# Locating System Components

#### Tips to Locate Septic Tanks and Final Treatment Areas

By: Casey Fiedler

The materials being presented represent the speaker's own opinion and do NOT reflect the opinions of NOWRA

# Casey Fiedler – The NEW Guy

# Does this guy even know anything?



#### Businesses:

Michigan Septic

Michigan Well & Septic Inspections

Shunk / Fiedler ~ R&L (formerly)

Certifications:

NAWT Certified Septic Inspector

ICHD Time of Sale Inspector

# Jeff Seipp – The OLD Guy

# Does this guy even know anything?



#### **Businesses:**

Columbia Sanitary Service (1959 – 1998)

High Plains Sanitation Service (2000 – current)

Certifications:

School of Hard Knocks

NAWT Certified Septic Inspector

## Goals and Objectives of this Session

#### • HOW DID WE GET HERE?

- Why do we care?
- $\circ$   $\quad$  What we did in the past vs. TODAY
- Locating the pieces and parts of an OWTS
- TOOLS!!!
- Practical applications and scenarios



## How did we get here?



- Early systems pre-1940's -
- NEXT house to CESSPOOL RAW SEWAGE!!
- NEXT house to TANK to LEACH WELL -
- NOW house to ???? Many potential steps until it gets to it's FINAL TREATMENT

## Why do we care?

• Public and Environmental health

 An inspection requires looking at ALL the pieces and parts

• Past vs. Present

WE EITHER MAKE OURSELVES MISERABLE, OR WE MAKE OURSELVES STRONG. THE AMOUNT OF WORK IS THE SAME.

- CARLOS CASTAMED/

### What Types of Final Treatment Areas Go "Missing"?

- Systems installed prior to good record keeping
  - Depends on your county/twp/locale
- Midnight specials
- Houses with no FTA at all...
  - Aged homes, nearby farm field tiles, nearby creek...

**Specific Types That Seem to Get Lost** 

Drywells / Seepage Pits

In-Grade "Conventional" Trench Systems

**Types That Don't Get Lost (Much)** Modern raised systems of any kind Any systems w/ engineering usually good records or obvious

Bed systems (usually easy to find on probe)

## How Do Tanks/Components Go Missing???

- Homeowner passes away and was the only one who knew the location
- New property owner has never had septic before
- Homemade tanks never permitted, no records on file
- Midnight special installs
- McGuyver's

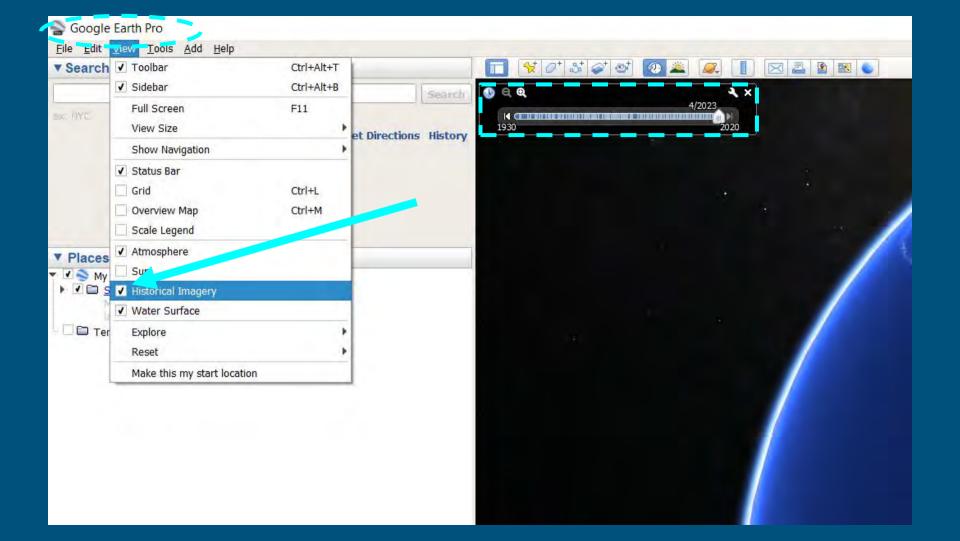


# **Before the Inspection**

## Do Some Office Work

#### • Pull records first

- Cover your bum... if any legal action were to result you'd want to prove that you looked at the site records
- Records often will save you a ton of time anyways
- Records can be wrong, don't trust blindly!
- Search "\_\_\_\_\_ County Department of Environmental Health FOIA"
- Use satellite imagery
  - Google Earth Pro (desktop, not web) lets you look back in time
  - Find clues during dry months (green), or snowy months (melted)
  - Look for open areas from a bird's eye view

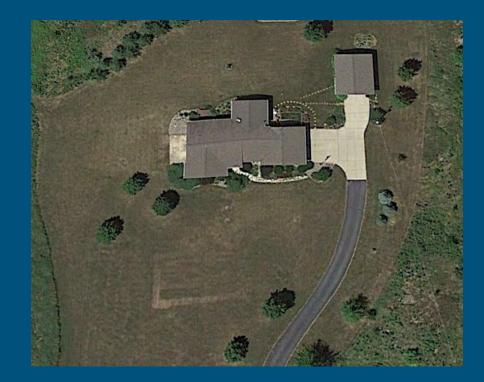






### October 2016

### July 2018











### Same Location

#### But...

### July 2015

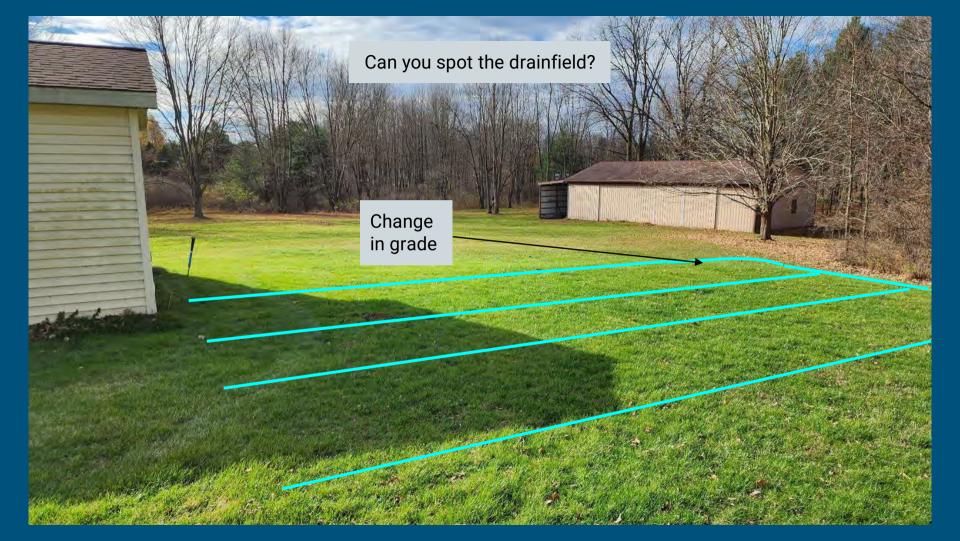
# Arriving at the Inspection Site

Before You Grab The Tools...

## Don't Touch The Probe Yet!!!

- Just walk the property and observe
  - Stink pipes on roof
  - Open areas
  - Topography (if it's gravity it can only go downhill...)
  - Look for changes in topography
    - Flat areas
    - Slopes that change grade abruptly or "stick out"
  - Changes in grasses
    - Not just "lush", sometimes grass types look different and can be observed
    - Melted snow areas
  - Try walking the area from more than one angle
    - Look for trench settling
  - Get down from a low angle and look across the lawn for tench or tank depressions (anything symmetrical or repeated can be a clue)
- Don't forget to ask the homeowner... sometimes they know or can guess





## Septic Tank Giveaways

- Dry grass
- Lush grass
- Spotty grass, or a change in grass type where seed has been used
- Slight depressions where lid(s) have been dug up over the years
- Homemade risers



A small depression with accompanying change in grass gave away the location of this tank...

## Take a Look Inside

- Find the main septic outlet (hope it's a wall outlet, not sub-floor)
- Measure to something you can see
  - Find a wall corner or a window and measure the distance so you can repeat it outside
- Make note of the outlet depth below grade
- Look for notes!
  - $\circ$  Written distances or maps on the wall / pipe



- Measure down from grade
- Measure to something you can see outside

# Tools for Locating





TOTTOLE	
T&T Tools, Inc.	
Rod Type:	1.
3/8" Round 3/8" H	łex 7/16" Hex
Length:	
36" 42" 48	" 54" 60" 66" 72"
78"	7
Quantity:	
- 1 +	Ball nose helps bu
Tip Style:	won't eliminate
	damaging
Standard Ball Nose	components
Part# : MPA36	
Available Quantity: 43	
	ADD TO CART

## Probe Slide Hammer

7

Write a review

- Pretty much required in dry months
- Be careful not to hammer your probe thru system components or utilities...

# Probing in Winter

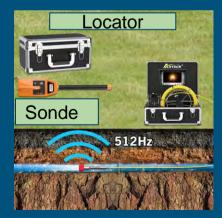
- Frozen soils
- Wood auger bit on impact driver



## Camera + Sonde

#### Pros

- Extremely accurate & verifiable
- Get a good idea of system health while running the camera
- Can be faster than probing for hours



#### Cons

- Expensive to purchase
- Can be time consuming
- Very pricey for customer
- Depending on outlet device, may require cutting, drilling, or digging to access outlet pipe outside of tank
- Only works if you have access to the outlet (FTA) or a cleanout (tank)
- May need to have tank pumped down

## **Other Locating Alternatives**

- Dowsing (witching)
  - Pseudoscientific
  - $\circ$  Use it if it works for you
  - Make sure to confirm your results objectively
- Ground Penetrating Radar
  - Very expensive to purchase



- Other types of soil penetrating electronic tech emerging regularly
- Any cool tools being used by members?

## Get to Work Already!



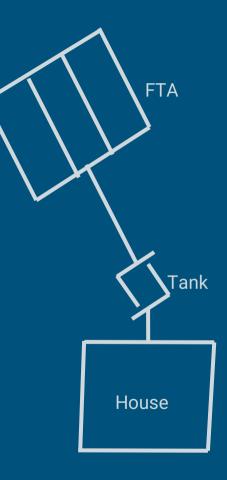
### Probing Tips

- Try to make clean pushes when possible
- Using slide hammer will make it so you can't "feel" or hear the gravel crunch
- Once you hit something solid, try dropping your weight on it and listen for the gravel crunch
- If your probe "bounces" be careful it's probably a pipe, utility line, or a root (Infiltrator maybe too)
- Don't forget marking paint or flags



### Probing Tips (Tanks)

- Listen for a "hollow" sound, especially on shallow tanks
- Once you get a hit, probe nearby
  - More hits same depth
  - More hits in an area "tank size"
- Use flags or marking paint to mark corners of tank if needed
  - Knowing where the corners are can help you figure out where the tank is oriented
  - Not all tanks are set square to the house
  - If tank is on an angle, it may point you toward the final treatment area...



## Where to Start

## (no known tank location)

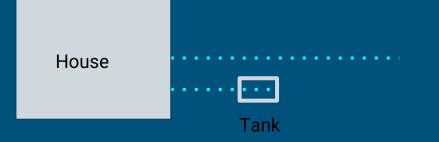
Most installers will take the quickest / easiest route (no offense! )

- Straight lines, short runs, etc.
- Unless there's reason not to...
- Most locales require tanks >10' from foundation
- Start about 10' from house inline with the main septic outlet you found
- Probe every couple feet in a straight line until you hit a tank
  - Watch out for tanks under decks, etc.
- Keep an eye out for signs of tanks noted earlier

## No Tank Found on First Pass?

#### • Pause and think through options

- Be certain you haven't fooled yourself into looking in the wrong area!
- Move a few feet left or right of your first probe line and try again
- Try leaving a marking flag in each probe hole as you go
  - You'll be able to see what areas you've covered and avoid re-probing the same areas later when you're confused
- Reach for the flushable locator or the sonde locator / camera



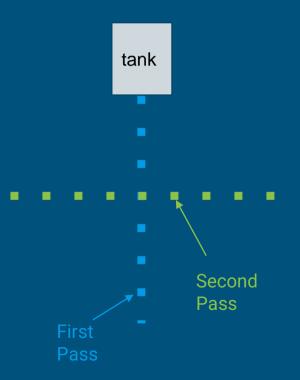
## Looking for the Drainfield (Tank Found)

•	Probe out the end of the tank Start probing about 2' off end of tank	tank
•	Probe every 1' or 1.5' in a straight line away from the tank	
	$\circ$ Modern trench systems usually call for 3' wide trenches older ones may be as	
	narrow as 1' so don't miss them by probing too far apart 3' trench	
	$\circ$ Use a boot spacing, or run a tape to probe every 1'	
•	Listen & feel for the gravel header 1' trench	
	<ul> <li>Beware irregularly shaped systems</li> </ul>	•
•	Remember, midnight specials could be absolutely anything, any shape,	
	any spacing, etc.	
	probes	

#### Made it Across the Entire Yard... Now What?

- Go back to the centerline of the tank
- Walk out a reasonable distance
- Probe every 1' perpendicular to the direction you started for several yards

- Sometimes trying to find laterals is easier than finding the header...
  - More of them to accidentally run into

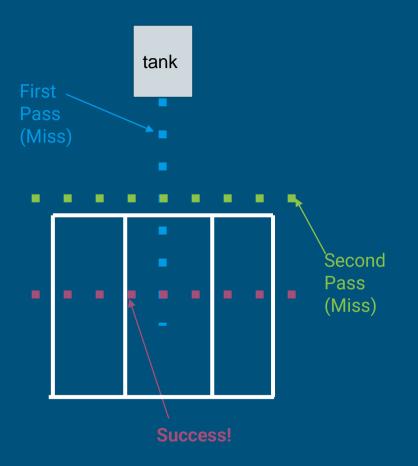


#### Still Nothing?

Think About Shape....

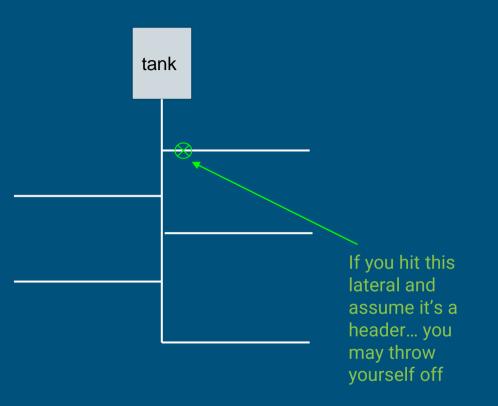
 Square shapes with headers and footers are common in much of Michigan but different areas may use very different shapes or layouts...

Would Another Pass With The Probe Help?



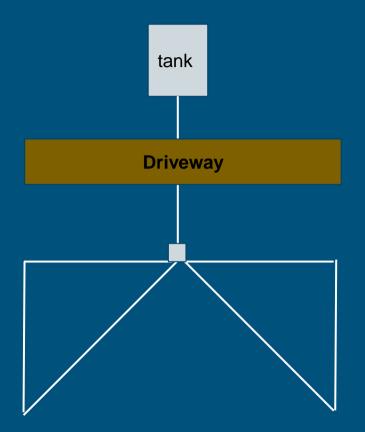


 If you can't figure it out... consider the field may be asymmetrical



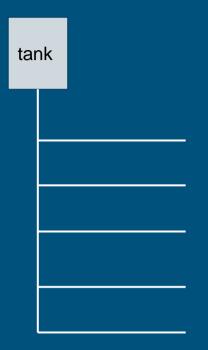
#### Think Outside the Box

- There's always room for new surprises...
- This is an actual system layout l had to inspect



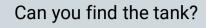
#### Parallel Layouts

 Don't let a parallel layout fool you...



#### Can you find the signs?

Wet leaves will settle into otherwise unnoticeable depressions and give clues.



Can you find the drainfield?

-

#### Note:

Tank is oriented square with the drainfield header... this is very common and can give you clues... or mislead you...

#### What system components can you identify?

# What would be your

#### Septic Tank (From Last Slide)

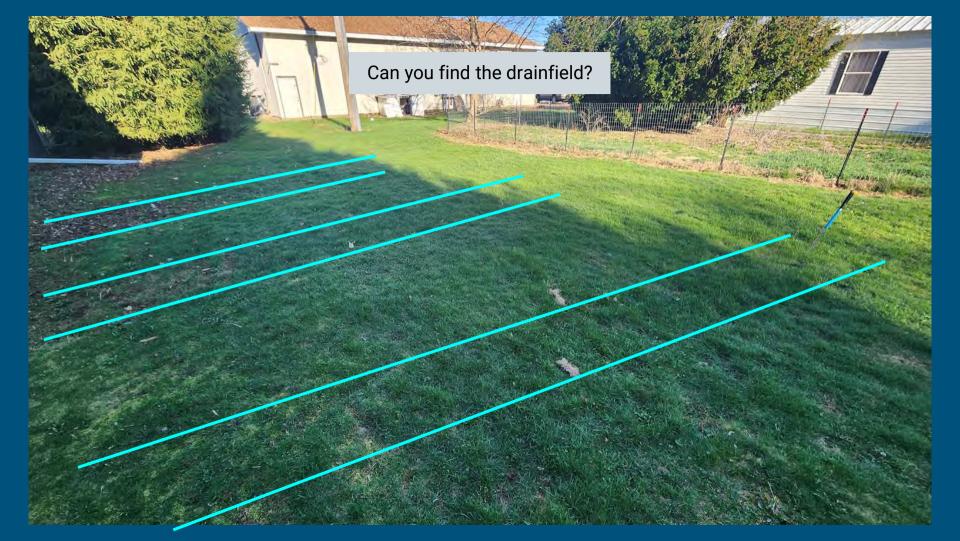
#### Non-Permitted Infiltrator

#### Surface breakout...

### Non-permitted tank and FTA... would you look here??

Tank

#### Can you find the tank?





AURSI RUSSENUME & Construction       PHORE MILLING ADDRESS       ADDRESS         ADDRESS       Busbleville Rd.       PHORE MILLING ADDRESS       ADDRESS         INSTALLED BY Walker Const Co.       ADDRESS Franktown, Golo.       Instruction       Instruction         INSTALLED BY Walker Const Co.       ADDRESS Franktown, Golo.       Instruction       Instruction         1. Units 1-       2 bod rooms       1. Septic Tank Cop 750 gol.       Instruction         1. Units 1-       2 bod rooms       1. Septic Tank Cop 750 gol.       Instruction         2. Fixtures: Type 6 No.       India 1.       Inter and contracts       Instruction         3. Depth of play Drain       24       1. Inlet and Contents       Instruction         3. Depth of play Drain       24       1. Inlet and Contents       Instruction         5. Forcelasion Test 11.400-200 min/in:       5. Absorbtion Ares 700       Instruction       Instruction         6. Ground Slope       1. Inlet and Outlet-Smithery 7       5.       Absorbtion Ares 700       Instruction         7. width 10'Langth 200'Enter Main 10'Langth 20'Depth 30P       1. Type and Size of Tile 512 Key. This       Figure 7.         7. width 10'Langth 200'Enter Main 10'Langth 20'Depth 30P       1. Type and Size of Tile 512 Key. This       Figure 7.         8. Depthotion 18'S Mo + B'Cant/       1. De	DRESS       Russleville Rd.       PHONE <sup>M</sup> Juliant System         NE       Paul' Barnes       MAILING ADDRESS         STALLED BY       Walker Const Co.       ADDRESS Franktown. Colo.         STALLED BY       Onstruction InFORMATION         Units       1-       2 bed rooms         Fixtures: Type & No.       1 bath       2.         Statures: Type & No.       1 bath       2.         Lot Size       40 GOTES       3.       Material Concrete         Lot Size       10 address       4.       Inlet and Outlet-Sanitary T         Scound Slope       4.       Inlet and Outlet-Sanitary T         Other Wells Within 200'       To width 10' Length 70' Depth 30"         Other Wells Within 200'       No       8.       Min.12"Filler Material         9.       Gravel \$Washed Min.       0' Larged min.       0.         9.       Gravel \$Washed Min.       0' Larged min.       0.         9.       Gravel \$Washed Min.       0' Larged min.       0.         9.       Gravel \$W	NAM INS GEN 1. 2. 3. 4. 5. 6.
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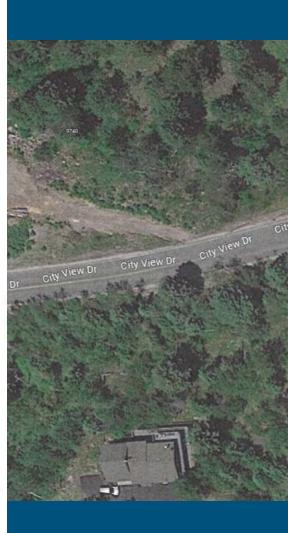
	Sewage System Form 5 27
DDRESS SYY-EV2-Swyy-See:	R 65
	MAILING ADDRESS (Frank Com 80)
NSTALLED BY	ADDRESS
ENERAL INFORMATION	CONSTRUCTION INFORMATION
Unita Hause 2 Badrow Fixtures: Type & No. 10m2 Depth of Bidg. Drain 7/ Lot Size 20 accord Percolation Test 4/20me Ground Slope Water Supply: Municipal Well Location 100' 10 Other Wells Within 200'	Z.     Width     Length     Depth       3.     Material     Connector       4.     Inlet and Outlet-Sanitary T
egulations governing sewage sy	stems within the Tri-Conty District.
Approved By	ay reference Date 10-14-68
Approved By 61	







INDIVIDUAL SEWAGE DISPOSAL SYSTEM PERMIT NO. 6222 Site Address: City View 9730 D. GrEist ssued to: Legal Description: Lot 27 Flg 1 Hilldals Pines System Designed for \_\_\_\_\_\_ Bedroom Single Family Dwelling Tank Size: /000 gal (min) Absorption Bed Size: 730 sq. ft. (min) 3-27-78 DATE INSPECTOR SYSTEM AS INSTALLED NORTH  $\square$ LAKE WELL HOOSE 0 100'









### summary

#### Did we help you think outside the box?

Casey Fiedler – The NEW Guy

## Jeff Seipp – The OLD Guy

Do these guys even know anything? YES!! They do!



- CONTACT INFORMATION
- Casey Fiedler –
- Jeff Seipp
  - o **303-909-6883**
  - highplainssan@gmail.com