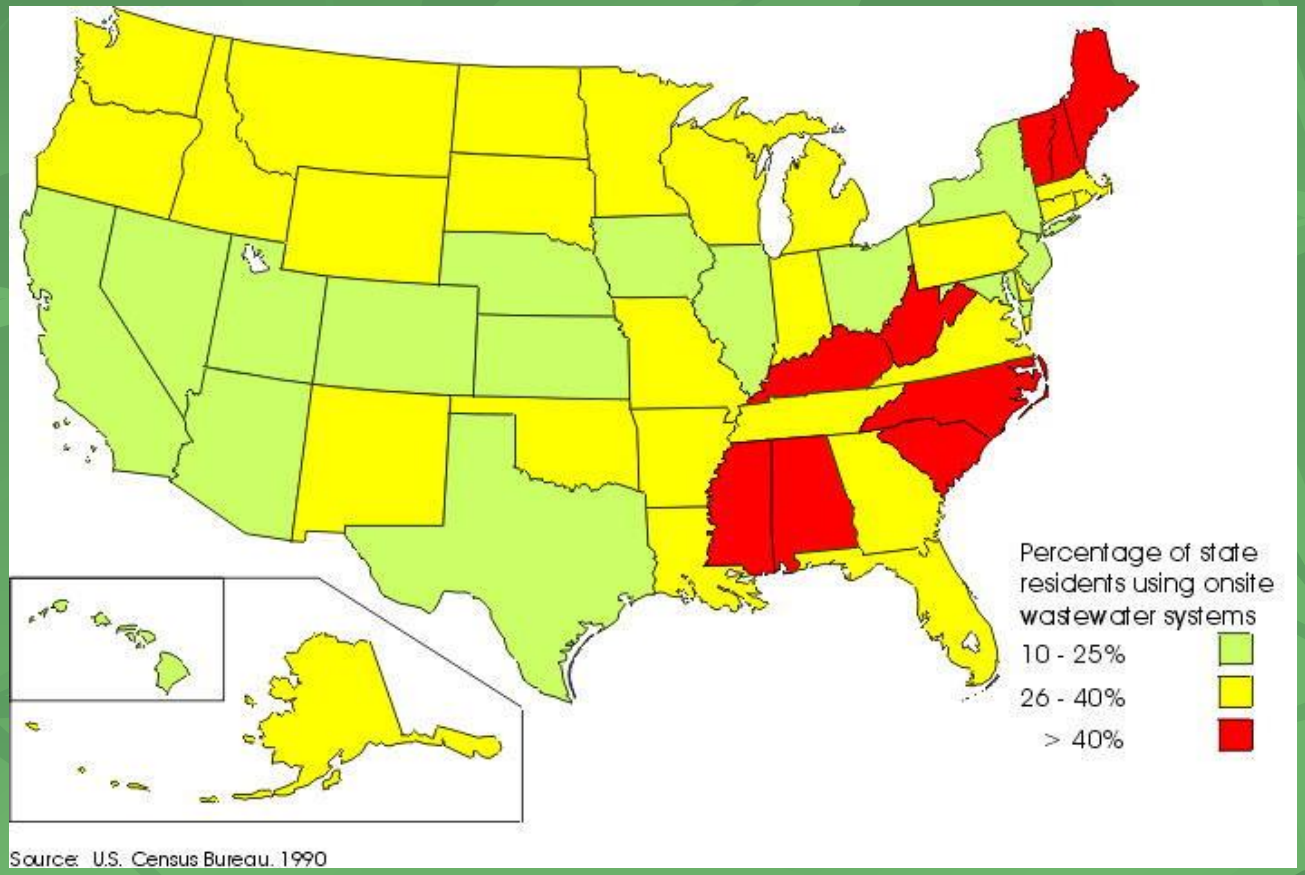
Topics to be reviewed

- Septic System Overview: Tanks, Drainfied, Soils
- Why septic systems fail?
  - And how can failures be prevented?
- I have a septic system, what permits do I need now?

Why do we use septic systems?

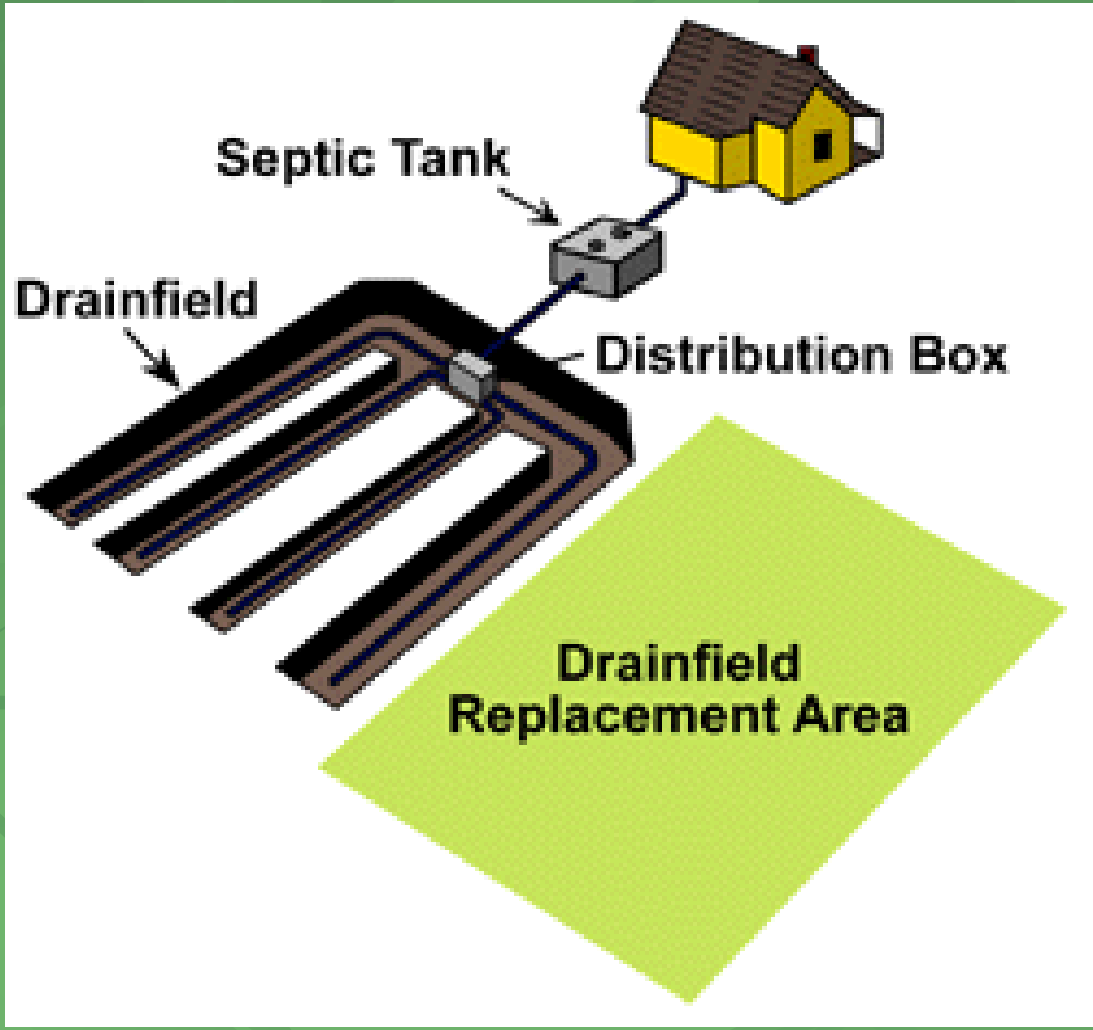
- Safely TREAT and dispose of sewage
- Protect your family's health
- Protect public health in the community
- Protect ground and surface water
- Help keep housing affordable (city sewer is very expensive to install and maintain)

Who uses septic systems

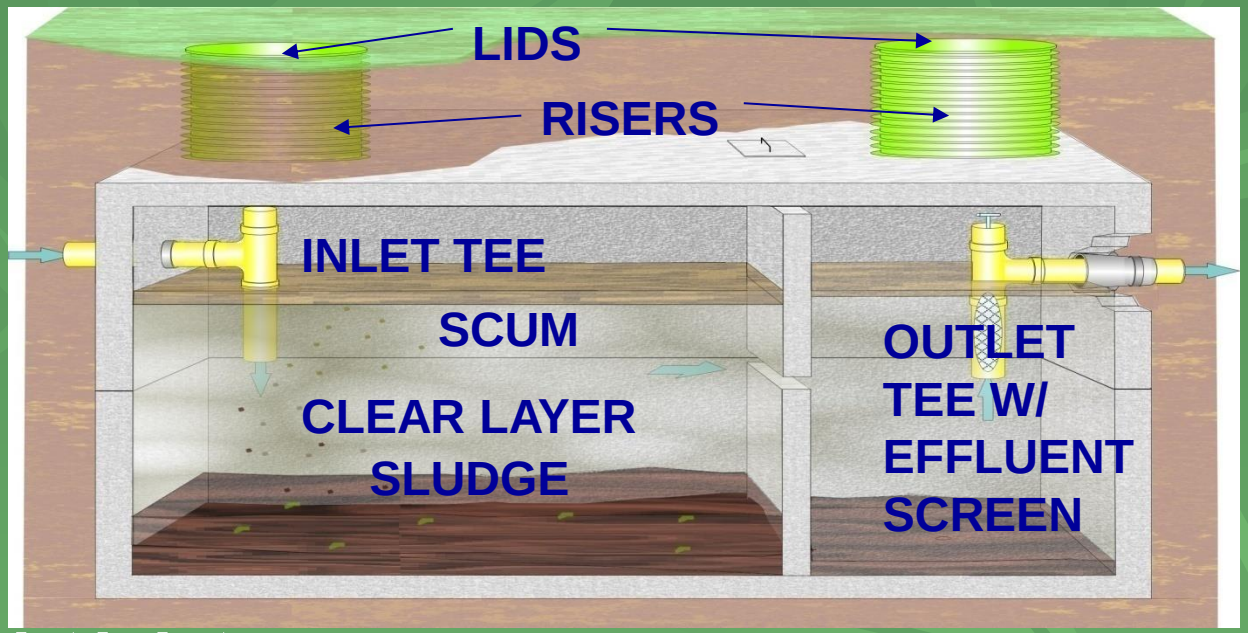


- 25% of the US population
- 50% of North Carolinians
- Use of on site septic systems is increasing

- What is a septic system?



Typical Septic Tank



Solids Separate
- Heavy solids sink (sludge)
- Lighter solids float (scum layer-grease & oil)

Some pollutant reduction

Weak point of system, cracks in seam or manhole covers may allow water to infiltrate into system

Septic tanks need to be pumped to prevent solids from getting to the drainfield!!!

Septic Tank and Effluent Filter Maintenance

Table 1. Estimated Septic Tank Inspection and Pumping Frequency (in Years)					
Tank Size (gallons)	Number of People Using the System				
	1	2	4	6	8
900	11	5	2	1	<1
1,000	12	6	3	2	1
1,250	16	8	3	2	1
1,500	19	9	4	3	2

Effluent Filters

- Effluent filters
  - Clean with septic tank pumping
  - If drains in house are slow check filter first for clogging
  - Do not throw away the filter

this is another way
solids are stopped from
entering the drainfield and
help prevent premature failure

Cleaning Effluent Filter

Before

After

Drainfield

Type of drainfield depends upon:

- Soil depth
- Landscape position

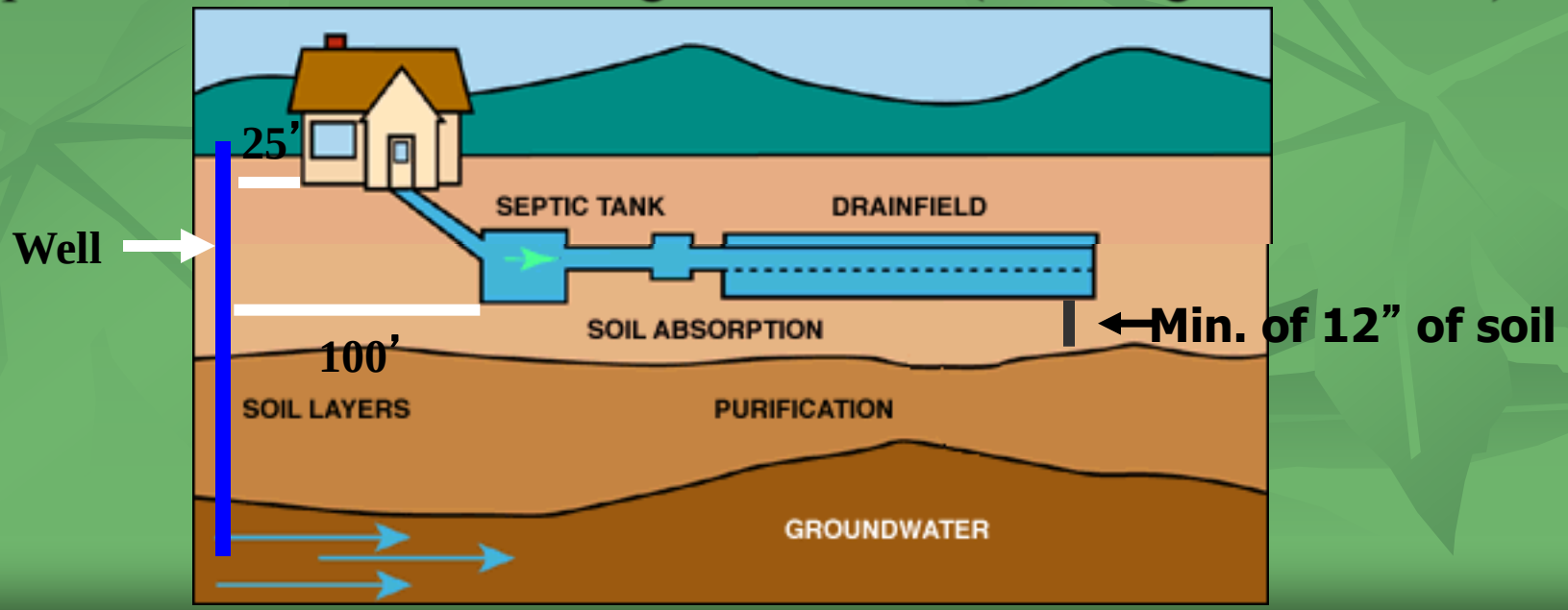
Size of drainfield depends upon:

- # of bedrooms
- Type of Soil

Why soil depth is important

- 12” of suitable or provisionally suitable soil required below the trench bottom to effectively filter the wastewater to reduce the amount of pathogenic bacteria and nitrogen before water reaches the water table

- The depth of suitable soil in combination with setbacks help protect surface water and groundwater (drinking water wells)



Types of Systems: Gravel System

25% reduction accepted systems

Polystyrene

Chamber

Fill System

Drip System

Pretreatment Options

Gravel Bed

Peat Filter

Fabric Filter

Sandfilter

Reasons for Pumps

- Location of field uphill from house plumbing
- As part of design to disperse the wastewater over the entire drainfield
  - Pressure Manifold
  - Low Pressure Pipe
  - Pretreatment/Drip

Questions??

Why Septic Systems Fail

Chatham County Public Health Department
Environmental Health Division

Why septic systems fail

- Hydraulic overloading (too much water)
- Solids migration to drainfield
  - Failure to pump septic tank
- Root intrusion into sewer lines
- Traffic damage to drainfield
- Garbage disposal use

Hydraulic Overload

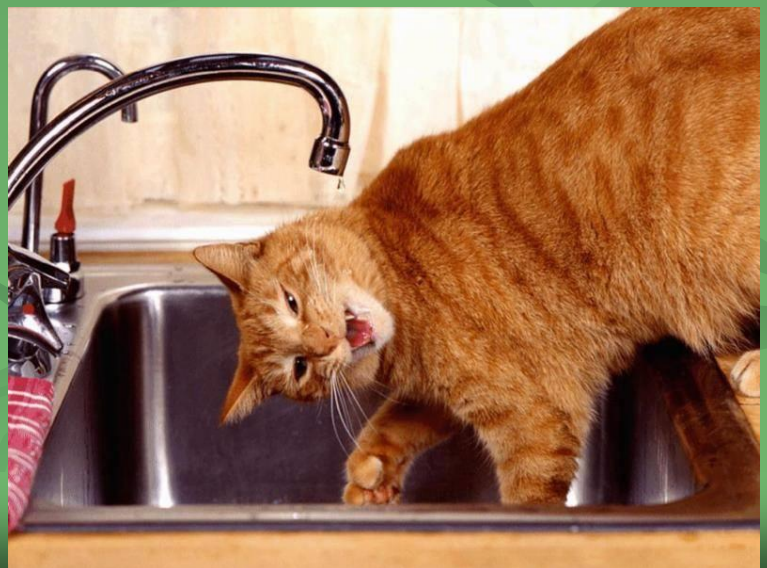
- Too much water use from inside the house
- Too much surface water entering the drainfield from runoff, roof gutters, etc.

Conserve Water Inside the Home

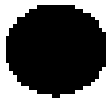
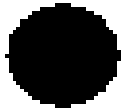
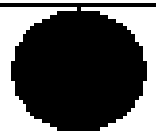
Four Tips to Help Conserve Water Indoors

- Turn off faucet while brushing teeth.
- Take shorter showers.
- Fix leaks in faucets, showerheads and toilets
- Only wash full loads.


You use about
5 gallons of water
if you leave the
water running
while brushing
your teeth.



Water Loss In Gallons

Leak this Size	Loss Per Day	Loss Per Month	Leak this Size	Loss Per Day	Loss Per Month
	120	3,600		6,640	199,520
	300	10,800		6,964	209,520
	693	20,790		8,424	252,720
	1,200	36,000		9,585	296,640
	1,920	57,600		11,324	339,720
	3,095	92,880		12,750	361,600
	4,295	128,880		14,952	448,560

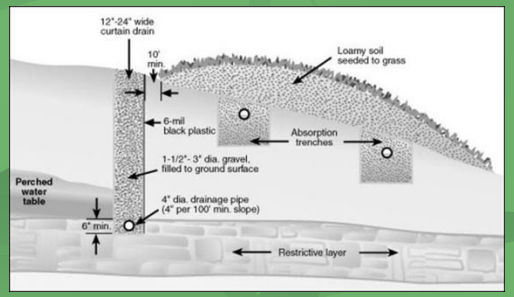
HOW TO TEST YOUR TOILET FOR LEAKS

IN 3 SIMPLE STEPS

1. Remove the tank lid and any in-tank toilet cleaners.
2. Put a few drops of food coloring in the tank (not in the bowl).
3. Let the toilet be idle for 15 minutes.

Hydraulic Overload Outside of Home

- Prevent external hydraulic overload by
  - Diverting all surface water around the septic tank/drainfield
  - Install roof gutters that are directed away from the septic tank
  - Do not create landscape features or conduct grading that encourages surface water to flow over septic tank/drainfield.



Solids Migration to the Drainfield

- Solids must be retained in the septic tank

  PUMP THE SEPTIC TANK!!!

- Baffles should be inspected when tank is inspected or pumped

- Use of additives that “liquefy” sludge and scum can lead to drainfield failure

Septic System Additives

- Biological additives are harmless but of little use
- Chemical additives can damage the septic system and contaminate ground water
- Don't use if active ingredients are unspecified
- Annualized cost of additives is about the same as for tank pumping on recommended schedule

Other items not to put down the drain

- Paints
- Coffee grounds
- Dental floss
- Disposable diapers
- Kitty litter
- Sanitary napkins
- Applicaters
- Cigarette Butts
- Condoms
- Paper towels
- Plastics
- Varnishes
- Thinners
- Waste oils
- Photographic solutions
- Pesticides

Root Intrusion into Sewer Lines

- Do not plant trees or shrubs near sewer lines

Traffic Damage

- No vehicle parking over drain field

- No vehicle traffic except lawn mowers
- No traffic at all if ground is saturated

Garbage Disposals NOT RECOMMENDED FOR SEPTIC SYSTEMS

- Add to hydraulic load (running water)
  - If you have garbage disposal, recommend adding another septic tank to system
- Add to solids
  - If you have garbage disposal, recommend pumping tank more frequently
- COMPOSTING is a good alternative to using the garbage disposal!!

Water Softeners & Septic Systems

- Salt does not affect septic tank functioning

However

- Added hydraulic load (regeneration water)
  - Use water meter or sensor controlled regeneration rather than time clock alone
- Added sodium can affect marginal drain fields (dispersal of clay slows perc rate)

Questions?

Environmental Health Permits Required for Future Development on the Property

System Repair

vs.

System Maintenance

Permits are required to repair your system

Repair Permits are FREE!!

Repair Activities Requiring A Permit

- Replacing line to repair failing septic system
- Replacing septic tank
- Replacing pre-treatment system
- Alteration of pre-treatment system from one process to another

Maintenance Activities That Do NOT Require A Permit

- Pumping the septic tank
- Replacing a pump with exact same pump model
- Repairing broken cleanout or turn-up for LPP
- Routine maintenance on Type IIIb, IV, V, and VI systems

If you are unsure if you need maintenance or a repair permit call Environmental Health

Choosing a Septic Contractor

- All septic contractors are required to be certified by the NCOWCICB. Verify contractor certification by visiting www.ncowcicb.info
- Ask for at least 3-5 references
- Contractor should be able to furnish proof of liability insurance and workmen's compensation

Setback Compliance Approval

Changing foot print of house without adding bedrooms
i.e. Decks, Porches other rooms besides bedrooms

Adding garage or outbuilding

Adding a swimming pool

Improvement Permit/ Construction Authorization for Expansion

- If adding bedrooms to house
- If adding full bathroom to garage; this is considered a bedroom
- Adding any activity that creates wastewater other than domestic sewage (toilets, sink, laundry)
  - Art studios (pottery, metal work etc.)
  - Film developing
  - X-Rays

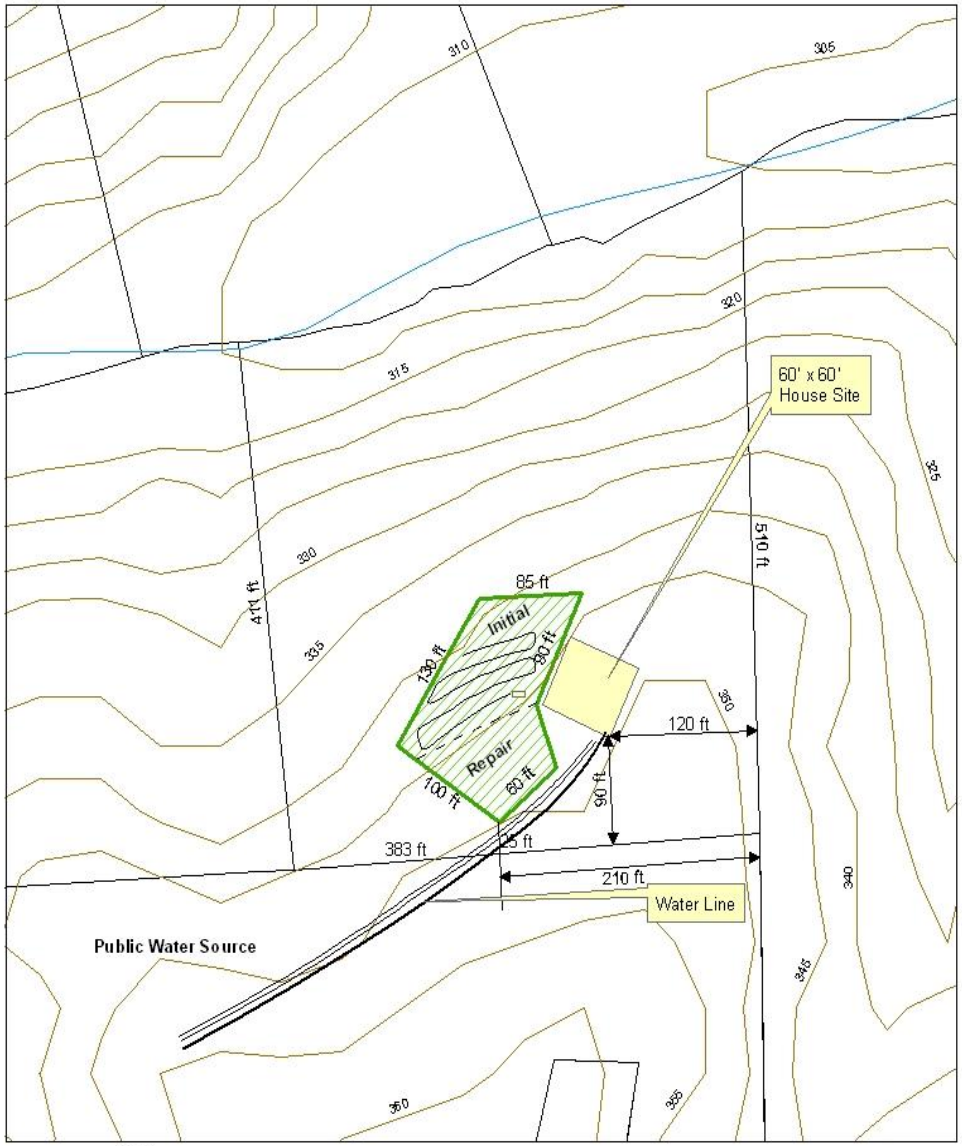
Operation Permit Revision

- If changing lot lines
- If changing the use of a septic system
  - Changing system from home use to business use
  - As long as water usage is not increasing and remains domestic (toilet, sink, laundry)

Locating your septic system

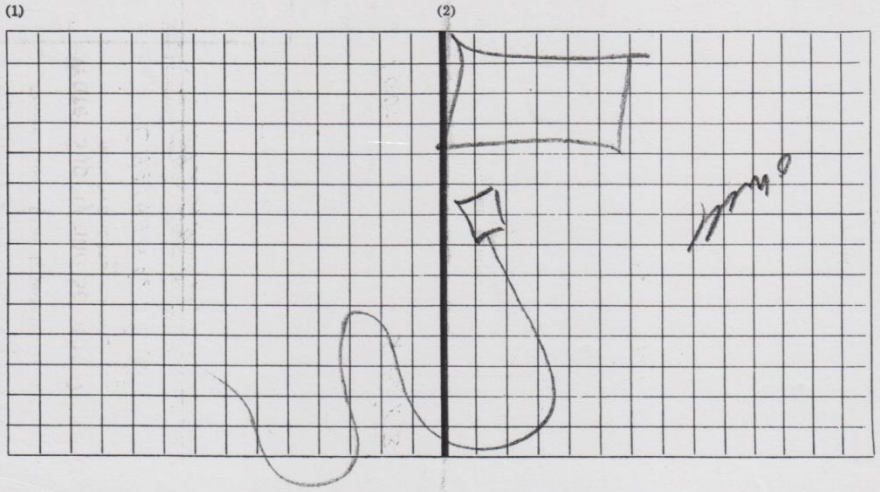
- Contact Environmental Health for any permits that may be on file

GPS


PARCEL # 83265
OWNER Lytton, Michael L.
60' x 60' House Site
Initial
Repair
85 ft
130 ft
80 ft
100 ft
60 ft
120 ft
90 ft
25 ft
210 ft
383 ft
411 ft
510 ft
Water Line
Public Water Source
310
305
320
315
325
330
335
350
340
345
360
365
Legend
Roads
Contour_5ft
Approved System Area
Stream/River
Parcels
1 inch equals 100 feet
0 25 50 100 150 200 Feet
This document is for general information purposes only and is not to be considered official. Independent verification of all maps and data should be obtained by the users of the data from the Chatham County Environmental Health Dept.
NAME:
DATE:

Old permits

NOTE: Make sketch of installation showing lot size and shape, location of house, septic tanks, privies, water supplies, etc. Note special problems existing on lot. Write in measurements in order that installations may be located at later date. Note location of water supplies on adjacent lots.



If no permit or older permit found

- Check under the house for the wasteline, follow line to 5-15’ from house
- In the summer:
  - The grass over the septic tank will be brown
  - The grass of the drainfield will be greener

Stripes over gravity drainfield


Vegetative growth over chamber trenches

Vegetative growth over drip emitters indicating equal distribution

Remember:
A PUMPED SEPTIC TANK IS A HAPPY SEPTIC TANK!!

Questions?