INSTALLER BASICS -REGULATIONS

DISCLAIMER:

The use of trade names or images in this training presentation does not constitute an endorsement or recommendation by the Arkansas Department of Health.

All references to trade names or use of product images are for educational purposes only.

Act 402 of 1977

- Individual Sewage Disposal Permits
- Subdivision Review
- Licenses for:

Installers Designated Representatives Septic Tank Manufacturers Certified Monitoring Personnel

• Ten Acre Exemption:

200 Foot Setback from Boundaries Does not apply to ADEQ requirements

• Fees

• Violations are a misdemeanor that may result in maximum fines of \$1,000.

Rules and Regulations Pertaining to Onsite Wastewater System

- Found on ADH Website www.healthy.arkansas.gov
 - Copy in Installer Packet
 - Last Revision August 2022

Arkansas Department of Environmental Quality (ADEQ)

Individual Treatment Facilities ARG550000
Modification Effective Date: July 1, 2019 increase size of treatment unit to 1500 gpd
Effective Date: July 1, 2019
Expiration Date: June 30, 2024

Onsite Wastewater System utilizing Surface Discharge (i.e. ATU, PMF, Sand filter)

* ADEQ ARG550000 Permit Required (regardless of acreage) INSTALLER LICENSING REQUIREMENTS

Pass Licensing Test Annual Training Course \$100 Annual License Fee License Expires December 31 License Renewable January 1 50% Late Fee After March 1 **Delinquent for more than one year, requires** retesting

THE APPROVED PERMIT

- Individual Onsite Wastewater System Application (EHP-19)
- Completed by Designated Representative (DR)
- Soil & Site Information
- Signed on Line 21 by Environmental Specialist
- Good for 1 year without Revalidation
- No Changes or Substitutions without DR's Authorization
- Installation Inspection and Permit for Operation

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Approval of Health Authority The information and specifications in the application has been reviewed and found to meet the requirements of the Arkansas Department of Health Rules and Regulations Pertaining To Onsite Wastewater Systems. A PERMIT FOR CONSTRUCTION is hereby issued.	- P							ent of
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EHP-19 (R 6/13) Page 1



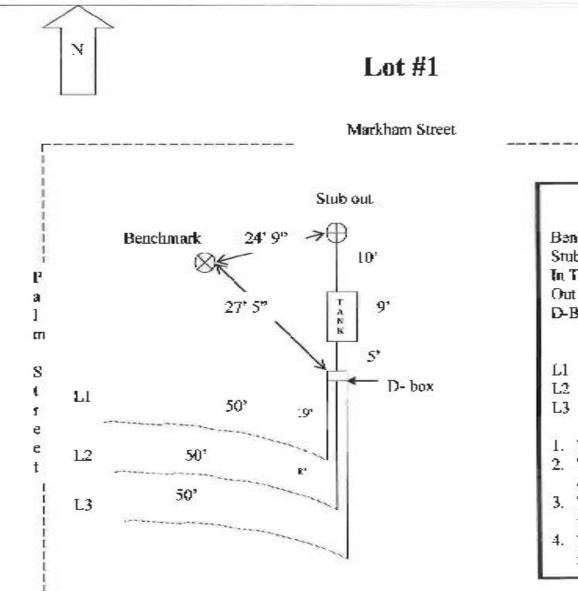
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THE PLAT DRAWING

Plan(s) Attached to the Permit Form Drawing Shows:

- House, Property Lines, & Setbacks
- Septic Tank Location
- Pump Tank Locations (if any)
- Solid Pipes, Cleanouts, & Distribution Box
- Absorption Trenches on Contour
- Other Important Details



	Gn	ound Shots	D.
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In Ta	.nk		2.00
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Scale 1:20

OTHER DOCUMENTS

- Pump Curves & Specification Sheets
- Memorandum of Agreement
- Monitoring Contracts
- Installation Instructions
- Vicinity Map



Reviewed & Authorized by Onsite Wastewater Product Review Committee Listed On: Authorized Onsite Wastewater Products List Agency Website www.healthy.arkansas.gov/programsservices/topics/onsite-wastewater **Grouped by Categories**



24 Hour Notice to EHS Required Before Installation Begins Sec. 4.7

Licensed Installer <u>Must</u> Be On Site During Entire Installation

Sec. 14.1

SYSTEM INSPECTIONS

EHS May Authorize Designated Representative To Make Final Inspection

Final Inspections May Be Conducted by:

- Environmental Health Specialist
- Designated Representative

If no final inspection , installer completes Part 2 of the EHP-19 and signs the System Installation Verification Section.

In addition, installer must sign and submit the Installation Specification Sheet (EHP-6) to the local health unit within 5 working days!



Arkansas Department of Health Environmental Health Protection

Receipt No.

Individual Onsite Wastewater System Installation Specifications

(Must be signed and returned to ADH Authorized Agent within five working days.)

Name of Applicant		TB = Trench Bottom Elevation PE = Top of Pipe Elevation
Location of System	377	GE = Ground Elevation
Name of Installer	License #	FL = Flow Line Elevation (Top of Pipe Elev. + 4') TE = Tank Lid Elevation

Septic Tank Size	Gal	Dose Tank Size	Gal	Dra	wdown hes	Benchmark	
Type of System		22		Line	nber and Length of M	at	π
Onfice Head	π	Pump Run	min	84C	Pump Rest	min	860

Trench Media							Tz	ench W	idh.		
Stub-out			FL				G	E			
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D-box inlet	FL.	GE		D-box Outlet	R.		GE		Other Devices	GE	PE

Line Length	Beginning	Middle	End
	78	TB	7B
	GE	GE	GE

Concession in the				

Line Length	Beginning	Middle	End
	TB	TB	18
	GE	GE	GE

Line 3

Line Length	Beginning	Middle	End
	TB	TB	TB
	GE	GE	GE

Line 4

Line Length	Beginning	Middle	End
	18	TB	18
	GE	GE	GE

Receipt No.

Line 5	Beginning	Middle	End
	18	TB	TB
	GE	GE	GE

Line 6 Line Length	Beginning	Middle	End	
	TB	TB	TB	
	GE	GE	GE	

Line 7

Line Length	Beginning	Middle	End
	TB	TB	TB
	GE	GE	GE

Line 8

Line Length	Beginning	Middle	End
	TB	TB	TB
	GE	GE	GE

Line 9

Line Length	Beginning	Middle	End
	18	TB	TB
	GE	0E.	0E

Line to

Line Length	Beginning	Middle	End
	78	TB	TB
	ĢE	GE	GE

Environmental Health Specialist

I have installed this system as designed and in compliance with all Rules and Regulations Pertaining to Onsite Wastewater Systems.

Installer Signature

License Number

Date

Date

Sign and submit in 5 days

EHP-8 (R 6/13)

MINIMUM SET BACKS

HORIZONTAL DISTANCES FROM ALL SEWAGE SYSTEM COMPONENTS

- 300 Feet From High Water Mark of Lakes If Within One Quarter (¹/₄) Mile of Water a Supply Intake Structure
- 300 Feet From Any Spring Used as a Source of Domestic Water
- 100 Feet From a Domestic Water Well
- 100 Feet From High Water Mark of Streams & Lakes
- 100 Feet from Ponds on Other Property or 50 feet from Ponds on the Same Property
- 10 Feet From Dwellings
- 10 Feet From Property Lines
- 10 Feet From Water Service Lines

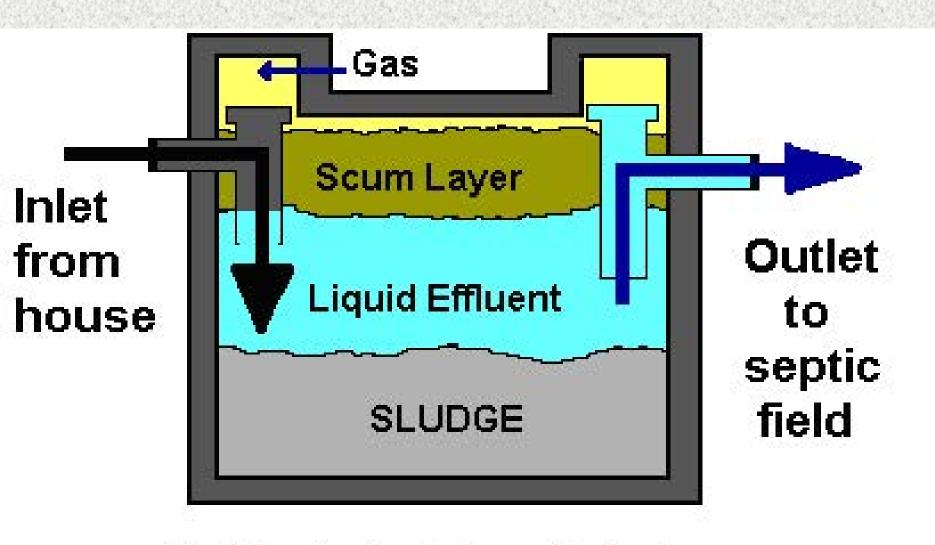
Recommendations Before Final Bid on an Installation

- Review permit completely for all construction details
- Site Visit and Review
- Locate Stub Out (if applicable)
- Take elevations (if concerned)
- Locate required supplies and suppliers
- When in doubt, ask for assistance!
- Signed Contracts with homeowner (optional)

SEPTIC TANK

Primary Wastewater Treatment

- Separates Solids From Liquids
 Scum Layer: Floats to surface and may contain Fats, Oils & Grease
 Sludge Layer: Solids sink to the bottom and may contain Heavier Organic & Inorganic Materials
- Start of Biological Process Using Anaerobic Bacteria
- Stores Solids For Future Removal



Profile of a typical septic tank



Size Specified on Application Form (EHP-19 line 20a) Concrete, Fiberglass, or Plastic Minimum Size 1000 Gallons Designated Representative Specifies: Tank Manufacturer Size (Gallons) Material Location on Lot **Outlet Flow-line NO CHANGES WITHOUT DR's OK!**







Plastic & Fiberglass Septic Tanks





SEPTIC TANK SIZE

Residential

1, 2, & 3 Bedrooms 1000 Gallons

4 Bedrooms 1250 Gallons

250 Gallons for Each Additional Bedroom

Commercial Establishments Capacity Equal to 48 Hour Flow min.

SEPTIC TANK DETAILS

Minimum of 10 Feet From House

Inlet Baffle Extends 6 Inches Below Liquid Level

Outlet Baffle Must Extend 35%-45% of Liquid Depth

Risers Required Over Both Inlets & Outlets

DR May Specify Effluent Filter

ALL SEPTIC TANKS MUST BE WATER TIGHT

- Potential Problems During a Significant Rain Event and/or Wet Season Ground Water Infiltration:
- Hydraulic Overload of the Absorption Field
- Excessive Pump Run Time
- Groundwater Contamination

SITE PREPARATION

Find Primary Absorption Field Area Look For DR's Flags Locate Benchmark Check Soil Moisture Avoid Soil Compaction Avoid Smearing Trench Walls

Keep Heavy Equipment Off of Both Primary & Secondary Absorption Field Sites Use Low Impact Tracked Equipment When Possible Minimize Vehicle Traffic

Septic Tank Inlet & Outlet Seal



Follow manufacturers directions for proper fit of pipe into seal.

SEPTIC & PUMP TANK INSTALLATION

DR Selects: All Tank Locations Tank Depths

- Tank Holes Must Be Large Enough for Backfilling
- Tanks May Need to be Bedded on Sand or Gravel
- Fill Tanks With Water To Prevent Floating
- All Tanks Must Be Watertight

ABSORPTION TRENCHES

Minimum Number of Trenches is 2 Maximum Length 100 Feet Min. 8 ft. center to center Bottom of Trench Level & On Contour

(Level is preferred but tolerant slope on perforated pipe 0-2 Inches/100 Feet)

DR Design May Include: Diversion Device Serial Distribution



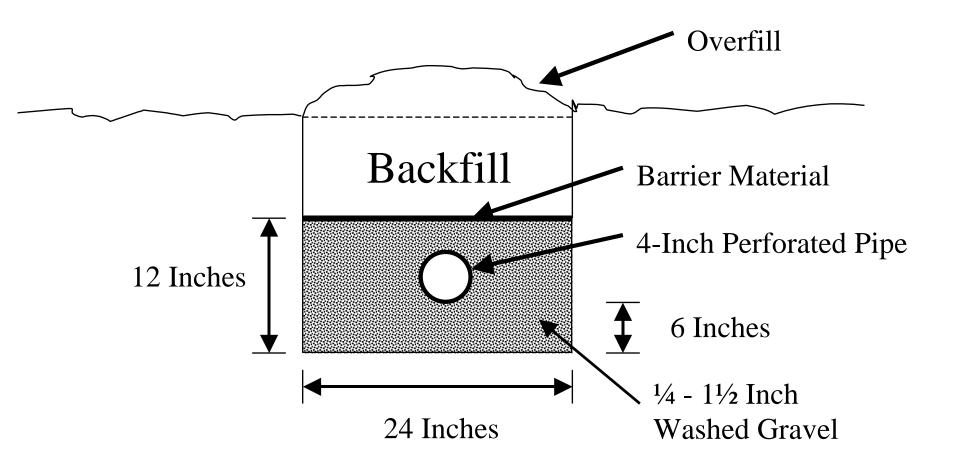
ABSORPTION TRENCH MEDIA

Gravel Trench Washed Gravel (no fines) ¹/₄ - 1¹/₂ Inch Diameter 2 Feet Wide & 1 Foot Deep 4-Inch ASTM-2729 or F-810 Perforated 1 **Pipe 6 Inches Above Bottom Authorized Gravel Substitute Listed On Authorized Products List & Website Installed As Specified By Manufacturer Designated Representative Specifies Media**

ABSORPTION TRENCHES

- Installed On Contour
- <u>Minimum</u> spacing between the trenches shall be 6 feet between the trenches and 8 feet center to center
- <u>18 Inches Deep</u> Unless Otherwise Specified by the Designated Representative
- Horizontal separation of **5** feet between the absorption area and tight line trench
- Barrier Material Over Media
 - Geo-Textile
 - **Building Paper** (Not Roofing Felt)
- Authorized Media (Follow Manufactures Instructions)

ABSORPTION TRENCH CROSS-SECTION



Absorption Trench **Installed on Contour** With Barrier **Material In Place** (Geo-Textile)

Note: Contour line.



MAXIMUM STORAGE INSTALLATION AND CONSTUCTION

Construction technique where the placement of the distribution box or septic tank flowline allows for maximum storage within a trench as well as the surrounding soil.

The two types of maximum storage installations are: Flat or Sloping

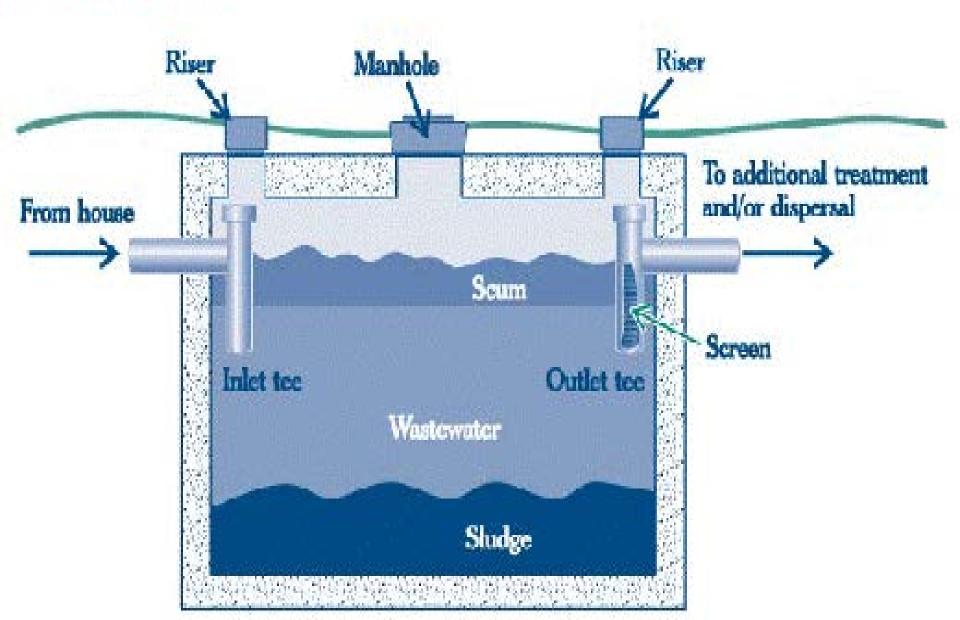


Septic Tank Inlet & Outlet Pipes Must Be Schedule 40 PVC

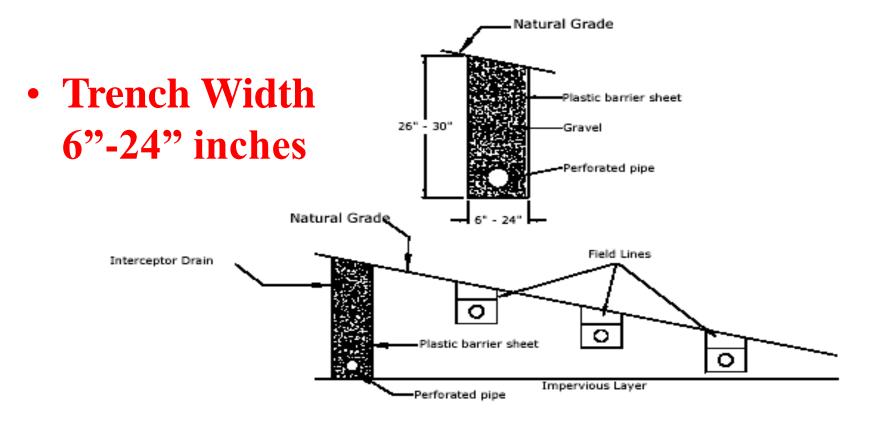
Slope On "Inlet" Pipe 1/8 - 1/4 Inch Per Foot

4 Inch Cleanout Required Before Entering Tank Every 100 Feet Changes In Direction > 45°

Typical single-compartment septic tank with ground-level inspection risers and screen



Interceptor Drain (3% or greater slope)









Smearing of sidewalls and bottoms reduces the absorption rate

Two critical factors: How wet is the soil? What is the soil's clay content?

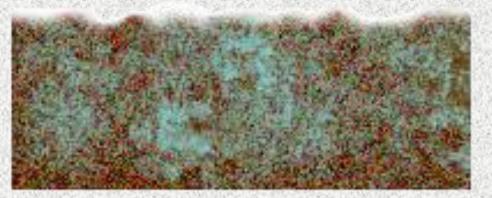
Roll the soil between your thumb and index finger. If the soil forms a ribbon it is too wet to install the lateral field

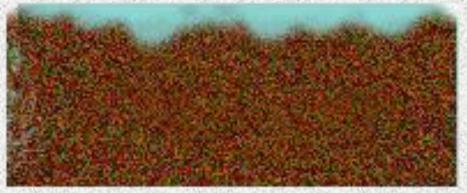


Soil Compaction

When soil particles are compressed, the void spaces in the soil are eliminated. This also damages the soil structure. The result is less storage in the soil and reduced hydraulic conductivity.

Use low impact track equipment whenever possible. All traffic on the absorption site should be avoided during wet conditions.





SITE CLEARING & GRUBBING

Have A Specific Plan For Each Site Leave Top Soil Cut Trees Flush To Ground Only Remove Roots That Interfere With Trenches Remaining Roots Will Rot Use Stump Grinder On Stumps

Rake Smeared Sidewalls to Depth of 1 Inch









EFFLUENT DISTRIBUTION

Gravity Distribution

Pumped Distribution

GRAVITY DISTRIBUTION

- Distribution Box
 - (Key: equal distribution)

• Serial Distribution

DISTRIBUTION BOXES









EFFLUENT FLOW CONTROL DEVICES

AKA: Diversion Devices





DISTRIBUTION BOX

Materials

Concrete Plastic

Bedded on Undisturbed Earth, Gravel, or Concrete Must Be Level All Lines Feed the Same Use Flow Control Devices 4 Inch PVC Solid Pipe In & Out Schedule 40 PVC

SDR-35 PVC

NO PERFORATED PIPE FOR 5 FEET

PUMPED DISPERSAL

- Distribution Box
- Low Pressure Distribution (LPD) (*Key: equal distribution in small doses*)
- DR Designs Distribution System

Pressure Manifolds

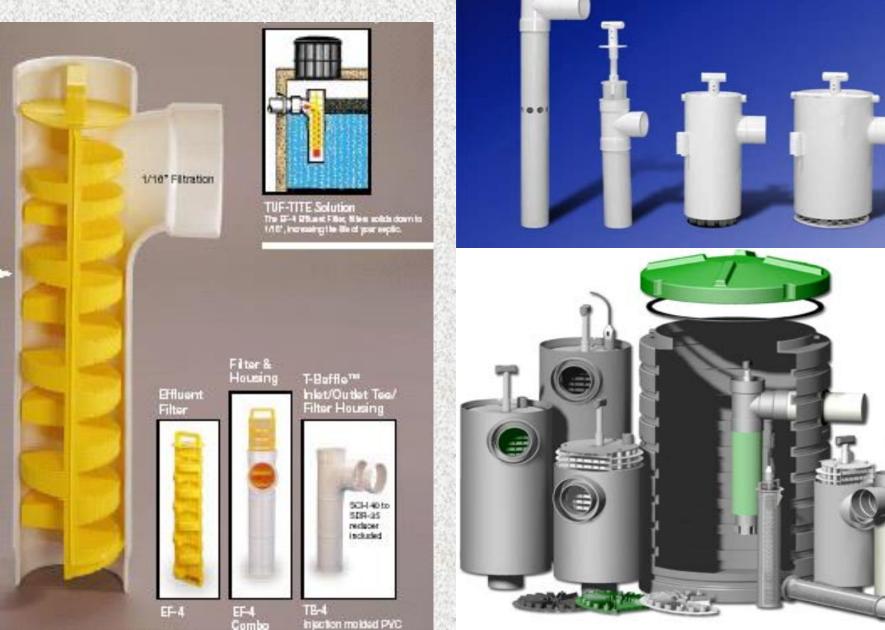




Orifice Disk must be sized according to the specification found in the permit. Accurate drill size is important when the manifold is used with uneven length lines.



Effluent Filters



PUMP TANKS

Large Enough For: Dose Volume Specified by DR Ballast (to prevent floating) 1/4 Reserve (surge capacity) 1/3 daily usage

Electrical Connections Protected From Corrosive Gasses



Filtered

Pump

Vaults



FILTERED PUMP VAULTS

- 250 Gallon Larger Septic Tank Required
- Maximum drawdown per Dose Cycle is 3 Inches
- Pump Vault Inlets Between 35%-45% of the Liquid Depth of Tank
- Pumped Effluent Line Goes Out Through Septic Tank Outlet Riser

DOSED DISTRIBUTION BOX

Inlet Pipe 1½ or larger Schedule 40 PVC Outlet Pipes 4 Inch Schedule 40 PVC OR SDR-35 PVC

Baffled For Even Flow To All Lines

DR Specifies Construction & All Components



90° Bend Acts As Baffle

PUMPING DOWN HILL

When the soil absorption field is located below the elevation of the pump tank, measures must be taken to prevent the effluent from being siphoned into the absorption field.

HOW CAN THIS BE PREVENTED? 1/8 inch hole at head works