Septic Installer Refresher Course

Instructions

- Review the materials provided throughout this presentation.
- Complete the quiz at the end of this presentation.
- Once completed, SCPHD will send you a certificate of completion.
- This will count for your refresher course training.

Purpose

IDAPA 58.01.03.006.03 requires:

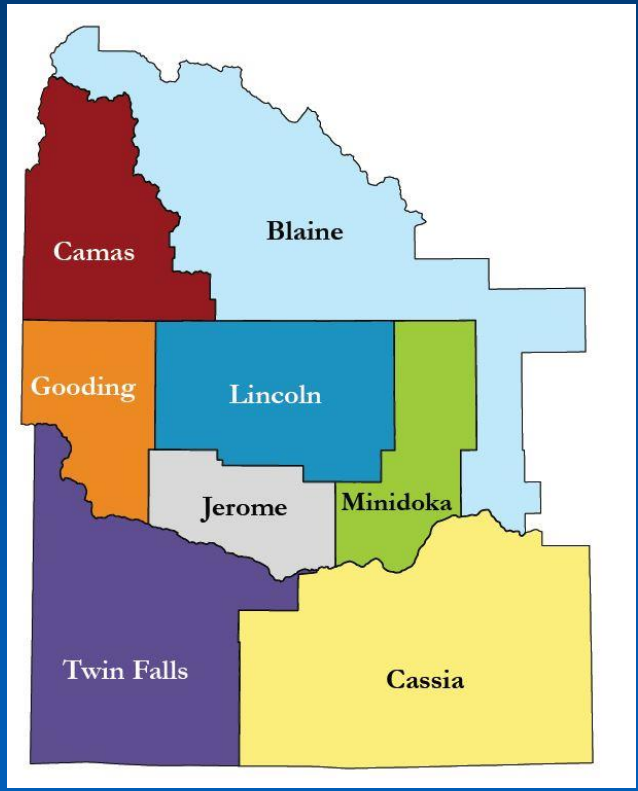
1. Licensed installers and service providers shall attend at least one (1) refresher course every three (3) years.
2. Individuals holding both a complex installer license and service provider certification shall attend one refresher course for complex installers and another course for the service provider certification.
3. Installer and service provider refresher courses are not interchangeable.

2025 License Renewals

- Mailers went out in November 2024
- If you haven't renewed, see Tawna (your license is expired)
- No changes to fees or requirements
- You must have your license to install!

SCPHD Staff Updates

- EH Director – Josh Jensen
- Septic Coordinator – John Wingrove
- Mini-Cassia – Scott Arnell
- Blaine – Nolan Hamm
- Gooding & Camas – Tiffaney Jeske
- Twin Falls – John Wingrove
- Jerome & Lincoln – David Gutierrez-Aguirre



TGM & DEQ Updates

DEQ On-Site Wastewater Coordinator

- Peter Adams
  - peter.adams@deq.idaho.gov

Overview of TGM Changes 2022-2025

- Section 2.1.2 Soil Design Groups (Feb 2022)
- Section 4.15 Wastewater Incinerators (Feb 2022)
- Section 4.20 RV Dump Stations (Jun 2022)
- Section 2.2.4.1 Reduction in Separation Distance to Surface Water w/out a Variance (Sep 2022)
- Setbacks to capping fill and sand mound (Dec 22)
- Section 3.2.8 Backfilling with sand (Mar 2023)
- Section 1.5.2.3 Lapsed license (Jan 2024)
- Section 3.2.3 Tank Installation (Apr 2024)

TGM Updates Feb 2022

- Soil Design Groups

The soil design group or subgroup (Table 2-4) used to determine the vertical separation distances describe the finest-textured soils adjacent to and beneath the drainfield for the effective soil depth. The soil design group or subgroup (Table 2-4) used to determine the horizontal separation distances to surface water is the coarsest-textured soils adjacent to and beneath the drainfield for the effective soil depth.

-Drainfields are sized based on the most restrictive hydraulic application rate within the necessary effective soil depth beneath the drainfield.

TGM Updates Feb 2022

- Soil Design Groups

The soil design group or subgroup (Table 2-4) used to determine the vertical separation distances describe the finest-textured soils adjacent to and beneath the drainfield for the effective soil depth. The soil design group or subgroup (Table 2-4) used to determine the horizontal separation distances to surface water is the coarsest-textured soils adjacent to and beneath the drainfield for the effective soil depth.

-Drainfields are sized based on the most restrictive hydraulic application rate within the necessary effective soil depth beneath the drainfield.

TGM Updates Feb 2022

- Wastewater Incinerator

4.15 Individual Wastewater Incinerator

Revision: February 24, 2022

Installer registration permit:	Property owner or standard and basic (incinerating toilets)
	Complex (whole-home incinerators)
Licensed professional engineer required:	No (incinerating toilets)
	Yes (whole-home incinerators)

TGM Updates Jun 2022

- RV Dump Stations (4.20)
- RV Parks must have "one or the other," but we recommend having both subsurface hookups and a dump station
  - LSAS RV Parks (20+ RV spaces) must have individual wastewater connections
- See RV Park memo if permitting an RV Park

TGM Updates Sep 2022

- Setbacks to surface water

2.2.4.1 Reduction in Separation Distance to Surface Water without a Variance

Table 2-7 shows the criteria for reducing separation distances from a drainfield to permanent or intermittent surface water based on soil design subgroups. This table is intended to be used only when the Rule cannot be met. Subdivisions and parcels recorded after February 24, 2022 must meet the separation distances in the Rule.

Table 2-7. Criteria for reducing separation distances from a drainfield to permanent or intermittent surface water.

Rule Separation Distance (feet)	Soil Design Subgroup	Maximum Allowable Separation Reduction (feet)	Minimum Separation Distance to Surface Water (feet)
300	A-1	100	200
300	A-2	125	175
200	B-1	75	125
200	B-2	100	100
100	C-1	0	100
100	C-2	0	100

TGM Updates Dec 2022

- Setbacks to capping fill

Below-Grade Capping Fill System Approval Conditions

1. ~~1.~~ Effective soil depths below the drainfield bottom must be met as required by IDAPA 58.01.03 or as allowed in section 2.2 of this manual following the separation distance hierarchy.
2. ~~1.~~ Horizontal separation distances as required by IDAPA 58.01.03 shall be measured from the trench sidewall. The soil cap must not cross property lines unless a valid easement is in place.
3. ~~2.~~ Site may not exceed 20% slope.
4. ~~3.~~ The soil cap may be constructed before system excavation but after natural soil scarification if the cap must extend above the natural soil to achieve the minimum cover requirement of 12 inches.
5. ~~4.~~ The fill material (section 4.3.4), construction (section 4.3.5), and inspection (section 4.3.6) requirements must be met.

TGM Updates Dec 2022

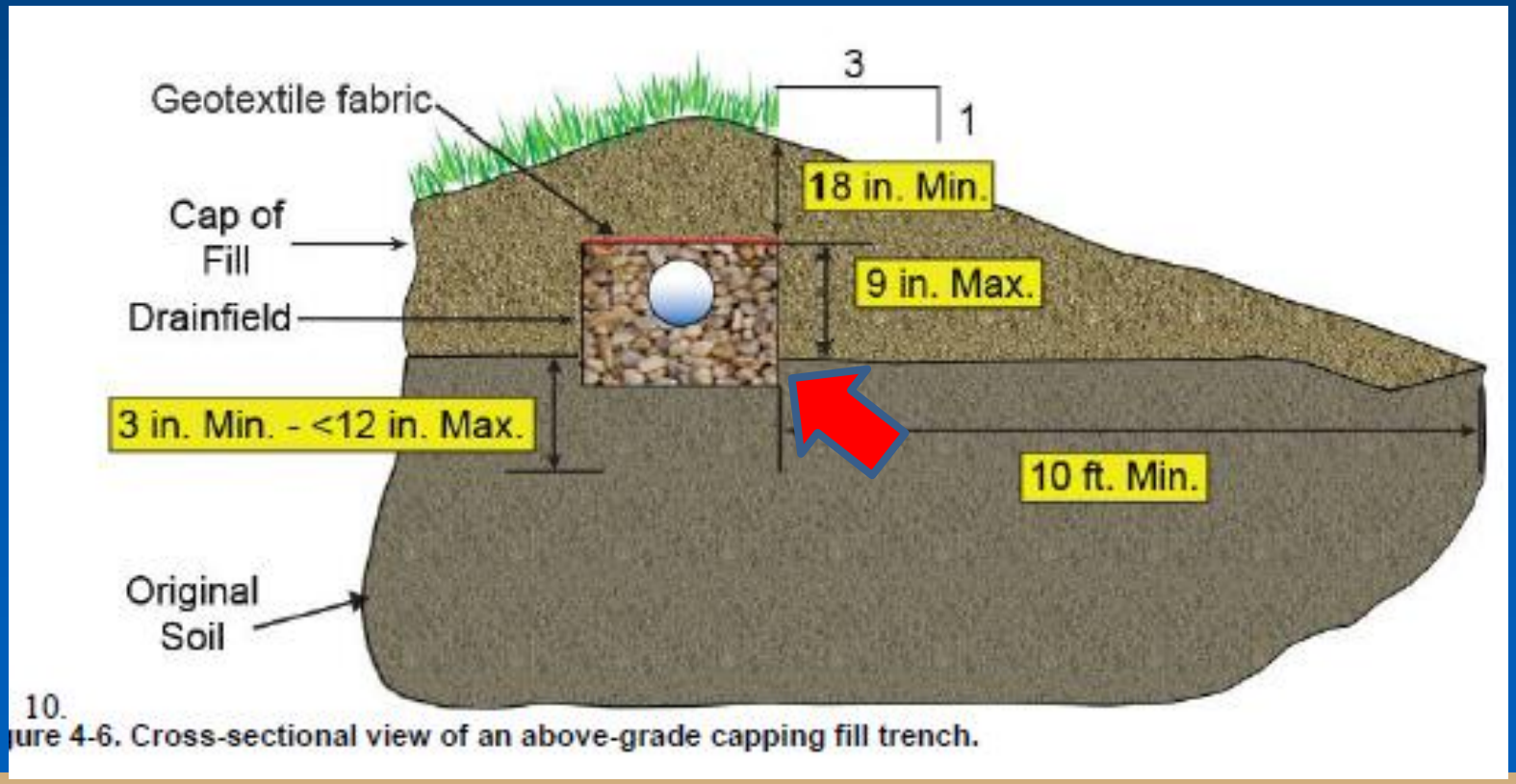
- Setbacks to capping fill

Above-Grade Capping Fill System Approval Conditions

1. Effective soil depth below the drainfield bottom must be met as required by IDAPA 58.01.03 or as allowed in section 2.2 of this manual following the separation distance hierarchy.
~~1.~~2. Horizontal separation distances as required by IDAPA 58.01.03 shall be measured from the trench sidewall. The soil cap must not cross property lines unless a valid easement is in place.
~~2.~~3. Site may not exceed 12% slope.
~~3.~~4. The soil cap must be constructed before system excavation but after natural soil scarification when constructing with pipe and aggregate.

TGM Updates Dec 2022

- Setbacks to capping fill



10.
ure 4-6. Cross-sectional view of an above-grade capping fill trench.

TGM Updates Dec 2022

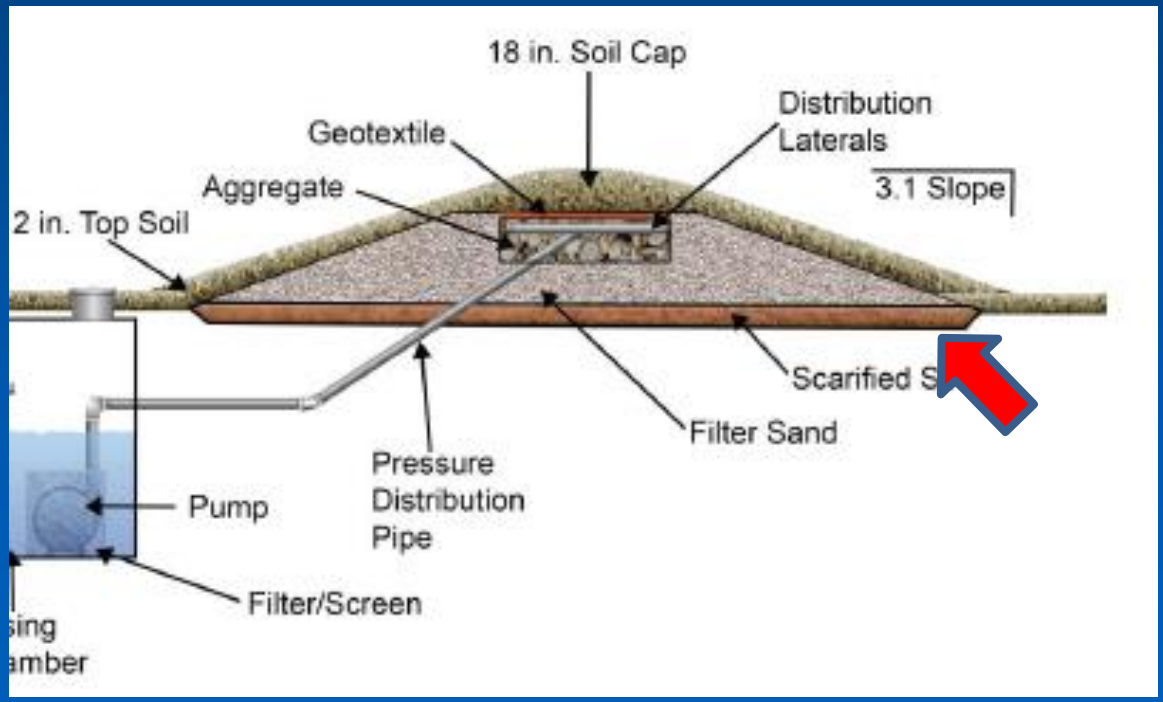
- Setbacks to sand mound

4.24.2 Approval Conditions

1. Effective soil depth to limiting layers may vary depending upon thickness of filter sand beneath the absorption bed:
   a. If 12 inches of filter sand is placed beneath the absorption bed, then Table 4-23 lists the minimum depth of natural soil to the limiting layer.
   b. If 24 inches of filter sand is placed beneath the absorption bed, then Table 4-21 in Section 4.22 "Intermittent Sand Filter," identifies the effective soil depth to limiting layers.
2. Horizontal separation distances as required by IDAPA 58.01.03 shall be measured from the toe of the sand mound slope prior to soil cap cover.
3. The soil application rate used in the sand mound design is based on the most restrictive soil layer within the soil profile's effective soil depth as determined by approval condition 1 except that the effective sizing depth shall not be less than 18 inches.
4. Table 4-24 shows the maximum slope of natural ground, listed by soil design group.

TGM Updates Dec 2022

- Setbacks to sand mound



TGM Updates Dec 2022

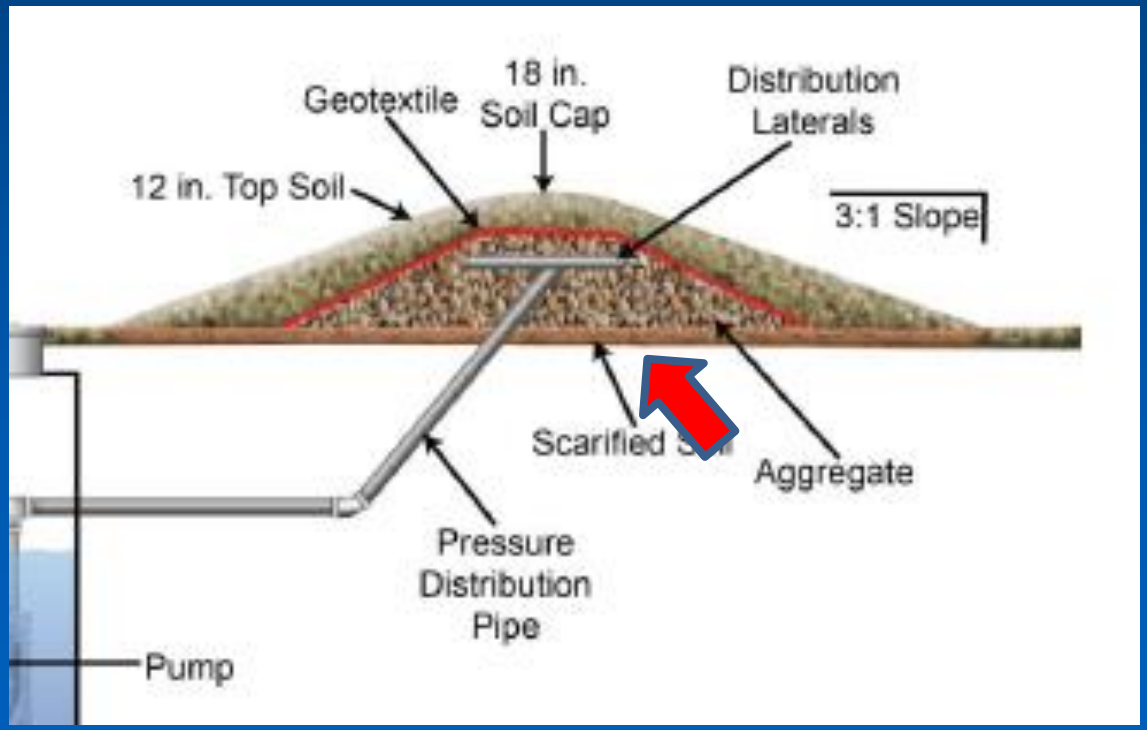
- Setbacks to at-grade soil absorption

Approval Conditions

1. The system must be designed by a PE licensed in Idaho.
2. Effective soil depth to limiting layers shall meet the requirements of IDAPA 58.01.03.008.02.c. If a secondary treatment system is incorporated into the system design before discharge to the at-grade soil absorption system, the effective soil depth to any limiting layer shall not be reduced to less than 12 inches, following the vertical setback requirements detailed in section 4.21.5, Table 4-19.
3. Horizontal separation distances as required by IDAPA 58.01.03 shall be measured from the toe of the aggregate slope prior to soil cap cover.
4. The soil application rate used in the at-grade soil absorption system design is based on the most restrictive soil layer within the soil profile's effective soil depth as determined

TGM Updates Dec 2022

- Setbacks to at-grade soil absorption system



TGM Updates March 2023

- Section 3.2.8 Backfilling with sand

Excavating through Impermeable Layers

Shallow impermeable layers can limit the options for onsite disposal. However if an impermeable layer is encountered that is thin enough to allow excavation of the trench through the impermeable layer into a suitable soil, this method will be permitted provided that the bottom of the trench meets all effective soil depths per IDAPA 58.01.03.008.02.c.

IDAPA 58.01.03.008.04 specifies that the bottom of any trench cannot be deeper than 4 feet below ground surface. In most cases where a trench is accidentally excavated deeper than 4 feet, backfilling with manufactured medium sand to meet this trench depth requirement is at the discretion of the health district. However, if a site has a thin, shallow, impermeable layer that can be practically excavated through, but the resulting trench bottom would be greater than 4 feet below ground surface, the trench may be backfilled with manufactured medium sand up to 4 feet below ground surface. This allowance must be specified on the installation permit, and should be used only when other options are unreasonable or unavailable.

TGM Updates January 2024

- Section 1.5.2.3 Lapsed license

1.5.3 Lapsed Installer's License Procedures

If an installer does not renew their license by January 1st, their license will be considered lapsed. The installer will have one year to re-register for their license without having to re-take the exam. Requirements 1 through 3 of section 1.5.1 will still apply. If an installer allows their license to lapse more than 1 year, then in addition to requirements 1 through 3 of section 1.5.1 they will be required to re-take and pass the installer exam prior to being granted a license regardless of the status of their refresher training.

TGM Updates April 2024

- Section 3.2.3 Septic Tank and Dosing Chamber Installation

If a septic tank or dosing chamber is installed in seasonal high groundwater, a vertical separation distance of 2 feet must be met from the tank lid (IDAPA 58.01.03.007.17), unless otherwise approved by DEQ. If a reduced vertical separation is approved, the professional engineer must demonstrate that the lid and openings are watertight. If approved, a description of the reduced vertical setback will be included in the tank description in Section 5.2. Monolithically constructed tanks (one-piece tanks) are highly recommended to be used if the tank is to be installed in seasonal high groundwater. Multipiece tanks should be avoided for groundwater installations if possible. If a multipiece tank is installed in high--groundwater areas, the vertical separation distance from groundwater is measured from the to the top of the tank. If a seam of a multipiece tank is installed below the water table then the tank ~~Multipiece tanks installed in groundwater must~~ must be leak tested upon installation.

Tank Approvals & Modifications

- Key points for installers/homeowners:

  1. Always ensure a tank is approved in TGM Section 5.2 before purchasing a tank

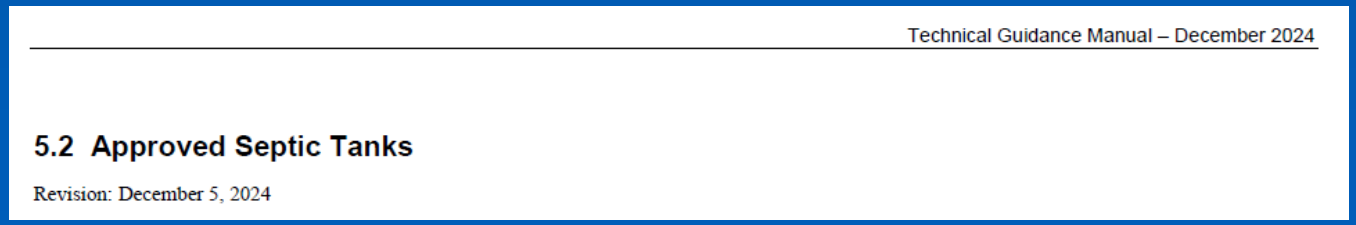
  3. **Do not modify a tank in the field**

Tank Approvals & Modifications

- Some examples of field modifications that we don't allow:
  - Drilling new inlet/outlet holes
  - Using a different lid
  - Turning a single-compartment tank into a two-compartment tank
  - Sealing a crack to pass a leak test

Tank Approvals & Modifications

- If you are unsure if a tank is approved or not, double check with me!
- Just because a store in Idaho is selling a tank doesn't mean it's approved. We don't regulate what people can sell, only what can be installed.



Technical Guidance Manual – December 2024

5.2 Approved Septic Tanks

Revision: December 5, 2024

Tank Approvals & Modifications

- If a modified or custom tank is needed for a project, the manufacturer must get written approval from DEQ before it can be installed.
  - This requires new design drawings, structural calculations, P.E. sign-off, and ***time***.
  - Installers should not put a custom or modified tank in the ground and then seek approval. They will most likely have to pull it out.

DEQ Memos

https://www.deq.idaho.gov/public-information/laws-guidance-and-orders/guidance/

- RV Parks 5.24.2023
- LSAS 2014, revised 1.12.2023
- Use of Wastewater Holding Tanks 10.06.2023
- Determination of Reasonable Accessibility of Sewer 4.18.2024

DEQ Memos

- RV Parks
  - New definitions
  - This memo contains design requirements and approval conditions for RV Park subsurface systems
  - If you are contacted by someone wanting to design/install a subsurface system or dump station at an RV park, read this memo and TGM section 4.20

DEQ Memos

- LSAS 2014, revised 1.12.2023
  - This revised memo contains updated definitions for “project” and “absorption module”
    - Takeaway: a project is not limited by parcel boundaries
  - Nothing has changed in this memo from an installation standpoint
  - **Reminder:** If the total flow for the *project* is >2500 GPD, it doesn’t matter how independently they split up the drainfields. Each drainfield is considered a *module* of the same LSAS.

DEQ Memos

- Use of WW Holding Tanks
  - Pump and Haul is only allowed under these circumstances:
    - Alternative system in TGM that uses a holding tank (RV dump station, portajohns, vault privies)
    - Emergencies
    - If sewer will be available within 6 months

DEQ Memos

- Reasonable Access to Sewer
  - 1000 ft from structure to available sewer line
  - If a client is asking you to install a septic system where there is probably sewer, check with the health district.

Rulemaking

- New definitions
  - Drainfield, trench, septic tank, bedroom, etc.
- Removed requirement for service providers to be complex installers
- Bond increase ($10,000 and $30,000)

Rulemaking

- All tank submittals must have a P.E. stamp
- System cannot receive WW until final as-built is provided to the applicant
- Risers to ground surface (all manholes)

Rulemaking

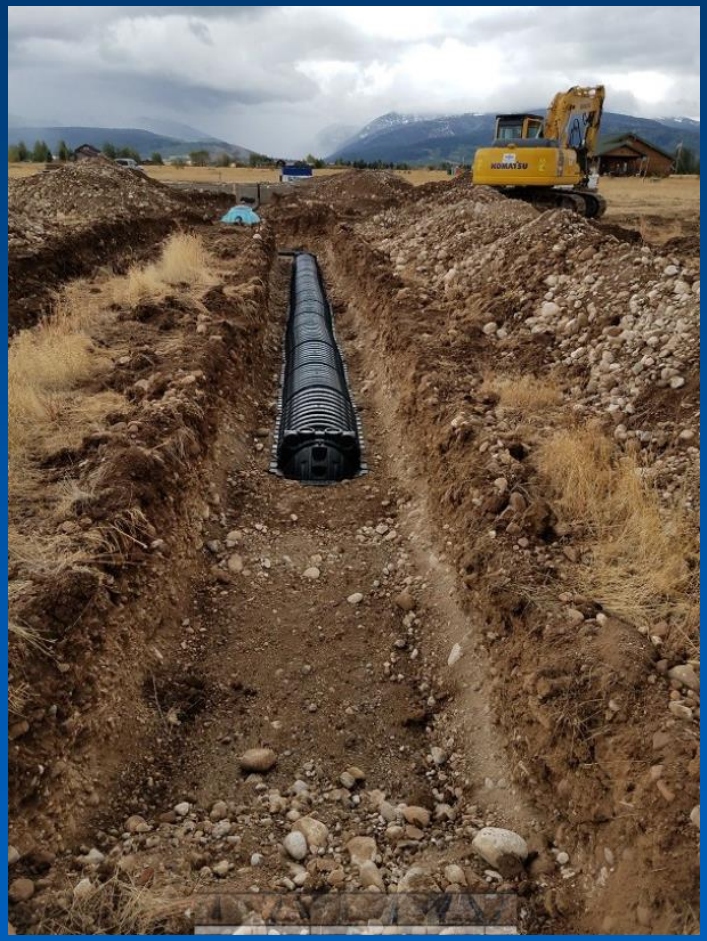
- Reduced separation distances
  - Surface Water
  - Scarp
  - Water lines (double-encased vs. not)

Gravelless Trenches

- Trench width should not be wider that 36 inches
- Wider trenches could cause the gravelless components to flatten and reduce treatment capacity
- Use a 36” bucket if possible

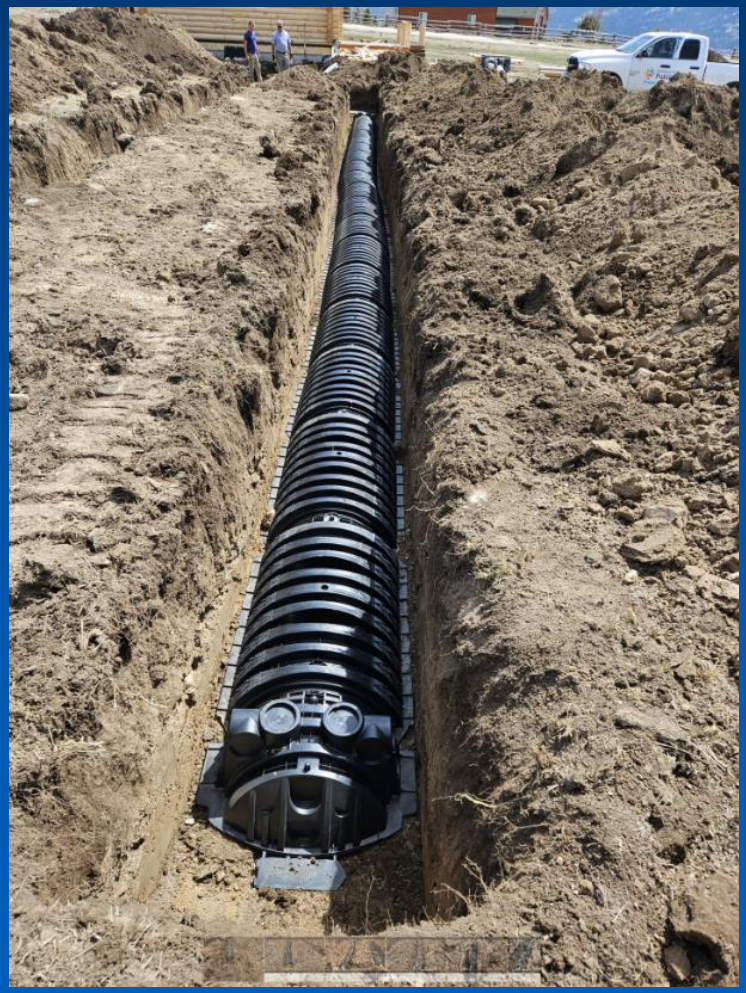
Gravelless Trenches

Too wide



Gravelless Trenches

Just right



TGC Meetings

- The TGM is a living document
  - We update it every 3 months to address new issues, fix things that aren't working, etc.
- If you have any suggestions for things that need to be changed, email me!
- These are public meetings, so anyone is welcome to listen in if there is an agenda item of interest to you.

SSD Rules & Regulations

What you need to know.

Legal Authority

Idaho Constitution (law of the land)

Idaho Code (Statutes)

State Agency Rules (IDAPA)

Agency Policies and Procedures (one-acre)

Guidelines and written interpretations (TGM)

Legal Authority

Idaho Code Title 39

“Idaho Environmental Protection and Health Act”

Legal Authority

Idaho Code 39-102.2.a

It is the policy of the state to **prevent contamination of ground water** from any source to the maximum extent practical.

IDAPA 58

- IDAPA 58.01.03 – Individual/Subsurface Sewage Disposal Rules and Rules for Cleaning Septic Tanks
- "To ensure that black wastes and wastewater (sewage) generated within the State of Idaho are safely contained and treated…" (IDAPA 58.01.03.004.01)

INTENT OF REGULATIONS

a. Inaccessible to insects, rodents, or other wild or domestic animals.

b. Are not accessible to individuals

c. Are not a public nuisance due to odor or unsightly appearance.

d. Do not injure or interfere with existing or potential beneficial uses of the waters of the State.

Why should you care?

- Sewage or wastewater contain bacteria, fungi, parasites, and viruses that can cause illness.
- Some diseases carried by sewage:
  - E. coli
  - Shigellosis
  - Typhoid Fever
  - Salmonella
  - Cholera
- Some diseases can cause severe illness and/or death

WHAT IS SEWAGE?

- Blackwater
- Greywater
- Pollutants

Residential Waste

Other Pollutants

Commercial Waste

SEWAGE

Importance of Proper Sewage Disposal

- To prevent pollution of surface waters
- To prevent pollution of groundwater (i.e., aquifers)
- To prevent waste from being accessible to disease carrying vectors, such as flies, rodents, insects, etc..
- To protect human health!

Who does what?

SCPHD

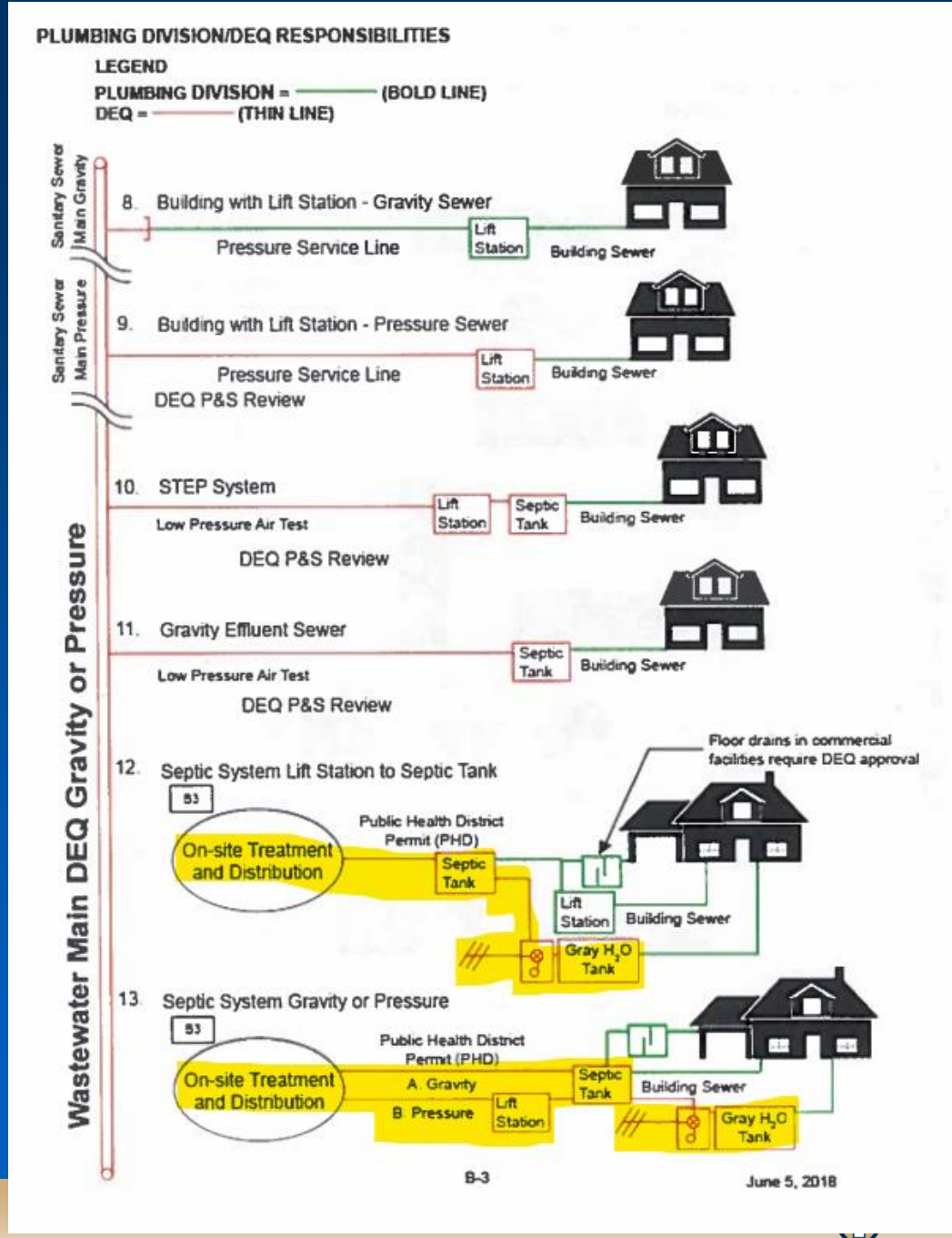
- Permit systems
  - Tanks
  - Individual SSD systems
  - LSAS & Central SSD systems
- Review plans and specs
- Permit septic installers & pump trucks
- Onsite inspections
- Site evaluations
- Enforcement
- Lift & impose sanitary restrictions

DEQ

- Review plans and specs
  - Public Systems
  - LSAS
  - Central Systems
- Review engineering plans
- Approve septic tanks
- Review and approve alternative systems for statewide use
- Promulgate rules
- Evaluate NP studies
- Wastewater reuse permits
- Non-individual lagoons
- Enforcement via referral

Agency Jurisdiction

- Tank to drainfield = SCPHD
- Building to septic tank = DOPL
- Building to sewer main = DEQ



Septic Installer

- Any person, corporation, or firm engaged in the business of excavation for, or the construction of individual or subsurface sewage disposal systems in the State.

Installer's Registration Permit

- Every installer shall secure from the Director, an installer's registration permit.
  - Two types of Installer permits are available:
  - Basic and Complex(IDAPA 58.01.03.006.01)

Installer's Registration Permit

Current Bond Requirements

- Standard/Basic: $5,000
- Complex Alternative: $15,000
- Surety Company authorized in the State of Idaho
  - Specify that it is an "Installer's Bond"
- A general 'umbrella' liability bond does not meet this requirement.

Installer's Registration Permit

- "Registration Permits expire annually on the first day of January…" (IDAPA 58.01.03.006.02 & 03)

Subsurface Sewage Permits

- It shall be unlawful for any person to cause or to perform the modification, repair or construction of any…SSDS in …Idaho unless there is a valid…permit authorizing that activity. (IDAPA 58.01.03.005.01)

When Do I Need a Permit?

- All new septic systems are required to be permitted.
- Replacement septic systems require a permit.
- Replacing an existing septic tank or adding another tank requires a permit.
- If an outhouse/pit privy/composting toilet is installed, a permit is required. Vault toilets are also included.
- You do not need a permit to fix a clogged or broken pipe, or to replace a malfunctioning electrical component.

Permit Process

- Complete application
- Submit appropriate site plan
- Pay fees
- Tests holes (as needed)
- Permit issued with approved site plan (stamped)

Permits

- Are valid for 2 years from the issue date.
- May be renewed for $50/year, must be renewed before expiration date.
- Permits are transferable to a new property owner provided that the conditions of the application and permit are unchanged.

Permit Renewal

- $50 fee
- Renews for 1 year
- Must renew before expiration date
- Can be renewed multiple times

Basis for Permit Application Denial

- The following are reasons that the health district may deny a permit application:
  - The application is incomplete, inaccurate, or misleading;
  - The system as proposed is not in compliance with applicable rules and regulations;
  - The system as proposed would, when put into use, be considered a failing system;
  - The design and description of a public system was not made by a professional engineer;
  - Public or central wastewater treatment facilities are reasonably accessible.

South Central
Public Health District
Prevent. Promote. Protect.

* * *Septic Permit * * *

SSD-014324

Parcel #: [redacted]

Property Location	Owner Information
Street Address: [redacted] BUHL ID 83316	Land Owner Name: [redacted] Address: [redacted] BUHL ID 83316 United States

Utilization

New Subsurface Sewage Permit

- We require the parcel #, correct property address, and the property owner's information.
- This information is obtained from the application. It is crucial that the correct information be put on the application.

Permit Requirements

Type of System: Standard/Basic alternative
System Type 1: Capping Fill
System Type 2: Gravel Drainfield
Water Supply: Private
Water Source: Well

	2	Bedrooms
	200	Gallons Per Day
Soil Type:	B-2	USDA

The minimum septic tank capacity is: 900 gallons
The minimum effective drainfield absorption area is: 444 Square Feet
Maximum depth of drainfield installation: 12 inches into native soil
Minimum setback from drainfield to surface water: 200 feet

- Permit requirements will outline the type of system that is permitted, provide the # of bedrooms and/or wastewater flow, the minimum septic tank capacity, the minimum drainfield size (square feet), the maximum installation depth of the drainfield, and the minimum setback of the drainfield to surface water.
- Installers must pay special attention to the drainfield size and maximum installation depth. If these depths cannot be met, you must contact the health district before installing.
- These requirements must be met in order to approve the system.

Conditions of Approval

Inspection required before cover
48 Hours advanced notice required for inspection

All Systems:

Absorption bed authorized due to limited suitable space.

If soil conditions differ from test hole when installing tank/drainfield, contact SCPHD before installation.

Confirm all surrounding well locations.

Changes to structure floorplans must be submitted to SCPHD and approved prior to septic installation.

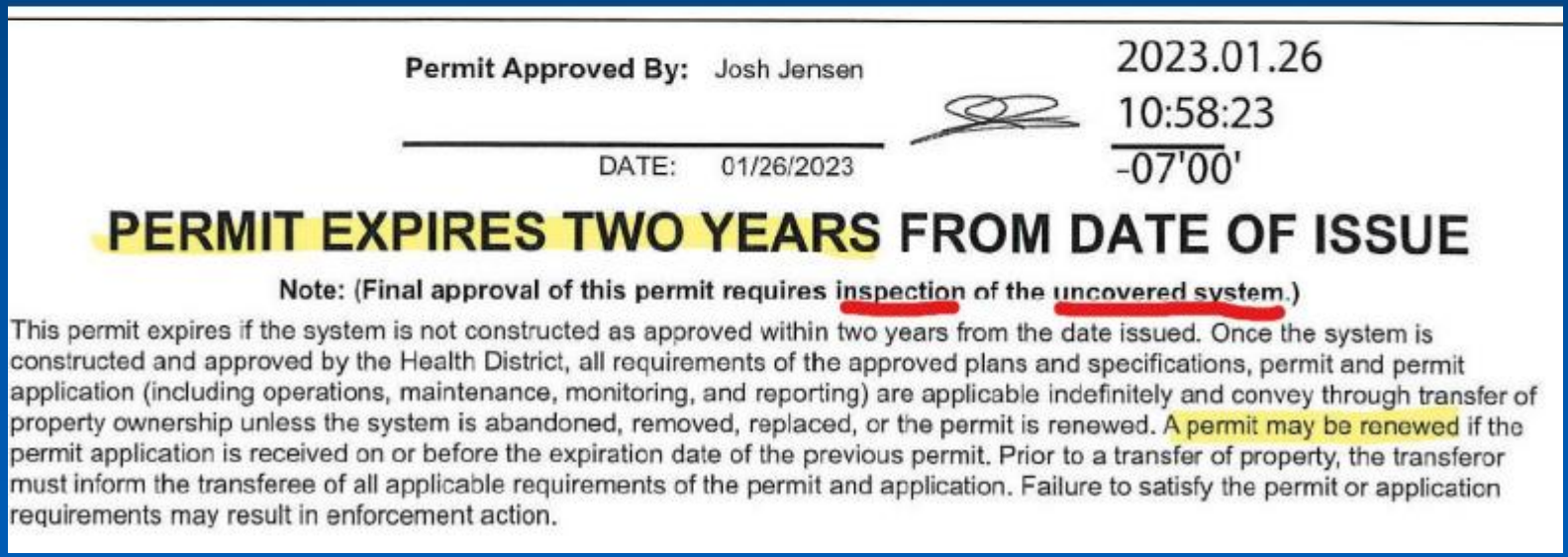
Modifications to an already approved plot plan must be submitted and approved prior to septic system installation.

Additional Conditions:

Install drainfield according to the requirements listed in section 4.3.2 of the Idaho TGM.

- All permits will have conditions of approval.
- Make sure you pay close attention to this section.
- Under 'additional conditions', an EHS may require additional things be done or met in order to satisfy the requirements of the permit.
- For absorption beds, if it is not specified on the permit, then the site is not approved for a bed system. You need to get permission upfront before installing bed systems.

- All permits will have a signature and issue date.
- All permits will state that the permit expires 2 years from the issue date.
- Final approval of the system requires inspection of the uncovered system. If the system is covered, you have a 'duty' to uncover.
- Do not cover unless an EHS give you final permission. You can also look for a yellow tag that will notify if the system is approved or not.



Permit Approved By: Josh Jensen

2023.01.26 10:58:23 -07'00'

DATE: 01/26/2023

PERMIT EXPIRES TWO YEARS FROM DATE OF ISSUE

Note: (Final approval of this permit requires inspection of the uncovered system.)

This permit expires if the system is not constructed as approved within two years from the date issued. Once the system is constructed and approved by the Health District, all requirements of the approved plans and specifications, permit and permit application (including operations, maintenance, monitoring, and reporting) are applicable indefinitely and convey through transfer of property ownership unless the system is abandoned, removed, replaced, or the permit is renewed. A permit may be renewed if the permit application is received on or before the expiration date of the previous permit. Prior to a transfer of property, the transferor must inform the transferee of all applicable requirements of the permit and application. Failure to satisfy the permit or application requirements may result in enforcement action.

Subsurface Sewage Permits

Installer:

Have signed permit in your possession

Have approved plans and specifications in your possession

If you don't have the permit and plans, contact the Twin Falls office and we can email it to you.

Subsurface Sewage Permits

- Any deviations from approved permit plans and specifications must be approved prior to system installation
- Deviating from the approved plans voids the permit.

Inspections

- One or More Inspections: may be required to ensure compliance with the provision of the rules.
- Duty to Uncover: The installer shall uncover or make available for inspection any portion which was covered or concealed in violation of these rules. (IDAPA 58.01.03.011.01,02)

Increased Flows

- Unless authorized by the Director, no person shall provide for or connect additional blackwaste or wastewater sources to any system if the resulting flow or volume would exceed the design flow of the system.
- If increased flows are determined, existing system must be upgraded to meet the flows and brought into compliance with IDAPA 58.01.03.
- If IDAPA rules can’t be met, variance is the only option

Increased Flows

- Example 1 – owners plan to expand the kitchen and master bedroom of their existing 3 bedroom house (system was originally permitted for 3 bedroom house). The remodel expands the footprint of the house, but does not increase bedrooms.
- In this case, as long as the extension of the footprint meets applicable setbacks, there is no need to expand the existing septic system.

Increased Flows

- Example 2 – an owner wants to remodel their existing 2 bedroom house and expand it to 5 bedrooms total. The expansion increases the footprint of the house and increases bedrooms. The original septic system was designed to accommodate 3 bedrooms.
- In this case, the owner would need to pull a septic expansion or replacement permit. The septic system would have to be upgraded to meet flows for a 5 bedroom house. This would include adding a new tank and enlarging the drainfield. OR, the owner can elect to install a new system.

Split Flows

- The wastewater from a single building sewer or sewer line may not be divided and discharged into more than one (1) septic tank or compartment.

Example 1 – acceptable configuration

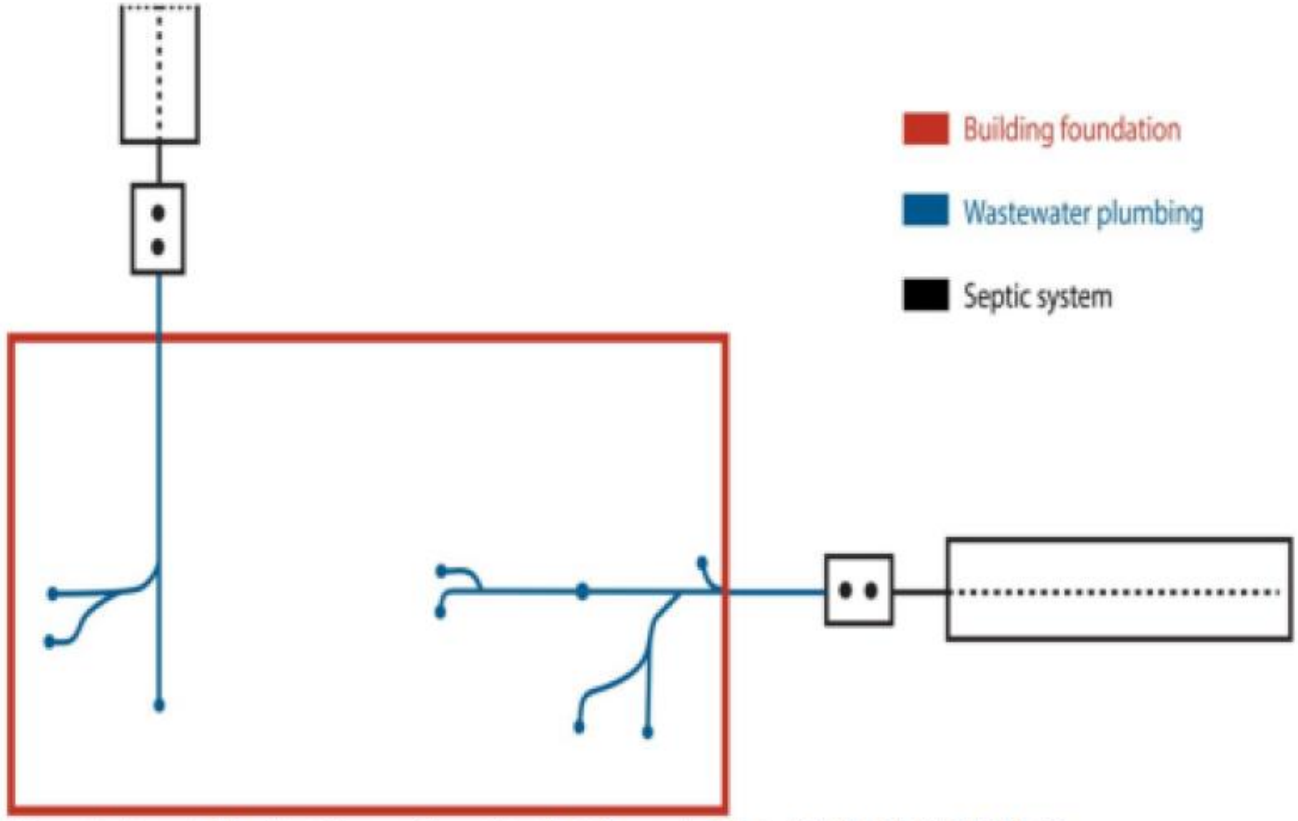


Figure 1: Acceptable plumbing configuration that does not violate IDAPA 58.01.03.007.15.

Example 2 – acceptable configuration

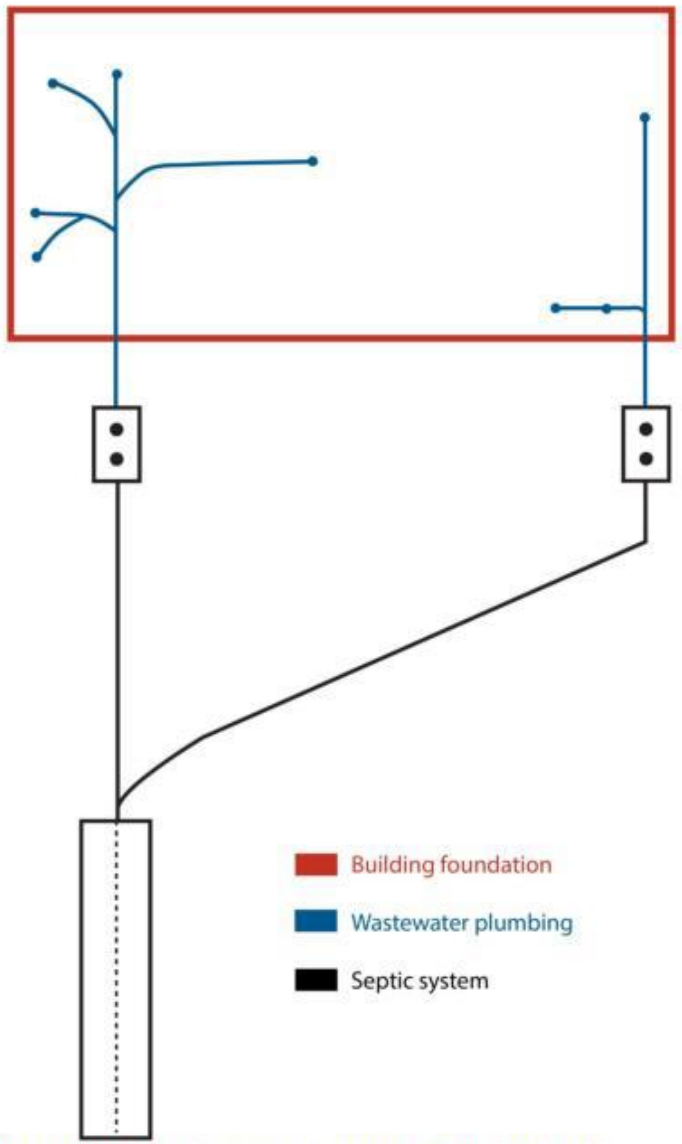


Figure 2: Acceptable plumbing configuration that does not violate IDAPA 58.01.03.007.15

Example 3 – NOT an acceptable configuration

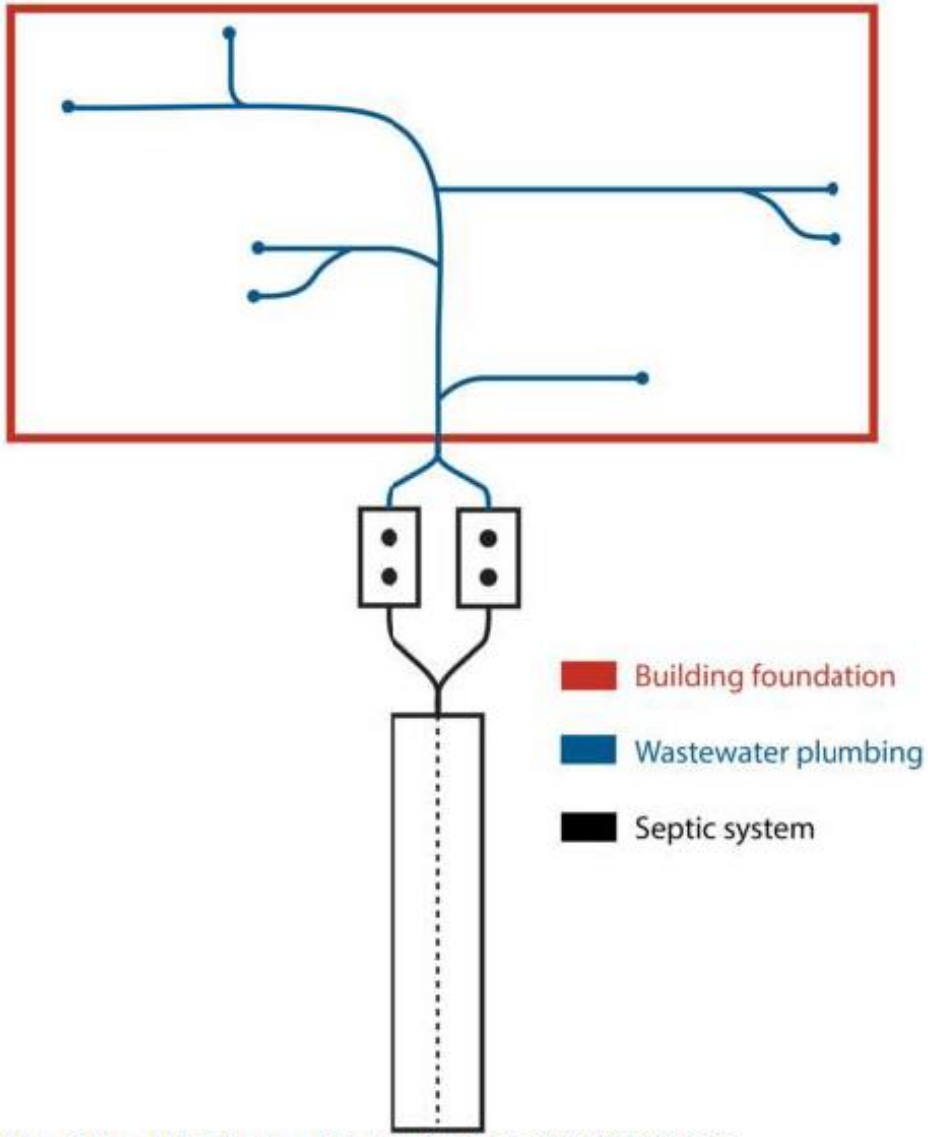


Figure 3: Unacceptable plumbing configuration that violates IDAPA 58.01.03.007.15.

Example 4 – NOT an acceptable configuration

DEQ State Water Quality Division, Wastewater Program - Memorandum
Split Flows (IDAPA 58.01.03.007.15) – Interpretation and Guidance

April 10, 2014

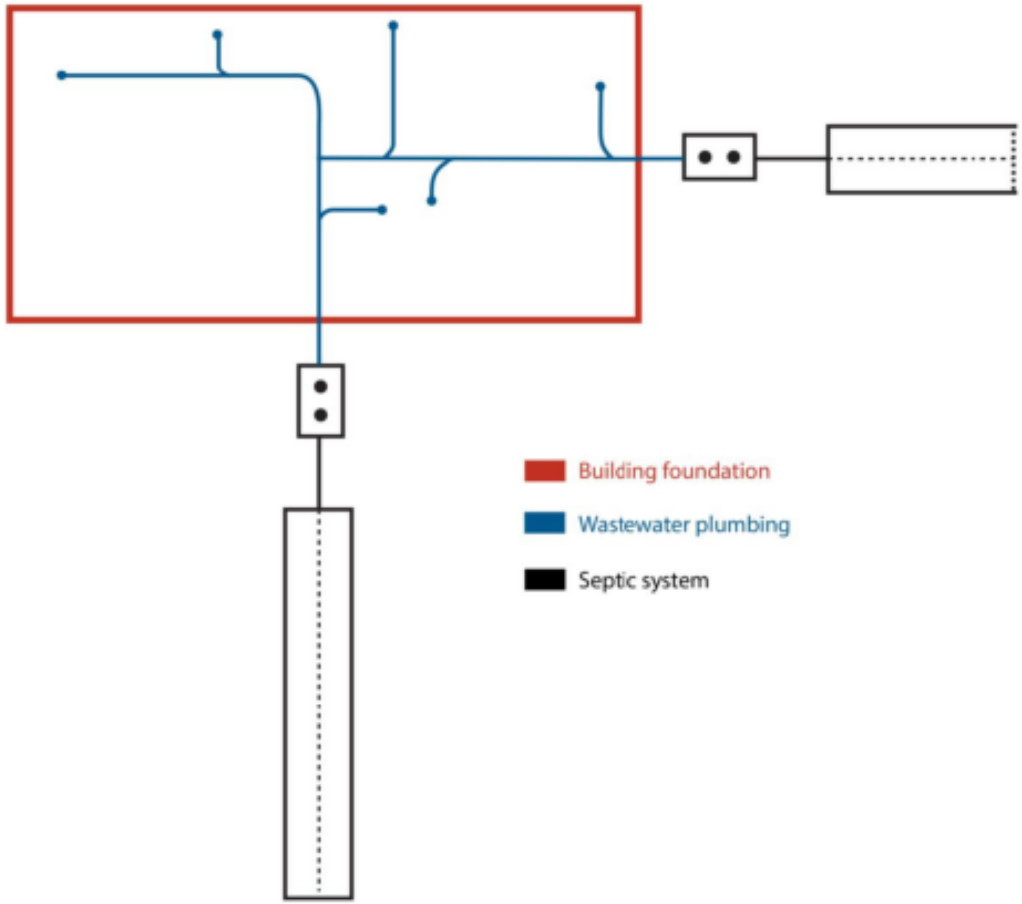


Figure 4: Unacceptable plumbing configuration that violates IDAPA 58.01.03.007.15.

DEQ State Water Quality Division, Wastewater Program - Memorandum April 10, 2014
Split Flows (IDAPA 58.01.03.007.15) – Interpretation and Guidance

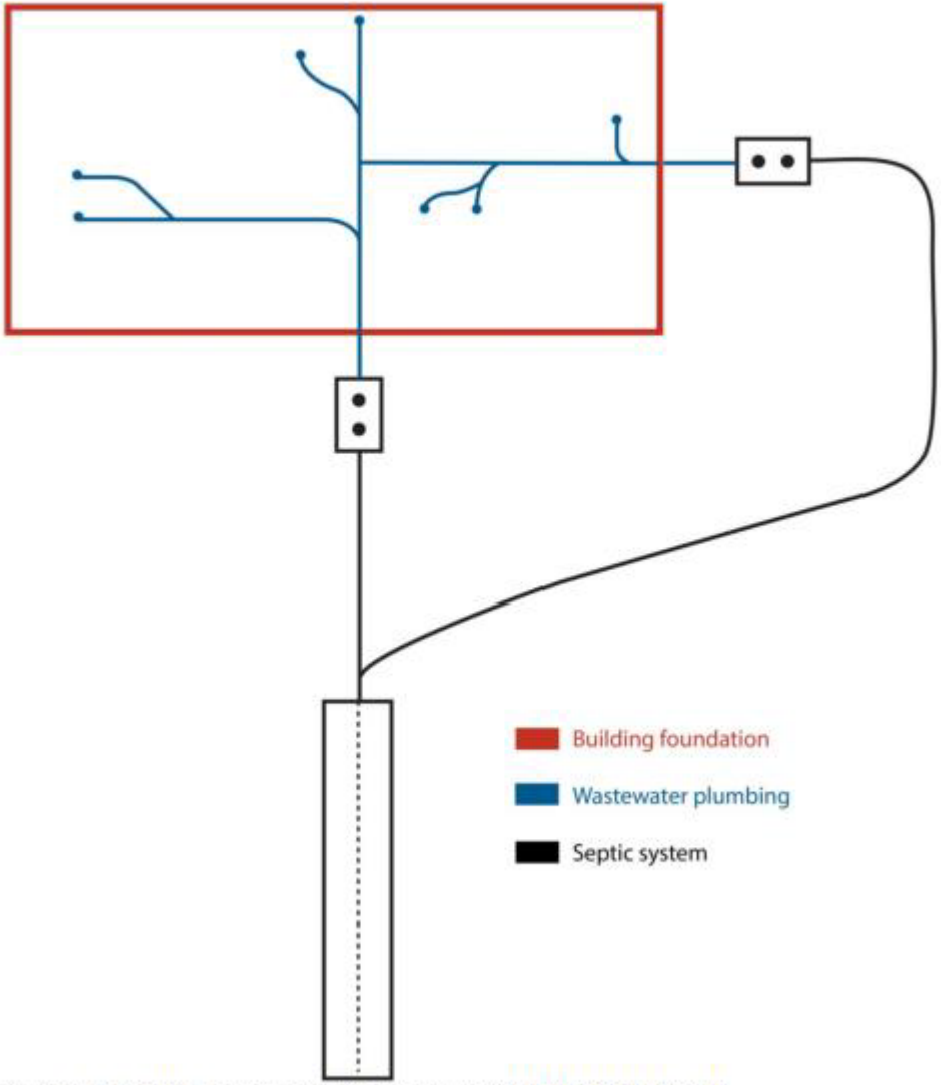
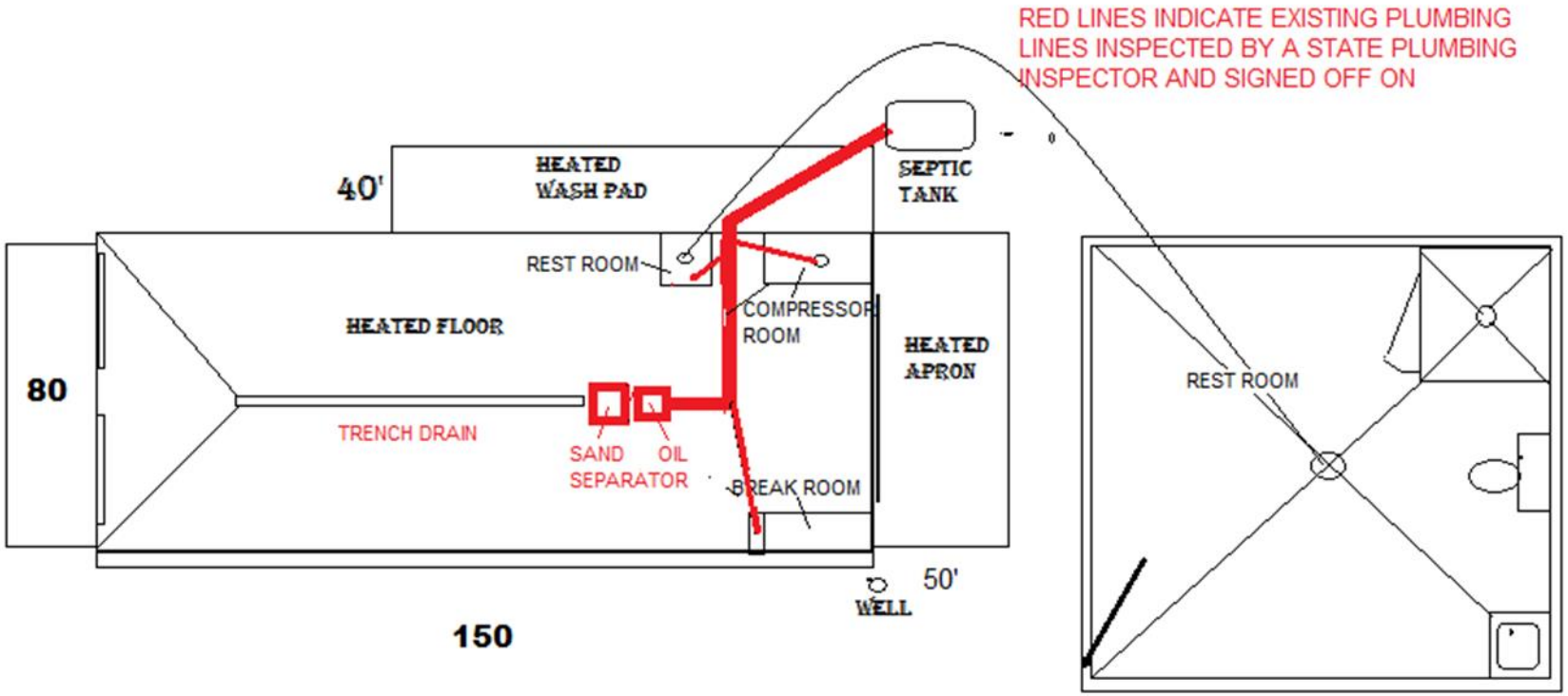


Figure 5: Unacceptable plumbing configuration that violates IDAPA 58.01.03.007.15.

Example 5 – NOT an acceptable configuration



Floor drains are not allow to discharge to septic systems. Any proposed discharge from floor drains needs to go through DEQ for approval.

Tank Approvals & Modifications

- Key points:

  1. Always ensure a tank is approved in TGM Section 5.2 before purchasing a tank
  2. Do not modify a tank in the field
  3. Inspect tank prior to installation to ensure integrity.
  4. Make sure tank is rated for cover depth.

Tank Approvals & Modifications

- If you are unsure if a tank is approved or not, double check with DEQ, or with the Health District!
- Just because a store in Idaho is selling a tank doesn't mean it's approved. We don't regulate what people can sell, only what can be installed.

Tank Approvals & Modifications

- Some examples of field modifications that will ruin your day:
  - Drilling new inlet/outlet holes
  - Using a different lid
  - Turning a single-compartment tank into a two-compartment tank
  - Sealing a crack to get it to pass a leak test

Tank Approvals & Modifications

- If a modified or custom tank is needed for a project, the manufacturer must get written approval from DEQ before it can be installed.
  - This requires new design drawings, structural calculations, P.E. sign-off, and TIME.
  - Do not put a custom or modified tank in the ground and then seek approval. You will most likely have to pull it out.

System Abandonment

- Responsibility of properly abandoning a septic tank shall remain with the property owner.
- Septic tanks shall be abandoned in accordance with the following:
  - a. Disconnection of the inlet and outlet piping;
  - b. Pumping of the scum and septage with approved disposal;
  - c. Filling the septic tank with earthen materials; or
  - d. Physically destroying the septic tank or removing the septic tank from the ground
- The Director may require as a condition for issuing a permit that the system be abandoned by a specified date or under specific predetermined circumstances.

What it takes to pass inspection….the first time.

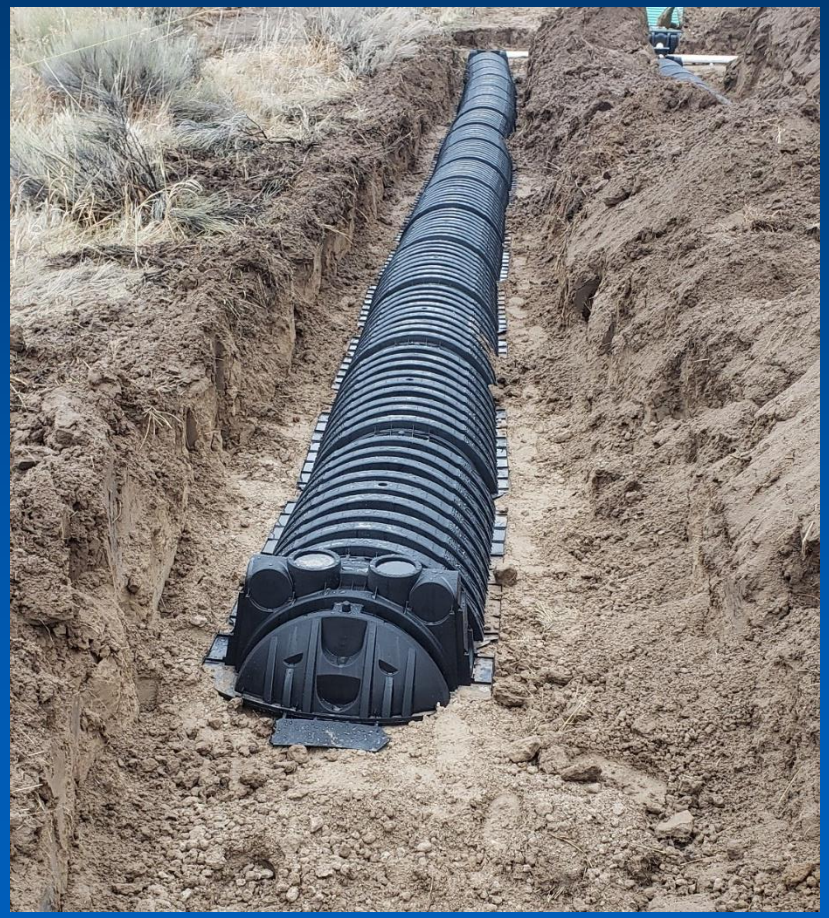
Common mistakes found during final inspections

Most Common Mistakes

1. Drainfield installed too deep
2. Piping installed in bottom of end-cap
3. Trench over-excavation
4. Drainfield sizing (too small)
5. Undisturbed soil between trenches is < 6 feet
6. Not enough space between tank and drainfield (must be 6 ft. of undisturbed soil)
7. Tank or drainfield too close to foundation
8. Aggregate too large and/or too dirty
9. Wrong end-caps on chambers
10. Drainfield installed in wrong location (didn't follow approved site plan, this voids the permit)
11. Drainfield not installed level
12. No speed levelers in D-Box
13. Damaged components or chambers.
14. Chambers not installed/connected correctly.

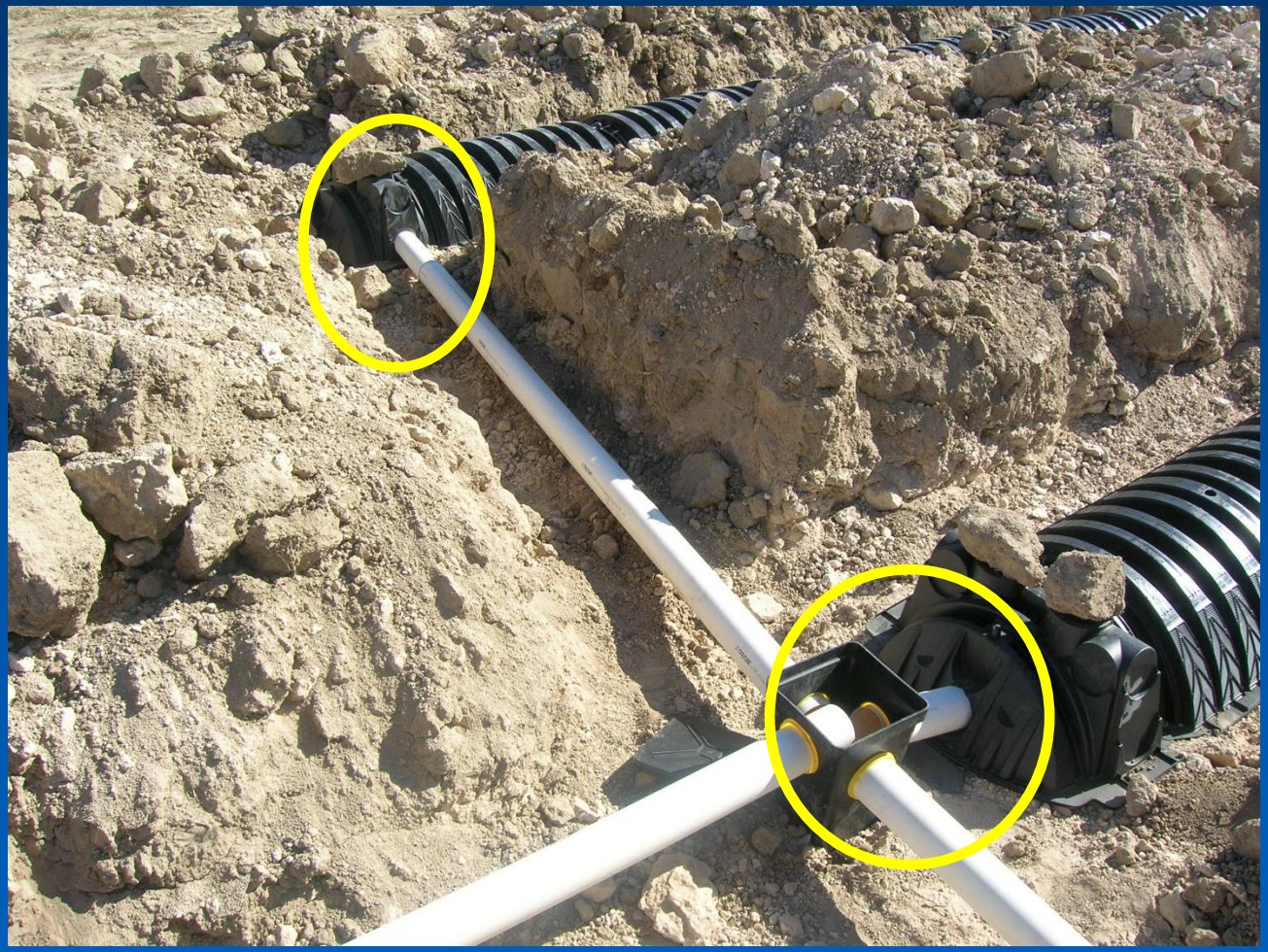
Trench Over-Excavation

- Gravelles compnents
  - DEQ approval = 3’ wide only (use 36” bucket)
  - 6’ undisturbed between trench walls
  - Shifting during backfill
  - Flattening if not supported by sidewalls

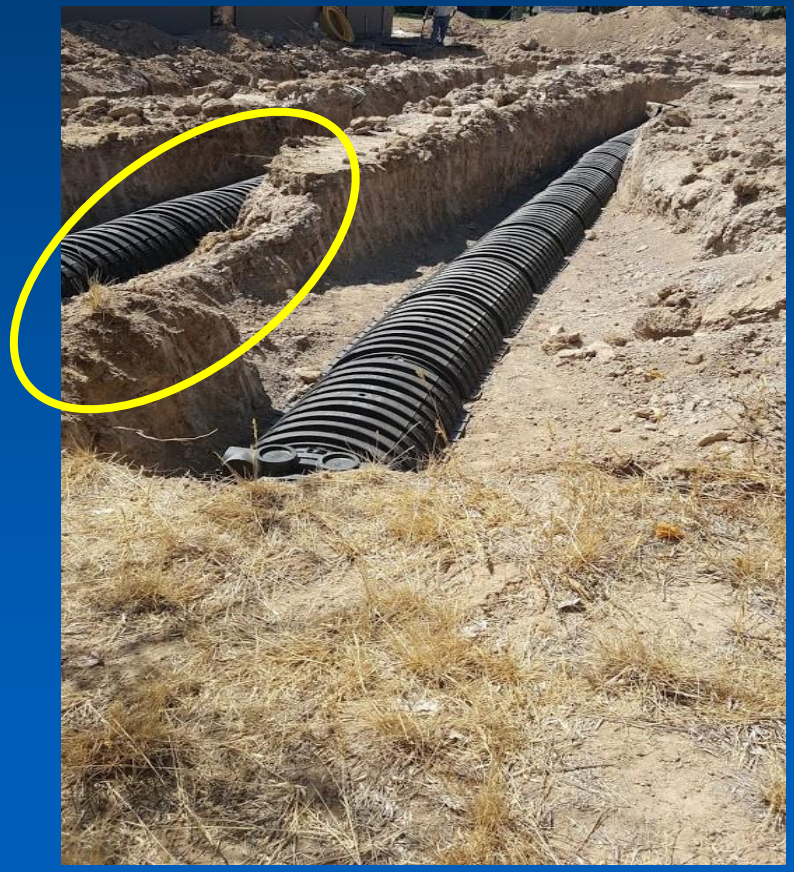


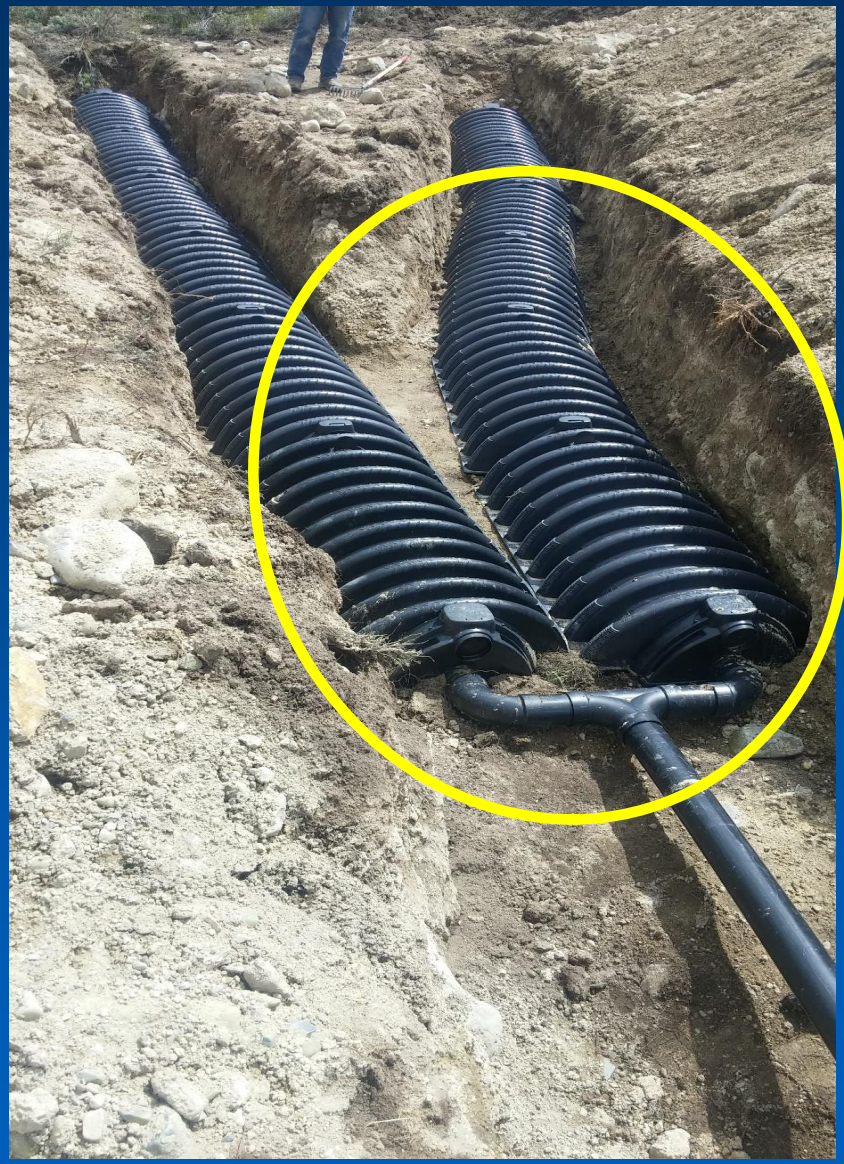
Incorrect Drainfield Installation

Incorrect Installation



Incorrect Installation





What's wrong here?

This would not pass inspection.

Less than 6’ between tank and drainfield of undisturbed soil. Not acceptable.

Incorrect installation of piping into D-box.

Gravel size too large….>2.5”

Troubleshooting Failed Systems

Biomat

- Dark jelly-like layer made of bacteria that forms in the bottom of drainfields.
- Helps break down organic matter and filters out viruses by slowing down infiltration.
- Continues to grow over time, system fails when hydraulic rate exceeds infiltration rate.

Biomat Maintenence

- Pump the septic tank.
- Avoid surges. When drainfield receives too much water, rate of matter breakdown slows and bacterial waste can build up. This causes rapid biomat growth.
- Septic tank filters help limit “food” for bacteria, slowing biomat growth.
- Don’t flush harmful materials and chemicals.

Signs of Failed System

- Water and sewage backing up into the home.
- Tubs, showers, and sinks draining slowly.
- Standing water or damp spots around the tank or drainfield.
- Sewage odors around the tank or drainfield or inside the home.

Surfacing of sewage in a failed system.

Common Reasons a System Doesn't Work

- Pipe from house to tank is clogged.
- Inlet baffle is blocked.
- Outlet Baffle/Effluent filter clogged.
- Drainfield over saturated (too much water usage, leaky features).
- Roots.
- Damaged or filled chambers.

Pipe From House to Tank is Clogged

- Snaking the line can unclog it.
- Sometimes pipe is broken from vehicle traffic or root infiltration.
- Clear roots/replace pipe.
- Only flush human waste and toilet paper.

Inlet Baffle is Blocked

- Check inlet baffle to see if it's blocked.
- Pole can be used to dislodge material clogging the baffle.
- Be mindful not to damage the baffle while unclogging it.

Outlet Baffle is Clogged

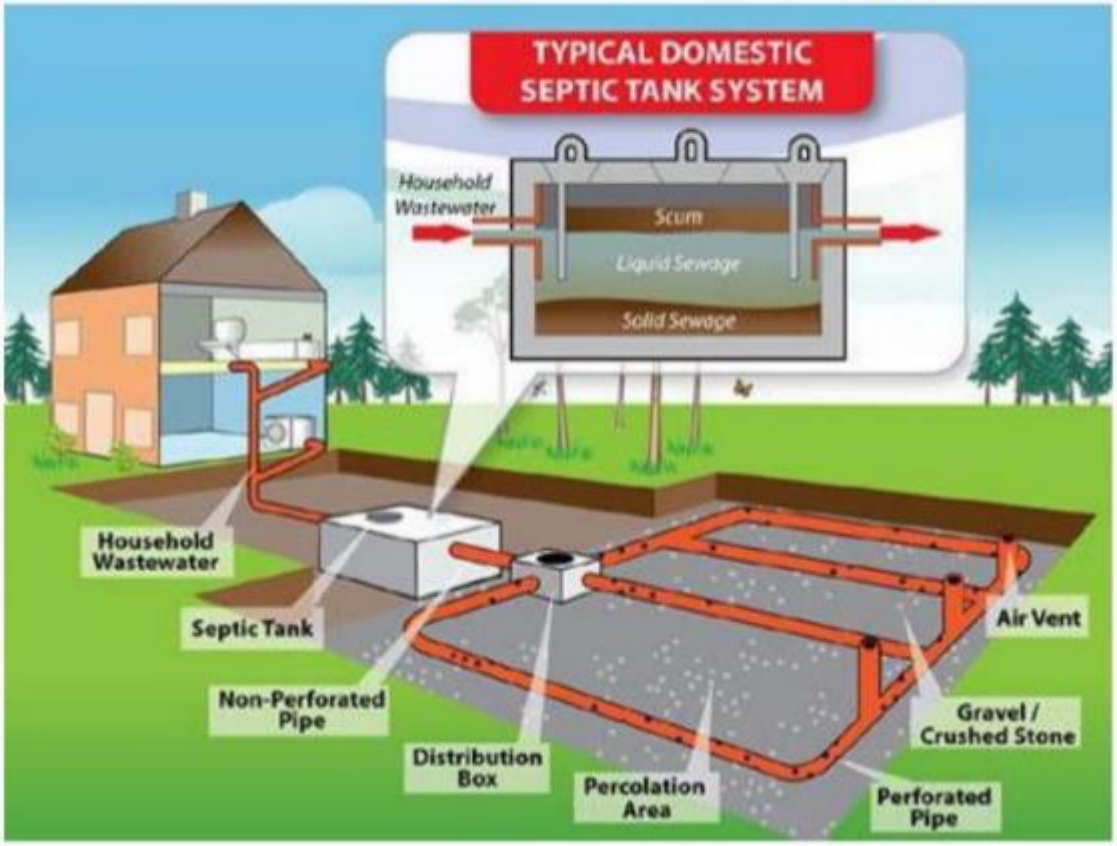
- Can be caused by tank receiving too much wastewater in a short time.
- Clean effluent filter/unclog baffle.

Drainfield Has Failed

- Can be caused by overuse, too many solids getting into the drainfield, system no longer able to accept anymore waste due to age, components worn out.
- Replace the system or failed components. Old drainfield may be rehabilitated by allowing it to dry out for a few years. Use a valve to switch between the replacement drainfield and the old system once it has dried out.

Basic Systems

WHAT IS A SEWAGE SYSTEM?



What is a Basic System?

- A basic or standard system is a drainfield consisting of an effluent sewer, one (1) or more aggregate filled trenches, and a gravity flow wastewater distribution system.
- Does not require alternative design, sand, or gravelless components.
- Install depth of 24-48 inches into native soil.

Factors that affect Drainfields

- Gallons per day
- Overflow of solids
- Garbage disposals and grinder pumps.
- Water softener brine
- Careless users
- Lack of maintenance!

Basic Installers

May install:

- Standard and basic alternative
- Capping fill
- Gravelless drainfields
- Steep slope
- Privies (composting, incinerating, pit, and vault)
- In-trench sand filter

Test Holes/Site Evaluations

- SCPHD requires test holes be dug prior to the issuance of any septic permit.
- Most subdivisions have a test hole log on file at the SCPHD offices.
- Consult with your local EHS to inquire about a site eval prior to purchasing a lot or plat of land.
- We can provide you with septic options with a site eval before you purchase property.

Digging Test Holes

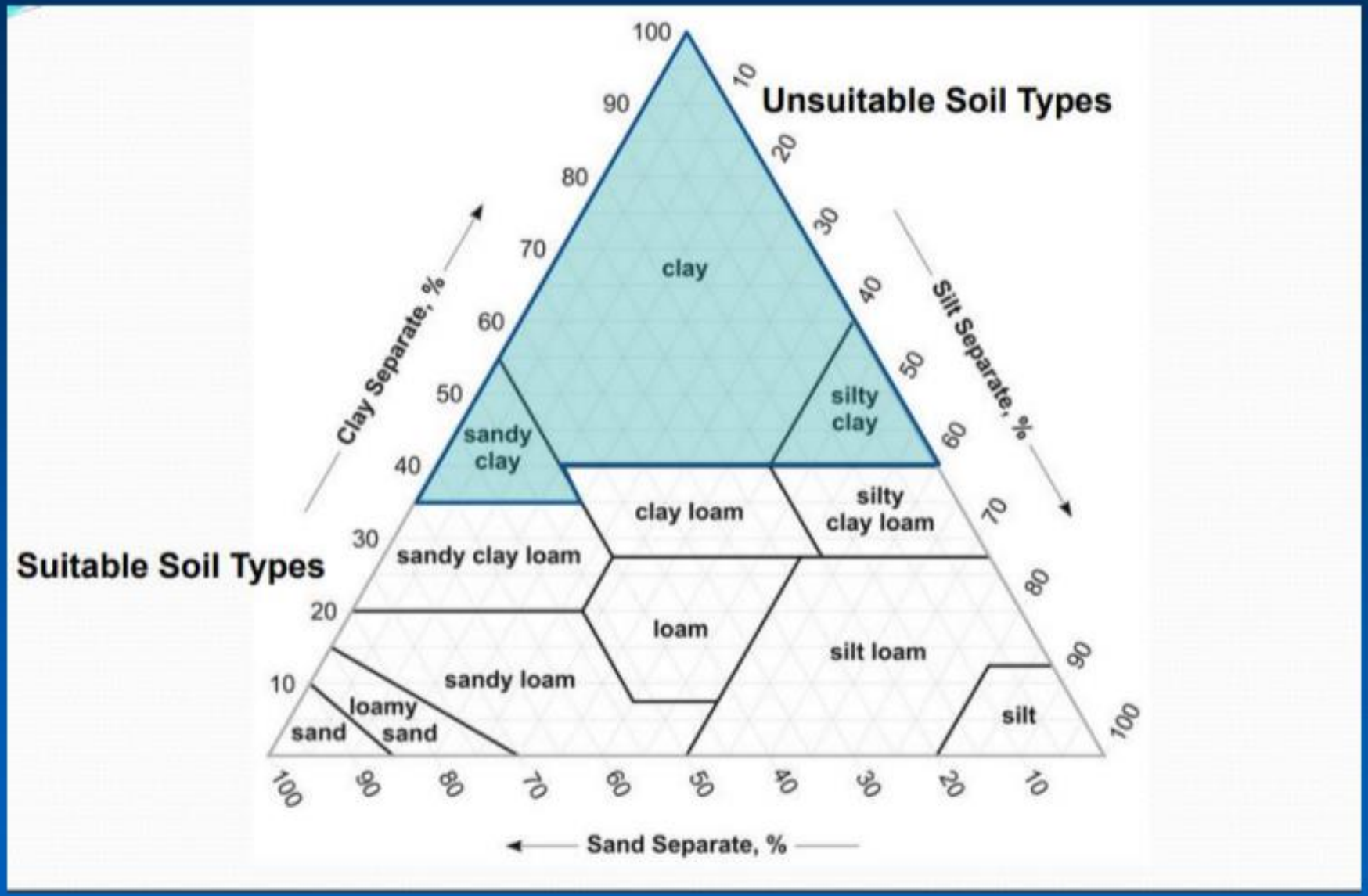
- Test holes need to be dug to a minimum depth of 6 feet to 8 feet, or until a limiting layers in encountered.
- Test holes in course soils (A soils) that are well drained need to be dug to a depth of 10 feet.
- Slope the test hole so that an EHS could enter the hole to evaluate the sidewalls of the test hole.

What does the test hole tell us?

- Soil Type
- Soil Depth
- Soil Structure
- Soil Layers
- If there are any limiting layers including:
  - Rock
  - Caliche/cemented layers
  - High water table
    - Seasonal or groundwater

Soil Texture and Groups

- Soil texture is determined by the amount of three constituents: **sand, silt, and clay**
- Texture determines:
  - Porosity
  - Permeability
  - Aeration
  - Drainage
- Idaho uses the Soil Textural Classification from the USDA


Unsuitable Soil Types
Suitable Soil Types
clay
silty clay
sandy clay
clay loam
silty clay loam
sandy clay loam
loam
silt loam
sandy loam
loamy sand
sand
silt
Clay Separate, %
Silt Separate, %
Sand Separate, %
100
90
80
70
60
50
40
30
20
10

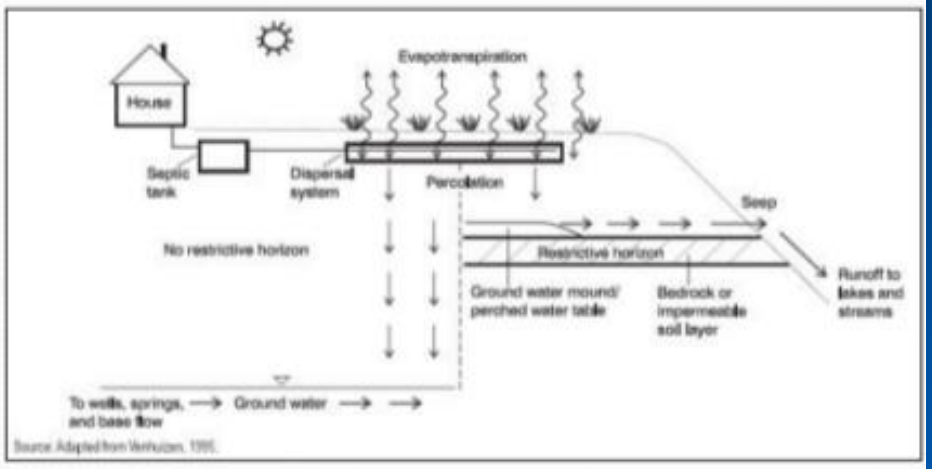
Application Rates

Soil Class	Soil Type	Percolation Rate (mins/in)	Application Rate (gals/day/ft^2)
N/A	Gravel, Coarse Sand	<1	Not suitable
A-1	Medium Sand	1-3	1.20
A-2a	Medium Sand, poorly graded	4-5	1.0
A-2b	Fine Sand, loamy sand	6-15	0.75
B-1	Sandy Loam	16-30	0.60
B-2	Loam, silt loam	31-60	0.45
C-1	Sandy or silty clay loam	45-60	0.30
C-2	Clay Loam	61-120	0.20
N/A	Clays, organic muck, duripan, hardpan	>120	Not suitable

Soil Depths

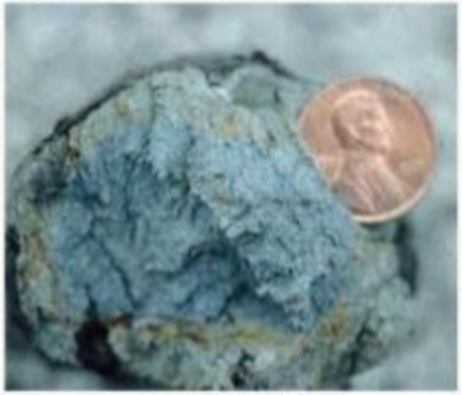
Effective Soil Depth is Determined by:

- Impermeable Layer
- Fractured/Fissured Bedrock
- Extremely Permeable Material
- Normal High Ground Water
- Seasonal High Ground Water



✓ **Adequate effective soil depth is necessary to safely treat sewage**

Textural Red-Flags



Unstable Landforms

- Unstable landforms means areas showing evidence of mass downslope movement such as debris flow, landslides, rockfalls, and hummocky hill slopes with undrained depressions upslope (Table 2-13). Unstable landforms may exhibit slip surfaces roughly parallel to the hillside; landslide scars and curving debris ridges; fences, trees, and telephone poles that appear tilted; or tree trunks that bend uniformly as they enter the ground. Active sand dunes are unstable landforms.

Table 2-13. Descriptions and characterizations of different unstable landforms.

Process	Definition and Characteristics	Illustration
Rock fall and debris fall	The rapid descent of a rock mass, vertically from a cliff or by leaps down a slope. The chief means by which taluses are maintained.	
Rockslide and debris slide	The rapid, sliding descent of a rock mass down a slope. Commonly forms heaps and confused, irregular masses of rubble.	
Slump	The downward slipping of a coherent body of rock or regolith along a curved surface of the slumped mass, and any flat-lying planes in it, becomes rotated as it slides downward. The movement creates a sharp facing downslope.	
Debris flow	The rapid downslope plastic flow of a mass of debris. Commonly forms an apron- or tongue-like area, with an irregular surface. In some cases, begins with slump at head, and concentric ridges and transverse furrows in surface of the tongue-like part.	
Variety mudflow	A debris flow in which the consistency of the substance is that of mud; generally contains a large portion of fine particles, and a large amount of water.	

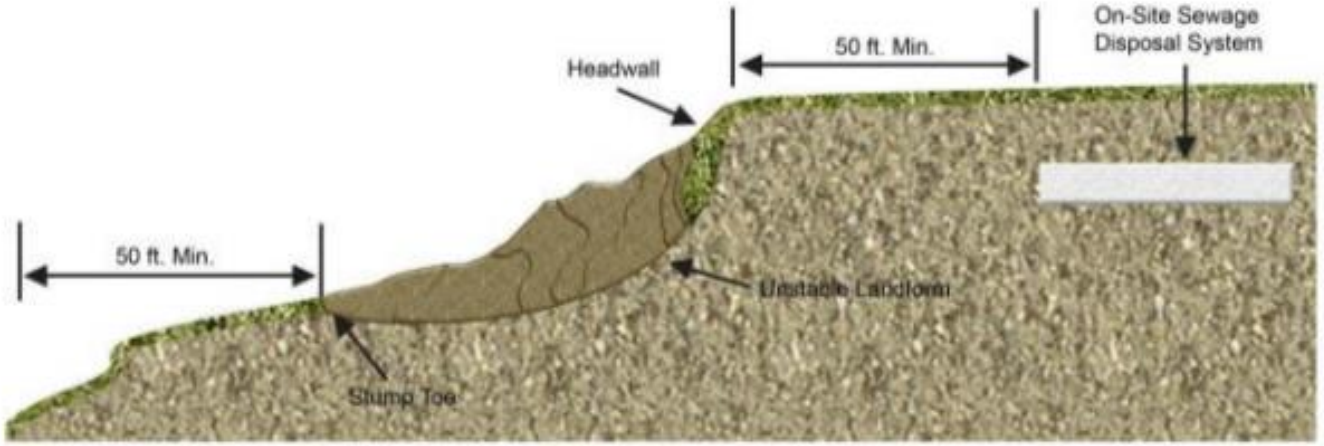


Figure 2-10. Cross section of an unstable landform.

2.6.2 Additional Application Information Requirement

Applicants proposing systems above a suspected unstable landform are required to provide supplemental information on the subsurface sewage disposal application as required in the "Individual/Subsurface Sewage Disposal Rules and Rules for Cleaning of Septic Tanks" (IDAPA 58.01.03.005.04.o). The septic tank and drainfield shall not be installed on an unstable landform, where operation of the subsurface sewage disposal system may be adversely affected or where effluent discharged to the subsurface will contribute to the unstable nature of the downslope landform.

A permit shall be denied for a subsurface sewage disposal system application where any portion of the system must be installed on an unstable landform. Locating subsurface sewage disposal systems on unstable landforms will result in adverse system operation, performance, and effluent treatment.

Design Requirements

SUBSURFACE DISPOSAL FACILITY TABLE	
Item	**All Soil Groups**
Length of Individual Distribution Laterals	100 Feet Maximum
Grade of Distribution Laterals and Trench Bottoms	Level
Width of Trenches	1 Foot Minimum 6 Feet Maximum
Depth of Trenches	2 Feet Minimum 4 Feet Maximum
Total Square Feet of Trench	1500 Sq.ft. Max.
Undisturbed Earth Between Trenches	6 Feet Minimum
Undisturbed Earth Between Septic Tank and Trenches	6 Feet Minimum
Depth of Aggregate: Total Over Distribution Laterals Under Distribution Laterals	 12 In. Minimum 2 In. Minimum 6 In. Minimum

SUBSURFACE DISPOSAL FACILITY TABLE	
Item	**All Soil Groups**
Depth of Soil Over Top of Aggregate	12 In. Minimum

Cross Section of Standard System

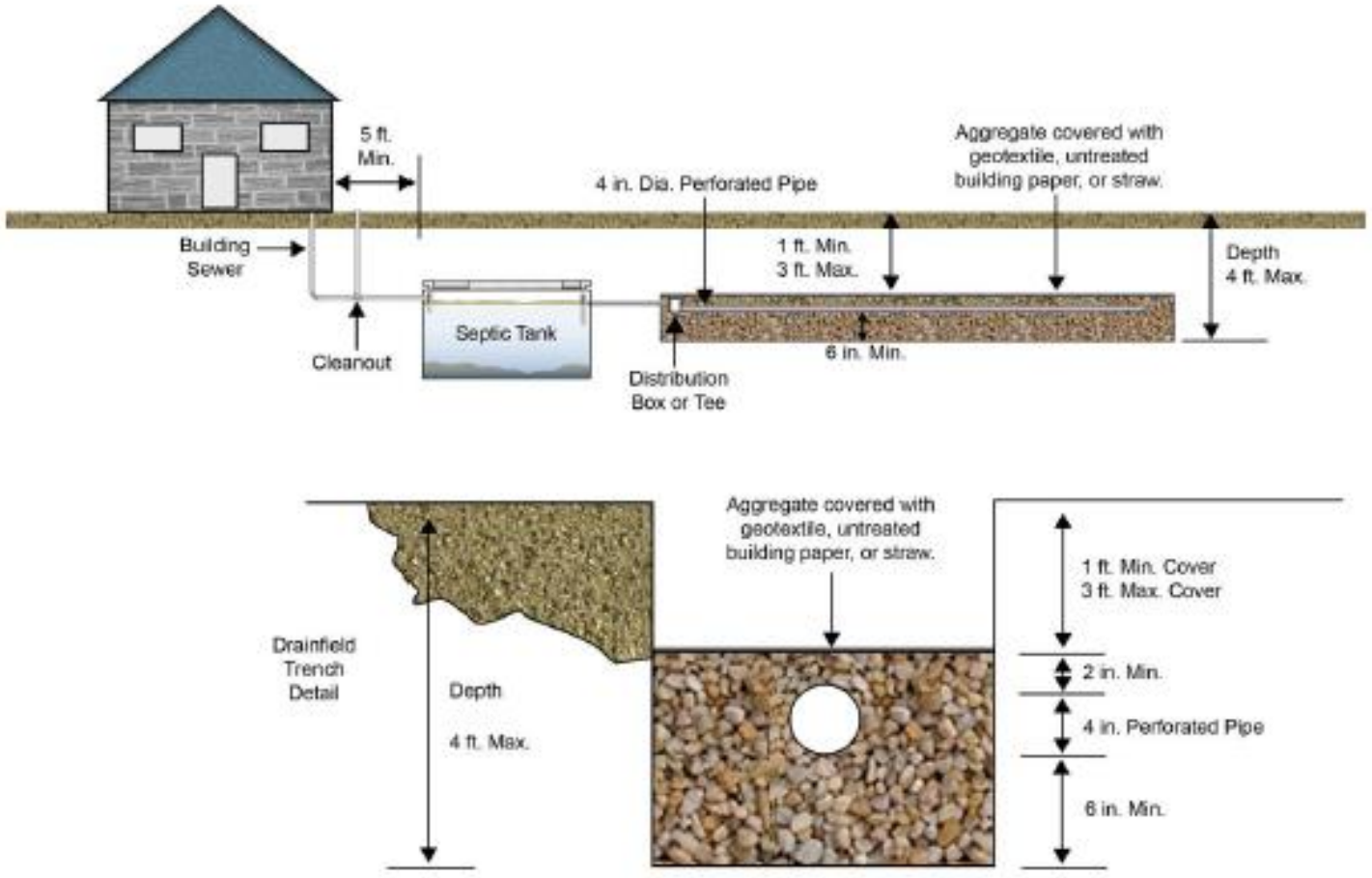
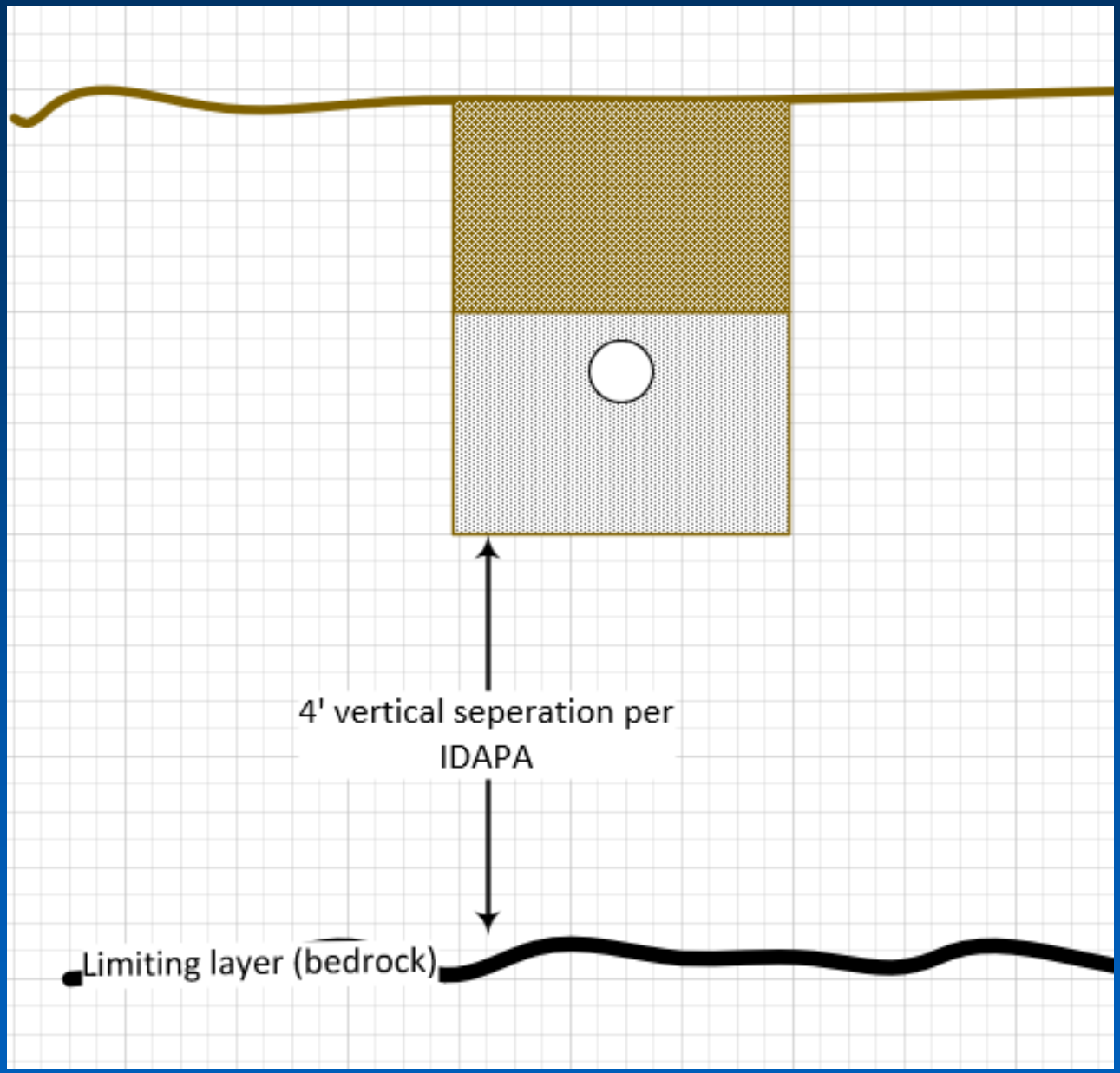


Figure 3-3. Cross-sectional view of a standard drainfield and trench dimensional installation requirements.

Vertical setbacks from bottom of drainfield.

EFFECTIVE SOIL DEPTHS TABLE			
Site Conditions	**Design**	**Soil**	**Group**
Limiting Layer	**A**	**B**	**C**
Impermeable Layer	4	4	4
Fractured Bedrock, Fissured Bedrock or Extremely Permeable Material	6	4	3
Normal High Groundwater Level	6	4	3
Seasonal High Groundwater Level	1	1	1


4' vertical seperation per
IDAPA
Limiting layer (bedrock)

Horizontal Setbacks

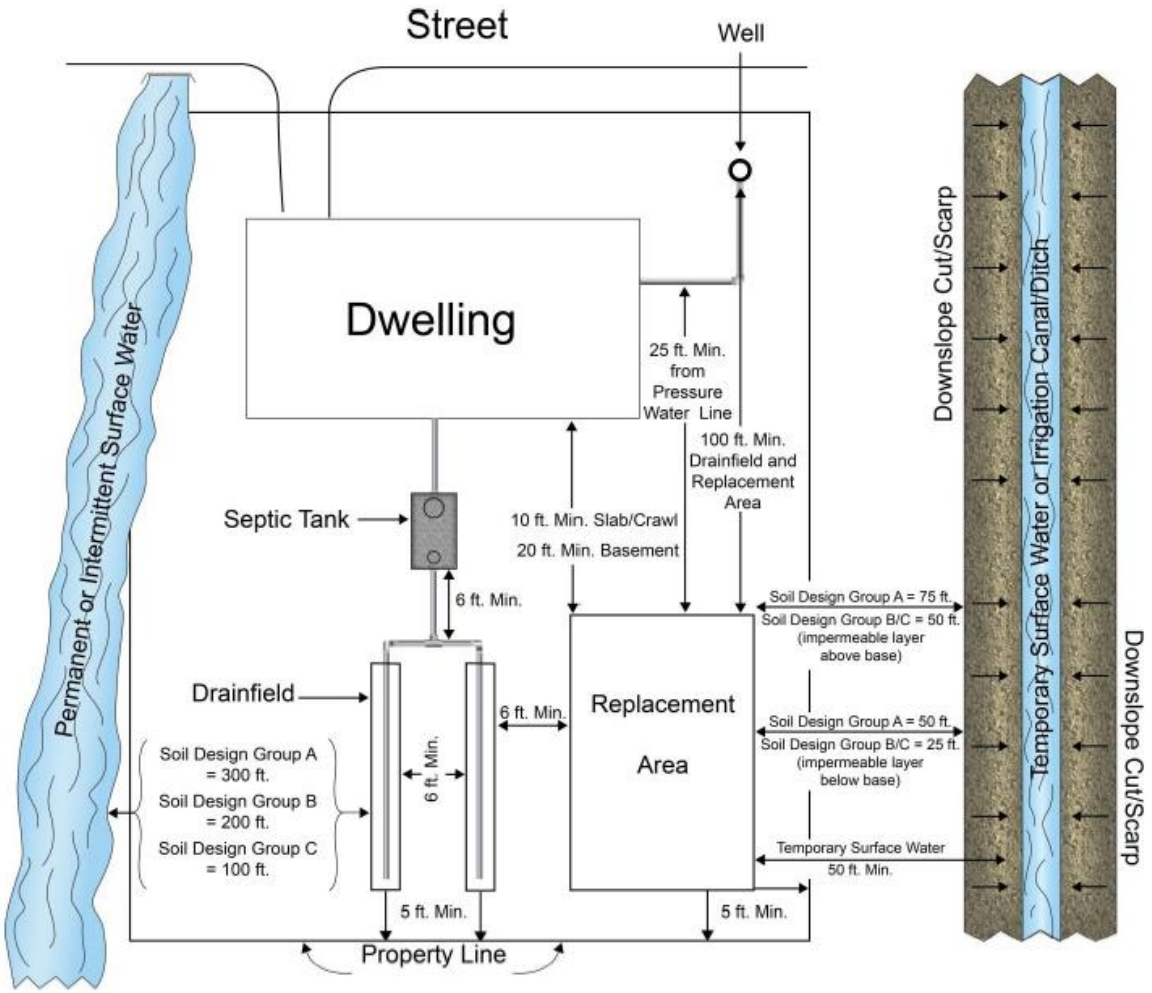
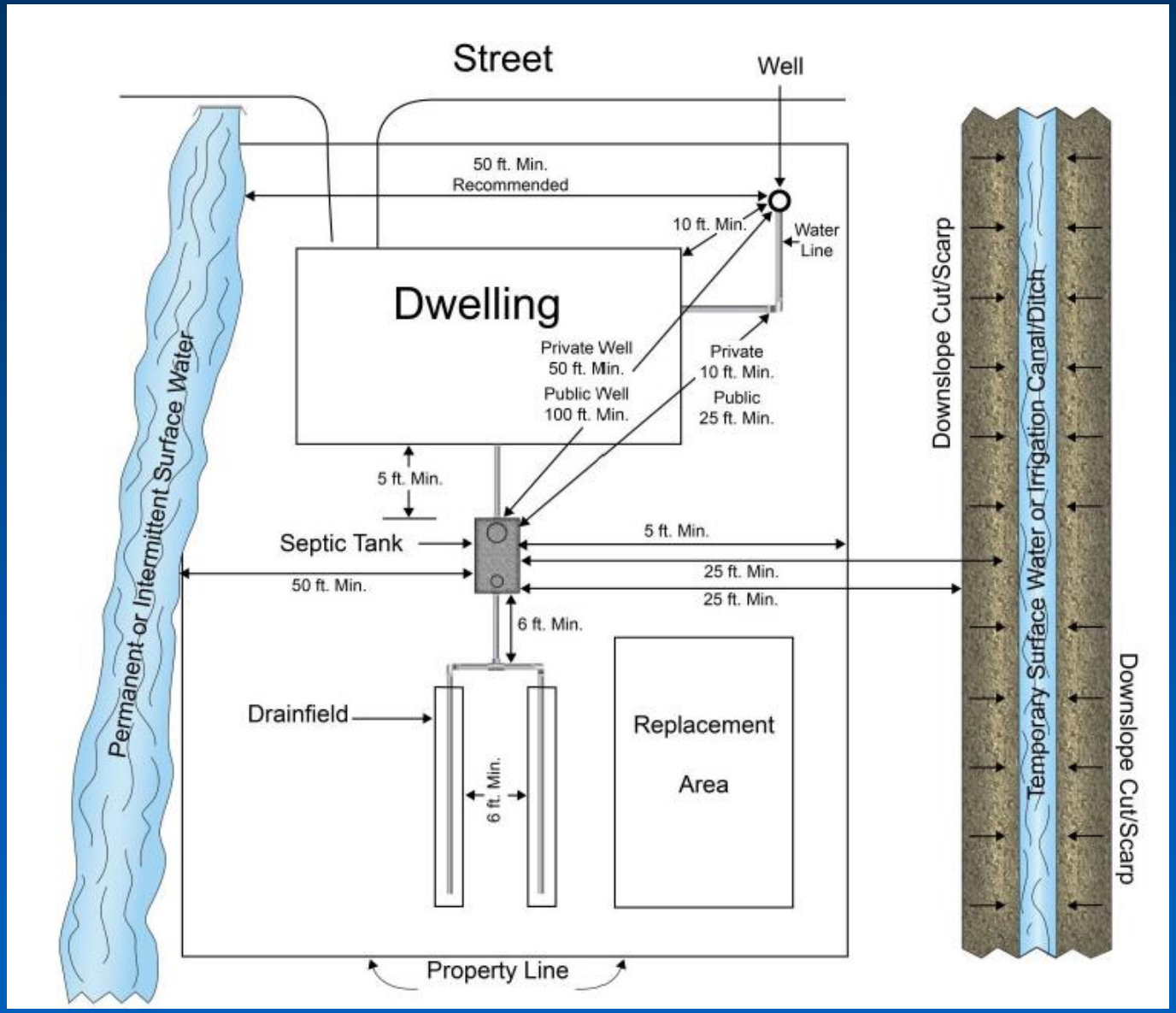


Figure 3-1. Horizontal separation distance requirements for a standard drainfield (IDAPA 58.01.03.008.02.d and 58.01.03.008.04).

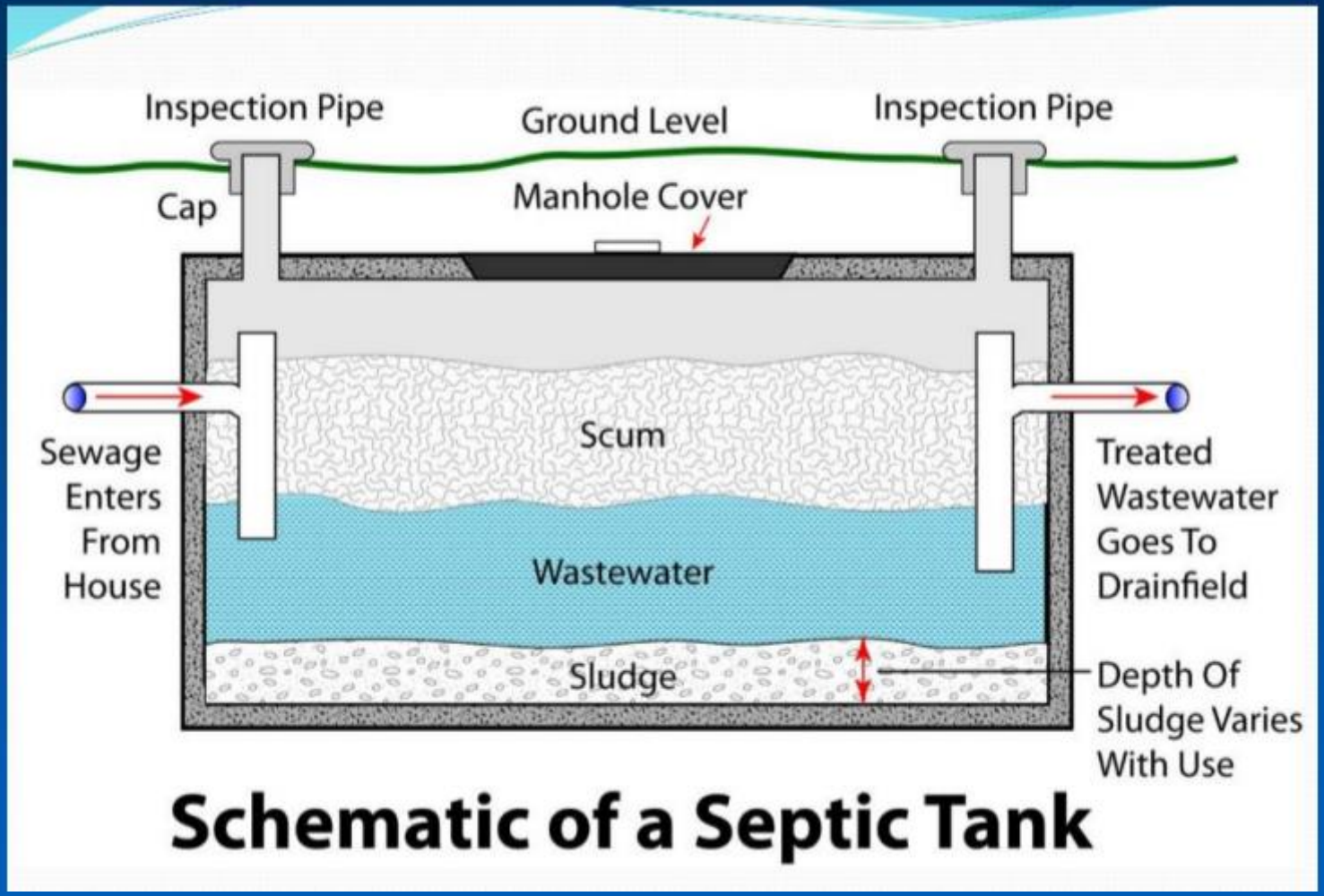

Street
Well
50 ft. Min.
Recommended
10 ft. Min.
Water
Line
Dwelling
Private Well
50 ft. Min.
Public Well
100 ft. Min.
Private
10 ft. Min.
Public
25 ft. Min.
5 ft. Min.
Septic Tank
50 ft. Min.
5 ft. Min.
25 ft. Min.
25 ft. Min.
6 ft. Min.
Drainfield
6 ft. Min.
Replacement
Area
Property Line
Permanent or Intermittent Surface Water
Downslope Cut/Scarp
Temporary Surface Water or Irrigation Canal/Ditch
Downslope Cut/Scarp

Setback to Pools

- Drainfield to in-ground pool = 20 feet
- Septic tank to in-ground pool = 5 feet
- Pool water lines, if not encased within pool foundation requires normal separation distances from a water line
  - 10 feet to tank
  - 25 feet to drainfield

Septic Tanks

- Approved septic tanks listed in Chapter 5 of the TGM
- Approved pump tanks is also listed in the TGM
- Ensure the tank you order is an approved tank
- Check your tanks before they come off the truck



Schematic of a Septic Tank

Septic Tanks

07. Minimum Tank Capacities. (3-31-22)

a. Tanks serving one (1) or two (2) single dwelling units:

MINIMUM CAPACITY PER DWELLING UNIT	
Number of Bedrooms	**Minimum Liquid Capacity (Gallons)**
1 or 2	900
3 or 4	1,000

For each bedroom over four (4) add two hundred fifty (250) gallons. (3-31-22)

b. Tanks serving all other flows. Septic tank capacity shall be equal to two (2) times the average daily flow as determined from Subsection 007.08. The minimum tank capacity shall be seven hundred and fifty (750) gallons. (3-31-22)

Septic Tank Requirements

- **DEQ approved with required markings**
  - "In" "Out"
  - Volume
  - Manufacture name
  - Date made
- Good repair
- Sealed (watertight)
- Install level, bedded
- Baffles intact
- Use appropriate piping

Septic Tanks

- Follow manufacturer's instructions for installation
- Check the bottom of the tank hole before setting tank
- Be aware of setting tanks in high groundwater
- Use the approved cut out ports
- Ensure baffles are intact
- Secured risers in place

Tank Requirements

- Two tanks required when…
  - Two residences sharing drainfield on same property.
    - Example: 2 bedroom home, 1 bedroom accessory cottage.
- Not required when detached structure has only a bathroom.

Baffles

10. Inlets. (7-1-93)

a. The inlet into the tank will be at least four (4) inches in diameter and enter the tank three (3) inches above the liquid level. (10-1-90)

b. The inlet of the septic tank and each compartment will be submerged by means of a vented tee or baffle. (10-1-90)

c. Vented tees or baffles will extend above the liquid level seven (7) inches or more but not closer than one (1) inch to the top of the tank. (10-1-90)

d. Tees should not extend horizontally into the tank beyond two (2) times the diameter of the inlet. (10-1-90)

11. Outlets. (7-1-93)

a. The outlet of the tank will be at least four (4) inches in diameter. (10-1-90)

b. The outlet of the septic tank and each compartment will be submerged by means of a vented tee or baffle. (10-1-90)

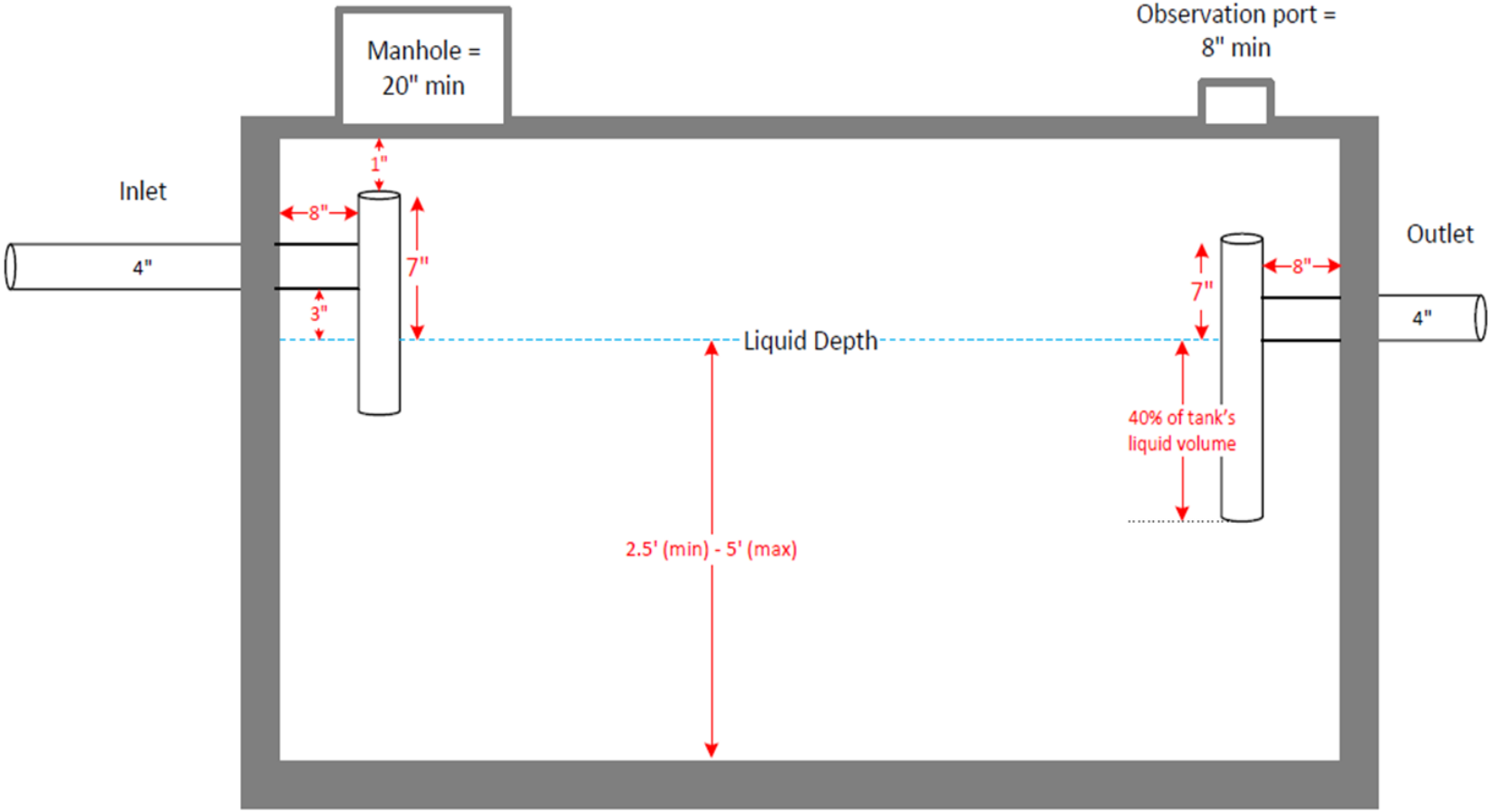
c. Vented tees and baffles will extend above the liquid level seven (7) inches or more above the liquid level but no closer than one (1) inch to the inside top of the tank. (10-1-90)

d. Tees and baffles will extend below the liquid level to a depth where forty percent (40%) of the tank's liquid volume is above the bottom of the tee or baffle. For vertical walled rectangular tanks, this point is at forty percent (40%) of the liquid depth. In horizontal cylindrical tanks this point is about thirty-five percent (35%) of the liquid depth. (10-1-90)

e. Tees and baffles should not extend horizontally into the tank beyond two (2) times the diameter of the outlet. (10-1-90)

Inlet and Outlet Baffles

Baffles help protect the drainfield by keeping solids in the tank


Manhole =
20" min
Observation port =
8" min
Inlet
4"
1"
8"
7"
3"
Liquid Depth
2.5' (min) - 5' (max)
7"
8"
40% of tank's
liquid volume
Outlet
4"

3.2.3 Septic Tank and Dosing Chamber Installation

Septic tanks and dosing chambers may not be modified from their approved design (e.g., core drilling and roto-hammer) without prior approval from DEQ, which must be obtained through a manufacturer's submittal as described in section 1.4.2.1.1 detailing the proposed structural changes.

- Septic tanks installed level on undisturbed native soil
  - Some fill may be used to smooth the base of tank hole (pea-gravel)
- Tank should be installed on consolidated or compacted fill >6"
- If installed in seasonal high GW, vertical separation distance of 2' from water level to tank lid
- Risers required if manhole is >24" below grade
  - Riser must bring access within 18" of ground surface
  - Rule change may require access be brought to ground surface
- Tank excavation span:
  - ABS SCH 40 or equivalent
  - D3034 may be used if excavation is compacted with fill below the pipe

Inlet & Outlet Piping

- To and from tank:
  - 3 feet beyond tank excavation
    - Use ABS SCH 40 or piping equal or greater strength
    - ASTM D-3034 may be used
      - If excavation is compacted with fill material (90% proctor density)
      - Placement on undisturbed earth (no less than 12 inches of cover over pipe)

Table 5-13. Pipe materials for specified uses.

Pipe Material and Specification[a,b]		Function			
		Tank to Dosing Chamber	Tanks to Drainfield[c,d]	Gravity Drainfield[c,d]	Pressure Distribution System
ABS Sch. 40[e]	ASTM D2661	X	X	X	X
	ASTM F628	X	X	X	X
PVC Sch. 40	ASTM F891-10	X	X	X	X
PVC	ASTM D3034[f]	X	X	X	
	ASTM D2729			X	
	ASTM D2241	X	X	X	X
	AWWA C900	X	X	X	X
	ASTM D2665	X	X	X	
	ASTM D1785	X	X	X	X
PE	AWWA C906	X	X	X	X
	ASTM F810[g]		X	X	
	ASTM F667[h]			X	

a. Or equivalent materials as specified by ASTM or AWWA.
b. See State of Idaho Division of Building Safety, Plumbing Bureau for requirements regarding approved building sewer lines between the structure and septic tank.
c. Specified in section 3.2.2 of the *Technical Guidance Manual for Individual and Subsurface Sewage Disposal Systems* (TGM).
d. Must use ASTM D3034 or equivalent as specified in section 3.2.3 of the TGM. ASTM D3033 piping was previously approved for use spanning the tank to dosing chamber, tank to drainfield, and in the drainfield.
e. ABS schedule 40 or piping material of equal or greater strength. Required by IDAPA 58.01.03.007.21.a.
f. Excavation must be compacted with fill material to 90% standard proctor density, with a minimum of 12 inches of cover material. Required by IDAPA 58.01.03.007.02.b.
g. Smooth wall high-density polyethylene (HDPE), white suitable for effluent and drainfield piping.
h. Corrugated HDPE, black with stripe, oblong perforated holes, flexible, suitable for drainfield piping. ASTM F405 withdrawn in 2015 and replaced with ASTM F667.
Notes: polyvinyl chloride (PVC); acrylonitrile-butadiene-styrene (ABS); polyethylene (PE); American Society for Testing and Materials (ASTM); American Water Works Association (AWWA)

Correct example of using SCH 40 over span of tank excavation to D3034 piping.

Proper Backfill on Plastic Tanks

Backfill should not have stones greater than 3 inches (75 mm) in diameter or excessive clods that do not break apart during placement and compaction. Backfill must be capable of occupying the spaces between the tank ribs and beneath the haunches.

Note: Rounded screened aggregate (e.g., pea gravel) is not a suitable backfill.

Standard field soil classification methods shall be used to determine the soil textural class.

Note: Under most circumstances, the determination of soil dilatancy will not be required. Dilatancy shall be determined in the field using a test that does not require specialized equipment, per ASTM D2488, Section 14.3.

Place and compact soil by walking-in beneath the haunches of the tank.

Note: Compacting soil beneath the haunches is critical for tank structural integrity.

Place backfill around the four sidewalls in an alternating manner, so that the backfill height along the four sidewalls is maintained within a 12-inch (300-mm) tolerance.

Do not backfill top of tank before sidewalls are completely backfilled.

Infiltrator

If installing Infiltrator's IM-Series tanks, backfilling may be done with native soil in lifts of 12 inches on all sides of the tank. Compact the soil in 12" lifts with the heel of a bucket and by walking-in soil around the tank.

- Compact backfill in 6 inch lifts always working on the sides first and then the bulkheads (ends of tank).
- Use a hand tamper to achieve sidewall compression through compacted backfill. Mechanical compactors may be used if available on the site. Sidewall compression is essential to provide sidewall restraint after covering the tank. (Fig. 4)

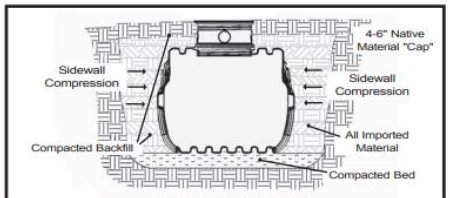


FIG.4 Backfilling

Roth

Backfill in an alternating method around the tank using native material free of debris, sharp stones, and stones greater than 2" in diameter. Soil MUST flow freely into corrugations between tank ribs, including midpoint to belly of tank.

Septic Tank & Features of Concern

Features of Concern		Minimum Distance to Septic Tank in Feet
Well or Spring or Suction Line	Public Water Other	100 50
Water Distribution Line	Public Water Other	25 10
Permanent or Intermittent Surface Water		50
Temporary Surface Water		25
Downslope Cut or Scarp		25
Dwelling Foundation or Building		5
Property Line		5
Seasonal High Water Level (Vertically from Top of Tank)		2

Buoyancy Control Measures

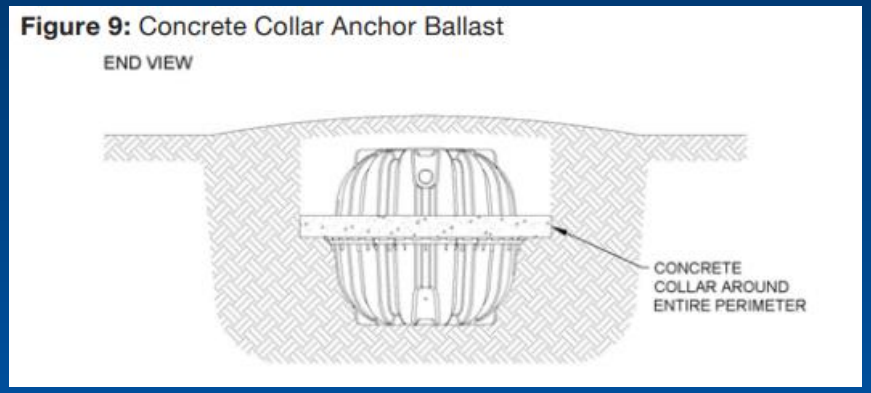
- Wooden or concrete beam anchor ballast
- Precast concrete plates
- Helical anchors
- Anchor lock system
- Concrete collar

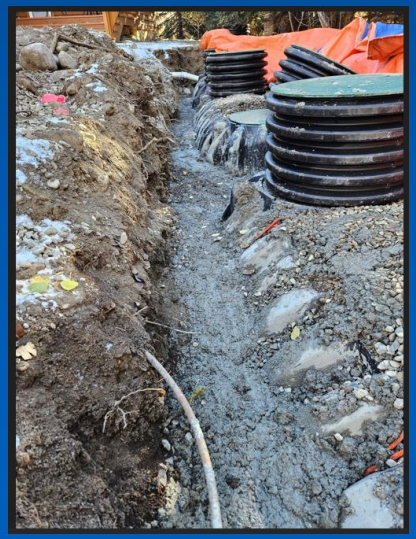
Buoyancy Control Methods

Position beam and tank.

Position strap on beam.

Position plate and tank.





DRAINFIELDS

Equal Distribution

- Wastewater is distributed to all trenches with the SSDS, providing the opportunity to use the entire infiltrative surface of the disposal system.
- Can be achieved with either a piping header or distribution box.

Equal Distribution

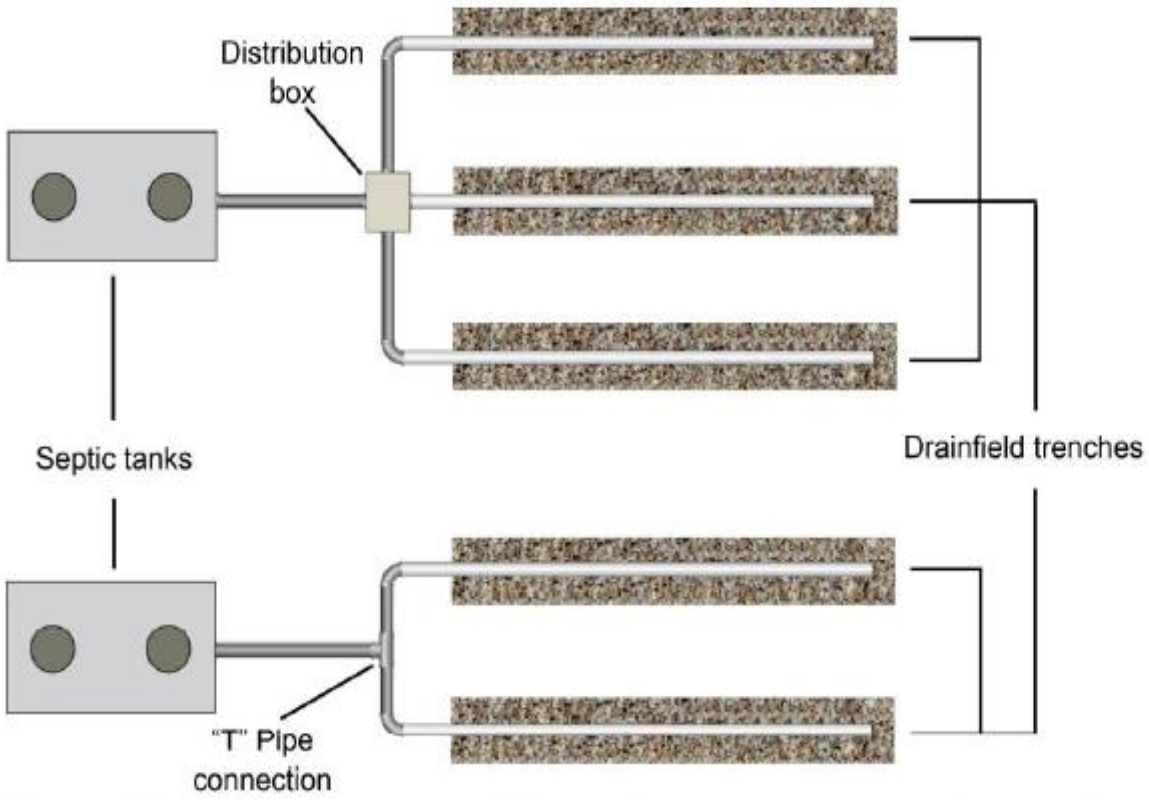


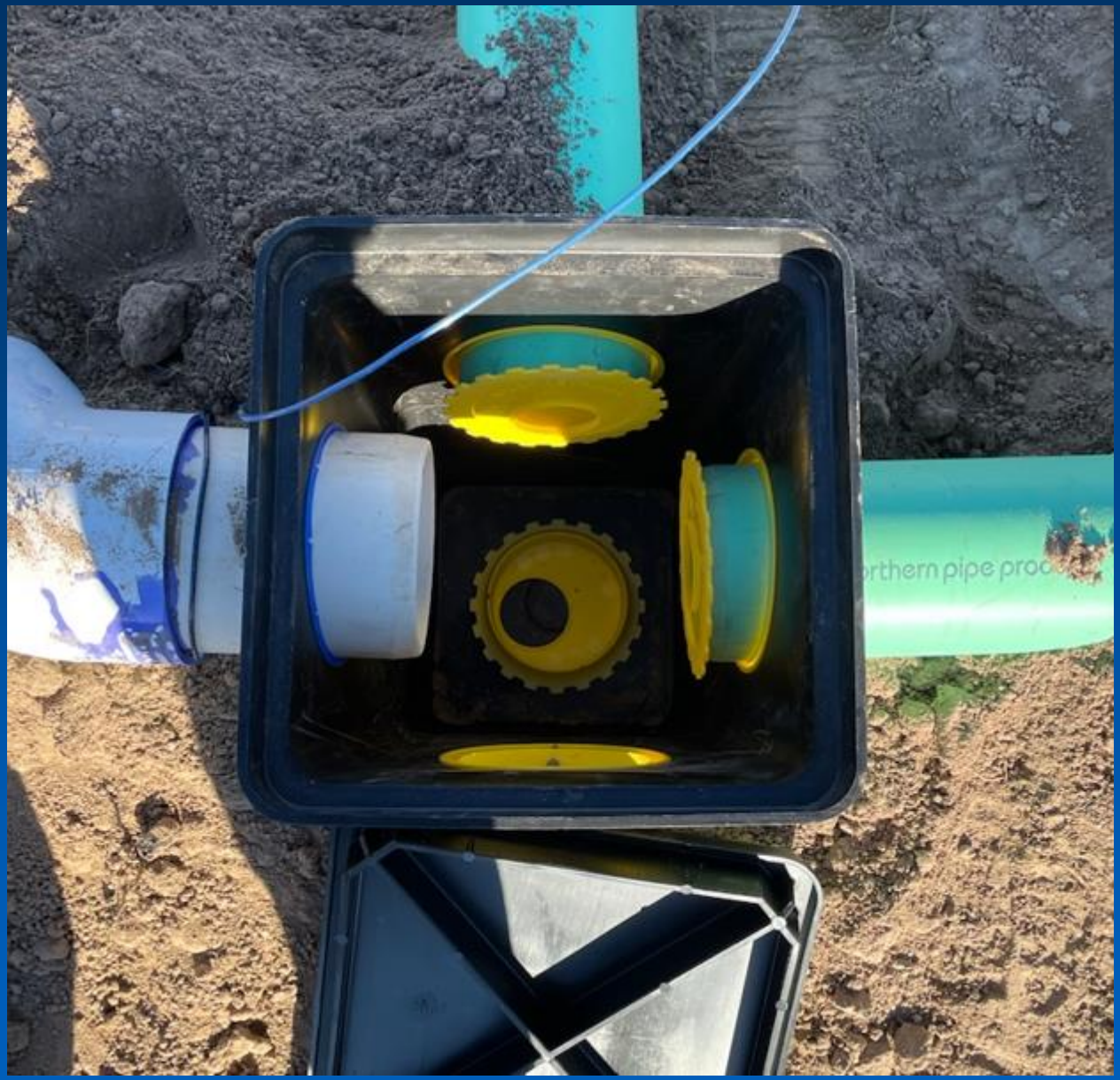
Figure 3-4. Overhead view of equal distribution methods for level sites.

Piping Header

- Wastewater is conveyed to the trenches using a network of pipes.
- The discharge line from the tank should be split using a T-pipe fitting.
- The T should be offset equally from the trenches.
- The T needs to be installed level.
- Recommended to be used only in installations with two trenches.

Distribution Boxes

- Used to divide wastewater effluent equally among multiple distribution lines.
- Recommended for systems where more than two trenches are installed.
- Install level and on sound footing to prevent shifting from settling or heaving.
- Adjust speed levelers to achieve equal distribution.



Serial Distribution

- Typically used on sloped sites.
- Allows trench to load and fill before next one in series.
- Achieved with relief lines or d-boxes.

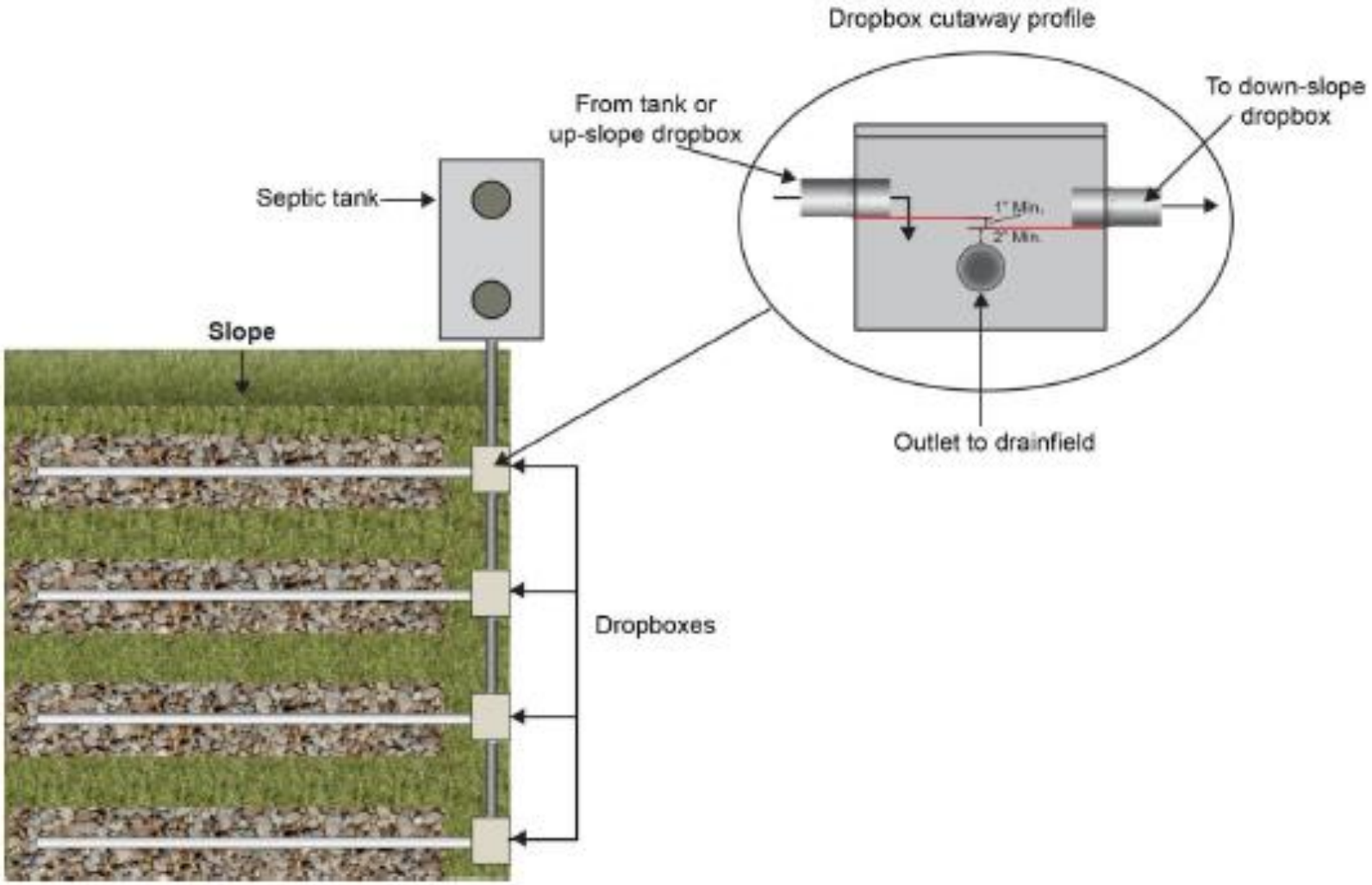


Figure 3-8. Drop box and sequential distribution details.

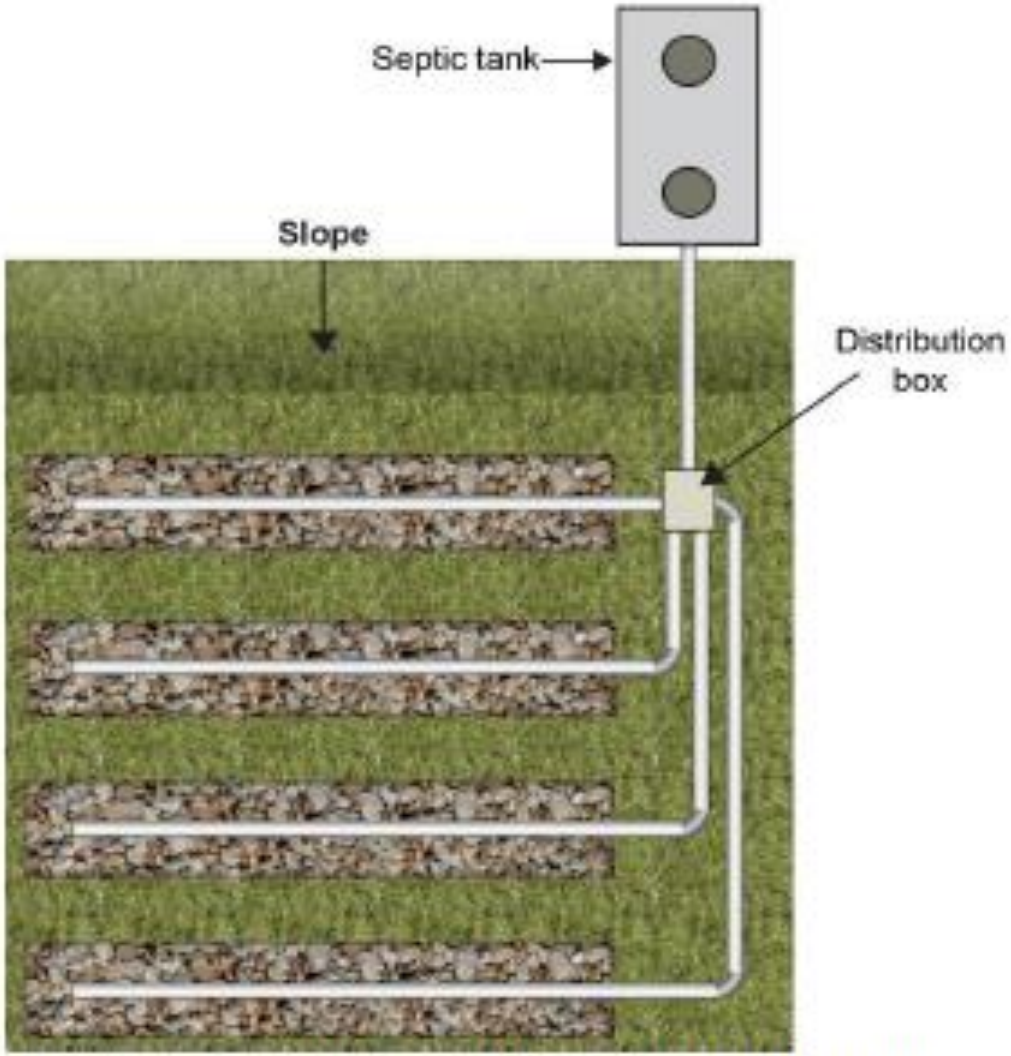


Figure 3-5. Overhead view of a distribution box layout on a sloped site.

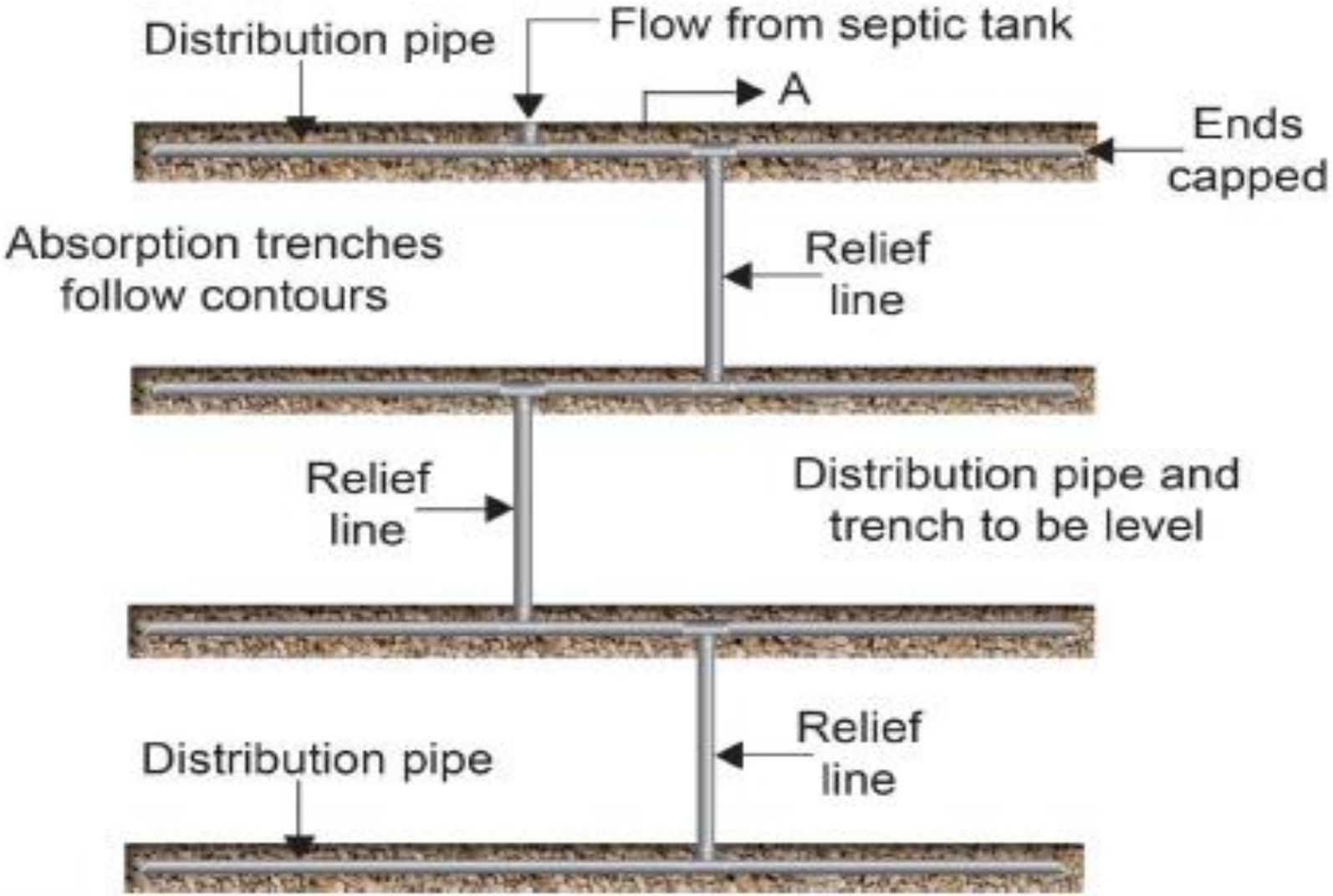


Figure 3-6. Overhead view of a relief line system network.

Steep Slope Systems

- Trench systems for slopes greater than 20% but less than 46%
- Trenches no wider than 3 feet.
- Trenches are set 8 feet apart.
- Gravel drainfields must have 18 inches of rock, 12 of which is under the pipe.
- No reduction for gravelless products.
- Install depth is measured from downhill side of the trench.
- Can be installed in A or B soil, but not C. Soil must be homogenous and without saturation.

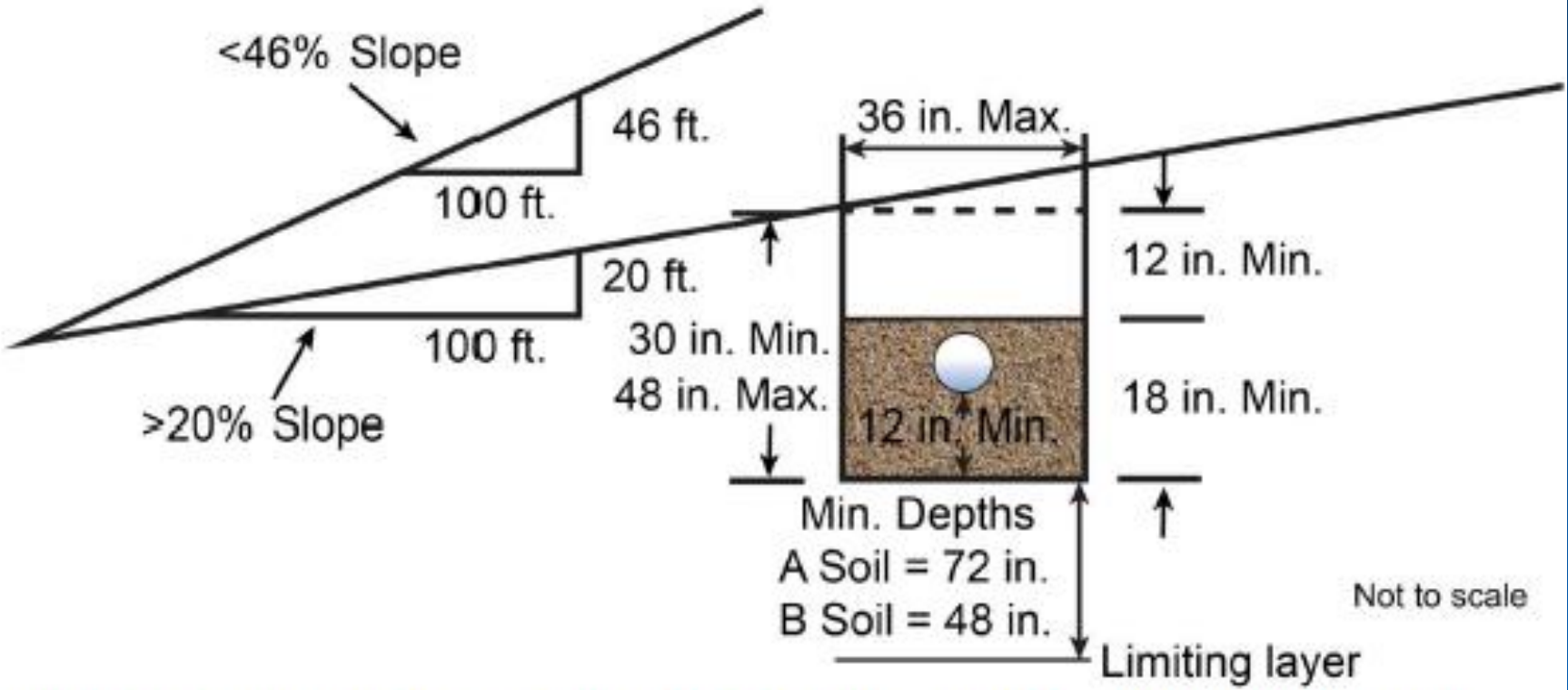
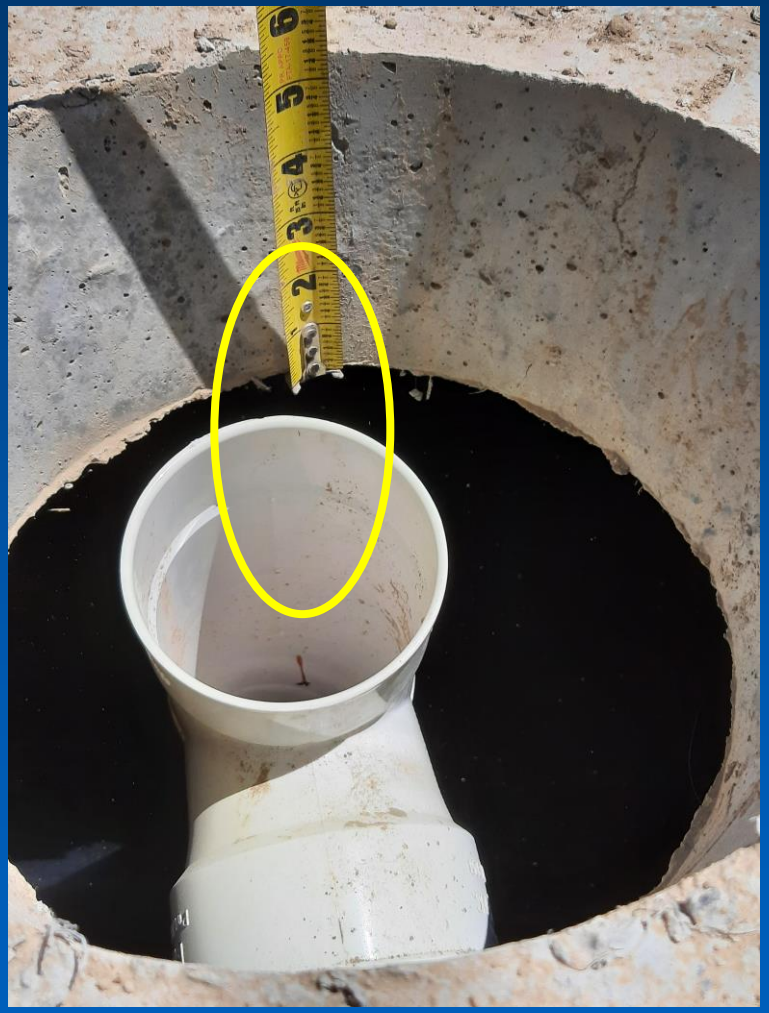


Figure 4-47. Illustration of a steep slope trench with an example of maximum and minimum slope.

What's Wrong with These Pictures



Standard System

- Pipe & Rock
- Setbacks
- Aggregate requirements
- Piping requirements
- Trench sizing

Aggregate

- Trench aggregate shall be crushed rock, gravel, or other acceptable, durable and inert material which is free of fines and has an effective diameter from ½ to 2 ½ inches.

Drainfield Cover

- Drainfield aggregate must be covered throughout the drainfield by a soil barrier. For standard subsurface sewage disposal systems, standard absorption beds, seepage pits, and basic alternative systems, the soil barrier may consist of untreated building paper, synthetic filter fabric (geotextile), or a 3 inch layer of straw.


Very dirty gravel.


OK to use straw as cover.

Extra Drainrock Trench

- Extra drainrock may be used to shorten gravel trenches.
- May not be used in gravel beds to reduce bed size.

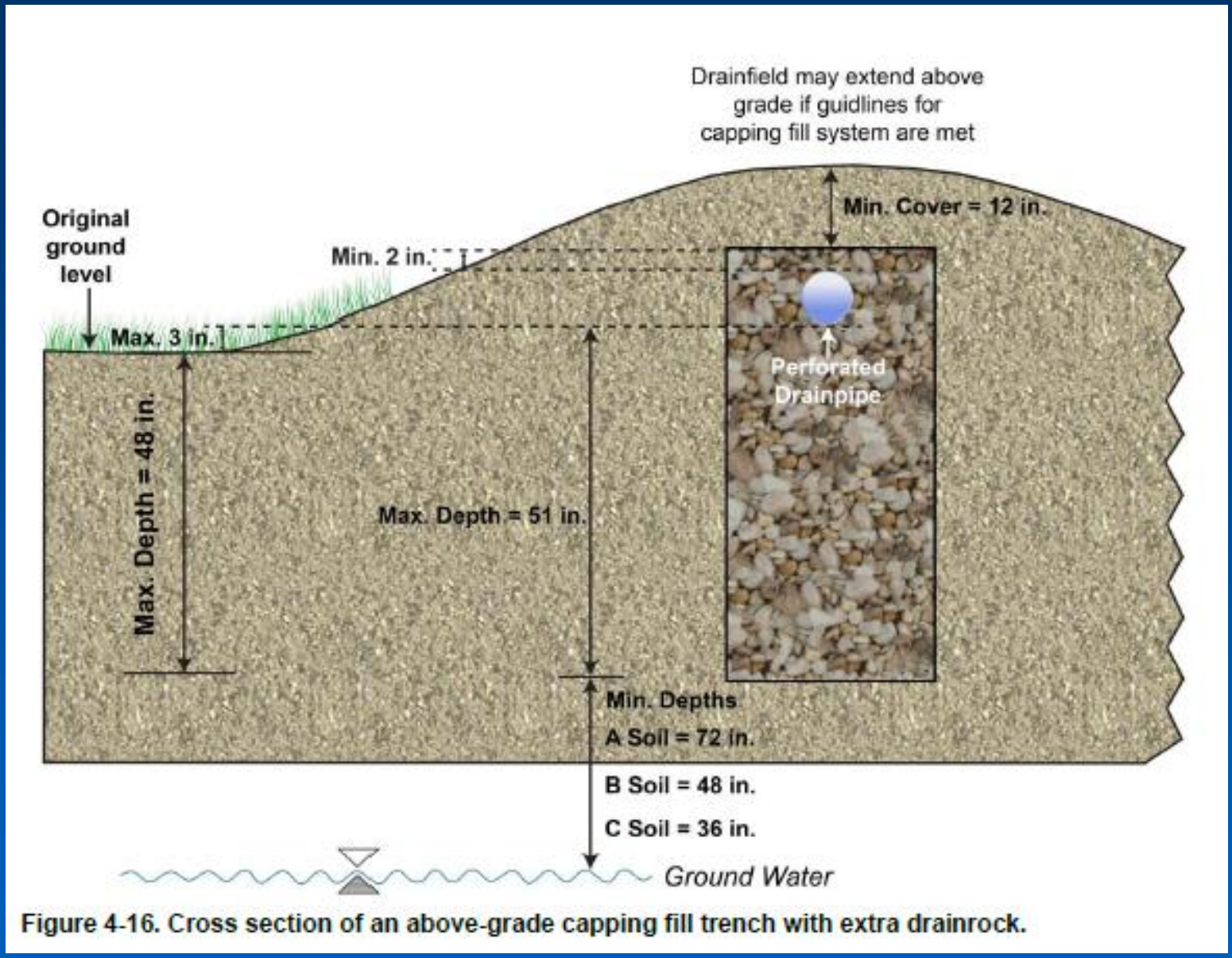


Figure 4-16. Cross section of an above-grade capping fill trench with extra drainrock.

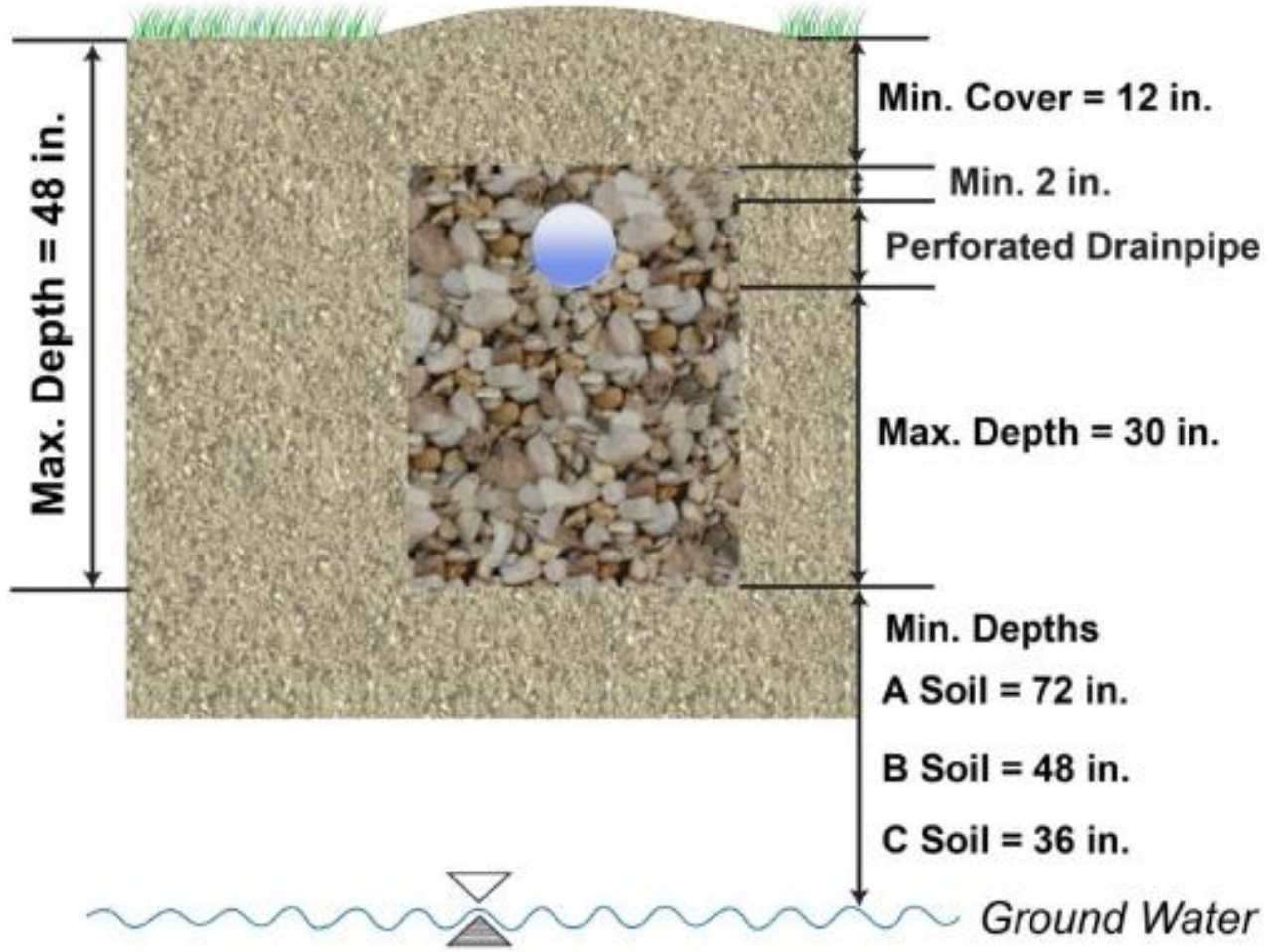


Figure 4-15. Cross section of standard trench with extra drainrock.

Table 4-9. Multiplication factors to adjust drainfield length for extra drainrock.

Gravel Depth Below Perforated Pipe (inches)	Trench Width (inches)							
	12	18	24	30	36	48	60	72
12	0.75	0.78	0.80	0.82	0.83	0.86	0.87	0.89
18	0.60	0.64	0.66	0.69	0.71	0.75	0.78	0.80
24	0.50	0.54	0.57	0.60	0.62	0.66	0.70	0.73
30	a	a	0.50	0.53	0.55	0.60	0.64	0.67
36	a	a	a	a	0.50	0.54	0.58	0.61
42	a	a	a	a	a	0.50	0.54	0.57
48	a	a	a	a	a	a	0.50	0.53

a. Multiplication factor is less than 0.50; use 0.50 if this depth and width are desired.

Absorption Beds

- When is an absorption bed appropriate?
  - When space is a limiting factor or there's not enough soil for a trench system, beds may be considered.
  - Do not assume a bed system will be approved.

- Minimum requirements:
  - Pipe from sidewall min. 3' and maximum 6' on-centers. If domes are used pipe needs to go into every row per the installation manual.

Basic Alternatives

Gravelless Systems

- Meets requirements of standard trench system except drainrock is replaced by gravelless trench components.
- Approved products are granted reduction in disposal area square footage.
- No reduction allowed for installation widths greater than 3 feet.

Gravelless Calculations with 25% Reductions

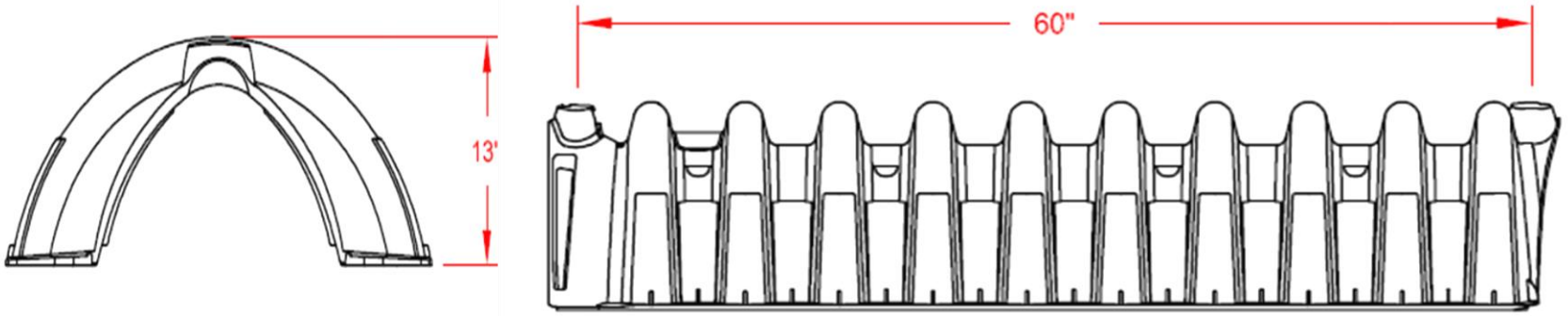
- 1000 square feet required on permit

  1000*.75=750 square feet

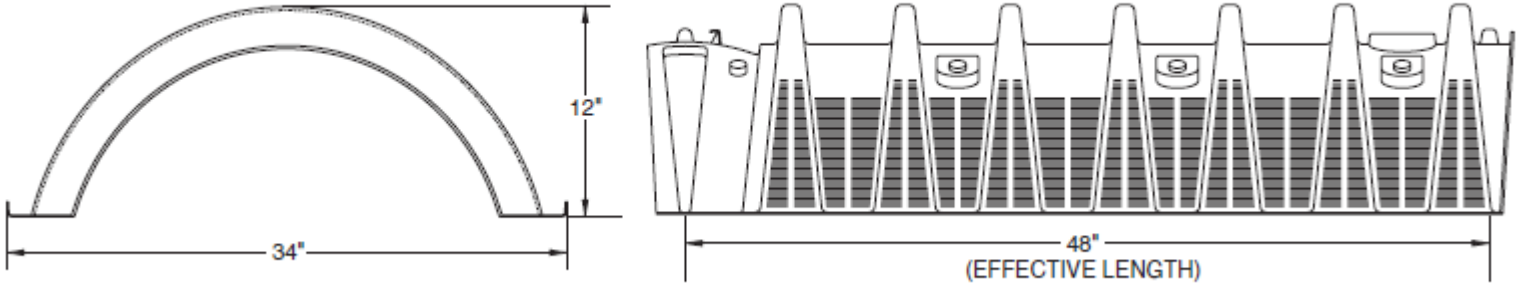
  750 square feet/3 feet width = 250 lineal feet of gravelless components required
- 667 square feet required on permit

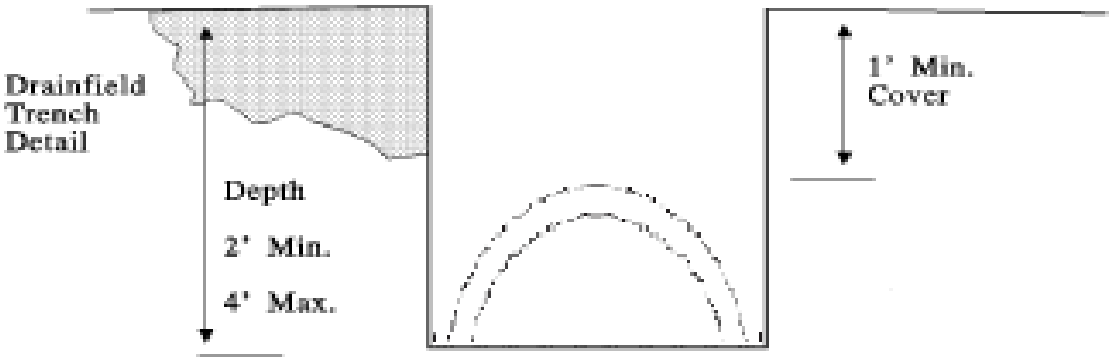
  667*.75= 500.25 square feet

  501 square feet/ 3 feet width = 167 lineal feet of gravelless components required

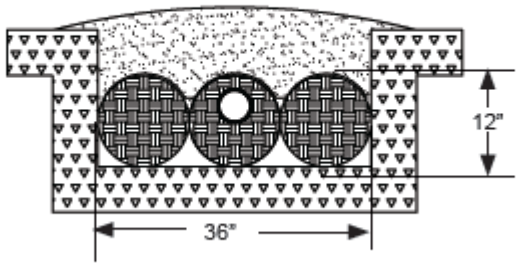


The Quick4 Standard Chamber





EZ*flow* 1203H



Correct installation. Notice no over-excavation of the sidewalls.

Capping Fill

- Install depth 3-23 inches into native
- Below Grade: 12-23 inches into native; cap may be installed before system excavation but after soil scarification.
- Above Grade: 3-11 inches into native; cap must be installed before system excavation but after soil scarification.
- Cap required for final cover.
- Scarification required before cap is installed.
- Scarification allows for bonding of earth fill materials.

Construction of Capping Fill Trenches

- Entire drainfield area is scarified to a depth of 6-8”
  - Use chisel plow or backhoe teeth to disrupt vegetative mat
  - NO smearing soil
  - Avoid compaction
- Do not remove natural soil
- Edges of finished cap should be at least 10 feet beyond the nearest trench sidewall
- Finished side slopes should be at a 3 to 1 grade.
- Use of equipment with pneumatic tires is prohibited on fill or cover.
- Must have 12” of cover (or more).
- Site may not exceed 12% slope if drainfield extends above natural soil, or 20% slope when drainfield is at or below natural soil.
- Fill material must be same as or one soil design group finer than natural soil.

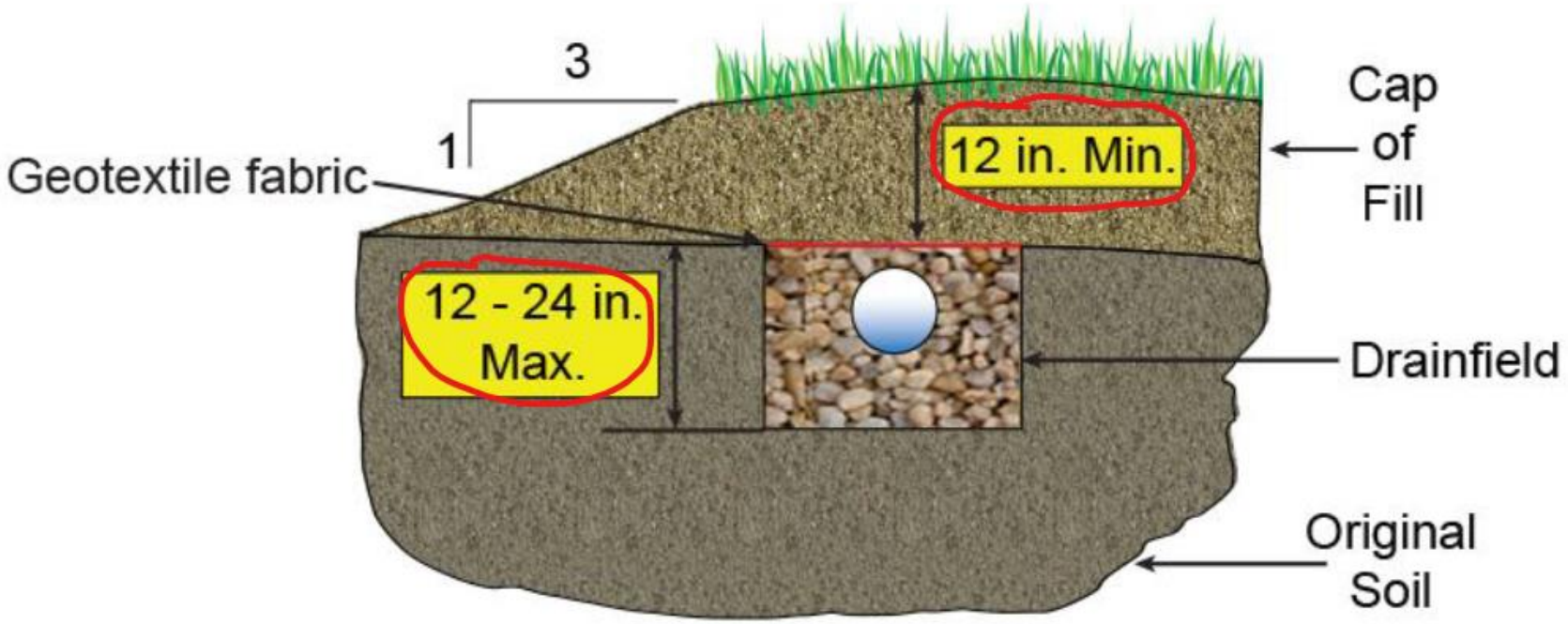


Figure 4-5. Cross-sectional view of a below-grade capping fill trench.

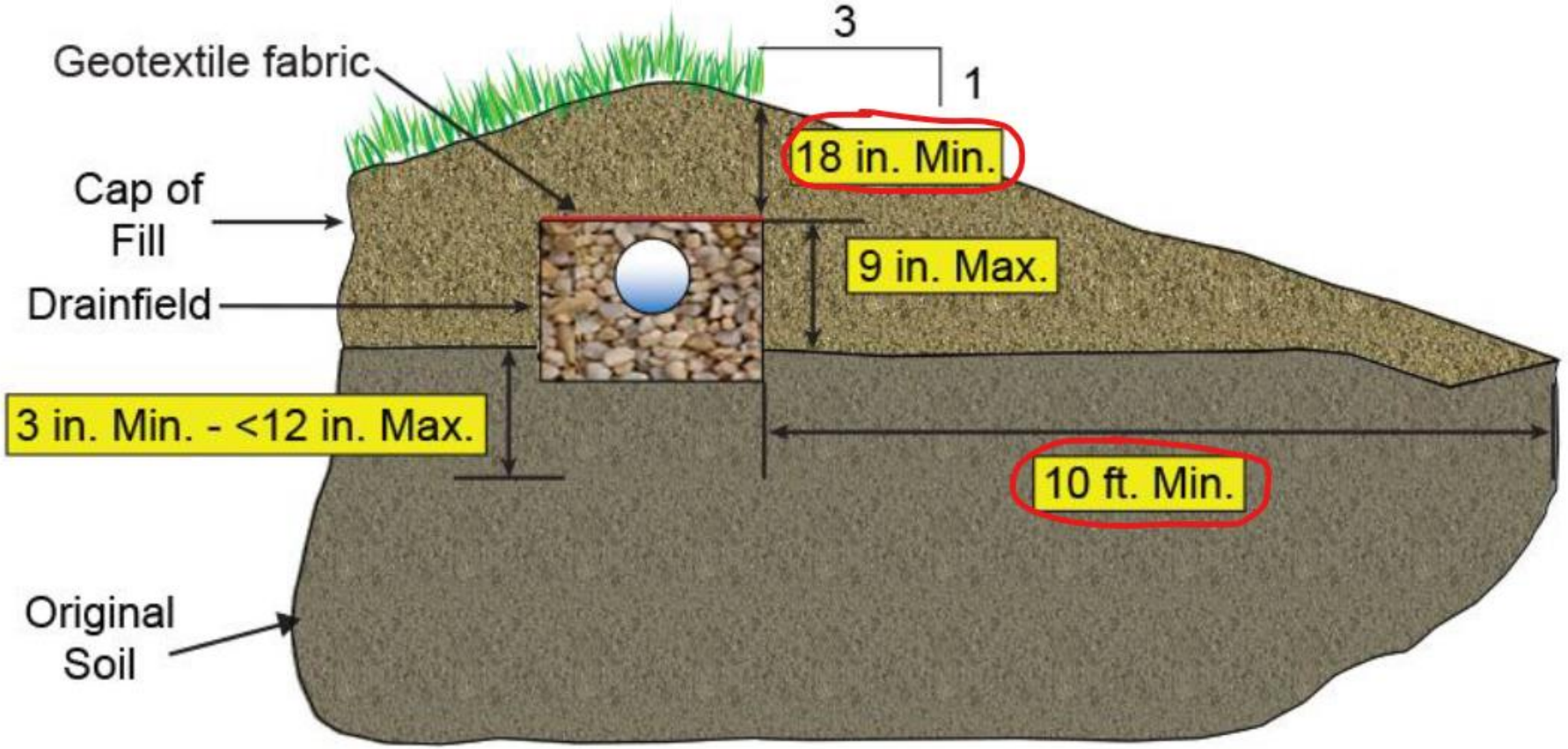


Figure 4-6. Cross-sectional view of an above-grade capping fill trench.

Capping Fill Trench

Inspections:

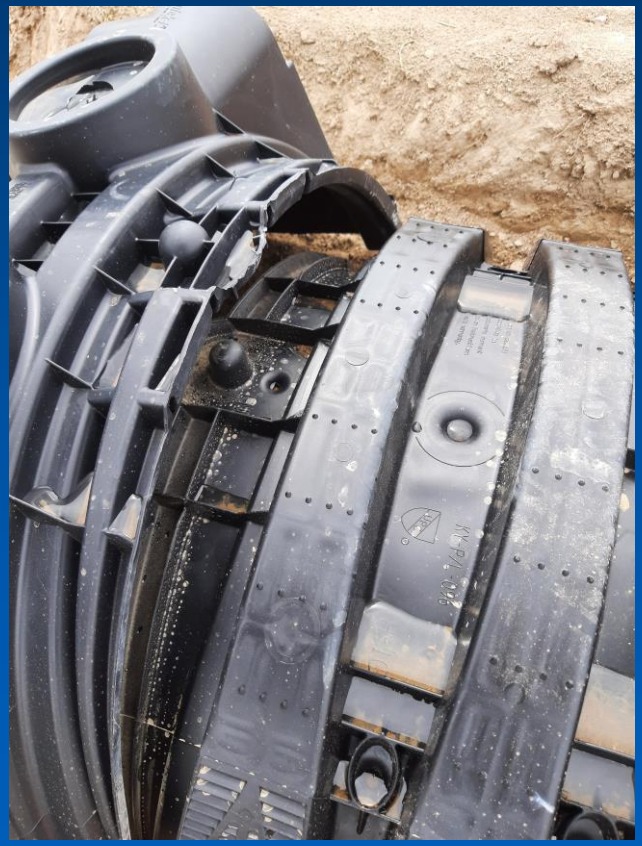
- Site soils texture, fill soil texture, scarification or vegetative mat disruption process will be inspected by the EHS.
- The installed trenches will be inspected by the EHS.
- Final inspection after covering may be conducted by the EHS to investigate the degree of incorporation of fill soil with the original soil.

Observation Ports

- Provide property owner opportunity to check function of drainfield
- Helps mark ends of trenches
- May assist with failure diagnostics


LOADALL

What's Wrong with These Pictures



In-Trench Sand Filter

4.23.1 Description

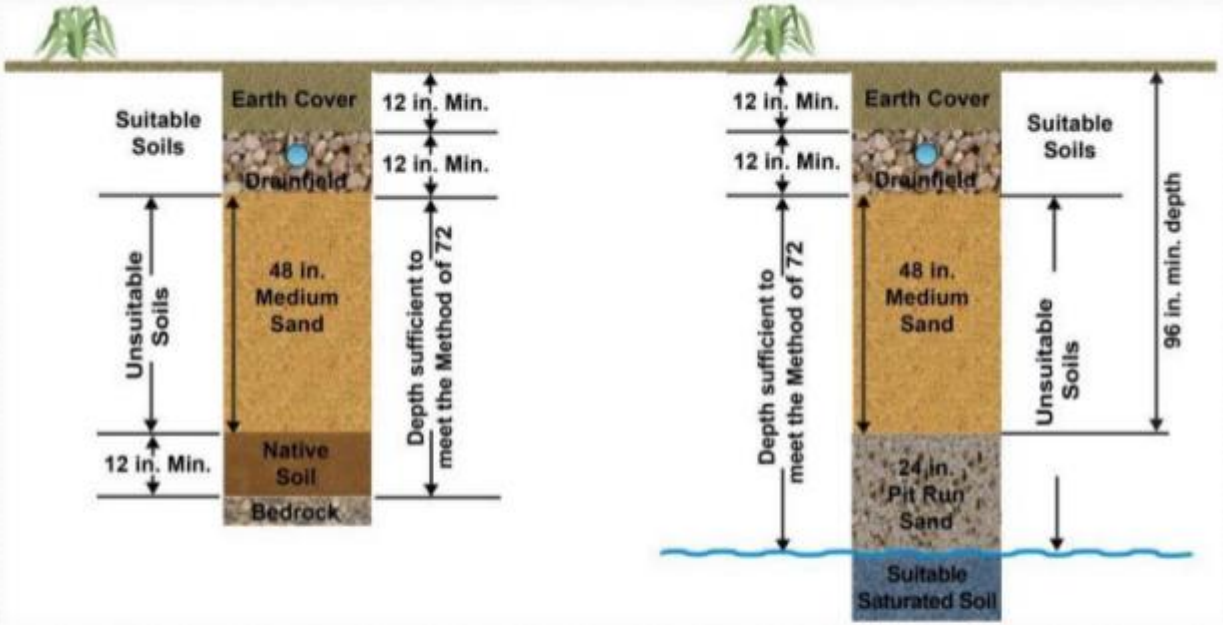
An in-trench sand filter is a standard trench or bed system receiving effluent by either gravity or low-pressure flow, under which is placed a filter of manufactured medium sand meeting the definitions provided in section 3.2.8.1.2. There are two classifications of an in-trench sand filter:

- Standard in-trench sand filter
- Enveloped in-trench sand filter

The standard design is typically used to excavate through impermeable or unsuitable soil layers down to suitable permeable soils. The standard design may also have clean pit run sand and gravel placed between the manufactured medium sand and the suitable permeable soils or ground water as long as minimum manufactured medium sand depths are used. A basic installer's permit may be used to install gravity flow in-trench sand filters that are not preceded by any complex alternative system components.

Standard in-trench sand filter drainfields may be installed at depths where the sidewalls of the drainfield are located in impermeable or unsuitable soil to address sites that cannot meet the requirements of IDAPA 58.01.03.008.02.b. Unsuitable soils must have application rates <0.2 GPD/ft^2 (Table 2-4). Unsuitable soils with application rates >1.2 GPD/ft^2 (Table 2-4) must use an enveloped in-trench sand filter design.

In-trench Sand Filter



- Installed where impermeable, unsuitable soil, or ground water is near surface.
- Method of 72 to determine depth.

Complex Systems

Basic installers can end here.

Types of Complex Systems

- At-Grade Soil Absorption System*
- Drip Distribution System*
- Evapotranspiration & Evapotranspiration/Infiltrative Systems*
- Extended Treatment Package System (ETPS)
- Grey Water System (if pressurized)*
- Sand Mound*
- Two-Cell Infiltrative System
- Complex Proprietary Systems
- Whole-home Wastewater Incinerator*
- Individual Lagoon*
- Pressure Distribution System*
- Pump to Gravity Distribution
- Recirculating Gravel Filter*
- Intermittent Sand Filter
- Pretreated & Pressurized Enveloped In-Trench Sand Filter*
- Constructed Wetland*

***denotes licensed PE required**

Operation & Maintenance

- O&M of complex sewage disposal systems not designed by an engineer is generally found in the TGM or in the design manual provided by the product manufacture.
- All systems designed by an engineer must submit an operations and maintenance manual with the application.
- Some systems require O&M be performed by a service provider, with annual reporting.

Certified Service Providers

- O&M required by certified service provider for:
  - ETPS
  - Recirculating gravel filters
- Manufacturer-specific training documentation
- $15,000 bond
- Exam ≥70%
- Annual reports
- Refresher Training

Pump to Gravity Distribution

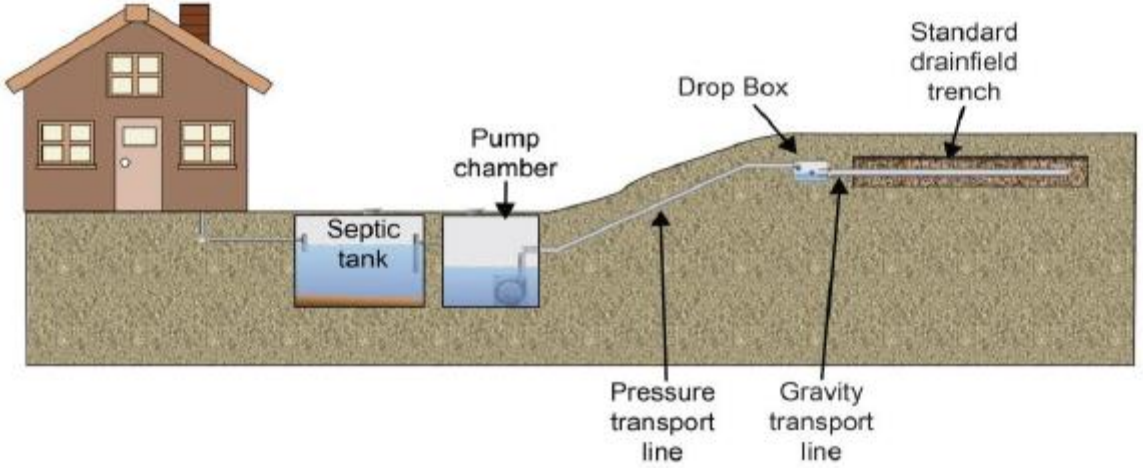


Figure 4-23. Example of pump to drop box installation.

General Requirements

- DF cannot exceed 1500 ft^2
- Equal flow to all lines, d-box may be substituted as a drop box
- Angle effluent line towards bottom of d-box
  - Terminate above high water level
  - 1/4 inch hole drilled in top of elbow
  - Water in transport line drains back into pump tank
- PE required if elevation >100 feet or length is > 500 feet
- Recommend pre-conference with health district to cover requirements prior to permit issuance

Dosing Tank

- Be on approved list
- Pump protection
  - Screen
  - Approved effluent filter in septic tank outlet
- Volume = 2 times design flow (single pump) OR
- Volume = design flow (duplex pumps)
- Keep pump covered
- Must have 1 day flow storage capacity (pump failure)
- Manhole access brought to grade
- Visual & audible high-level alarm
- Low-level shut-off float 2-3 inches above pump

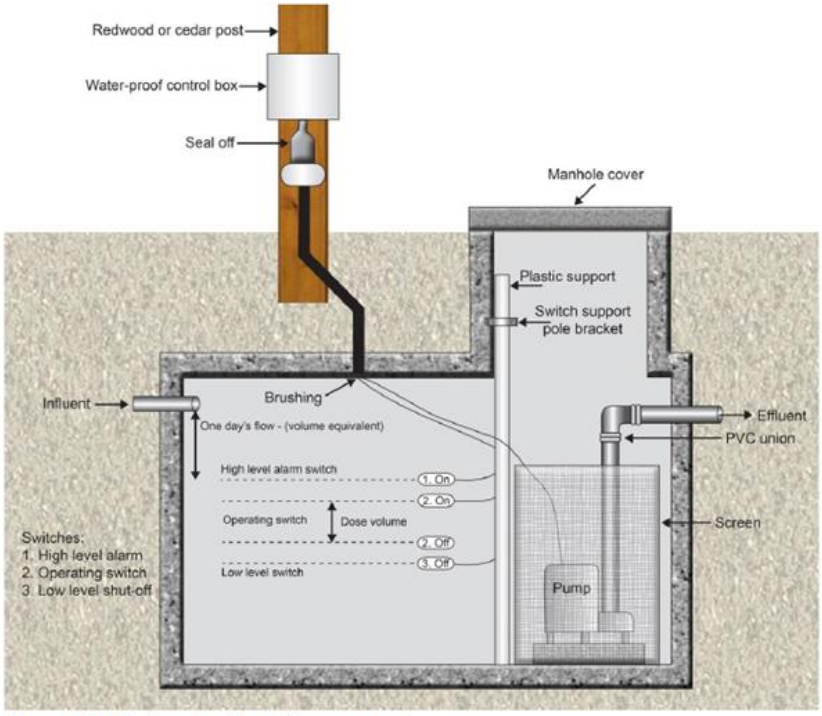


Figure 4-20. Dosing chamber with a pump and screen.

Dosing continued….

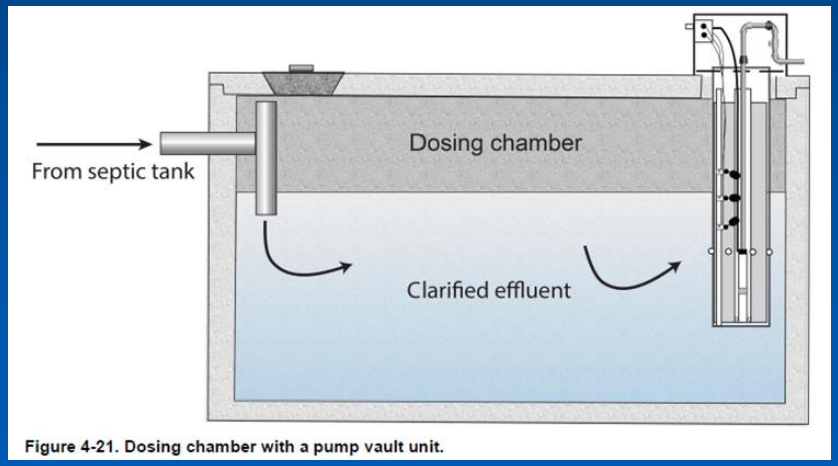


Figure 4-21. Dosing chamber with a pump vault unit.

- All electrical design & installations, approved by DBS
- Alarms connected to separate circuit from pump, backup power recommended
- Recommend O&M manual be supplied to homeowner

In-tank Pumps

- Must be pre-approved by EHS
- Site is too small for dosing chamber or flows are <100 gpd
- Effluent pumps placed in approved pump vault (TGM 5.7)
- Septic tank sized to allow 1-day flow above high-level alarm (unless duplex pump is used)
- Install per manufacturer's requirements
- Pump vault screens must be 1/8 inch or smaller
- Pump vault should be easy to remove and clean
- Same electrical requirements apply as dosing chambers

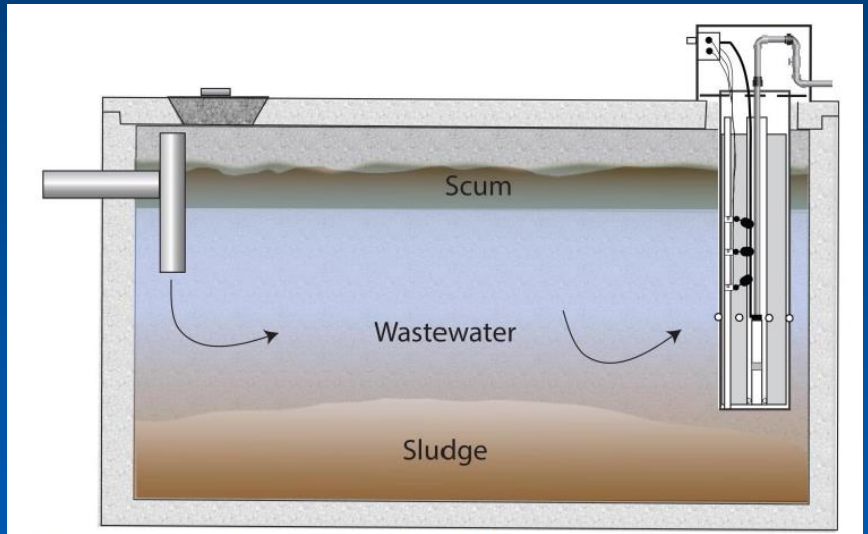


Figure 4-22. Example of effluent pump installed into single-compartment septic tank using a pump vault unit.

Inspection Requirements

- With application include:
  - Design proposal (site plan)
  - Pump specs (pump curve)
  - Vault packages (spec sheet)
- After installation:
  - Pump start-up inspection
  - Floats and alarm function
  - Drop box (d-box) flow test
  - Screen/effluent filter check – easily accessible
  - Risers are in compliance

Acceptable method of depressurizing transport line before entering D-box.

Consult with EHS for approval prior.

Pressurized Systems

- Required when treatment area exceeds 1,500 square feet.
- Must be designed by an engineer. The engineer will also provide an O&M.
- May implement in trench sand filters to reduce vertical set backs.
- Other pressurized systems include sand mounds, intermittent sand filters, recirculating gravel filters, and LSAS.

Large Soil Absorption Systems

- Required when 2,500 gpd of wastewater or more is being generated.
- Meeting will occur between DEQ, Health District and applicant.
- Must be designed by an engineer.
- Greater setbacks required vs. regular drainfield.
- DEQ requires nutrient pathogen study. Outcome may result in requirement for pretreatment of effluent.
- DEQ and Health District will review plans in tandem.
- DEQ issues an approval for construction and then the health district will issue a permit.
- Three modular areas are required, two of which must be installed and a tertiary for a replacement. No modular area may exceed a design for greater than 10,000 gpd.

(5-7-93)

d. Separation Distances. The disposal area absorption module must be located so that the following separation distances given, in feet, are maintained or exceeded as outlined in the following table:

TABLE -- SEPARATION DISTANCES			
Feature of Interest	**Design**	**Soil**	**Group**
	A	**B**	**C**
All Domestic Water Supplies			
Sewage Volume - 2,500-5,000 GPD	250	200	150
Sewage Volume - 5,000-10,000 GPD	300	250	200
Property Lines			
Sewage Volume - 2,500-5,000 GPD	50	50	50
Sewage Volume - 5,000-10,000 GPD	75	75	75
Building Foundations - Basements			
Sewage Volume - 2,500-5,000 GPD	50	50	50
Sewage Volume - 5,000-10,000 GPD	75	75	75
Downslope Cut or Scarp			
Impermeable Layer - Below Base	100	50	50
Separation Distance - Between Modules	12	12	12

(5-7-93)

c. Effective Soil Depths. Effective soil depths, in feet, below the bottom of the absorption module to the site conditions must be equal to or greater than the following table:

TABLE -- EFFECTIVE SOIL DEPTHS			
Site Conditions	**Design**	**Soil**	**Group**
Limiting Layer	**A**	**B**	**C**
Impermeable Layer	8	8	8

TABLE -- EFFECTIVE SOIL DEPTHS			
Site Conditions	**Design**	**Soil**	**Group**
Fractured Bedrock, Fissured Bedrock or Extremely Permeable Material	12	8	6
Normal High Groundwater Level	12	8	6
Seasonal High Groundwater Level	2	2	2

(5-7-93)

Complex Proprietary Systems

Systems

- Presby approved 8.16.16
- ATL approved 4.2.18, updated 3.18.19
- Oscar II, approved 3.12.19
- Eljen GSF, 1.22.18 updated 3.18.19
- Aerofin, approved 1.27.25
- Geomat, approved 9.24.20

OSCAR II

AeroFin

GeoMat

Eljen GSF

Vertical Setback to Limiting Layers (feet)

Table 4-21. Intermittent sand filter vertical setback to limiting layers (feet).

Limiting Layer	Flow < 2,500 GPD	Flow ≥ 2,500 GPD
	All Soil Types	All Soil Types
Impermeable layer	2	4
Fractured rock or very porous layer	1	2
Normal high ground water	1	2
Seasonal high ground water	1	2

Note: gallons per day (GPD)

Ground Water Monitoring

- If groundwater is encountered during a site evaluation, GW monitoring is required to determine: seasonal high, and normal levels.
- Most commonly used GW well is a temporary monitoring or permanent monitoring wells.
  - Permanent monitoring wells are required to be installed by a professional well driller and IDWR needs to be looped in to determine the well permit and standards.
  - Temporary monitoring wells are usually installed at the time the test pits are excavated and evaluated. Must be installed within 10 feet of evaluated test pit. Should extend 10 feet deep.
- Temporary monitoring wells are used to evaluate spring runoff influenced seasonal groundwater.

Measuring Seasonal GW

- Seasonal groundwater is typically influenced by seasonal runoff of snowmelt, spring rain events, and irrigation practices. The time frame in which these influences affect a property may vary due to location, climate, or agricultural practices. Due to this variability, monitoring time frames required prior to subsurface sewage disposal permit issuance may vary from permit to permit.
- Typical time frames for monitoring based upon groundwater influences are as follows: Seasonal runoff and spring rain events: February 15 through June 30 Irrigation: April 15 through October 31
- Monitoring should be performed by the applicant on a weekly basis over the determined monitoring period. Concurrent monitoring at a proposed subsurface sewage disposal site should also be performed by the health district on a monthly basis to verify groundwater levels obtained by the applicant. The monthly verification by the health district also allows for the evaluation of any potential temporary or intermittent surface waters that may exist on the site.

Table 2-10. Determination of seasonal groundwater levels where the seasonal high groundwater level and normal high groundwater level occur within the same 6-week block of time.

Monitoring Week	1	2	3	4	5	6	7	8	9
Groundwater level (inches below native grade)	69	62	65	53	46	40	47	66	72

Ground Water Monitoring Wells

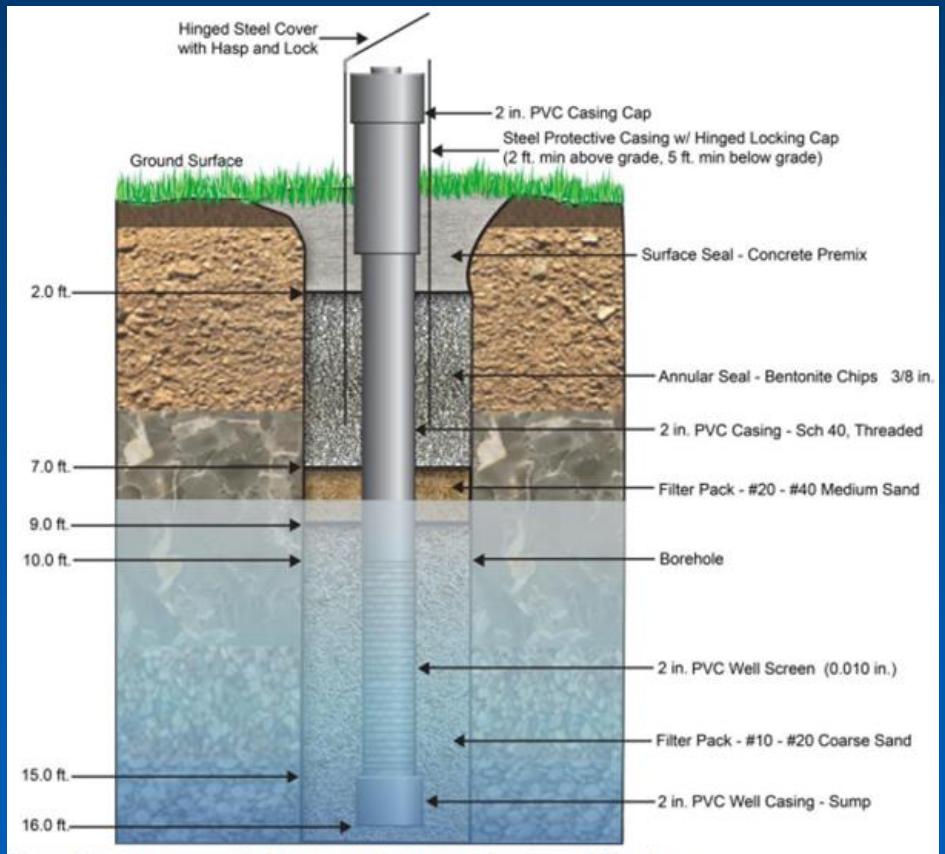


Figure 2-5. Permanent shallow groundwater monitoring well design.

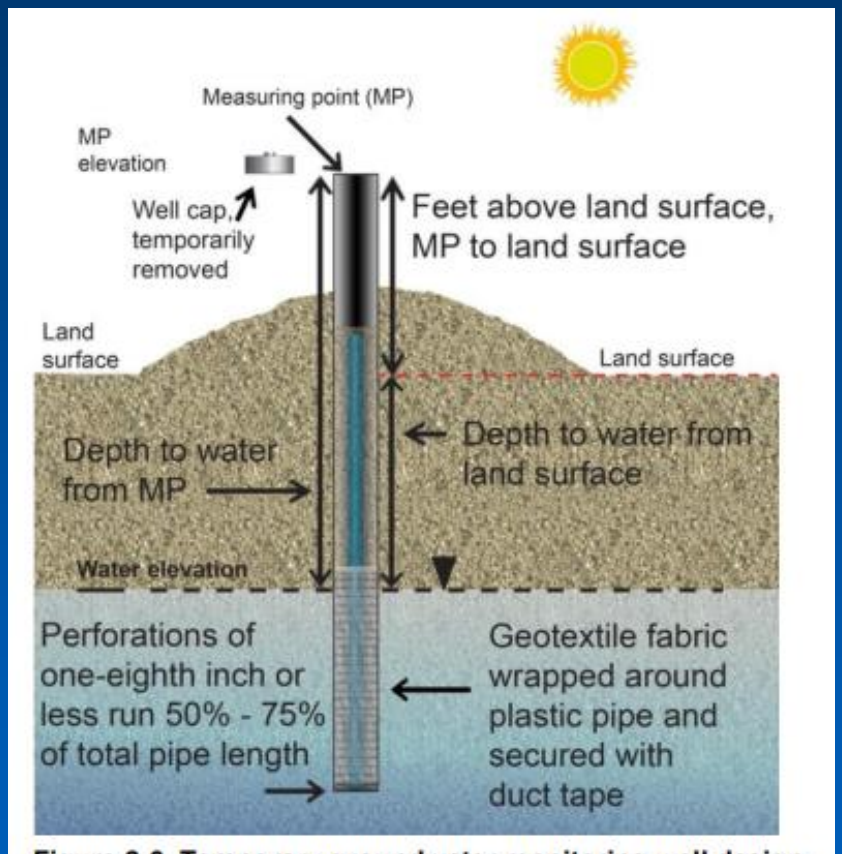


Figure 2-6. Temporary groundwater monitoring well design.

Prior to Permit Issuance

- Sorry – no basic installers
- Indicate proprietary system
  - "Installation of proprietary system as detailed in the approved Idaho Design Manual"
- Site plan with system design
- System specs
- Sand analysis report
- Other restrictions

Inspections

- Checklist for specific system
- System components

Questions

Contact SCPHD at
208-737-5983 or
jwingrove@phd5.Idaho.gov
If you have any questions
pertaining to this material.

Attestation

- Click on the link below for a short quiz.
- This will be your attestation that you reviewed the presentation.

- BASIC INSTALLER QUIZ
- COMPLEX INSTALLER QUIZ