REGULATORY INSPECTIONS & SEPTIC SYSTEM INSTALLATIONS

Date: February 3, 2025

Location: Penn Harris Hotel & Convention Center, 1150 Camp Hill Bypass, Camp Hill, PA 17011

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Regulatory Inspections & Septic System Installations

Presenter: Joseph L. Linderman, Delaware County Health Department
Description: This presentation will focus on the intersection of regulatory inspections and septic system installations, providing valuable insights into ensuring compliance and quality control throughout the installation process. Regulatory inspections are a crucial step in confirming that onlot systems meet local and state requirements, protect public health, and maintain environmental standards. We will cover the inspection process from start to finish, including pre-installation planning, documentation requirements, and key inspection points during construction. Topics will include how to prepare for regulatory inspections, common compliance issues, and the inspector's role in verifying installation quality. Designed for professionals and regulators alike, this session will enhance understanding of regulatory standards, streamline the inspection process, and promote best practices for high-quality installations. Attendees will leave equipped with strategies to improve compliance outcomes, foster professional relationships with regulators, and ensure septic systems are installed to the highest standard.

75-minute presentation

Continuing ED Credits to be obtained # TBD

PSMA / PASEO
Sponsor

Presenter / Instructor
Joseph L Linderman
Sewage Enforcement Officer #02707
Delaware County Health Department

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Presentation attendance / house keeping rules.

FULL IN PERSON ATTENDANCE IS REQUIRED FOR PRESENTATION CE CREDIT

STAMP OF COMPLETION AT END OF PRESENTATION. SIGNATURE REQUIRED

SILENCE PHONES PLEASE! PLEASE BE COURTEOUS TO OTHERS.

BREAKS AS NEEDED

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Purpose & Responsibility

Purpose

- The purpose of this presentation is to understand the steps necessary to complete a Regulatory Inspection of a septic system in the installation process.
- The final inspection is the only one required in the regulations!

Responsibility

- When performing inspections, An SEO has a regulatory responsibility to the state, the local agency, the property owner and the future owners to follow the regulations. (SEO Workbook chapter 18 pg. 15)

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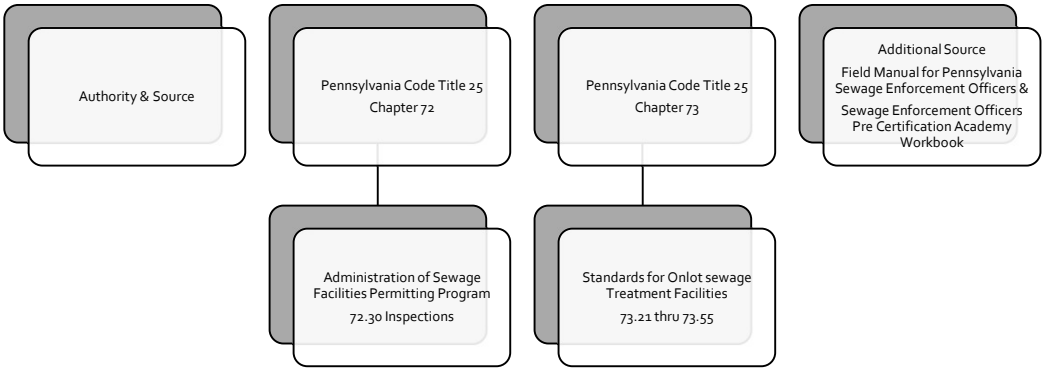
A Regulatory Inspection the Authority & Source.



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PA Code Title 25, Chapter 72

Administration of Sewage Facilities Permitting Program

(As it pertains to Inspection of an individual or community sewage system.)

- **§ 72.30. Inspection.**
- (a) No part of an individual or community onlot sewage system may be covered until a final inspection is conducted and final written approval is given by the local agency.
- (b) The sewage system shall be inspected, approved and covered before the structure is occupied by a person.
- (c) The applicant shall notify the local agency when the installation of the sewage system is completed and ready for inspection.
- (d) The applicant may cover the individual or community onlot sewage system upon receipt of written approval by the local agency. If 72 hours have passed, excepting Sundays and holidays, since the local agency received the notification of completion required by subsection (c), the applicant may cover the sewage system unless final written approval to cover has been refused by the local agency.
- (e) The local agency may inspect and make tests before, during or after construction and may by order require a sewage system to be uncovered at the expense of the applicant, if the sewage system has been covered contrary to this chapter.
- (f) When the inspection reveals that the installation of the sewage system is contrary to the permit application or in violation of the act or this part, the permit shall be revoked and the provisions of § § 72.28(b) and (c) and 72.29 (relating to revocation of permits; and review of denials and revocations) apply.

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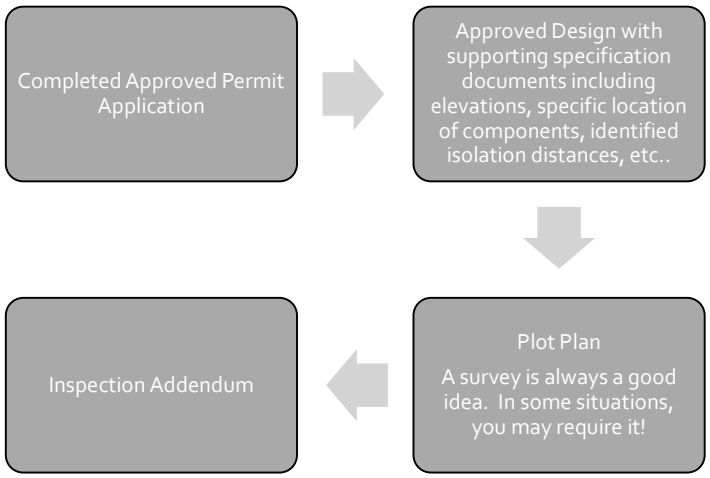
What do you need to perform an inspection?



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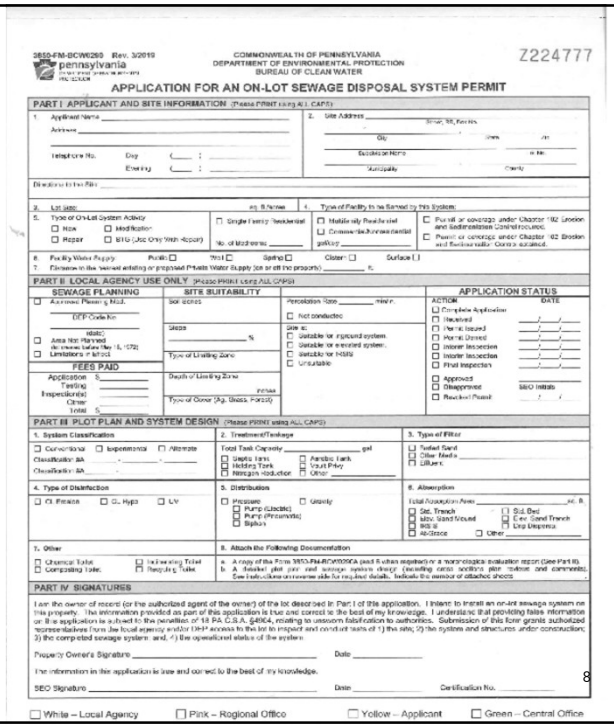
APPLICATION FOR AN ON-LOT SEWAGE DISPOSAL SYSTEM PERMIT

3850-FM-BCW0290



3850-FM-BCW0290 Rev. 3/2019 — Pennsylvania

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF CLEAN WATER

Z224777

APPLICATION FOR AN ON-LOT SEWAGE DISPOSAL SYSTEM PERMIT

PART I APPLICANT AND SITE INFORMATION (Please PRINT using ALL CAPS)

PART II LOCAL AGENCY USE ONLY (Please PRINT using ALL CAPS)

SEWAGE PLANNING | SITE SUITABILITY | APPLICATION STATUS

FEES PAID

PART III PLOT PLAN AND SYSTEM DESIGN (Please PRINT using ALL CAPS)

PART IV SIGNATURES

I am the owner of record (or the authorized agent of the owner) of the lot described in Part I of this application. I intend to install an on-lot sewage system on this property. The information provided as part of this application is true and correct to the best of my knowledge. I understand that providing false information on this application is subject to the penalties of 18 PA C.S.A. §4904, relating to unsworn falsification to authorities. Submission of this form grants authorized representatives from the local agency and/or DEP access to the lot to inspect and conduct tests of: 1) the site; 2) the system and structures under construction; 3) the completed sewage system; and, 4) the operational status of the system.

Property Owner's Signature _____ Date _____

The information in this application is true and correct to the best of my knowledge.

SEO Signature _____ Date _____ Certification No. _____

☐ White – Local Agency ☐ Pink – Regional Office ☐ Yellow – Applicant ☐ Green – Central Office

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DESIGN & SPECIFICATIONS

- Permit Application
- Site Investigation Documents supporting Soil Evaluations
  - Presoak & Perc Test Documents
- Plot Plan
  - Property lines
  - Adjacent streets
  - Lot dimensions
  - Well locations / Public Water Lines
  - Reference to North
  - Direction of slope
  - Soil Probe & Perc Test areas noted
- Specifications Form
- Pump Data sheet
- Pump Curve sheet
- Tank specifications
  - Septic Tank
  - Pump tank
  - Pump specs
  - Filter specs
  - Distribution Box
  - Lateral Configuration etc.
- Elevation Data
- Calculations

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PERMIT
for
INSTALLATION OF SEWAGE DISPOSAL SYSTEM

Pursuant to Application for Sewage Disposal System number_____
a permit is hereby issued to:

NAME OF APPLICANT

ADDRESS OF APPLICANT TELEPHONE NUMBER

PROPERTY ADDRESS OF SITE FOR SEWAGE DISPOSAL SYSTEM

This Permit issued under the provisions of the "Pennsylvania Sewage Facilities Act", the Act of January 24, 1966 (P.L. 1535), as amended, is subject to the following conditions:

1. Except as otherwise provided by the Act or regulations of the Pennsylvania Department of Environmental Protection, no part of the installation shall be covered until inspected by the approving body and approval to cover is granted in writing below.
2. This Permit may be revoked for the reasons set forth in Section 7(b)(6) of the Act.
3. If construction or installation of an individual sewage system or community sewage system and of any building or structure for which such system is to be installed has not commenced within three years after the issuance of a permit for such system, the said permit shall expire, and a new permit shall be obtained prior to the commencement of said construction or installation.

ADDITIONAL CONDITIONS:

KEEP THIS PERMIT FOR FUTURE REFERENCE

Approval to Cover Date of issuance of Permit_____

Signature of Enforcement Officer Approving Body

Date Signature of Enforcement Officer

The basis for the issuance of this Permit is the information supplied in the Application for Sewage Disposal System and other pertinent data concerning the soil absorption tests, topography, lot size, and sub-soil groundwater table elevations. The permit only indicates that the issuing authority is satisfied that the installation of the Sewage Disposal System is in accordance with the Rules, Regulations and Standards adopted by the Pennsylvania Department of Environmental Protection under the provisions of the Pennsylvania Sewage Facilities Act, the Act of January 24, 1966 (P.L. 1535), as amended. The issuance of a Permit shall not preclude the enforcement of other health laws, ordinances or regulations in the case of malfunctioning of the system.

TO BE POSTED AT THE BUILDING SITE

FORM PROVIDED BY THE COMMONWEALTH OF PENNSYLVANIA,
DEPARTMENT FO ENVIRONMENTAL PROTECTION, BUREAU OF WATER QUALITY PROTECTION

DEP SEWAGE DISPOSAL SYSTEM PERMIT

EXAMPLE

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Permit

Example

Delaware County Health Department

Sewage Disposal System

Permit

DELAWARE COUNTY HEALTH DEPARTMENT
Environmental Health Division

PERMIT

FOR INSTALLATION OF SEWAGE DISPOSAL SYSTEM

Pursuant to Application to Sewage Disposal System Number: _____ a permit is hereby

Issued to: _____ _____
Name of Applicant Telephone Number

_____ _____ _____
Address of Applicant # of Bedrooms Sewage Flow (GPD)

_____ _____ _____
Site Address Municipality Tax Parcel ID#

This permit issued under the provision of the "Pennsylvania Sewage Facilities Act", the Act of January 24, 1966 (P.L. 1535), as amended, is subject to the following conditions:

1. Except as otherwise by Act of Regulations to the Pennsylvania Department of Environmental Protection no part of the installation shall be covered until inspected by the approving and approval to use is granted in writing below 7(b) (3) of the Act.
2. This permit may be revoked for the reasons set forth in Section 7 (b)(6) of the Act.
3. This permit expires on _____ unless construction of the building and system has commenced.
4. This permit does not remove the necessity for obtaining Municipal building and/or zoning permits. THIS PERMIT NOT TRANSFERABLE UNLESS APPROVED BY DELAWARE COUNTY HEALTH DEPARTMENT.
5. Notify this Department at (484) 609-8081 upon starting construction of house and sewage system.
6. Obtain prior approval from this Department for any changes, revisions, deviations, etc.

ADDITIONAL CONDITIONS:

A. As a condition of the Permit a timely private laboratory analysis of a representative sample of sandy fill material proposed to be used in the sewage system must be submitted. The analysis report must give the name of the proposed supplier and must indicate sandy fill material complies with Section 73.55(c), Chapter 73, Title 25 of the Pennsylvania Code.
B. Restriction on sand placement due to improper soil conditions: 1). Sand shall not be placed on ground that has a high moisture content due to seasonal weather conditions; 2). Sand Shall not be on ground that is partially or completely frozen.
C. Restriction on drip tubing or At-Grade gravel placement due to improper soil conditions: 1). shall not be placed on ground that has a high moisture content due to seasonal weather conditions; 2). Sand Shall not be on ground that is partially or completely frozen.

_____

Sewage Enforcement Officer: _____ Issue Date: _____

Sewage Enforcement Officer: _____ Approval Date: _____

The basis for the issuance of this Permit is the information supplied in the Application for the Sewage Disposal System Permit. The Permit only indicates that the issuing authority is satisfied that the design and installation of the Sewage Disposal System is in accordance with the Rules, Regulations, and Standards of the Pennsylvania Sewage Facilities Act, the Act of January 24, 1966 (P.L. 1535), as amended. The issuance of a Permit shall not preclude the enforcement of other health laws, ordinances or regulations in the case of malfunction of the system. **TO BE POSTED AT THE BUILDING SITE.**

DCHD

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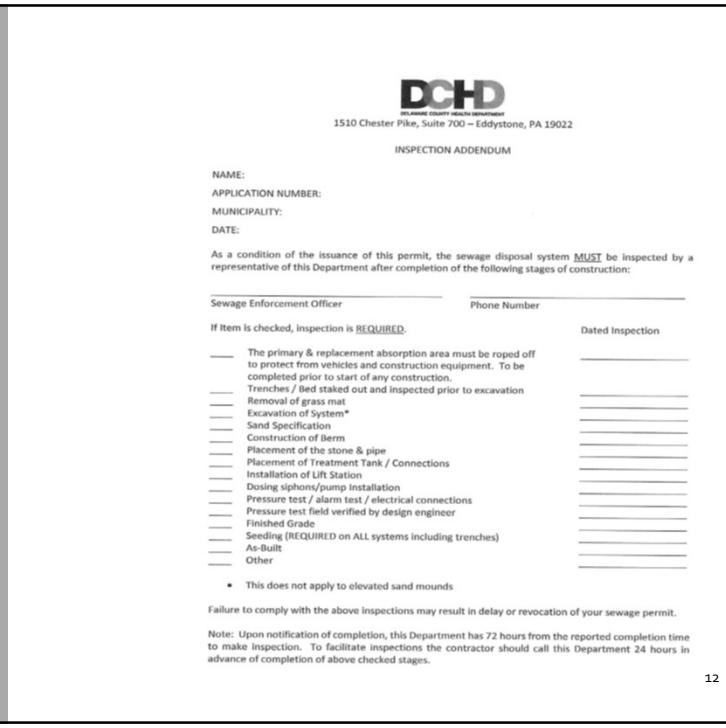
Inspection Addendum

Example

DCHD Inspection Addendum

Your Inspection Addendum may vary.



DCHD
DELAWARE COUNTY HEALTH DEPARTMENT
1510 Chester Pike, Suite 700 – Eddystone, PA 19022

INSPECTION ADDENDUM

NAME:
APPLICATION NUMBER:
MUNICIPALITY:
DATE:

As a condition of the issuance of this permit, the sewage disposal system MUST be inspected by a representative of this Department after completion of the following stages of construction:

_____ _____
Sewage Enforcement Officer Phone Number

If Item is checked, inspection is REQUIRED. Dated Inspection

___	The primary & replacement absorption area must be roped off to protect from vehicles and construction equipment. To be completed prior to start of any construction.	_____
___	Trenches / Bed staked out and inspected prior to excavation	_____
___	Removal of grass mat	_____
___	Excavation of System*	_____
___	Sand Specification	_____
___	Construction of Berm	_____
___	Placement of the stone & pipe	_____
___	Placement of Treatment Tank / Connections	_____
___	Installation of Lift Station	_____
___	Dosing siphons/pump Installation	_____
___	Pressure test / alarm test / electrical connections	_____
___	Pressure test field verified by design engineer	_____
___	Finished Grade	_____
___	Seeding (REQUIRED on ALL systems including trenches)	_____
___	As-Built	_____
___	Other	_____

- This does not apply to elevated sand mounds

Failure to comply with the above inspections may result in delay or revocation of your sewage permit.

Note: Upon notification of completion, this Department has 72 hours from the reported completion time to make inspection. To facilitate inspections the contractor should call this Department 24 hours in advance of completion of above checked stages.

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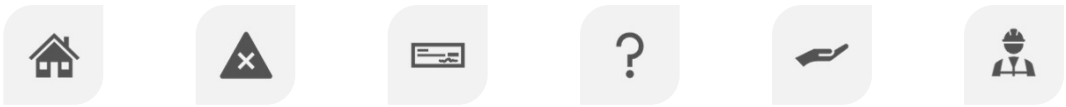
Existing Component Reutilization



IF YOU'RE USING IT AS PART OF THE PERMITTED SYSTEM, IT SHOULD BE IN SATISFACTORY / OPERATIONAL CONDITION.

WOULD IT BE AN OPTION TO ASK FOR CERTIFICATION OF THE EXISTING COMPONENTS THAT ARE PROPOSED TO BE REUTILIZED?

DOES COMMON SENSE NOT REGULATION APPLY HERE?

ITS YOUR RESPONSIBILITY TO ASK THE QUESTIONS!

HOW YOU HANDLE IT MAY VARY!

COMMUNICATION WITH YOUR CONTRACTOR MIGHT BE YOUR BEST TOOL.

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A design has been received, reviewed and has been approved!

- For this step to be achieved the design must meet regulatory requirements.
- The design criteria has already been evaluated i.e., property lines, well locations etc.
- Isolation distances have been field verified before issuing the permit and before allowing construction!
- No additional isolation distance verifications should be necessary at this stage unless site conditions dictate a change or information is in question!
- Provided all of this is complete and correct, A permit can now be issued for construction based on that design and review.no be issued for construction based on that design & review.

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Potential Inspections

- Preconstruction meeting
- Site layout
- Building sewer
- Treatment Tanks
- Dosing Tank
- Absorption area excavation / scarification
- Sand Placement / Weight Slips / Laboratory Sieve Analysis
- Stone placement
- Distribution network
- Electrical check, pump, lateral flush, discharge hole check, head pressure, alarm check
- GEO Textile / Paper / Straw
- Approval to cover
- Final grade seed & straw
- Permit sign off and final

<u>This is the SEO's Responsibility!</u>

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Preconstruction site meeting with Contractor.

(homeowner attendance may be appropriate)

This should be encouraged; however, the contractor should decide if this is their approach.

- Things to go over;
  - Permitted system
  - Property lines, wells and isolation distance review. Verbal maybe physical review
  - Inspection Addendum
  - Timing / weather limitations' that may affect construction
  - Inspection requirements with partial approvals potentially given at various construction stages
  - Anticipated start dates discussed
  - Possible material expectations
  - Special requests etc….
    - No driving over absorption area
    - Soil moisture check requirement
    - Possible equipment positioning up slope from area etc..
  - System Layout / stake out evaluation for construction approval performed at this time
  - Approval potentially given to proceed with construction.

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SCHEDULE DAY(S) AND TIME(S) OF INSPECTIONS.

MAKE CLEAR THE EXPECTATIONS!

THE INSPECTION ADDENDUM CAN BE KEY HERE.

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Inspection Addendum Review

DCHD
DELAWARE COUNTY HEALTH DEPARTMENT
1510 Chester Pike, Suite 700 – Eddystone, PA 19022

INSPECTION ADDENDUM

NAME:
APPLICATION NUMBER:
MUNICIPALITY:
DATE:

As a condition of the issuance of this permit, the sewage disposal system MUST be inspected by a representative of this Department after completion of the following stages of construction:

Sewage Enforcement Officer _____ Phone Number _____

If Item is checked, inspection is REQUIRED. Dated Inspection

___	The primary & replacement absorption area must be roped off to protect from vehicles and construction equipment. To be completed prior to start of any construction.	_____
___	Trenches / Bed staked out and inspected prior to excavation	_____
___	Removal of grass mat	_____
___	Excavation of System*	_____
___	Sand Specification	_____
___	Construction of Berm	_____
___	Placement of the stone & pipe	_____
___	Placement of Treatment Tank / Connections	_____
___	Installation of Lift Station	_____
___	Dosing siphons/pump installation	_____
___	Pressure test / alarm test / electrical connections	_____
___	Pressure test field verified by design engineer	_____
___	Finished Grade	_____
___	Seeding (REQUIRED on ALL systems including trenches)	_____
___	As-Built	_____
___	Other	_____

- This does not apply to elevated sand mounds

Failure to comply with the above inspections may result in delay or revocation of your sewage permit.

Note: Upon notification of completion, this Department has 72 hours from the reported completion time to make inspection. To facilitate inspections the contractor should call this Department 24 hours in advance of completion of above checked stages.

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OBJECTIVES:

The purpose of this chapter is to:

- Understand the purpose of the inspection stage.
- Recognize the correct soil conditions to install a system.
- Learn how to prepare a site.
- Become familiar with what types of materials must be used to construct a system to comply with the regulations.

Overview of Inspection Stage

There are two parts to the inspection stage:

1) Installation
2) Final inspection

Purpose of the final inspection:

- Walk through the onlot sewage system and check to see if the system was installed according to the permit and the regulations. The final inspection

Inspections

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DCHD

Delaware County Health Department
1510 Chester Pike
Suite 700
Eddystone, PA 19022
(484) 276-2100

SEWAGE SYSTEM / WELL INSPECTION FORM

Name _____ Application # _____
Subdivision _____ Lot # _____
Location _____

Partial ☐
Approved ☐
Not Approved ☐
(see reasons below)

Township: _____ Contractor # _____

THE FOLLOWING CHECKED ITEMS APPEAR TO MEET DCHD'S RULES AND REGULATIONS AT THIS TIME:

_____ CLEAN OUT
_____ BUILDING SEWER
_____ TREATMENT TANK
_____ INSPECTION PORT
_____ PUMP/DOSING TANK
_____ PUMP/SYPHON
_____ ELECTRICAL CONTROLS
_____ HIGH LEVEL ALARM
_____ DELIVERY LINE
_____ DISTRIBUTION AREA
_____ ABSORPTION AREA
_____ SAND ANALYSIS
_____ PRESSURE DOSING TEST
_____ BERM
_____ FINAL GRADE
_____ OTHER (SPECIFY)
_____ THE CONTRACTOR WAS/WASNOT READY FOR INSPOECTION AS SCHEDULED

WELL:
_____ LOCATION
_____ CASING
_____ ISOLATION DISTANCES
_____ VERMIN-RESISTANT CAP
_____ TREATMENT UNIT IN USE
TYPE _____

CONTACT HEALTH DEPARTMENT FOR REINSPECTION OF:

COMMENTS:

___ SEWAGE DISPOSAL SYSTEM APPEARS TO MEET DCHD RULES AND REGULATIONS AT THIS TIME.
___ ABSORPTION AREA MUST BE COVERED WITHIN FIVE (5) DAYS (WEATHER PERMITTING).
___ WELL APOPEARS TO MEET ALL DCHD RULES AND REGULATIONS AT THIS TIME.

ENFORCEMENT OFFICER _____ DATE _____ RECEIVED BY _____

INSPECTION FORM EXAMPLE

Always fill out and document your inspections.

Photos are a great added benefit & support your documented inspections.

If its not documented, you can't rely on it, can't prove it and you can't defend it!

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Stake Out Inspection

Site meeting & stake out inspection.
Septic tank location marked pre-excavation
Absorption area marked pre-excavation
Areas can be marked with paint, flags, chalk, lime, stakes etc.

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ADDITIONAL STAKE OUT PHOTOS

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Property Line Survey!

Whether you are using Chesco Views, Delco Views, Google maps, ONX or any other program, the property line representation may not be accurate!

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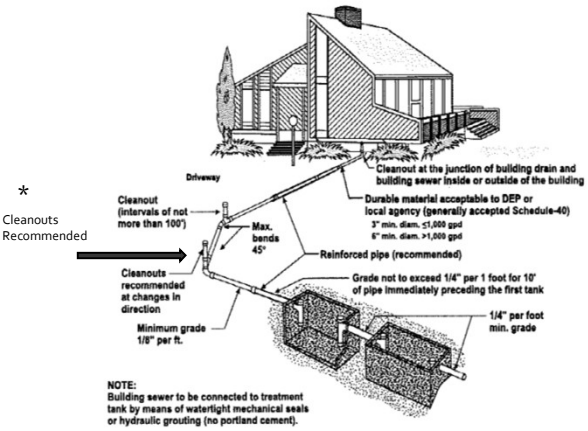
Section 73.21

- Building Sewer



* Cleanouts Recommended

CLASS PARTICIPATION!

- **§ 73.21. Specifications.**
- (a) Building sewers shall be constructed of a durable material acceptable to the Department or the local agency.
- (b) The local agency may restrict the type of materials used by code, ordinance or resolution and shall notify the applicant when restrictions are imposed.
- (c) When the average daily flow of sewage from an establishment is 1,000 gallons or less, building sewers shall be at least 3 inches in diameter unless otherwise specified by local plumbing or building codes. When the average daily flow exceeds 1,000 gpd, all building sewers shall be at least 6 inches in diameter unless otherwise specified by local plumbing or building codes.
- (d) Cleanouts shall be provided at the junction of the building drain and building sewer.
- (e) Cleanouts shall be provided at intervals of not more than 100 feet.
- (f) Bends ahead of the treatment tank shall be limited to 45° or less where possible. If 90° bends cannot be avoided, they shall be made with two 45° bends.
- (g) The grade of the building sewer shall be at least 1/8 inch per foot; however, the grade of the 10 feet of building sewer immediately preceding the treatment tank may not exceed 1/4 inch per foot.
- (h) Building sewers shall be constructed with watertight joints, shall be of sufficient strength to withstand imposed loads and installed on material suitable for preventing damage from settling.
- (i) The building sewer shall be installed to allow continuous venting of the treatment tank through the main building stack unless otherwise specified by local plumbing or building codes.
- (j) Building sewers shall be connected to treatment tanks by means of watertight mechanical seals or hydraulic grouting. Use of Portland cement grouting is not permitted.

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Durable material

- Schedule 40 is the preferred material!
- Schedule 80 while expensive could be used also!
- SDR 35 ! Questionable at best! Ideally No!
- Sewer & Drain (schedule 20)? No!
- Orangeburg, clay pipe, terracotta! No!
- Some entities may require cast iron? Not common but you'd be surprised, some townships association with plumbers and unions could have something in affect.

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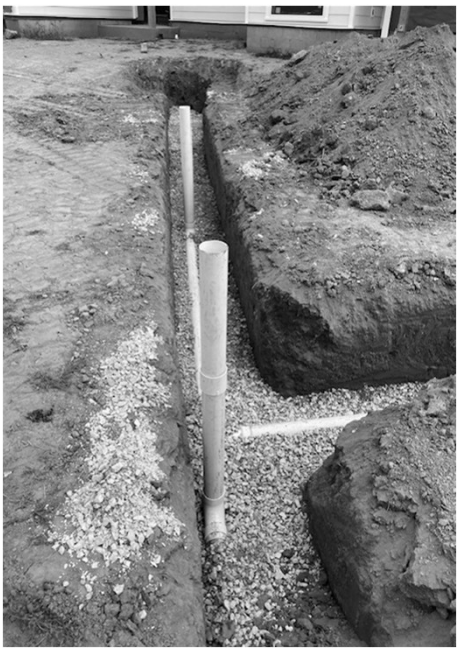
Building Sewer

- Schedule 40 4" PVC Plastic
- Line is grouted where it passes through the foundation wall
- A line cleanout installed near the juncture of the building sewer / foundation wall / and plumbing
- Line is properly supported
- Proper pitch / fall



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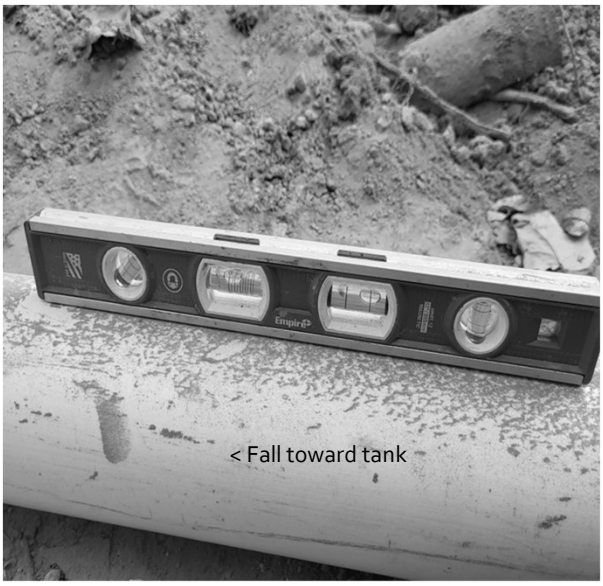

The grade of the building sewer shall be at least 1/8" per foot; however, the grade of the 10' of building sewer immediately preceding the treatment tank may not exceed ¼" per foot.

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What do you see here in this photo pertaining to the building sewer that might be a concern?

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TREATMENT TANKS

§ 73.31. Standards for septic tanks.

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§ 73.31. Standards for septic tanks.

(a) ***Capacity.***

(1) The minimum liquid septic tank capacity for any installation is 900 gallons.

(2) For single-family dwelling units, not served by a community onlot system, a minimum daily flow of 400 gpd shall be used to determine required septic tank capacity. This figure shall be increased by 100 gallons for each additional bedroom over three. The daily flow indicated provides for use of garbage grinders, automatic washing machines, dishwashers and water softeners.

(3) The minimum septic tank capacity shall be calculated from the following table using estimated sewage flows from paragraph (2), or § 73.17(a)—(c) (relating to sewage flows):

Note: Septic tanks may be connected in series to attain required capacity.

(b) ***Construction.***

(1) Tanks shall be watertight and constructed of sound and durable material not subject to excessive corrosion or decay.

(i) Precast concrete tanks shall have a minimum wall thickness of 2 1/2 inches and be adequately reinforced.

(ii) Precast slabs used as covers shall have a thickness of at least 3 inches and be adequately reinforced.

(iii) Tanks having a liquid capacity of 5,000 gallons or less may not be constructed of blocks, bricks or similar masonry construction.

(iv) Tanks having a capacity in excess of 5,000 gallons may be constructed onsite to meet the standards of the National Concrete Masonry Association for reinforcement and waterproofing as listed in the most recent edition of its publication "Concrete Masonry Foundation Walls," copyright 1957 NCMA.

(v) Steel tanks shall meet United States Department of Commerce Standards 177-62.

(2) The depth of liquid in any tank or its compartments shall be:

(i) Not less than 2 1/2 nor more than 5 feet for tanks having a liquid capacity of 600 gallons or less.

(ii) Not less than 3 feet nor more than 7 feet for tanks having a liquid capacity of more than 600 gallons.

(3) No tank or compartment may have an inside horizontal dimension less than 36 inches.

(4) Septic tank installations shall consist of tanks with multiple compartments or multiple tanks. The first compartment or tank shall have at least the same capacity as the second but may not exceed twice the capacity of the second. Tanks or compartments shall be connected in series and may not exceed four in number in any one installation.

(c) ***Inlet and outlet connections.***

(1) The bottom of the inlet shall be a minimum of 3 inches above the bottom of the outlet.

(2) Inlet baffles or vented tees shall extend below the liquid level at least 6 inches. Penetration of the inlet device may not exceed that of the outlet device.

(3) The outlet baffles or vented tees of each tank or compartment shall extend below the liquid surface to a distance equal to 40% of the liquid depth. Penetration of outlet baffles or tees in horizontal cylindrical tanks shall be equal to 35% of the liquid depth.

(4) The inlet and outlet baffles or vented tees shall extend above liquid depth to approximately 1 inch from the top of the tank. Venting shall be provided between compartments and each tank.

(5) The outlet baffles or vented tees of the last compartment or tank shall be equipped with a solids retainer.

(d) ***Treatment tank access.***

(1) Access to each tank or compartment of the tank shall be provided by a manhole with an inside dimension of at least 20 inches square (20 x 20) or in diameter, with a removable cover. The top of the tank containing the manhole or the top of a manhole extension may not be more than 12 inches below grade level. If access is extended to grade, the access cover shall be airtight. Grade level access covers shall be secured by bolts or locking mechanisms, or have sufficient weight to prevent unauthorized access.

(2) The ground shall slope away from any access extended to grade level.

(e) ***Inspection port.*** A maximum 4-inch diameter inspection port with sealed cover shall be installed to grade level above the inlet tee.

Authority

The provisions of this § 73.31 amended under section 9 of the Pennsylvania Sewage Facilities Act (35 P. S. § 750.9); The Clean Streams Law (35 P. S. § § 691.1—691.1001); and section 1920-A of The Administrative Code of 1929 (71 P. S. § 510-20).

Source

The provisions of this § 73.31 adopted August 2, 1971, effective August 14, 1971, 1 Pa.B. 1649; amended April 26, 1974, effective May 13, 1974, 4 Pa.B. 817; amended August 30, 1974, effective September 16, 1974, 4 Pa.B. 1805; amended January 21, 1983, effective January 22, 1983, 13 Pa.B. 508; amended November 7, 1997, effective November 8, 1997, except subsection (b)(4) effective January 7, 1998, 27 Pa.B. 5877; corrected November 21, 1997, 27 Pa.B. 6079. Immediately preceding text appears at serial pages (217321) to (217323).

Cross References

This section cited in 25 Pa. Code § 73.45 (relating to dosing tanks); 25 Pa. Code § 73.62 (relating to standards for holding tanks); 25 Pa. Code § 73.63 (relating to standards for privies); and 25 Pa. Code § 73.161 (relating to general).

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Treatment Tank Bedding / Installation

31

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Bedding of Tanks

&

Back filling Tanks

- **Suitable material for backfilling is very Important!**
  - Soil
  - Sand
  - Screenings
  - Stone (Not Rocks & Boulders)
  - Modified
  - Trash, put it in a trash can don't bury it!
- Material can settle / shrink (causing depressions and line settling)
- Stone (settles the least) can allow water retention around tanks
- Modified (settles slightly)
- Screenings (settles slightly) can allow water retention around tanks
- Sand (settles slightly) can allow water retention around tanks
- Soil (settles the most) tamping is encouraged

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Inspecting the tanks

- Building sewer (already checked)
- Tank level
- Tank in the correct direction (NOT BACKWARDS)
- Tank capacity
- Multiple tanks / Multiple compartments
- Inlet & outlet baffle inspection ports? Check the baffles
- Filters?
- Manhole access extensions shall be at least 20" square or in diameter. Are manholes properly sealed to the tank?
- chapter 73.31 (B)(1) states the tank shall be watertight.
- Check for watertight inlet and outlet connections.
- Mechanical seal preferred but hydraulic grout is acceptable
- No MORTAR!
- Check inlet & outlet line elevations. Is the outlet lower than the inlet? (3" minimum)
- Material used to backfill the tank Are the lines properly supported?

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Inlet opening with mechanical rubber seal

Outlet opening with mechanical seal 3" below inlet elevation

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Check the tanks with a level!

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WATERTIGHT INSPECTION PORTS AND MANHOLE EXTENSIONS ARE CRUCIAL.
THE TOP OF THE TANK CONTAINING THE MANHOLE, OR THE TOP OF A MANHOLE EXTENSION MAY NOT BE MORE THAN 12" BELOW GRADE LEVEL.
IF ACCESS IS EXTENDED TO GRADE , THE ACCESS COVER SHALL BE AIRTIGHT.
GRADE LEVEL ACCESS COVERS SHALL BE SECURED BY BOLTS OR LOCKING MECHANISMS OR HAVE SUFFICIENT WEIGHT TO PREVENT UNAUTHORIZED ACCESS.

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Plastic Tanks

- Good bedding & backfill
- Backfilling with soil remember backfilling in lifts to fill voids and support the tank
- Properly Attached and sealed manhole access extensions (20" minimum diameter)
- Inlet and outlet line mechanical seals / rubber grommets!
- Remember to protect the tanks from rock puncture
- Protect the tank from tank buoyancy!
- Maximum burial depth is what? Generally, its 36"
- Concrete ? NON-Load Bearing tanks? Generally, its 48"

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Baffles, Filters & Gas Deflectors

- Chapter 73.31. (C)(5)
- **(5) The outlet baffles or vented tees of the last compartment or tank shall be equipped with a solids retainer.**

What is meant by a solid's retainer?

Some tank manufacturers do not require inlet baffles in the 2nd compartment

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6" PVC Polylock PL 250 outlet baffle filter cartridge with cartridge. Handle attached for removal.

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Outlet filters

Not all outlet filters need gas baffles! Check with the manufactures when in doubt. Remember it can't hurt having one. Even if its not required your contractor can always add it. You can ask!

Polylock PL-625

Polylock PL-68

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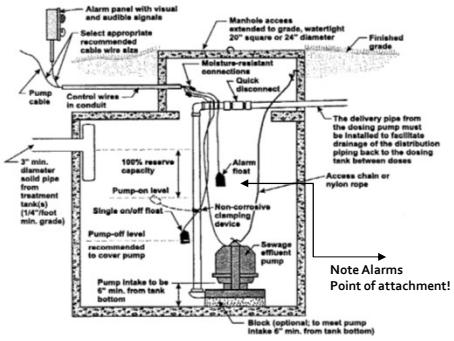
PRESSURE DOSED

Dosing Tank

Sections 73.45 & 73.46



NOTES:
- Dosing tank must have a minimum liquid capacity equal to or greater than two times the designed dose volume.
- Double on/off floats may be used in lieu of single on/off float.
- Quick disconnect must be located for ease of pump removal.
- Pump and alarm must be on separate breakers.

- A§ 73.46. Dosing pumps, siphons and lift pumps.
- (a) Dosing pumps for all onlot sewage disposal systems except individual residential spray irrigation systems shall meet the following specifications:
- (1) The pump shall be sized to deliver a flow in gpm equal to or greater than the combined flows from all discharge holes in the laterals when operating at designed level of head and shall be rated by the manufacturer for handling of sewage effluent.
- (2) The intake of the dosing pump shall be at least 6 inches from the bottom of the tank. The intake of any dosing pump shall be at a lower elevation than the lowest lateral.
- (3) Pumps may not be suspended above the bottom of the tank by chains or similar equipment.
- (4) A disconnect shall be incorporated into the piping within the dosing tank for ease of pump removal.
- (5) An effective warning device, as described in § 73.62(c) (relating to standards for holding tanks), shall be installed in the dosing tank to indicate failure of the pump or siphon. Electrically operated warning systems shall be on a circuit and breaker separate from the pump.
- (6) A siphon or other discharge mechanism may be substituted for a pump where site conditions permit the use of a gravity flow device, if the average discharge rate of the device meets the requirements of paragraph (1).
- (7) A copy of the performance curve of the pump or discharge specifications for the siphon to be used shall be attached to the system design. A copy of the manufacturer's specification showing that the pump is designed to handle sewage or sewage effluent shall also be attached to the system design.
- (8) When an aeration tank is used which results in a periodic pump discharge from the treatment tank, the discharge mechanism may be substituted for a dosing tank and pump if the periodic discharge rate meets the criteria in subsections (a)(1) and (b)(2) and § 73.45(2) (relating to dosing tanks).
- (9) Pumps or siphons serving systems having total absorption areas greater than 2,500 square feet shall have a minimum discharge capacity at least two times the estimated peak flow for the facility served.
- (10) When an establishment produces more than 50% of its total daily flow during a peak flow period, the minimum dose volume shall equal the anticipated flow during the peak period.
- (11) Pumps employed for the purpose of lifting effluent to a higher elevation may not be deemed dosing pumps when the system does not meet the criteria of § 73.43 (relating to pressurized distribution). Pumps for this purpose shall have a discharge capacity at least two times the estimated peak flow of the facility served when operating at designed level of head, but at least 5 gpm and shall be rated by the manufacturer for handling sewage effluent.
- (12) Siphon discharge lines shall be equipped with an observation port. The access to the observation port shall be extended to grade, capped and secured to prevent unauthorized entry.
- (b) Lift pumps shall meet the following specifications:
- (1) Meet the standards in subsection (a)(1)—(5), (7) and (8).
- (2) Be designed to discharge a minimum flood dose of 2 inches over the sand surface.
- (c) Dosing pumps used to pressurize a spray field distribution system shall be designed in accordance with the specifications in subsection (a)(1)—(5) and (7).

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Pump block Generally 4"+

Pump intake shall be at least 6" from the bottom of the tank.
Contractor formed his own in this example.
Cinder blocks generally are commonly used.

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Pump Tank

- 24" min manhole to grade or above
- Pump Block
- Pump Rope
- Union / disconnect
- Purge / Weep Hole (bottom of 90)
- Floats
- Pump Operation
- Electrical Conduit / Connections
- Junction Box
- Float Tree
- Tank Alert visible & audible alarm
- Separate Breakers for pump & alarm

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Distribution

Distribution Types

- Gravity
- Pressure Dosed

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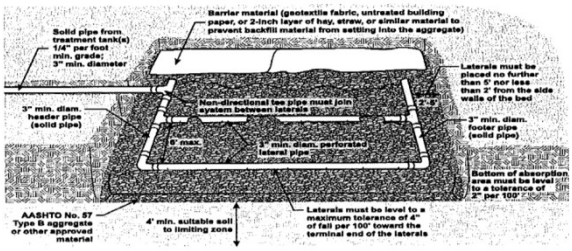
Header pipe

Section 73.42(d)



Note: The "D" box and the header pipe must be level to deliver an equal distribution of effluent through the laterals to the absorption area.

Distribution Box's used in seepage bed construction are rare in most modern designs.

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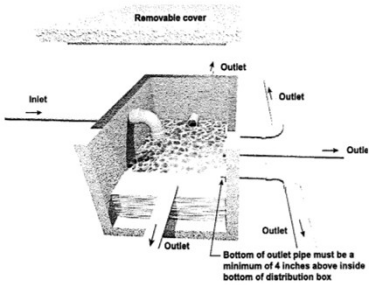
Distribution Box's

DISTRIBUTION

GRAVITY FLOW

Distribution Box ("D" Box)

Section 73.42



NOTES:
- Bottom of inlet pipe must be a minimum of 1 inch higher than bottom of outlet pipes.
- Each lateral must be connected separately and not subdivided. Bottom of oulet pipes must be level.
- If the distribution box receives effluent under pressure, a down-turn elbow or other baffle must be placed on the inlet.
- If the distribution box receives effluent by gravity flow, it is recommended to use a down-turn elbow or other baffle placed on the inlet.
- Distribution box must be installed on an adequate base of undisturbed or properly compacted earth or aggregate outside of the absorption area.
- Equal distribution of effluent must be maintained between individual laterals.

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Lift pump fed 90-degree inlet / speed levelers / Mechanical seals around lines. A good practice is to add 4" Schedule 40 pipe to reduce velocity.

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WHAT IS WRONG WITH THIS DISTRIBUTION BOX?

Anyone?

90 degree baffle on the inlet missing (recommended on gravity)

Required when under pressure

Box depth below lines?

4" minimum

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Plastic Distribution Box's

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System is Installed

An SEO is not normally on site during every step of the installation process. Therefore it is important to make sure the installer knows the proper soil conditions for installation and the materials to use when installing the system.

CONSTRUCTION

MOISTURE CONTENT FOR CONSTRUCTION CONDITIONS

Section 73.51(c)

Does it matter how moist or dry your soil is?

FIELD TEST

1) Squeeze a handful of soil in one hand.

2) Open your hand.

3) Bounce the sample once lightly in your hand or tap the soil lightly with your finger.

   a) If the sample of soil crumbles or breaks up immediately when bounced or tapped, the soil moisture should be acceptable.

   b) If the sample sticks together, construction should be postponed.

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Soil Moisture Check Must be performed before surface scarification, drip tubing installation and shallow placement installs.

Test by squeezing a handful of soil together in your hand rolling it into a ball. Open your hand out giving it a small shake as you do can you bounce the soil ball in your hand? If it stays intact as a ball the moisture is too high. The soil must dry out before allowing the contractor to proceed. The process must be repeated at different times and usually over different days until the moisture level is low enough. If the soil falls apart crumbling in your hand under several small attempts the soil probably is dry.

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Type chisel plowing

Style / Pattern

No smiley faces!

(Why might this be a problem?)

On Contour (Why is this so important!)

Equipment Used

Backhoe?

Excavator?

Tractor with plow implement?

Remember Rototilling is prohibited!

Tiger teeth preferred over standard backhoe teeth?

(Why it makes a difference?)

Chisel Plowing / Scarifications

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SITE PREPARATION

During the installation process, all measures should be taken to minimize compaction of the soil. If the soil is compacted, it will not absorb the effluent at the rate the percolation tests indicated.

IN-GROUND SYSTEM

- The soil will be removed to the depth of the system.

ELEVATED SYSTEM

Section 73.55(b)(1-3)

- Cut all vegetation flush with grade.
- Remove loose excess debris, such as leaves.
- Do not remove roots. Cut all vegetation including trees flush with grade and leave the roots.
- The absorption area and out to the berm must be chisel plowed. A similar implement attached to lightweight equipment can be used. The plow should run along the contours to a maximum of 6 inches deep. This process is to break up the surface layer of the soil to help the effluent drain from the sand into the soil easily. You are not turning the soil; you are just scratching the surface.
- Rotary tilling is prohibited.
- After plowing, under no circumstances may equipment travel on the plowed soil surface.

SITE PREPARATION

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CHISEL PLOWING GENERALLY USED FOR SURFACE INSTALLS SUCH AS;

DRIP MICRO MOUNDS
SAND MOUNDS
AT GRADE SEEPAGE BEDS

55

55

- Chisel Plowing under aggregate and sand should always be ON CONTOUR! Why?

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BE PREPARED!

- Site chisel plowed on contour for a Drip Micro Mound.
- Stake out of sand area (not berm or basil area)
- PREPAIR FOR THE UNEXPECTED!
- Know the weather forecast!
- Be aware when is the sand / stone being delivered?
- Tarping the area might be necessary or refraining from giving approval if the material is not being placed immediately!
- Good site prep but, that night unexpected heavy down pours before the contractor placed the sand!

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- Seepage bed excavation with excavator / backhoe scarifying level as they dig leaving consistent even furrows.
- Bed excavated soil surface should be level to a tolerance of not to exceed 2" over 100'.

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- Seepage bed excavation with an excavator / backhoe followed by physical raking.
- Raking achieves a more level surface however the walking on the soil surface can create areas of compaction. An ideal recommendation is to stand on 6" or greater lift of soil to minimize direct foot compaction. Raking out the foot pattern compaction would be a wise suggestion / request / requirement, or better yet to leave surface chisel plowed to create furrows eliminating foot compaction. As in previous slide.
- Side wall raking to scarify and break up smearing of soil.

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Contractor checking the bottom of the seepage bed excavation with a lazer level to insure it is level to an acceptable tolerance.

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Absorption Areas

- Before excavation is started the absorption system location must be verified.
- Stake out approved.
- Verify nothing has changed affecting the absorption area!
- The depth of the excavation must be verified.
- The length & width of the excavation must be verified.
- Spacing when using trenches, multiple beds etc. must be verified.
- The bottom level tolerance must be verified.

  (2"/100' soil) (4"/100'pipe)
- Side wall scarification to remove smearing verified.

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Material Suitability

Materials must be specified in the design and submitted by the designer.

The SEO's responsibility is to verify at the site that the correct materials are being used.

AGGREGATE
(CLEAN)
ASHTO #57

SAND
SPECS & TICKETS

SOIL
CLEAN MATERIAL NO EXCESS ROCK OR DEBRIS

GEOTEXTILE

BUILDING PAPER
(UNTREATED)
NO TAR PAPER

STRAW / HAY

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SEEPAGE TRENCHES

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AGGREGATE - IN-GROUND/ELEVATED SYSTEM

Section 73.51(a)

- The size and grade of the **aggregate** must meet AASHTO No. 57 requirements from a PennDOT-certified stockpile and must be of Type B quality requirements.

Washed stone is better. Some stone is dirty with excessive fine material. This material can impact the soil interface!

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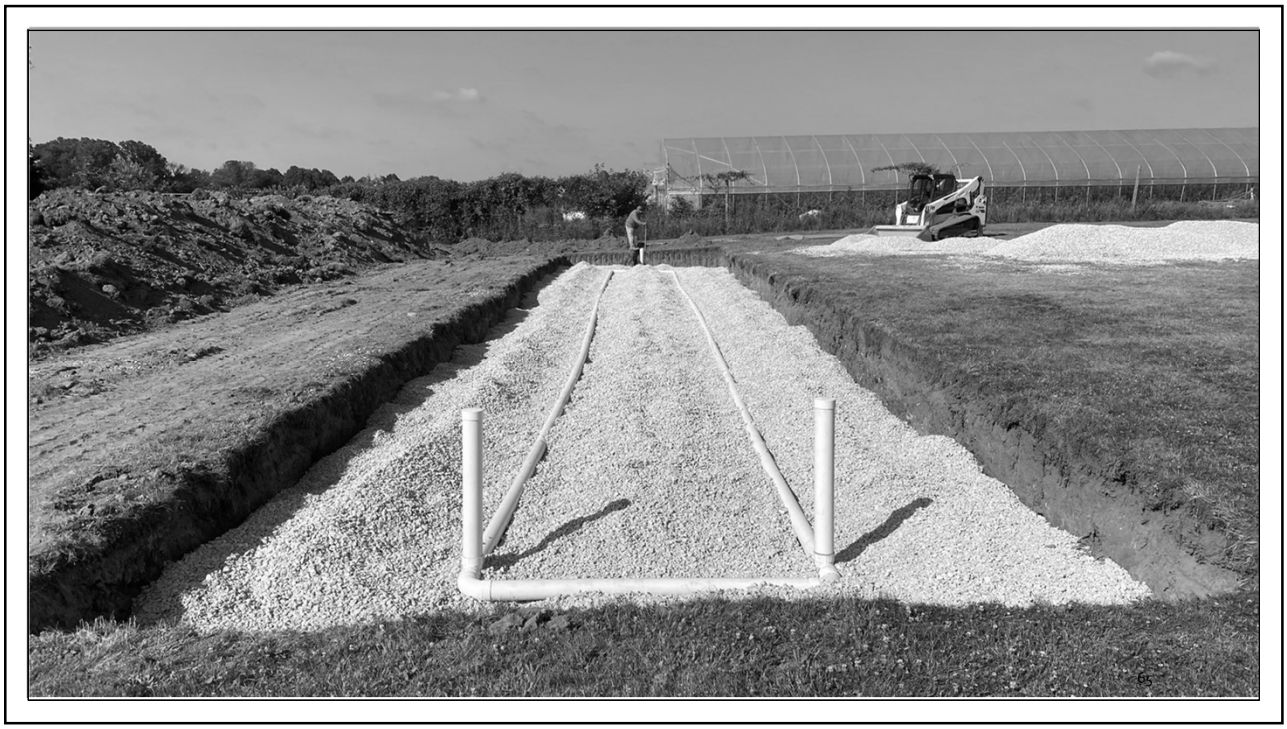

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SAND FILTER SEEPAGE BEDS AND SAND MOUNDS

SANDS VARY

(SEE SAMPLES)

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SAND - ELEVATED SYSTEM

Sections 73.55(c) & 73.54(b)(2)

- The size and grading must meet bituminous concrete sand type B #1 or #3 requirements from the PennDOT-certified stockpile.
- The sand supplier must provide a certification in writing to the SEO.
- The sand specifications are for all conventional systems that require sand, except IRSIS, which is not discussed in the academy.

DunRite SAND & GRAVEL

Vineland Plant
3765 Mays Landing Road
Vineland, NJ 08361
Dispatcher: (856) 825-9900
Fax: (856) 825-9050

ARRIVAL TIME: ______
LEAVE TIME: ______
AUTH. INITIALS: ______

DATE 10/14/2024
TIME 5:02:55 pm

TICKET NO. 964529

SOLD TO:
JOB NO: 40726
JOB LOCATION: 1073 Wilson Ave
1073 Wilson Ave
Glen Mills, PA 19342

WEIGHMASTER Anthony Vargas

We shall not be held liable for damages to private property when delivery is required beyond curb line. When such delivery is required, it is purchaser's responsibility to provide adequate roadways and other facilities for safe and proper unloading.

PRODUCT DESCRIPTION	Concrete Sand C-33		
GROSS	73140	TON	23.11
TARE	26920		
NET	46220		
TONS	23.11		

CUSTOMER P.O. NO.		UNIT PRICE	10.00
LOT NO.	0	NET PRICE	231.10
PERMIT NO.		HAUL CHARGES	346.65
TRUCKER		SALES TAX	35.50
TRUCKER NO.	PSM18		
TRUCK LICENSE NO.		GRAND TOTAL	627.12

DRIVER ______ DRIVER PRINT ______ RECEIVED BY ______

Truck Driver assumes all responsibility due to exceeding Maximum Gross Vehicle Weight.

Vineland Plant

DunRite SAND & GRAVEL

Monroe Township Plant

Office and Mailing Address
573 E. Grant Avenue • Vineland, NJ 08360-7109

10-24-2024

(4 loads)

Attn:

Ref: PA Septic Sand/ ASTM C-33/Concrete Sand
RE: Wilson Ave
Glen Mills, PA 19342

Gentlemen/Madame:
This letter is our certification that the Concrete Sand supplied by Dun-Rite Sand & Gravel Co. to your company meets the requirements of Chapter 73 subsection 73.55 (C) Type B #1.

The following gradation is listed below: (Plant #4)

SIEVE	% PASSING	Specification
5/16	100 %	100 %
3/8	100 %	100 %
#4	97.7	95-100
#8	92.3	70-100
#16	78.5	40-80
#30	48.8	20-65
#50	15.7	7-40
#100	2.9	2-20
#200	.1	0-10

FM 2.66

Sodium Soundness Results 2.75 Moisture 3.5%

If there are any further questions, feel free to contact me at (856) 825-9900.

Respectfully Yours

Anthony M. Vargas

Anthony M. Vargas
Sales

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SAND & STONE SLINGER IN USE

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BARRIER BETWEEN AGGREGATE AND TOPSOIL

Sections 73.52(b)(13) & 73.53

A layer of material must be placed between the aggregate and the topsoil to prevent the backfill from falling into the aggregate.

Building paper (non treated)
Straw / Hay
GEO TEXTILE

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Ok to cover / Backfill

72 Hour notification is required before covering.

- Final Grading
  - Manholes above grade on Septic Tank & Pump Tank
  - Building Sewer Cleanouts & Inspection ports
  - Distribution Box Extensions / markers
  - Lateral extensions / Cleanouts
- Surface Water Diverted away from tanks & system
- Rake / Seed & Straw

SEEDING AND GRADING

Section 73.52 (b)(15)

The backfill material must consist of soil suitable for the growth of vegetation and be seeded to control erosion.

- Homeowners / contractor meeting / final inspection
- Permit approval / sign off

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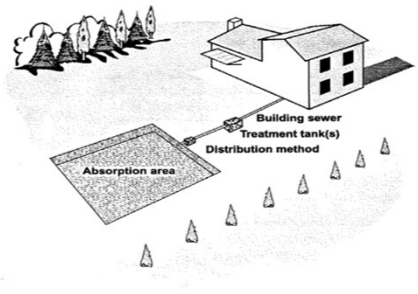
FINAL INSPECTION

OBJECTIVE

The purpose of this chapter is to:

- Understand the steps to complete a final inspection.



Final Inspection Stage

What triggers the final inspection?

A) A contracted installer installs the system.

B) The installer or the homeowner will communicate with the SEO to schedule the final inspection.

How long does an SEO have to make a final inspection?

FINAL INSPECTION

The purpose of a final inspection is to make sure the system is installed according to the permit that the SEO issued. The SEO will walk through the whole system to make sure that all the components of the system were installed correctly. This may take place over a course of a few interim inspections.

After the final inspection is completed, the system can be covered and used.

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Variations in what was permitted and what was installed?

Some changes may fall under an as built. Others may require a redesign?

Completed Final Inspection

- **Passes** – The SEO signs the permit.
  - ✓ The SEO should sign the permit under "Approval to Cover."
  - ✓ The permit application is initialed and dated by the SEO under final inspection in the "Action" box.
- **Fails** – The corrections must be made before the permit can be signed.
- **Revoked permit** – Reference Section 72.28 of the regulations to find reasons to revoke a permit.

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Session	Session evaluation sheets
Session	Session credit stamp / signature
Confirm	Confirm Session CE credit

Revised 12.30.2024 JLL

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