

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**



Arkansas Department of Health
Environmental Health Protection

Receipt Number

Individual Onsite Wastewater System Permit Application

Permit Type New Installation
 Alteration / Repair

DR Environmental I.D. #
[] []

Fee Schedule for Structures		√
Structures 1500 sq ft or less	\$ 30.00	<input type="checkbox"/>
Structures more than 1500 sq ft and up to 2000 sq ft	\$ 45.00	<input type="checkbox"/>
Structures more than 2000 sq ft and up to 3000 sq ft	\$ 60.00	<input type="checkbox"/>
Structures more than 3000 sq ft and up to 4000 sq ft	\$120.00	<input type="checkbox"/>
Structures more than 4000 sq ft	\$150.00	<input type="checkbox"/>
Alteration and Repair	\$ 30.00	<input type="checkbox"/>

Part 1 Treatment Type (check one) Disposal Method (check one)

<input type="checkbox"/> STD = Standard Septic Tank	<input type="checkbox"/> ATU = Aerobic Treatment Unit	<input type="checkbox"/> STD = Standard Absorption Field	<input type="checkbox"/> LPD = Low Pressure Distribution
<input type="checkbox"/> ISF = Intermittent Sand Filter	<input type="checkbox"/> RSF = Re-circulating Sand Filter	<input type="checkbox"/> SUR = Surface Discharge	<input type="checkbox"/> HLD = Holding Tank
<input type="checkbox"/> PMF = Proprietary Media Filter	<input type="checkbox"/> RGF = Re-circulating Gravel Filter	<input type="checkbox"/> CPF = Capping Fill	<input type="checkbox"/> SRL = Serial Distribution
<input type="checkbox"/> OTH = Other (Describe)	<input type="checkbox"/> HLD = Holding Tank	<input type="checkbox"/> OTH = Other	<input type="checkbox"/> DRP = Drip Irrigation

1. Owner/Applicant's Name 2. Phone Number

3. Mailing Address 4. County

5. Address of Proposed System (if a 911 address is not available, attach detailed directions or map)

6. Subdivision Name 7. Approval Date 8. Date Recorded 9. Lot Number

10. Lot Dimensions 11. Total Area (Acres) 12. # Bedrooms # People 13. Daily Flow (GPD)

14. Brief Legal Description of Property (Attach a separate sheet of paper if necessary)

15. Water Supply (Specify supplier if Public Water) 16. GPS Coordinates

17. Loading Rates		18. System Size	
GPD/ft ²			
Primary Site	a. Size of Septic Tank	gal	f. Trench Depth
Secondary Site	b. Size of Dose Tank	gal	g. Trench Spacing
Percolation Test (min/in)	c. Absorption Area	ft ²	h. Trench Media
Primary Site Ave	d. Number of Field Lines		i. Trench Width
Secondary Site	e. Length of Field Lines	ft	

TO THE OWNER
The permit for construction may be deemed invalid by the local Environmental Health Specialist before the start of construction, if the site and/or soil conditions have changed after approval of this permit, or if the information within this permit is inaccurate or has been found to be misrepresented. Approval for operation does not constitute a guarantee that the system will function properly. The approval states that the system was designed and installed according to the Arkansas Department of Health, Rules and Regulations Pertaining to Onsite Wastewater Systems, unless there are exceptions or deviations noted in the comments. A Permit for Construction is valid for one (1) year from the date of approval. The authorized agent must revalidate a permit more than one (1) year old prior to the start of any construction.

19. Utilization Verification
I hereby attest that item 12, the number of bedrooms (number of persons for commercial) and square footage of the structure that will utilize the designed individual onsite wastewater system in this permit application, is accurate. I have reviewed and understand the type of system submitted in this application relating but not limited to: layout, installation, maintenance, and operation.
Owner/Applicant Signature _____ Date _____

20. I certify that I have conducted the above tests and that the above listed information is in accordance with the latest requirements of the Arkansas Department of Health Rules and Regulations Pertaining to Onsite Wastewater Systems.

Designated Representative Signature ID Number Soil Certified Yes No

Print Name Date Phone Number

21. 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.

Environmental Specialist Signature ID Number Date

Line 21 →



22. Soil Determination (Primary Area)								Indicate the depth to items a-f, if observed in the soil (designate in inches)											
a. Bedrock	b. BSWT	c. MSWT	d. LSWT	e. Adj. MSWT	f. Adj. LSWT	g. H.C./Depth	h. Loading Rate (GPD/ft ²)												
23. Soil Determination (Secondary Area)								Indicate the depth to items a-f, if observed in the soil (designate in inches)											
a. Bedrock	b. BSWT	c. MSWT	d. LSWT	e. Adj. MSWT	f. Adj. LSWT	g. H.C./Depth	h. Loading Rate (GPD/ft ²)												
24. Soil Profile Information																			
Primary Site (SWT)				Matrix				Redoximorphic Features				Soil Texture							
Brief	inches																		
Mod	inches																		
Long	inches																		
Secondary Site (SWT)				Matrix				Redoximorphic Features				Soil Texture							
Brief	inches																		
Mod	inches																		
Long	inches																		
25. Soil Series (Do not use Soil Series to determine Seasonal Water Tables)																			
26. Percolation Test (in/min)																			
Primary Site Rate for Hole 1				Primary Site Rate for Hole 2				Primary Site Rate for Hole 3				Primary Site Average Percolation Rate (1-3)				Secondary Site Percolation Rate			
Comments																			

Part 2 - Installation Inspection

Septic tank manufacturer		Other information	
Septic tank material		Trench media and width	
Dose tank manufacturer		Depth of interceptor drain	
Dose tank material		Depth of settled fill	
Pump information			
Name of installer			License Number
Installation inspected by <input type="checkbox"/> Environmental Health Specialist <input type="checkbox"/> Designated Representative (check one or see below)			
Signature		ID Number	Date
System Installation Verification I have installed this system as designed and in compliance with all Rules and Regulations Pertaining to Onsite Wastewater Systems.			
Installer Signature		ID Number	Date

Part 3 - Permit for Operation

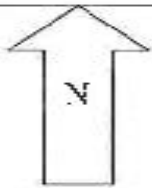
The information contained in Part 1 and 2 of this form has been reviewed and found to meet the requirements of the Arkansas Department of Health. THE PERMIT FOR OPERATION of this system is hereby issued.			
Environmental Health Specialist		Signature	ID Number
Date			
Comments			
Site Revalidation conducted by <input type="checkbox"/> Environmental Health Specialist <input type="checkbox"/> Designated Representative (check one)			
Signature		ID Number	Date

THE PLAT DRAWING

Plan(s) Attached to the Permit Form

Drawing Shows:

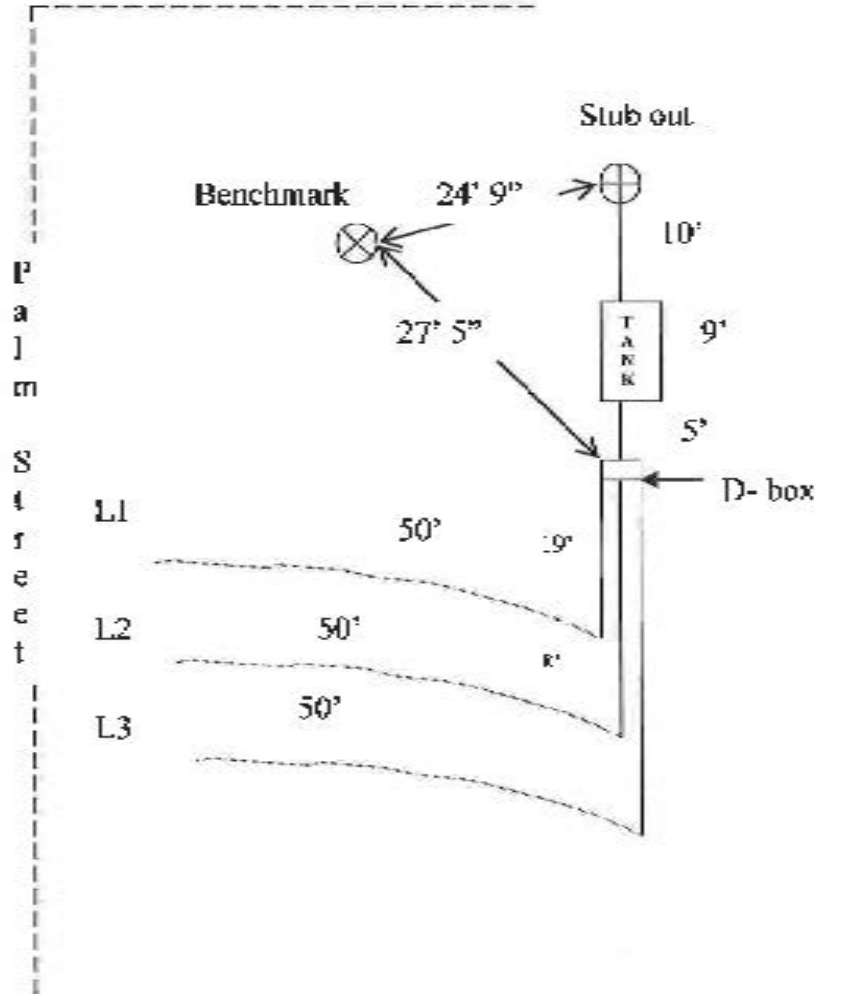
- **House, Property Lines, & Setbacks**
- **Septic Tank Location**
- **Pump Tank Locations (if any)**
- **Solid Pipes, Cleanouts, & Distribution Box**
- **Absorption Trenches on Contour**
- **Other Important Details**



Lot #1

Scale 1:20

Markham Street



<u>Ground Shots</u>			
Benchmark			2.06
Stubout:			1.30
In Tank			2.00
Out Tank			2.46
D-Box			2.66
	Top	Middle	End
L1	3.62	3.62	3.62
L2	4.16	4.16	4.16
L3	4.76	4.76	4.76

1. Trenches to be 1.5' (18") deep
2. Top of pipe at stub out to be even with natural ground
3. Top of tank at inlet to be even with natural ground
4. Top of D-box even with natural ground

OTHER DOCUMENTS

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

NEW PRODUCTS

**Reviewed & Authorized by
Onsite Wastewater Product
Review Committee**

Listed On:

Authorized Onsite Wastewater Products List

Agency Website

**[www.healthy.arkansas.gov/programs-
services/topics/onsite-wastewater](http://www.healthy.arkansas.gov/programs-services/topics/onsite-wastewater)**

Grouped by Categories

IMPORTANT POINTS

**! 24 Hour Notice to EHS Required
Before Installation Begins**

Sec. 4.7

**! Licensed Installer Must 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 GE = Ground Elevation FL = Flow Line Elevation (Top of Pipe Elev. + 4') TE = Tank Lid Elevation	
Location of System			
Name of Installer	License #		

Septic Tank Size	Gal	Dose Tank Size	Gal	Drawdown Inches	Benchmark
Type of System				Number and Length of Lines at ft	
Orifice Head	ft	Pump Run	min	sec	Pump Rest min sec

Trench Media	Trench Width
Stub-out	FL GE

Tank Inlet	FL	GE	TE	Dose Tank Inlet	FL	GE	TE
Tank Outlet	FL	GE	TE	Dose Tank Outlet	FL	GE	TE

D-box Inlet	FL	GE	D-box Outlet	FL	GE	Other Devices	GE	PE
-------------	----	----	--------------	----	----	------------------	----	----

Line 1

Line Length	Beginning	Middle	End
	TB	TB	TB
	GE	GE	GE

Line 2

Line Length	Beginning	Middle	End
	TB	TB	TB
	GE	GE	GE

Line 3

Line Length	Beginning	Middle	End
	TB	TB	TB
	GE	GE	GE

Line 4

Line Length	Beginning	Middle	End
	TB	TB	TB
	GE	GE	GE

Receipt No _____

Line 5

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

Line 10

Line Length	Beginning	Middle	End
	TB	TB	TB
	GE	GE	GE

Environmental Health Specialist _____ Date _____

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

Sign and submit in 5 days

MINIMUM SET BACKS

HORIZONTAL DISTANCES FROM ALL SEWAGE SYSTEM COMPONENTS

- **300** Feet From High Water Mark of Lakes **If** Within One Quarter ($\frac{1}{4}$) 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

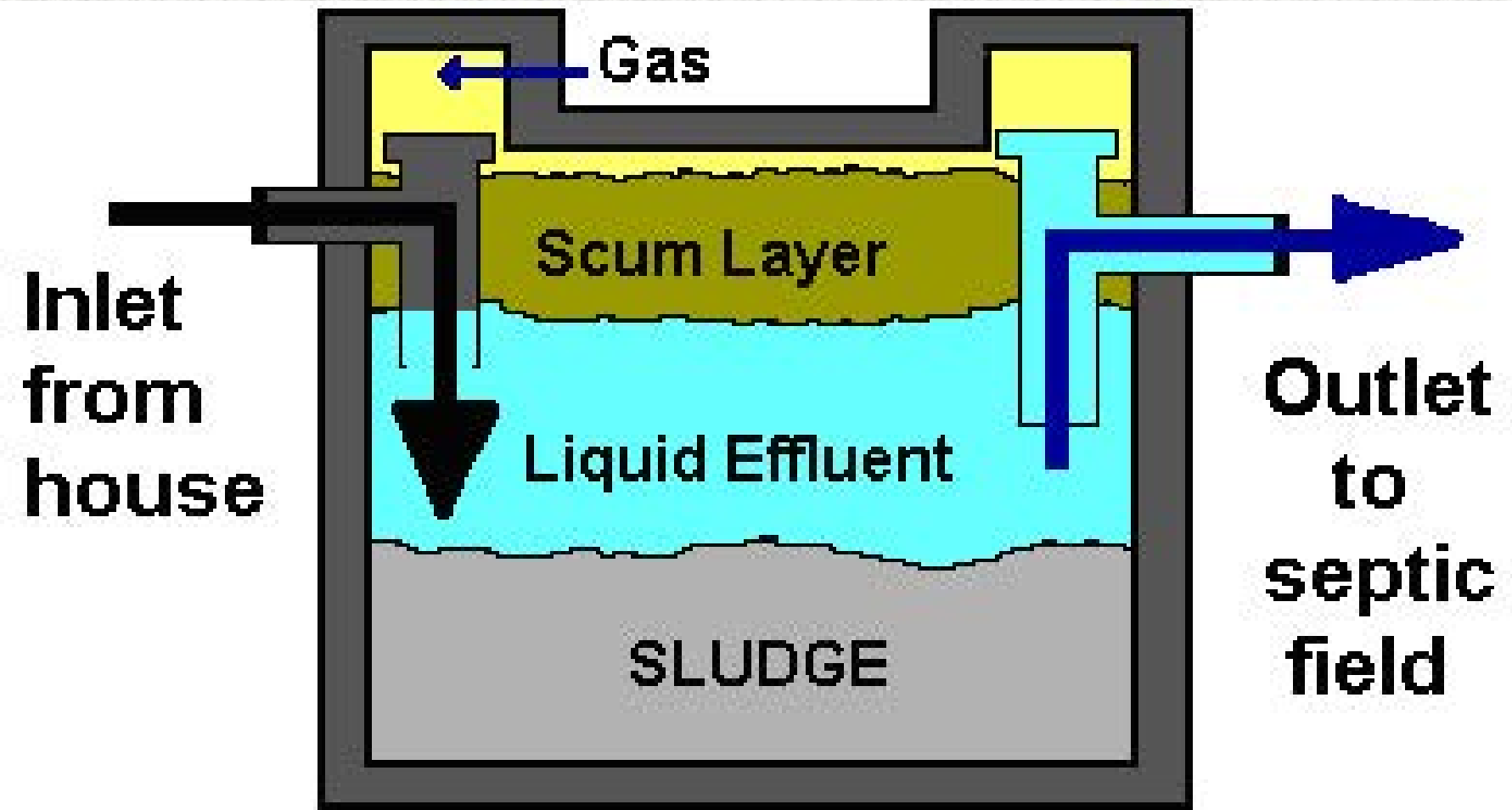
Recommendations Before Final Bid on an Installation

- **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

SEPTIC TANKS

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!

Concrete Septic Tank





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

Over Fill To Allow For Settling

ABSORPTION TRENCH MEDIA

Gravel Trench

Washed Gravel

(no fines)

1/4 - 1 1/2 Inch Diameter

2 Feet Wide & 1 Foot Deep

! 4-Inch ASTM-2729 or F-810 Perforated !
Pipe 6 Inches Above Bottom

Authorized Gravel Substitute

Listed On Authorized Products List & Website

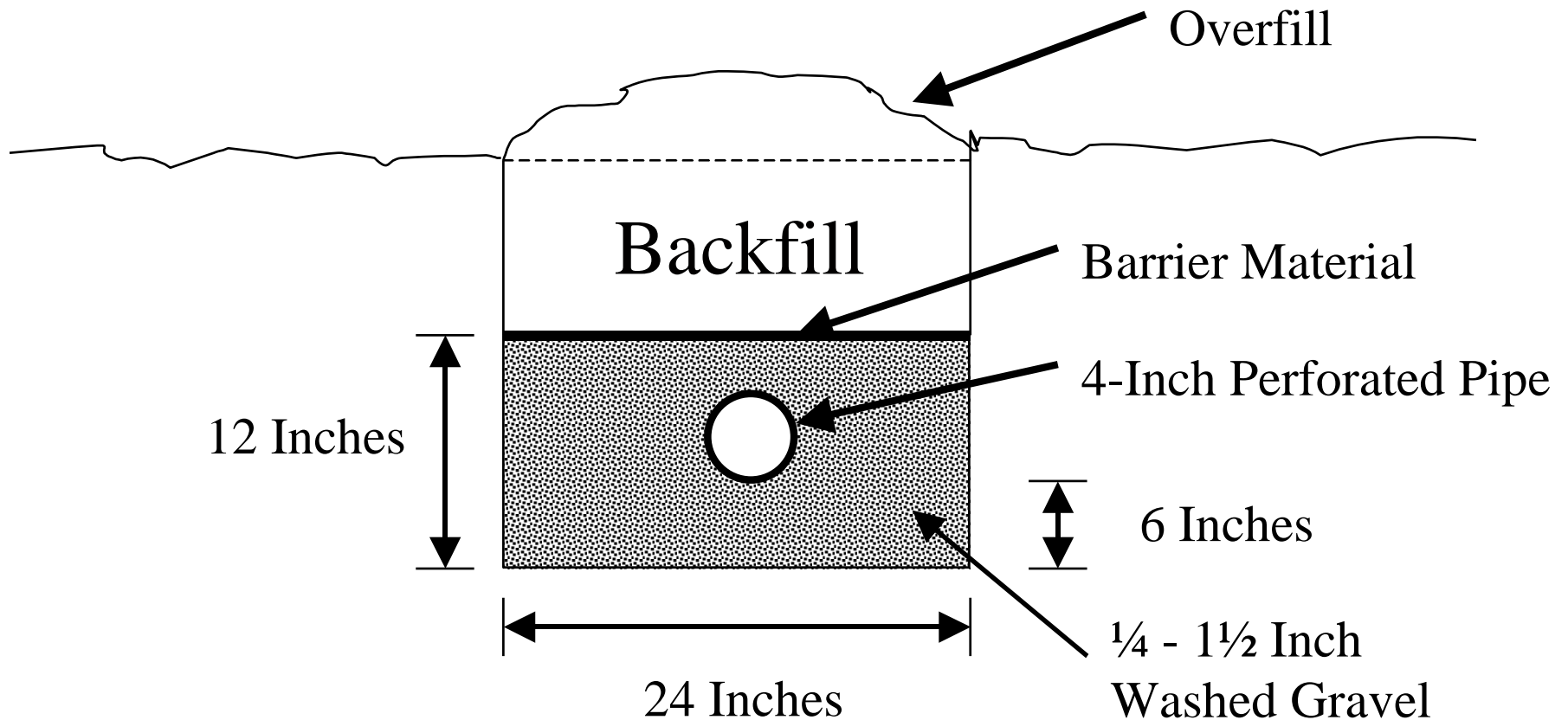
Installed As Specified By Manufacturer

Designated Representative Specifies Media

ABSORPTION TRENCHES

- **Installed On Contour**
- **Minimum spacing between the trenches shall be 6 feet between the trenches and 8 feet center to center**
- **18 Inches Deep 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 CONSTRUCTION

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

HOUSE SEWER LINE

**Septic Tank Inlet & Outlet Pipes Must Be
Schedule 40 PVC**

Slope On “Inlet” Pipe $\frac{1}{8}$ – $\frac{1}{4}$ Inch Per Foot

4 Inch Cleanout Required

Before Entering Tank

Every 100 Feet

Changes In Direction $> 45^\circ$

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

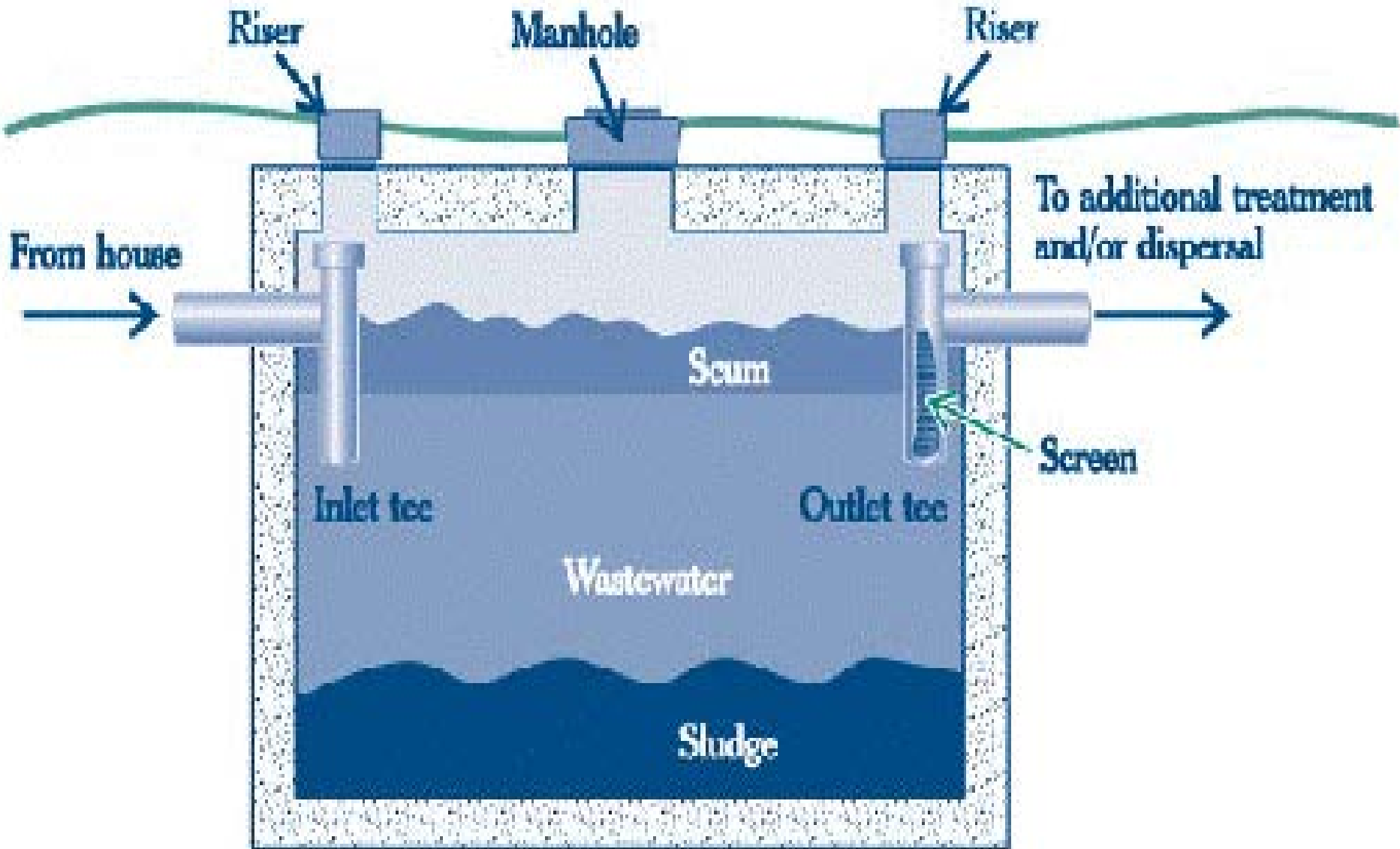
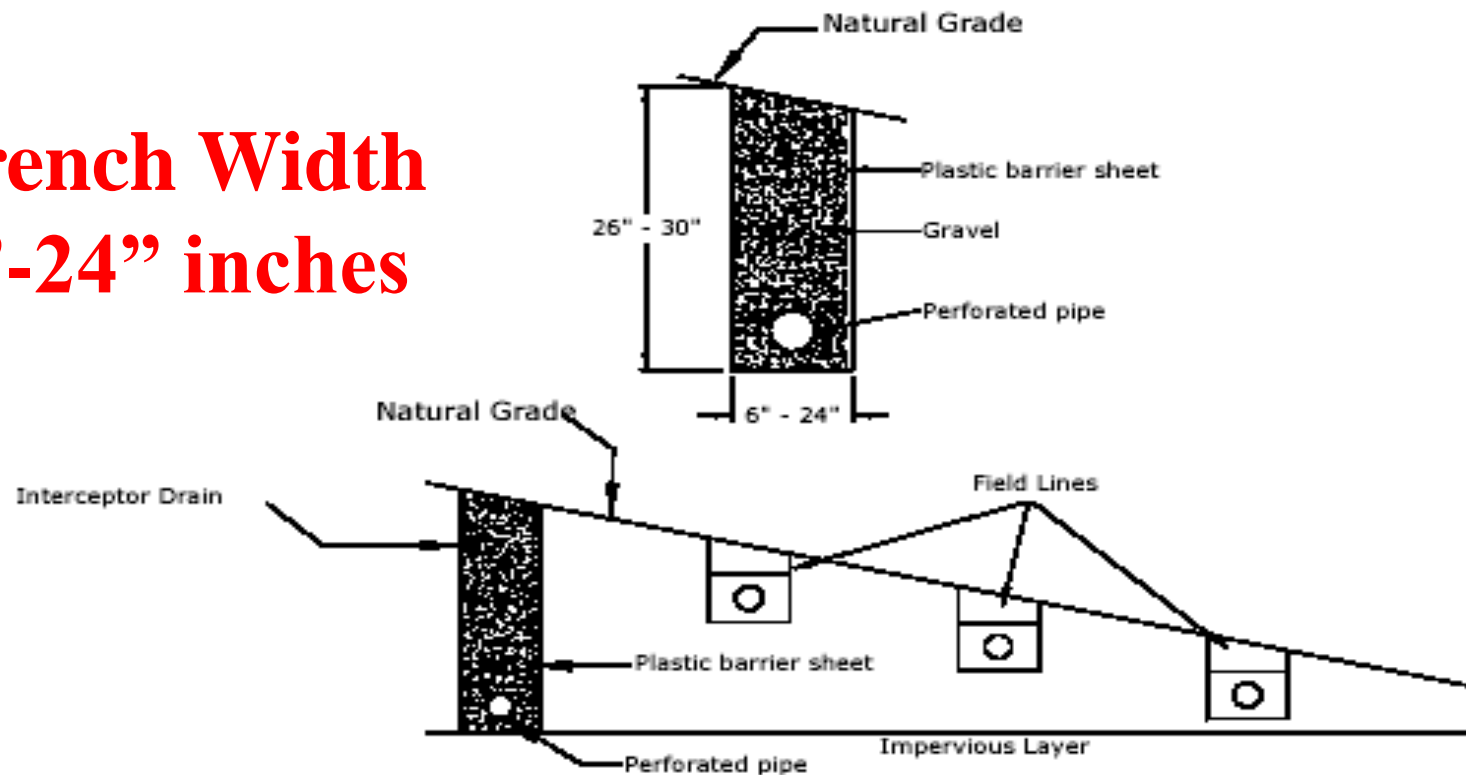
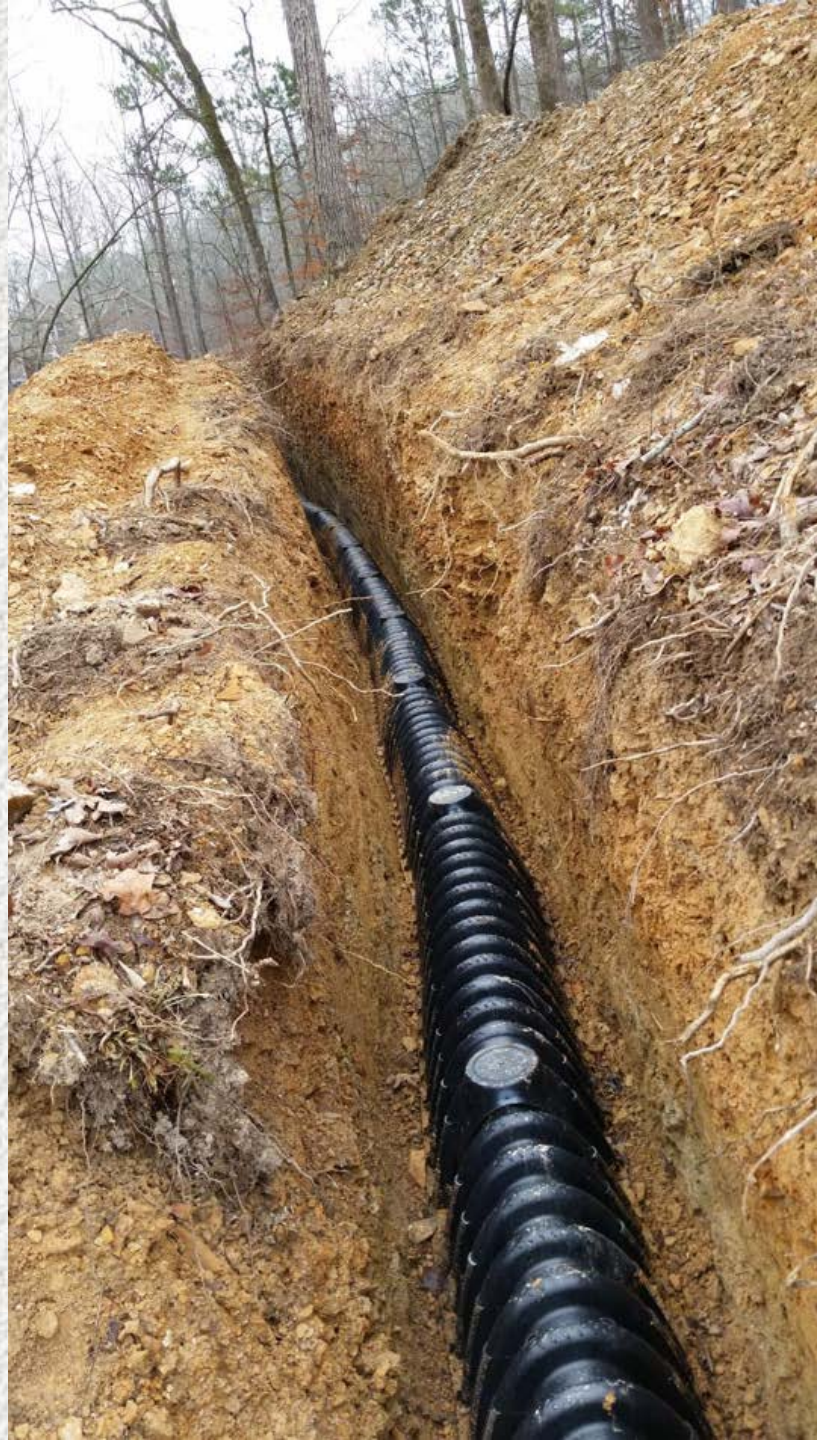


fig.8

Interceptor Drain (3% or greater slope)

- **Trench Width
6"-24" inches**







Soil Smearing

Smearing of sidewalls and bottoms reduces the absorption rate

Two critical factors: How wet is the soil?

What is the soil's clay content?

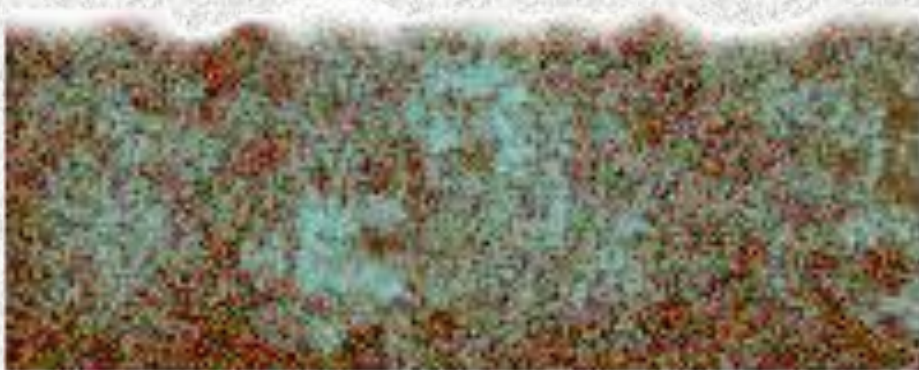
Roll the soil between your thumb and index finger. If the soil forms a ribbon it is too wet to install the lateral field



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 Smearred Sidewalls to Depth of 1 Inch

PIPE ASTM-D-2729 3000-CR11RH





PE ASTM-D-2729 3000-CRUSH







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



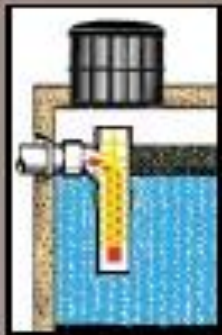
Orifice Disk must be sized according to the specification found in the permit. Accurate drill size is important when the manifold is used with uneven length lines.



Effluent Filters



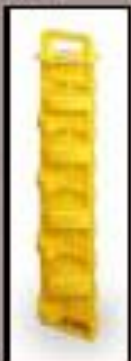
1/10" Filtration



TUF-TITE Solution

The EF-4 Effluent Filter filters solids down to 1/10", increasing the life of your septic.

Effluent Filter



EF-4

Filter & Housing



EF-4 Combo

T-Baffle™ Inlet/Outlet Tee/ Filter Housing



SDH-40 to SDR-45 reducer included

TB-4 Injection molded PVC



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**



© Orenco Systems®, Inc., 2004



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

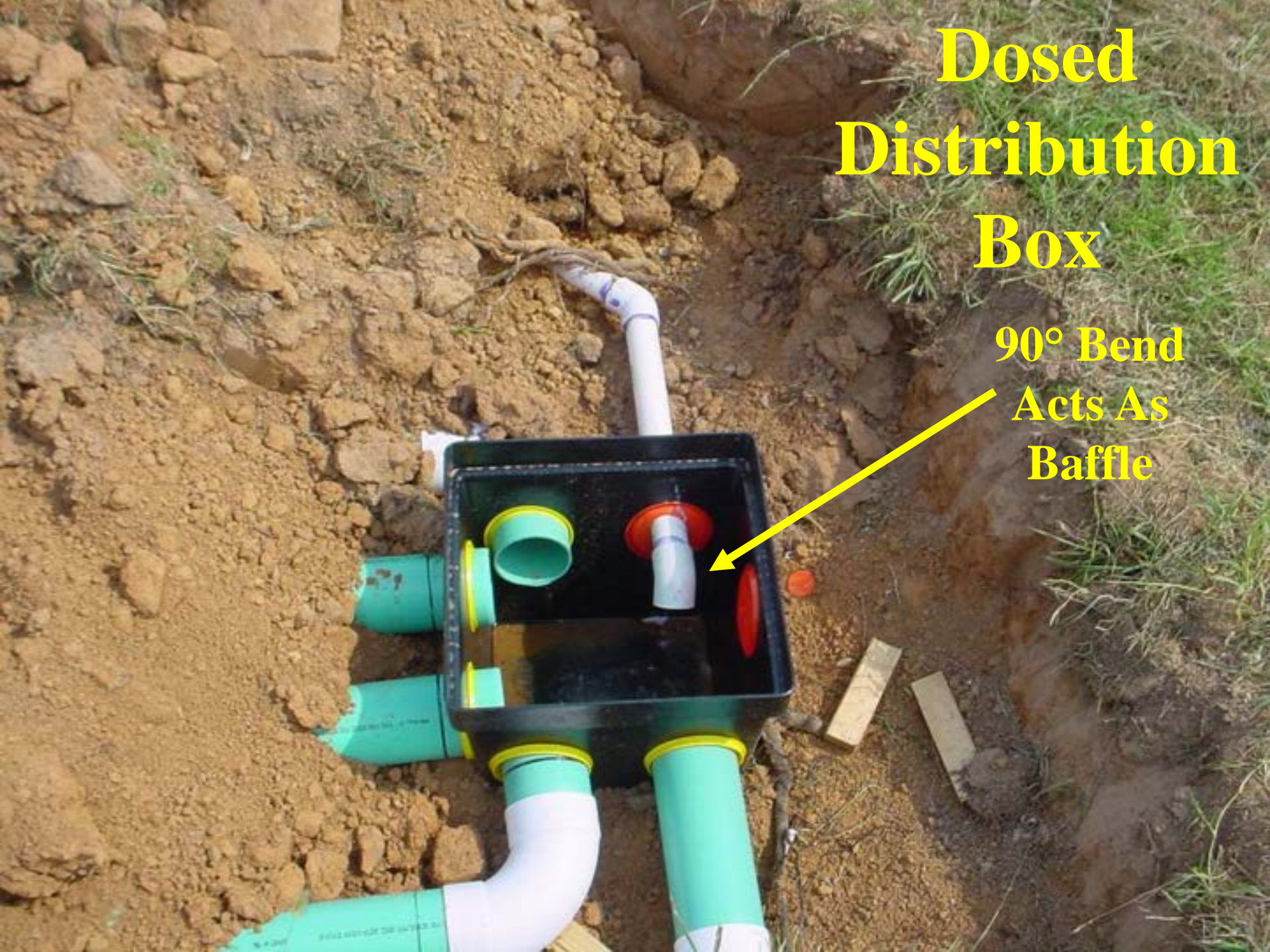
SDR-35 PVC

Baffled For Even Flow To All Lines

DR Specifies Construction & All Components

Dosed Distribution Box

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