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JOHNSON COUNTY
~~REGULATIONS FOR A PERMIT~~
~~TO CONSTRUCT, INSTALL OR MODIFY~~
SMALL WASTEWATER ~~TREATMENT~~ FACILITIES~~IES~~
~~AND RELATED DESIGN STANDARDS~~
REGULATIONS

FEBRUARY 1985

AMENDED _____, 2017

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TABLE OF CONTENTS
JOHNSON COUNTY
REGULATIONS FOR A PERMIT TO
CONSTRUCT, INSTALL OR MODIFY SMALL
WASTEWATER FACILITIES AND
RELATED DESIGN STANDARDS

<u>Section No.</u>	<u>Subject</u>	<u>Page No.</u>
1	Authority	1
2	Purpose	1
3	Applicability	1
4	Intent	1
5	Definitions	1
6	Prohibitions	3 5
7	Permit Required, Control of Construction, Installation and Modification Permits, Responsibility on Issued Permit, Exemptions	3 6
8	Application Requirements	4 6
9	Application Processing Procedures	5 7
10	Construction and Operation in Compliance with Issued Permit	6 8
11	Duration and Termination of Permits, Transfer of Permits	7 9
12	Renewal of a Permit	7 9
13	Denial of a Permit	8 9
14	Modification of a Permit	8 10
15	Suspension or Revocation of a Permit	9 11
16	Compliance with State and Local Water Quality Management Plans	10 12
17	Facilities and Systems not Specifically Covered by these Standards	10 12
18	Design Flows	11 13
19	Isolation Site Suitability	12 15
20	Site Suitability Building Sewer Pipes	13 26
21	Building Sewer Pipes Soil Absorption System Sizing	21 27
22	Soil Absorption System Sizing Septic Tank and other Treatment Tanks	21 31
23	Pretreatment Effluent Distribution Boxes	24 40
24	Dosing Systems Following the Septic Tank Standard Soils Absorption Systems	25 40
25	Distribution Boxes Pressure Distribution Systems	26 44
26	Subsurface Treatment and Disposal Systems Sand Mound Systems	27 45
27	Holding Tanks Small Wastewater Lagoons	29 48
28	Privies or Outhouses	30 51
29	Chemical Toilets Greywater Systems	31 53
30	Small Waste Stabilization Ponds Operation and Maintenance	32 56
31	Validity Clause	34 57
32	Enforcement	34 57
33	Installers and Pumpers	34 57
	Appendix A - Percolation Test Procedures	35 58

8

- 1 b. a. ~~“Absorption system” means a system constructed under the surface of the~~
2 ~~ground which receives and distributes effluent from a pretreatment device~~
3 ~~effectively filtering the effluent through soil or media. “Absorption surface”~~
4 ~~means the interface where treated effluent infiltrates into native or fill soil.~~
5
6 b. ~~“Aerobic unit” means a covered, watertight receptacle which receives~~
7 ~~wastewater. The unit removes settleable solids, floatable material, and a part of~~
8 ~~soluble organic matter by the use of aerobic biological treatment.~~
9
10 c. e. ~~“Building drain” means the building drain is that part of the lowest piping of a~~
11 ~~drainage system which receives the discharge from soil, waste and other drainage~~
12 ~~pipes inside the walls of the building and conveys it to the building sewer~~
13 ~~beginning two feet (.6m) outside the building wall. “Bed” means a soil treatment~~
14 ~~and dispersal system where the width is greater than three (3) feet.~~
15
16 d. ~~“Bedrock” means geological layers, of which greater than fifty percent (50%) by~~
17 ~~volume consist of unweathered in-place consolidated rock or rock fragments.~~
18 ~~Bedrock also means weathered in-place rock that cannot be hand augered or~~
19 ~~penetrated with a knife blade.~~
20
21 e. ~~“Bedroom” means any room that is or may be used for sleeping.~~
22
23 f. ~~“Blackwater” means water containing fecal matter and/or urine.~~
24
25 g. ~~“Five day biochemical oxygen demand (BOD5)” means a measurement of the~~
26 ~~dissolved oxygen used by microorganisms in the biochemical oxidation of organic~~
27 ~~matter during a five (5) day period.~~
28
29 h. d. ~~“Building sewer”~~~~“Building sewer” means the pipe building sewer is that part~~
30 ~~of the horizontal piping of a drainage system which extends from the end of the~~
31 ~~building drain and conveys the building drain discharge to the septic tank or other~~
32 ~~onsite sewage disposal facility that carries wastewater from the building.~~
33
34 e. ~~“Cesspool” means a covered pit into which raw sewage is discharged for final~~
35 ~~disposal by leaching into the surrounding porous soil. Cesspools are not allowed~~
36 ~~under these regulations.~~
37
38 i. ~~“Chamber” means a domed open bottom structure that is used in lieu of~~
39 ~~perforated distribution pipe and gravel media.~~
40
41 j. ~~“Delegated small wastewater program” means a local governmental entity,~~
42 ~~delegated by the Administrator, with the authority to administer the provisions of~~
43 ~~W.S. 35-11-301(a) (iii) for small wastewater systems pursuant to the provisions of~~
44 ~~W.S. 35-11-304.~~
45
46 k. ~~“Direct human consumption food crops” are crops consumed directly by~~
47 ~~humans. These include but are not limited to fruits, vegetables, and grains grown~~
48 ~~for human consumption.~~

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- l. **“Domestic wastewater”** means a combination of the liquid or water-carried wastes from residences, business buildings, institutions, and other establishments arising from normal living activities.
 - m. **“Domestic septage”** means liquid or solid material removed from a waste treatment vessel that has received only wastes from residences, business buildings, institutions, and other establishments arising from normal living activities.
 - ~~f. “Domestic sewage” means the liquid and waterborne wastes derived from the ordinary living processes, free from industrial wastes, and of such character as to permit satisfactory disposal without special treatment.~~
 - n. **“Dosing tank”** means a tank equipped with an automatic siphon or pump designed to discharge effluent on an intermittent basis.
 - ~~g. “Dosing system” means the system of tanks, pumps or syphons, and piping located between the septic tank and soil absorption system which is intended to apply a large quantity of settled wastewater to the absorption system in a short period of time.~~
 - o. **“Effluent”** means liquid flowing out of a septic tank, other treatment vessel, or system.
 - p. **“Effluent filter”** means a removable, cleanable device inserted into the outlet piping of a septic tank or other treatment vessel designed to trap solids that would otherwise be transported to the soil absorption system or other downstream treatment components.
 - q. **“Evapotranspiration”** means the combined loss of water from soil by evaporation from the soil or water surface and by transpiration from plants.
 - r. **“Greywater”** means untreated wastewater that has not been contaminated by any toilet discharge; that is unaffected by infectious, contaminated, or unhealthy bodily wastes; and does not present a threat from contamination by unhealthful processing, manufacturing, or operating wastes. “Greywater” includes but is not limited to wastewater from bathtubs, showers, washbasins, clothes washing machines (unless soiled diapers are serviced), laundry tubs, and kitchen sinks.
 - s. **“Grease interceptor”** means a device designed to separate fats, oils, and grease from wastewater.
 - t. **“Groundwater”** means subsurface water that fills available openings in rock or soil materials such that they may be considered water saturated under hydrostatic pressure.
 - u. **“High groundwater”** means seasonally or periodically elevated levels of groundwater.

- 1
2 v. **“High strength wastewater”** means a wastewater stream with a BOD5 higher
3 than 200 mg/L.
4
5 w. **“Holding tank”** means a watertight receptacle designed to receive and store
6 wastewater.
7
8 h. ~~“Hydrogeological study” means a study of the occurrence, distribution, quality~~
9 ~~and movement of the shallow most groundwater of the site and the potential~~
10 ~~impact of wastewaters on the groundwater.~~
11
12 i. ~~“Impermeable soil” means any soil which has a percolation rate greater than 60~~
13 ~~minutes per inch.~~
14
15 x. **“Manifold”** means a non-perforated pipe that distributes effluent to individual
16 distribution pipes.
17
18 y. **“Mound system”** means an onsite wastewater system where any part of the
19 absorption surface is above the elevation of the existing site grade and the
20 absorption surface is contained in a mounded fill body above the grade.
21
22 z. **“Mulch basin”** means an excavated area that has been refilled with a highly
23 permeable media, organic and inorganic materials intended to distribute greywater
24 to irrigate vegetation.
25
26 aa. **“Pathogens”** are disease-causing organisms. These include, but are not limited to
27 certain bacteria, protozoa, viruses, and viable helminth ova.
28
29 bb. **“Percolation rate”** means the time expressed in minutes per inch required for
30 water to seep into saturated soil at a constant rate.
31
32 cc. **“Pipe invert”** means the bottom of the internal surface of the pipe.
33
34 dd. **“Percolation test”** means the method used to measure the percolation rate of
35 water into soil as described in Appendix A.
36
37 ee. ~~“Permit”~~ **“Permit”** means written authorization issued by the small wastewater
38 program administrator, duly executed which authorizes the permittee to construct,
39 install, or modify the facilities as set forth in these regulations.
40
41 k. ~~“Privy” means a covered pit into which only urine and fecal material are~~
42 ~~discharged for final disposal by leaching into the surrounding soil or by hauling to~~
43 ~~an approved disposal site. Greywater or toilet carriage water may not be~~
44 ~~discharged into a privy.~~
45
46 l. ~~“Pump Tank” means a tank in which the dosing pumps or syphons are installed.~~
47
48 m. ~~“Seasonal high groundwater table” is the highest elevation reached by the~~
49 ~~groundwater during the wet season of the year (usually spring or early summer).~~

- 1
2 ff. **“Pressure distribution”** means a network of pipes in which effluent is forced
3 through orifices under pressure.
4
5 gg. **“Restrictive layer”** means a nearly continuous layer that has one or more
6 physical or chemical properties that significantly impede the movement of water
7 and air through the soil or that restrict roots or otherwise provide unfavorable root
8 conditions. Examples are bedrock, cemented layers, and dense layers.
9
10 hh. **“Septage”** means liquid or solid material removed from a waste treatment vessel
11 that has received wastes from residences, business buildings, institutions, and
12 other establishments.
13
14 ii. ~~n. **“Septic Tank”**~~ **“Septic Tank”** means a watertight tank designed and
15 constructed to receive and treat raw wastewater. ~~liquid tight receptacle which~~
16 ~~receives for storage and digestion, raw sewage from a building sewer, and which~~
17 ~~has been designed and constructed so as to retain the solids and to allow the~~
18 ~~liquids to discharge through a secondary system of piping into a disposal area.~~
19
20 jj. **“Serial distribution”** means a group of trenches arranged so that the total
21 effective absorption area of one trench is used before liquid flows into the next
22 trench.
23
24 kk. **“Service provider”** means a person authorized and trained by a system
25 manufacturer or their vendor to operate and maintain any proprietary system.
26
27 ll. ~~o. **“Small wastewater system”**~~ **“Small wastewater system”** means any sewerage
28 system, disposal system, or treatment works having simple hydrologic and
29 engineering needs which is intended for wastes originating from a single
30 residential unit serving no more than four families or which distributes 2000
31 gallons or less of domestic sewage per day.
32
33 mm. **“Soil absorption system”** means a shallow, covered, excavation surface, or
34 mound made in unsaturated soil into which wastewater effluent from the septic
35 tank is discharged through distribution piping for application onto absorption
36 surfaces through porous media or manufactured components.
37
38 nn. **“WYDEQ”** means The Wyoming Department of Environmental Quality.
39

40 **Section 6. Prohibitions.** No person shall, except when authorized by permit issued
41 pursuant to these regulations:
42

- 43 a. Construct, install, or modify any small wastewater system.
44
45 b. Construct, install, or modify any small wastewater system in non-compliance with
46 the terms and conditions of an issued permit.
47
48 c. Construct, install, or modify a small wastewater system with a permit that has
49 expired or has been suspended or revoked.

- 1
2 d. Discharge waste into any small wastewater system which is inconsistent with the
3 type and or quantity of wastes for which the facility is designed.
4

5 **Section 7. Permit Required; Control of Construction, Installation and Modification**
6 **Permits; Responsibility on Issued Permits; Exemptions.**
7

- 8 a. Construction, installation, or modification of small wastewater facilities shall be
9 allowed only in accordance with the terms and conditions of permits issued
10 pursuant to the provisions of these regulations.
11
12 b. No construction, installation or modification of a small wastewater system shall
13 be allowed unless a permit to construct, install or modify has been obtained from
14 the ~~small wastewater program administrator~~ **County Sanitarian.**
15
16 c. The issuance of a permit to construct does not relieve the permittee of its
17 responsibility to properly plan, design, construct, operate, and maintain the
18 facility described in the application and the permit conditions.
19

20 **Section 8. Application Requirements.** The following procedures will be followed in
21 applying for a permit:
22

- 23 a. Any person who proposes to construct, install or modify a facility required to be
24 permitted under **Section 6** shall submit an ~~written~~ application on forms provided
25 by the ~~small wastewater program administrator~~ **County Sanitarian.**
26
27 b. All plans and specifications must **be stamped by a licensed professional engineer**
28 **and** conform to common engineering practices and include the following:
29

30 (1) Plans for small wastewater systems shall contain the following:
31

- 32 (a) A title showing name of the owner and the location of the project;
33 a north arrow and drawing scale; and the name and seal or
34 signature of the designing engineer ~~(except on the plans for a~~
35 ~~single residential unit designed by the owner).~~
36
37 (b) Datum used shall be indicated.
38
39 (c) A site plan showing topography of the site, boundaries of the
40 project and property nearby wells and waterlines, waterways,
41 buildings, septic tank and drainfield, including all dimensions and
42 isolation distances.
43
44 (d) Detailed drawings both plan and cross-section of the septic tank
45 and disposal field.
46
47 (e) Location of percolation test holes and soils test pit(s).
48
49 (f) Percolation test data.

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(g) **Soil Exploration Pit findings and photo documentation of soil cross-section and materials removed from the exploration pit.**

(2) Specifications for small wastewater systems shall include the following:

- (a) The identification of the type, size, and strength of construction materials.
- (b) The type, size, strength, operating characteristics, rating or requirements and installations procedures for all mechanical and electrical equipment.
- (c) All the plans and specifications must conform to the minimum design standards identified in **sections 17 through 31.**

Section 9. Application Processing Procedures. All permit applications received will be processed in the following manner.

- a. The ~~small wastewater program administrator~~ **County Sanitarian** shall review each application and take final action within 15 days from the date the application is received.
- b. Incomplete applications will not be processed. The ~~small wastewater program administrator~~ **sanitarian** shall promptly notify the applicant of the deficiencies in the submitted permit application package.
- c. All plans and specifications must meet or exceed minimum design standards and these regulations.
- d. Applications for modification of an existing permitted facility to increase the capability to treat, hold, or dispose of wastes may be approved requiring only the modification needed to meet the minimum design standards. Facilities not in compliance with these regulations will require additional modifications to other portions of the facility to bring the facility into compliance with these regulations.
- e. Each application must be submitted with all supporting data necessary for review. Processing of the application with respect to recommendations or required changes will be done in accordance with the provisions of applicable statutes, rules and regulations.
- f. The ~~small wastewater program administrator~~ **sanitarian** shall promptly notify the applicant of the final action taken on the application. If the conditions of the permit are different from the proposed application submitted by the applicant for review, the notification shall include reasons for the changes made.
- g. If, upon review of an application, the ~~small wastewater program administrator~~ **sanitarian** determines that a permit is not required, the ~~small wastewater program~~

1 administrator ~~sanitarian~~ shall notify the applicant of this determination. Such
2 notification shall constitute final action on the application.

- 3
4 h. If, upon review of an application, the ~~small wastewater program administrator~~
5 ~~sanitarian~~ determines that a permit should not be granted, the ~~small wastewater~~
6 ~~program administrator~~ ~~sanitarian~~ shall notify the application the permit denial and
7 state the reasons for denial.
8
9 i. If the applicant is dissatisfied with the permit conditions or denial of any permit
10 issued by the ~~small wastewater program administrator~~ ~~sanitarian~~, he may request a
11 hearing in accordance with **Section 13.c.**
12

13 **Section 10. Construction and Operation in Compliance with Issued Permit.** The
14 Permittee shall:

- 15
16 a. Conduct all construction, installation, or modification of any facility permitted
17 consistent with the terms and conditions of the permit. Unauthorized changes,
18 deviations or modifications will be a violation of the permit. A new application
19 or amended application must be filed with the ~~small wastewater program~~
20 ~~administrator~~ **County Sanitarian** to obtain modification of a permit. No
21 modification shall be implemented until a new or modified permit has been issued
22 or a waiver given pursuant to subsection b.
23
24 b. Requests for authorization to utilize materials and/or procedures different from
25 those specified in the terms of the issued permit. Such requests shall be directed to
26 the ~~small wastewater program administrator~~ ~~sanitarian~~. A waiver may be granted
27 if materials and/or procedures specified in the permit cannot be obtained or
28 accomplished and alternative materials and procedures meet minimum standards.
29 In order to prevent undue delay during construction, the ~~small wastewater~~
30 ~~program administrator~~ ~~sanitarian~~ may grant a waiver orally, upon oral request,
31 provided that this oral request is followed by a written request within five days.
32 Any changes shall be noted on the permit.
33
34 c. Conduct the operation in accordance with statements, representations, and
35 procedures presented in the complete application and supporting documents, as
36 accepted and authorized by the ~~small wastewater program administrator~~
37 ~~sanitarian~~.
38
39 d. Notify the ~~small wastewater program administrator~~ ~~sanitarian~~ at least 24 hours
40 prior to backfilling of system. The ~~small wastewater program administrator~~
41 ~~sanitarian~~ will perform a final inspection of the installation to insure compliance
42 with these regulations. The compliance section of the permit will then be signed.
43 If the applicant does not notify ~~small wastewater program administrator~~
44 ~~sanitarian~~, the following actions may be taken or required by the ~~small wastewater~~
45 ~~program administrator~~ ~~sanitarian~~:
46
47 (1) digging up the system to show compliance with these regulations,
48
49 (2) revocation of the permit,

- (3) legal action, or
- (4) All of the above.

Section 11. Duration and Termination of Permits; Transfer of Permits.

- a. The duration of construction, installation or modification permits will be variable, but shall not exceed one year from the date of issuance. The expiration date will be recorded on each permit issued. Those permits issued without a specified expiration date will be in force no more than one year from date of issuance.
- b. Permits will be issued only to the official applicant of record, who must be the owner of the permitted facility, for only the type of construction of record and shall be automatically terminated:
 - (1) Within 60 days after sale or exchange of the facility unless application for transfer is received pursuant to subsection c of this section.
 - (2) When construction is completed. Except that conditions included in the permit will remain in effect throughout the life of the facility.
 - (3) Upon issuance of a new, renewed or modified permit.
 - (4) Upon written request of the permittee.
- c. Permits shall be transferred to new owners by the completion and submittal of ownership transfer forms by the new owner to the ~~small wastewater program administrator~~ **sanitarian**. The new owner shall also submit a written request from the existing owner to transfer ownership. The ~~small wastewater program administrator~~ **sanitarian** shall act within 30 days after receipt of the request.
- d. Any conditions established in a construction, installation or modification permit will be automatically transferred to the new owner whenever a transfer of ownership of the facility occurs.

Section 12. Renewal of a Permit. A permit may be renewed where construction has not been completed by contacting the ~~small wastewater program administrator~~ **County Sanitarian** stating that there will not be any changes in the plans for construction, installation, or modification of a permitted facility no less than 30 days prior to the expiration date of the permit.

Section 13. Denial of a Permit.

- a. The ~~small wastewater program administrator~~ **County Sanitarian** may deny a permit for any of the following reasons:
 - (1) The application is incomplete or does not meet applicable minimum design and construction standards as specified in these regulations.

- 1 (2) The project, if constructed, will cause violation of applicable state surface
2 or groundwater standards;
3
4 (3) The project does not comply with applicable state and local water quality
5 management plans as specified in Section 16 of these regulations.
6
7 (4) No new small wastewater system shall be approved for a building to
8 which connection to a sanitary sewer is cost effective, and the connection
9 is allowed by the controlling authority for the sanitary sewer.
10
11 (5) Other justifiable reasons.
12
13 b. If the ~~small wastewater program administrator~~ Sanitarian proposes to deny
14 issuance of a permit, the applicant shall be notified of the intent to deny and the
15 reason for denial.
16
17 c. In the case of the denial or conditioning of a permit by the ~~small wastewater~~
18 ~~program administrator~~ sanitarian, the applicant, if he so desires, may request a
19 hearing before the Johnson County Board of County Commissioners ~~county~~
20 ~~health board~~. A request for hearing shall be made in writing within 20 days of
21 notification of the denial to the ~~sanitarian county health officer~~ and shall state the
22 grounds for the request. Any hearing shall be conducted pursuant to the
23 Wyoming Administrative Procedure Act ~~regulations of Johnson County~~. The
24 Board of County commissioners ~~county Board of Health~~ may not issue a waiver
25 from the design standards of these regulations.
26

27 **Section 14. Modification of a Permit.** Either before construction is completed upon a
28 permitted small wastewater system, or during the review of a proposed facility application, the
29 ~~small wastewater program administrator~~ County Sanitarian may, for good cause, modify a
30 construction permit.
31

- 32 a. When reviewing an application or before construction on a facility is completed,
33 the ~~small wastewater program administrator~~ sanitarian may modify a permit due
34 to the following reasons:
35
36 (1) existing, unknown or changing site conditions which would prevent
37 construction and resultant operation from complying with these
38 regulations; or
39
40 (2) receipt of additional information; or
41
42 (3) incomplete application on review items where the applicant agrees with
43 the modification; or
44
45 (4) review items not in compliance with minimum standards where the
46 applicant agrees with the modification; or
47
48 (5) any other reason necessary to effectuate applicable statutes, standards or
49 regulations.

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- b. The ~~small wastewater program administrator~~ **sanitarian** shall notify the permittee by registered or certified mail of intent to modify the permit.
- c. Such notification shall include the proposed modification and the reasons for modification and time frame to have modifications constructed, installed or operational. Modification requirements shall be implemented before construction, installation, or modification of a facility is completed.
- d. The modification shall become final within 20 days from the date of such notice unless within that time the permittee requests a hearing before the **Johnson County Board of County Commissioners** ~~county Board of Health~~. Such request for hearing shall be made in writing to the **sanitarian** ~~county health officer~~ and shall state the grounds for the request. Any hearing held shall be conducted pursuant to the **Wyoming Administrative Procedure Act** ~~regulations of Johnson County~~.
- e. A copy of the modified permit shall be forwarded to the permittee as soon as the modification becomes effective.

Section 15. Suspension or Revocation of a Permit. The ~~small wastewater program administrator~~ **County Sanitarian** may suspend or revoke a permit before construction, installation or modification of a facility is completed for the reasons set forth below; ~~in item subsection b.~~

- a. Before a permit may be suspended or revoked, the permittee shall be given an opportunity to show compliance with all lawful requirements for the retention of the permit.
- b. The ~~small wastewater program administrator~~ **sanitarian** shall notify the permittee of its intent to suspend or revoke the permit in the event that it becomes necessary due to:
 - (1) non-compliance with the terms of the permit; or
 - (2) unapproved modifications in design or construction; or
 - (3) false information submitted in the application; or
 - (4) changing site conditions which would result in violations of applicable regulations; **or**
 - (5) non-compliance with any requirements of these regulations; or
 - (6) any other reason necessary to effectuate applicable statutes, standards or regulations.
- c. The notification shall include the reasons for suspension or revocation.

- 1 d. The suspension or revocation shall become final 20 days from the date of such
2 notice unless within that time the permittee requests a hearing before the **Johnson**
3 **County Board of County Commissioners** ~~county Board of Health~~. Such a request
4 for hearing shall be made in writing to the **sanitarian** ~~county health officer~~ and
5 shall state the grounds for the request. Any hearing held shall be conducted
6 pursuant to the **Wyoming Administrative Procedure Act** ~~applicable regulations~~.

7
8 **Section 16. Compliance with State and Local Water Quality Management Plans.**

9 No Permit may be issued for any facility which is in conflict with an approved water quality
10 management plan prepared under Sections 303, 208, and/or 201 of the Federal Clean Water Act,
11 as amended.

12
13 **Section 17. Facilities and systems not specifically covered by these standards.** This
14 section is provided to encourage new technology and equipment and provide a process for
15 evaluation and permitting of designs which deviate from these regulations. The construction of
16 innovative facilities and processes not in compliance with these regulations ~~will~~ **may** be
17 permitted provided that the facility, when constructed ~~and operated, can operate meeting~~ **meets**
18 the purpose of these regulations.

- 19
20 a. Each application for a permit to construct a facility not in compliance with these
21 regulations shall be evaluated jointly by the ~~small wastewater program~~
22 ~~administrator~~ **County Sanitarian** and the Department of Environmental Quality,
23 Water Quality Division (**DEQ, WQD**) ~~on a case-by-case basis using the best~~
24 ~~available technology. The following information should be included with the~~
25 ~~application.~~
26
27 b. **Each application for a permit to construct shall include an engineering design**
28 **report, detailed construction plans, and technical specification for all piping,**
29 **tanks, and equipment. All of the documents shall have a suitable title showing the**
30 **owner's name and the Wyoming registration number, seal, and signature of the**
31 **engineer.**
32
33 c. **Each application for a permit to construct will be evaluated on a case-by-case**
34 **basis using the best available technology. The application shall include at least**
35 **one of the following.**
36
37 (1) Data obtained from a full scale, comparable installation ~~which that~~
38 demonstrates the acceptability of the design ~~and/or,~~
39
40 (2) Data obtained from a pilot plant operated under the design condition for a
41 sufficient length of time to demonstrate the acceptability of the design
42 ~~and/or,~~
43
44 (3) Data obtained from a theoretical evaluation of the design ~~which that~~
45 demonstrates a reasonable probability of the facility meeting the design
46 objectives; ~~and.~~
47
48 (4) An evaluation of the flexibility of making corrective changes to the
49 constructed facility in the event it does not function as planned.

- 1
2 d. ~~b.~~ If an applicant wishes to construct a pilot plant to provide the data necessary to
3 show the design will meet the purpose of the act, a permit to construct must be
4 obtained.
5

6 **Section 18. Design Flows.** ~~The sewerage system, treatment works and disposal system~~
7 ~~shall have a minimum absorption area based on the minimum peak design flows listed in Table~~
8 ~~1. The volume of wastewater shall be determined by one of the following:~~
9

- 10 a. Tables 1 and 2 provided in this section.
11
12 b. Metered water supply data from the facility.
13
14 c. Metered water supply data from another facility where similar water demands
15 have been demonstrated.
16

17 Table 1

Quantities of Domestic Sewage Flows	
Type of Establishment	
Residential Units	150/bedroom
Single Family Dwellings	150/bedroom
Multiple Family Dwelling (with laundry Capabilities)	120/bedroom
Multiple Family Dwelling (without laundry capabilities)	120/bedroom
Cottages	50/person
Mobile Home Parks	350/home*
Commercial Facilities	
Airports (without restaurants)	4/passengers
Bar	3/patron
Bathhouses and swimming pools	10/person
Campgrounds (individual sewer outlets available)	100/site
Campgrounds (service building only)	75/site
Church (no food preparation and/or dishwashing)	5/seat
Church (food preparation and/or dishwashing)	7/seat
Country Club	100/member
Factories (domestic waste only)	30/employee
Hospital (domestic waste only)	200 bed
Motels	80/double bed, 40/single bed
Office building	30/employee
Rest Home	100/resident
Schools	100/resident
—Boarding	student
—Day, without gyms, cafeterias, or showers	15/student
Service Stations (domestic waste only)	10/vehicle served

Shopping Center	2/parking space
Store, Retail	30/employee
Theaters:	
— Movie	5/seat
— Drive-In	15/vehicle space
Warehouses	30/employee

1

Table 1. Residential Design Flow Rates per bedroom (gallons per day, gpd)¹

1 bedroom	150
2 bedrooms	280
3 bedrooms	390
4 bedrooms	470
5 bedrooms	550
6 bedrooms	630

¹ An unfinished basement is considered two (2) additional bedrooms.

² The design flow shall be increased by eighty (80) gpd for each additional bedroom over six (6).

2

Table 2. Non-Residential Wastewater Design Flow Rates¹

Facility	Unit	Flow (gallons/unit/day)
Airports	person	4
Apartment	bedroom	120
Automobile Service Station	vehicle served	10
Bars	seat	20
Bathhouses and swimming pools	person	10
Campgrounds (w/ toilets only)	person	25
Campgrounds (w/shower facility)	person	45
Church	person	4
Country Club	member	25
Day School, Office Building, Retail Store, Warehouse (no showers)	person	15
Hospital	bed	250
Industrial Building (sanitary waste only)	employee	20
Laundry (self-service)	machine	450
Mobile Home	bedroom	see table 1
Motel, Hotel, Resort	bedroom	140
Recreational Vehicle	each	100
Rest Home, Care Facility, Boarding School	bed	100
Restaurant	meal	10
Restaurant (kitchen waste only)	meal	6
Theater	seat	3

¹ Values shown in the above table are the typical flow rates from *Wastewater Engineering Treatment and Reuse*, Metcalf and Eddy, 2003.

1
2 *—Must consider flow into the soil absorption system from mobile homes where taps are
3 allowed to run to prevent freezing.
4

5 **Section 19. ~~Isolation.~~ Site Suitability.**
6

7 a. Small wastewater systems must be located where the surface drainage is sufficient
8 to allow proper operation of the small wastewater system. ~~Formerly Section 26,~~
9 ~~a, (3) Runoff.~~ Surface runoff shall be diverted around or away from all soil
10 absorption systems. Avoid depressions and bases of slopes and areas in the path
11 of runoff from roofs, patios, driveways, or other paved areas unless surface
12 drainage is provided. ~~Formerly Section 19, b~~ Absorption systems Small
13 wastewater systems shall not be located beneath buildings, parking lots,
14 roadways, driveways, irrigated landscaping, or other similarly compacted areas.
15

16 a. The isolation distances listed below apply when domestic wastewater is the
17 only wastewater present and the flow is less than 2000 gallons per day (gpd). The
18 minimum isolation distance (in feet) shown in Table 2 shall be maintained.
19

20 b. ~~Formerly Section 26, a, (1) Replacement Area.~~ An area shall be designated and
21 shown on the plan for future installation of a replacement absorption system.
22 The site must include area for both the proposed soil absorption system and a
23 future replacement soil absorption system. Both the proposed and replacement
24 soil absorption systems shall be sized to receive one-hundred (100%) percent of
25 the wastewater flow. If a trench system is used, the replacement ~~area~~ soil
26 absorption system may ~~include the area~~ be located between the trenches of the
27 proposed soil absorption system if sufficient spacing has been provided there is at
28 least nine (9) feet of spacing between trench sidewalls. ~~At least three feet of~~
29 ~~undisturbed soil shall remain between the existing and replacement trench.~~
30

31 c. ~~Formerly Section 20, c, (1) For single family homes,~~ For standard soil absorption
32 systems the effective suitable soil depth to bedrock or impermeable soil must be
33 shall extend at least four (4) feet from below the bottom of the soil absorption
34 system to any restrictive layer, fractured rock, or highly permeable material.
35

36 d. ~~Formerly Section 20, c, (1)~~ The depth to seasonally high groundwater must shall
37 be at least four (4) feet from below the bottom of the absorption system surface
38 stone and at least two feet from the natural ground surface for all treatment
39 systems except pressure distribution. ~~Formerly Section 20, c, (2)~~ For all systems
40 other than single family homes up to 2000 gallons per day, the depth to bedrock
41 or impermeable soil must be at least four feet from the natural ground surface.
42 The depth to seasonally high groundwater must be at least four feet from the
43 bottom of the absorption system stone and at least two feet from the natural
44 ground surface. Also, For pressure distribution systems, the depth to high
45 groundwater shall be a minimum of at least three (3) feet of unsaturated soil shall
46 be maintained between below the bottom of the absorption system stone surface
47 and the estimated groundwater mound imposed on the seasonally high
48 groundwater table. if the percolation rate of the soil is five (5) minutes per inch or
49 greater (5-60 mpi) The height of the groundwater mound may be estimated from

1 figures 1 through 6. The average daily flow should be used and may be estimated
2 as 0.6 times the flow determined from Table 1.

3
4 **e. Formerly Section 20, e Sloping ground installations. Slope**

- 5
6 (1) ~~Formerly Section 20, e, (1)~~ Absorption system shall not be located in an
7 area where the natural slope is steeper than stated below. The following
8 are ~~Table 3 shows~~ the maximum permissible slopes of the site on which an
9 absorption system may be constructed.

10 **Table 3. Slope and Percolation Rates for Absorption Systems**

Percolation Rate (minutes/inch)	Maximum Slope ¹
5	25%
6-45	20%
46-60	15%

¹Flatter slopes may be required where the effluent surfaces downslope.

- 11
12 (2) Serial distribution, with the use of drop boxes or approved fittings, is the
13 preferred installation method for sloping terrain. The bottom of individual
14 trenches shall be level and the trenches shall be constructed to follow the
15 contours of the land.
- 16
17 (3) The placement of multiple trenches, with each subsequent trench down
18 slope of the previous trench shall be avoided when the addition of effluent
19 to the soil absorption system trenches may lead to either an unstable slope
20 or seepage down slope.
- 21
22 (4) ~~Formerly Section 20, e, (2)~~ All absorption surfaces must be located at least
23 15 horizontal feet from the top of any break in slope ~~which that~~ exceeds
24 the maximum slope allowed.

25
26 **f. Soil Exploration Pit and Percolation Tests**

- 27
28 (1) ~~Formerly Section 20, a Soil Exploration. Soil exploration. A minimum of~~
29 ~~one soil exploration pit within the proposed soil absorption system~~
30 ~~location shall be excavated to a minimum depth of four (4) feet below the~~
31 ~~bottom of the proposed soil absorption system shall be made to provide~~
32 ~~information on subsurface conditions to evaluate the subsurface conditions.~~
- 33
34 (2) ~~Formerly Section 20, b, (1)~~ No less than three percolation tests shall be
35 ~~run in the proposed absorption system location. The percolation tests shall~~
36 ~~be performed in accordance with Appendix A. The type of soil~~
37 ~~encountered at the percolation test location shall be specified. The~~
38 ~~percolation test shall be approved by the small wastewater program~~
39 ~~administrator or another individual approved by the small wastewater~~
40 ~~program administrator. All percolation test data shall be provided to the~~
41 ~~county sanitarian small wastewater program administrator upon request~~
42 ~~with the small wastewater application as required in Section 8.~~

(a) An evaluation of the soil texture, in the proposed soil absorption system location, by a person experienced in soils classification, may be used as an additional tool to confirm the percolation rate but at least three percolation tests shall be performed.

g. Minimum horizontal setback distances (in feet) are as follows:

Table 4. Minimum Horizontal Setbacks for Domestic Wastewater in Feet ^{1, 2}

From	To Septic Tank Or Equivalent	To Absorption System
Wells (includes neighboring wells)	50	100
Public Water Supply Well	100	200
Property Lines	10	10
Foundation Wall (w/o drains)	5	10
Foundation Wall (with drains)	5	25
Potable Water Pipes	25	25
Septic Tank	N/A	10
Surface Water, Spring (including seasonal and intermittent)	50	50
Cisterns	25	25

¹ For disposal of non-domestic wastewater, the setback distances shall be determined by a hydrogeological study in accordance with Section 17(b) of Chapter 3, Wyoming Department of Environmental Quality (WYDEQ), Water Quality Division (WQD) Rules and Regulations, but shall not be less than the distances shown in Table 4.

² Small wastewater systems that discharge to the same aquifer that supplies a public water supply well and are located within Zone 1 or 2 (Attenuation) of the public water supply well, as determined by Wyoming Department of Environmental Quality Source Water Assessment Project (2004) or as established in Section 2 of the Wyoming Wellhead Protection Guidance Document (1997), shall provide additional treatment. These systems will be required to obtain an individual permit to construct and will require that a PE sign, stamp, and date the application, as stated in Section 2 of Chapter 25 WYDEQ, WQD rules and regulations. The additional treatment shall be in accordance with Chapter 3 Section 2(b)(ii), WYDEQ, WQD rules and regulations. The treatment system shall be designed to reduce the nitrates to less than 10 mg/L of NO₃- as N and provide 4-log removal of pathogens before the discharge leaves the property boundary of each small wastewater system.

Table 2

From	To Septic Tank OR Equivalent	To Absorption System
Wells (includes neighboring wells)	50	100

Property Lines	10	10
Building Foundation (without foundation drains)	5	10
Building Foundation (with foundation drains)	5	25
Potable Water Pipes	25	25
Septic Tank		10
Stream or Surface Body of Water (including seasonal and intermittent)	50	50

b. ~~Location. Absorption systems shall not be located beneath buildings, parking lots, roadways, or other similar compacted areas.~~

Section 20. Site Suitability.

a. ~~Soil Exploration. Soil exploration to a minimum depth of four feet below the bottom of the proposed absorption system shall be made to provide information on subsoil conditions.~~

b. ~~Soil Evaluation.~~

(1) ~~No less than three percolation tests shall be run in the proposed absorption system location. The percolation tests shall be performed in accordance with Appendix A. The type of soil encountered at the percolation test location shall be specified. The percolation tests shall be approved by the small wastewater program administrator or another individual approved by the small wastewater program administrator. All percolation test data shall be provided to the small wastewater program administrator upon request.~~

(2) ~~An evaluation of the soil texture by a person experienced in soils classification, may be used to estimate the percolation rate, but at least three percolation tests shall be performed.~~

c. ~~Groundwater Protection and Bedrock or Impermeable Soil Separation.~~

(1) ~~For single family homes, the depth to bedrock or impermeable soil must be at least four feet from the bottom of the absorption system stone and the natural ground surface. The depth to seasonally high groundwater must be at least four feet from the bottom of the absorption system stone and at least two feet from the natural ground surface.~~

(2) ~~For all systems other than single family homes up to 2000 gallons per day, the depth to bedrock or impermeable soil must be at least four feet from the natural ground surface. The depth to seasonally high groundwater must be at least four feet from the bottom of the absorption system stone and at~~

1 least two feet from the natural ground surface. Also, a minimum of three
2 feet of unsaturated soil shall be maintained between the bottom of the
3 absorption system stone and the estimated groundwater mound imposed
4 on the seasonally high groundwater table. The height of the groundwater
5 mound may be estimated from Figures 1 through 6. The average daily
6 flow should be used and may be estimated as 0.6 times the flow
7 determined from Table 1.

8
9 d. Excessively permeable soils. Soils having a percolation rate of one minute per
10 inch or less are unsuitable for subsurface sewage disposal. The soils may be used
11 if a six inch layer of soil having a percolation rate of five minutes per inch or
12 greater is placed between the leach system stone and the existing soil. The soil
13 absorption system shall be sized based on the percolation rate of the fill material.

14
15 e. Sloping ground installations.

16
17 (1) Absorption systems shall not be located in an area where the natural slope
18 is steeper than stated below. The following are the maximum permissible
19 slopes on which an absorption system may be constructed.

20 Percolation Rate	
21 (Min/inch)	22 Maximum Slope*
23 Faster than 5	24 25%
25 6-45	26 20%
27 46-60	28 15%

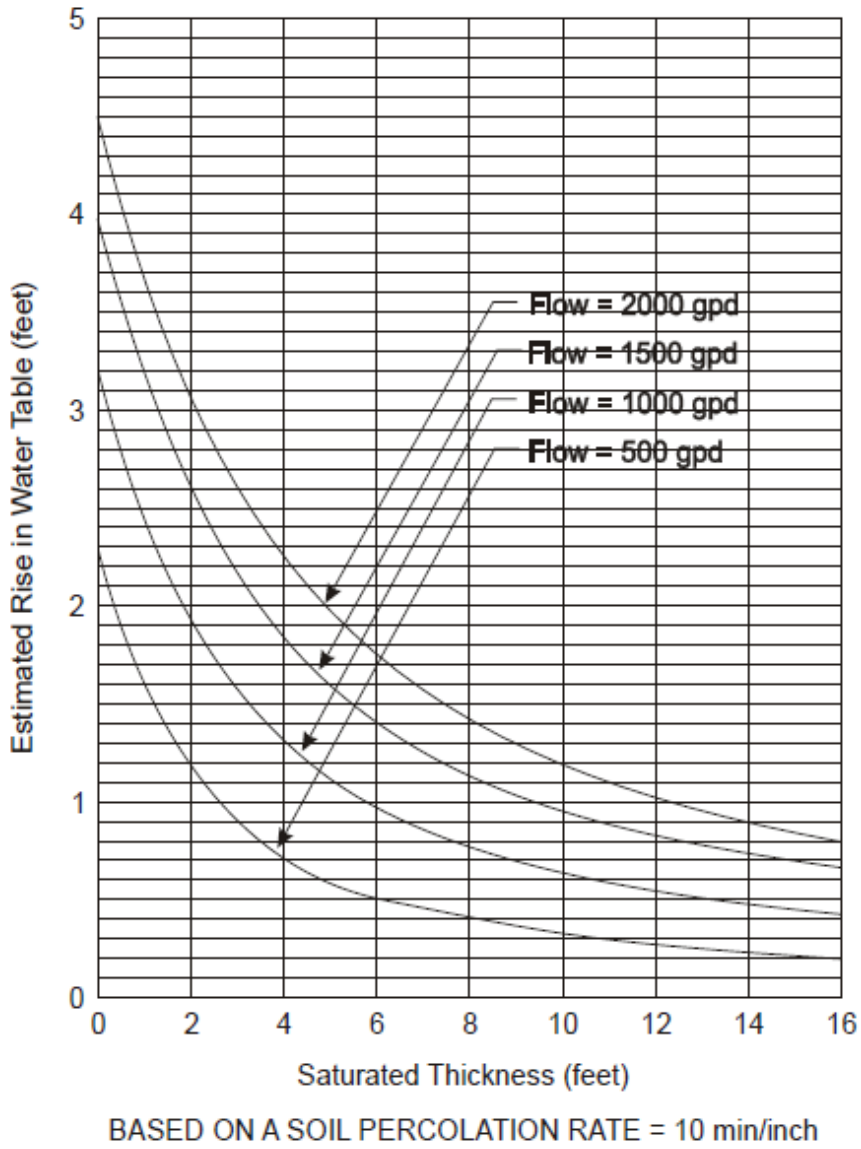
29
30 *Flatter Slopes may be required where the effluent may surface downslope

31
32 (2) All absorption systems must be located at least 15 feet from the top of any
33 break in slope which exceeds the maximum allowed in subsection 1
above.

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Figure 1

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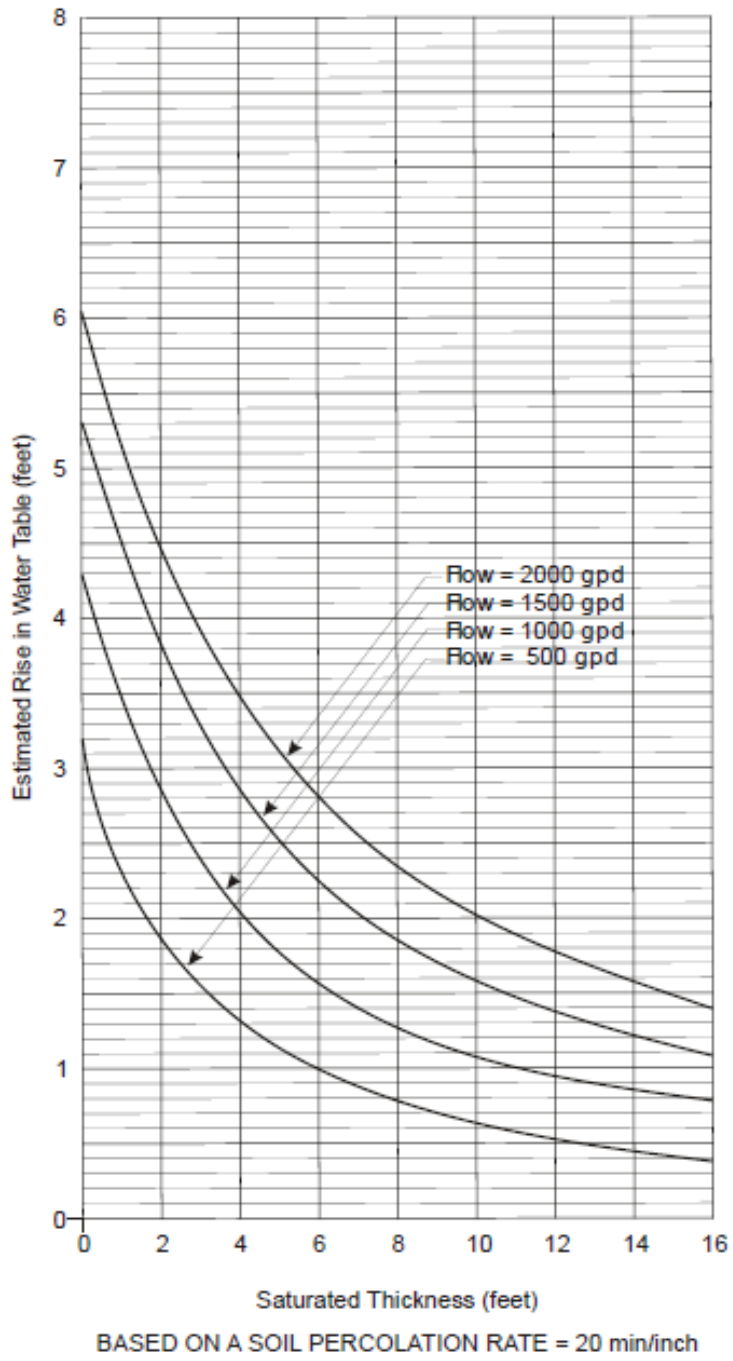
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Figure 2

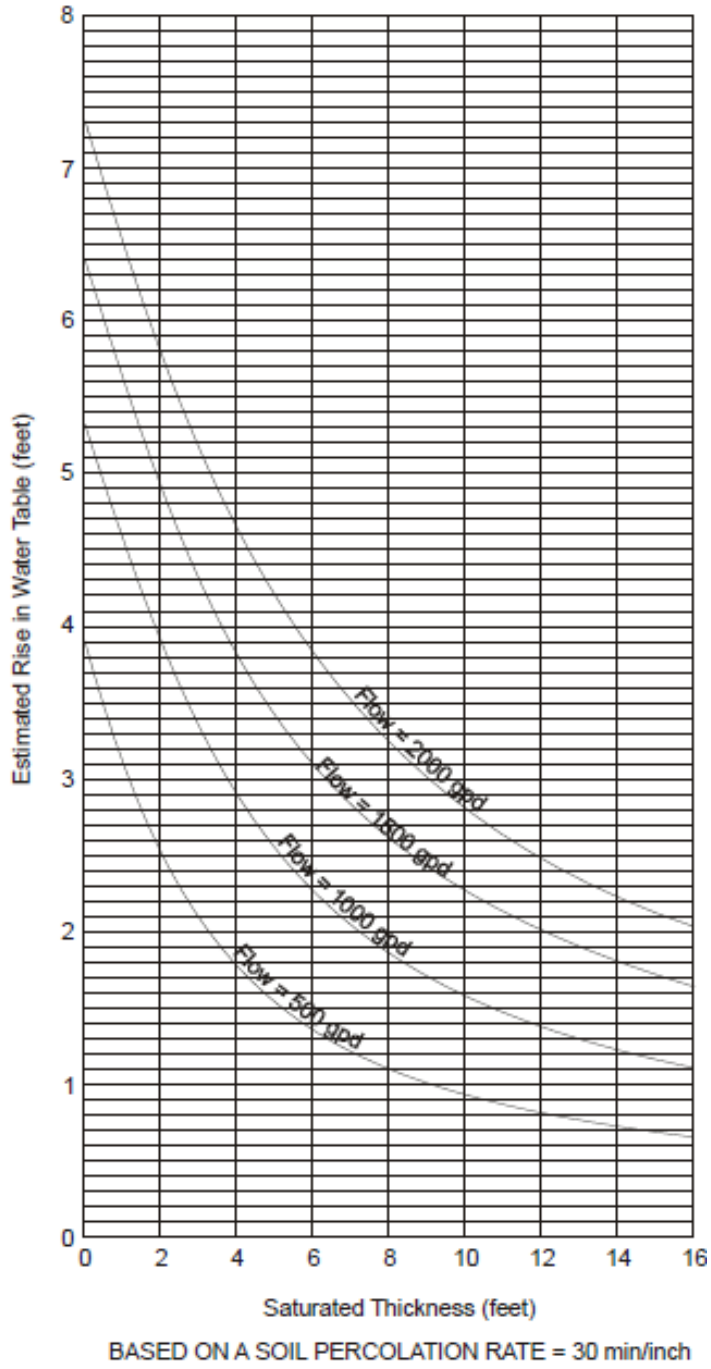
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Figure 3

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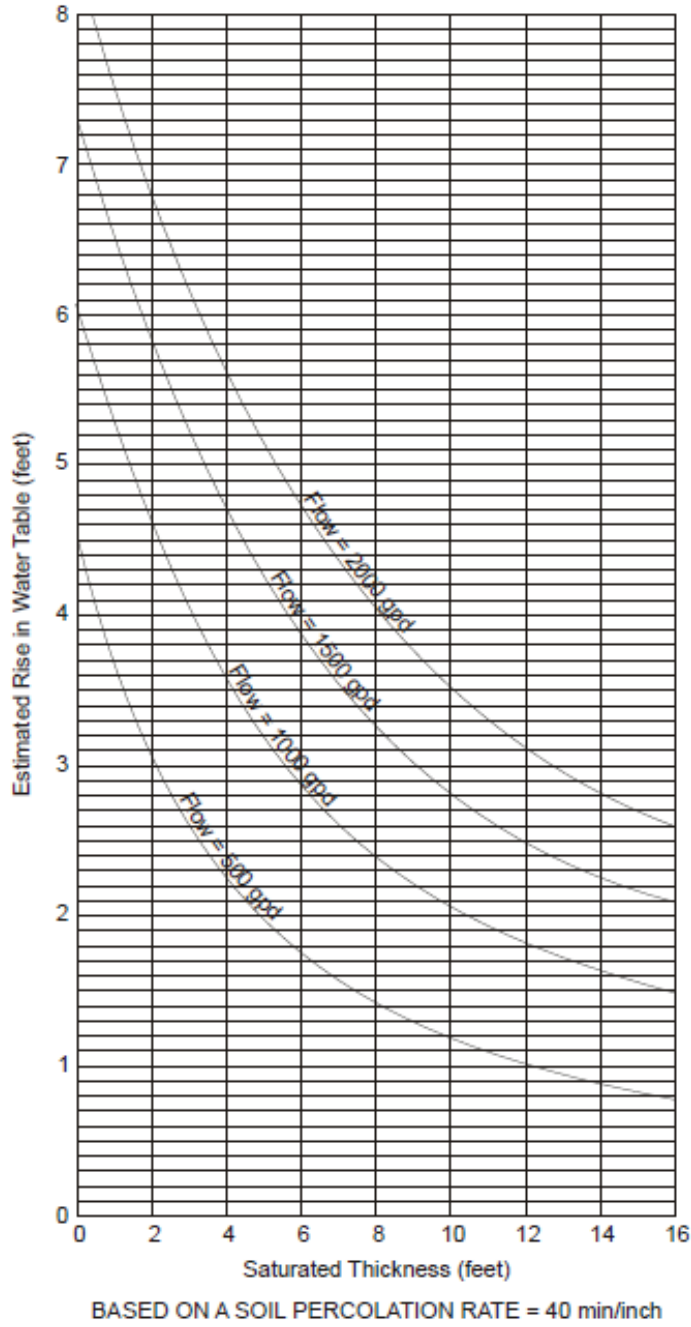


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Figure 4

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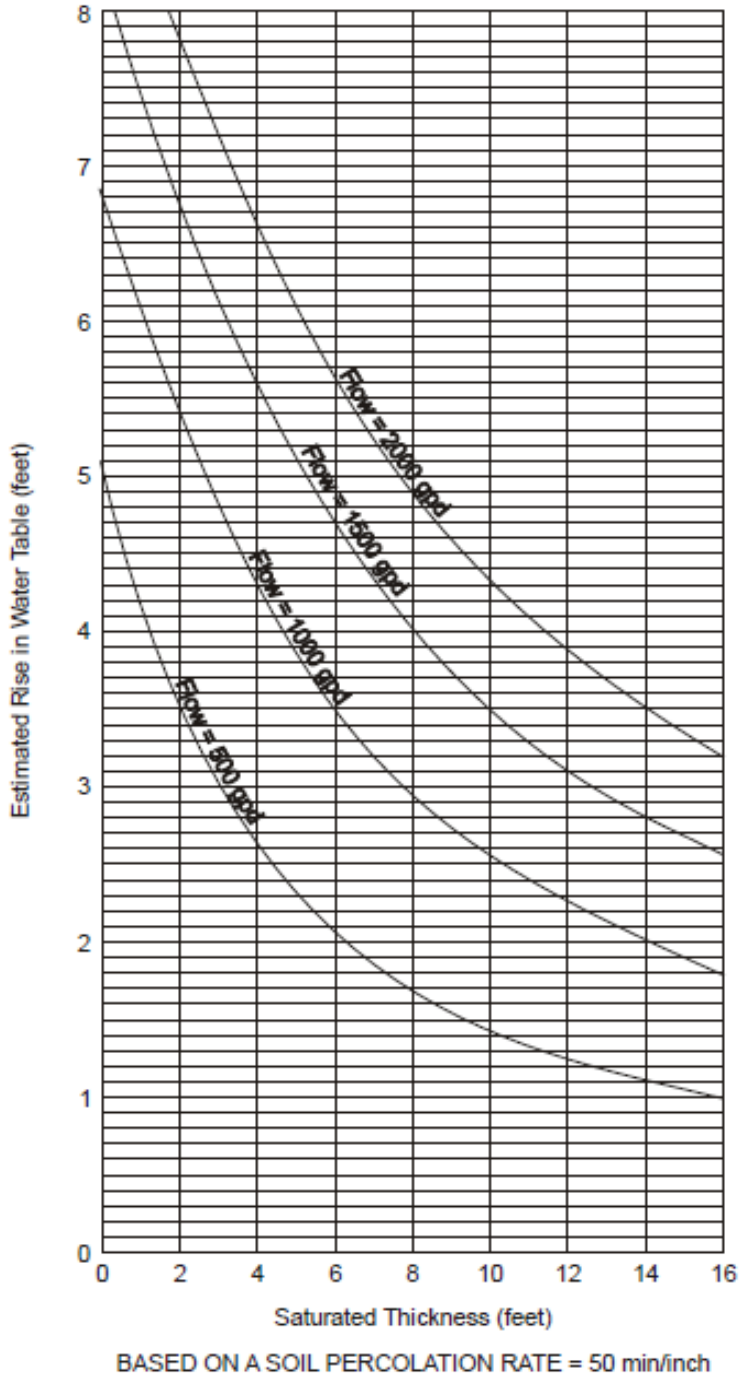
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Figure 5

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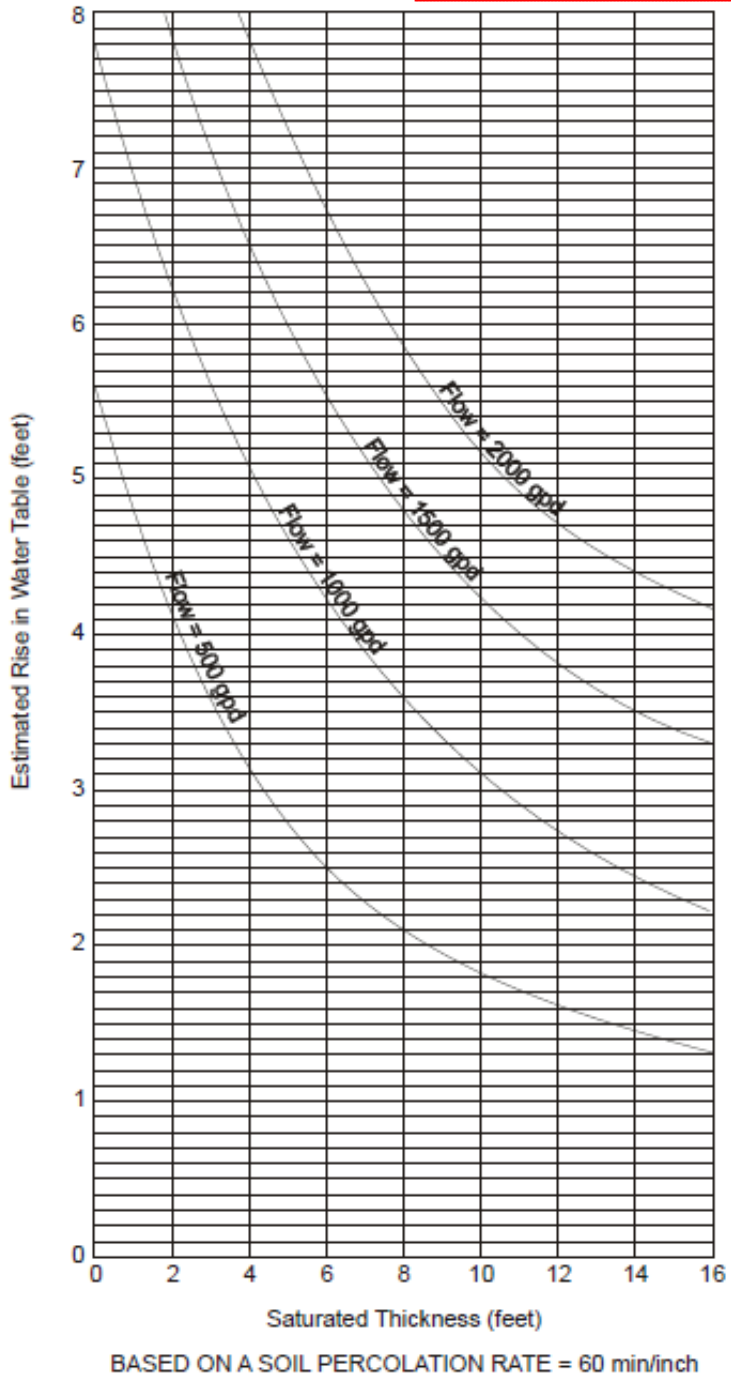


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Figure 6

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1 **Section 20-Section 21. Building Sewer Pipes.**

2
3 a. ~~Building drain pipe. All building drain pipe shall comply with the standards published~~
4 ~~in the Uniform Plumbing Code 1982 or other locally approved, nationally recognized~~
5 ~~plumbing code.~~

6
7 b. ~~Building sewer pipe. All building sewers shall be installed in accordance with the~~
8 ~~Uniform Plumbing code 1982~~ **2012 International Plumbing Code (IPC).** ~~or other locally~~
9 ~~approved nationally recognized plumbing code.~~ In the absence of an approved Plumbing
10 code, the building sewer shall comply with the following:

11
12 a. ~~Formerly Section 21, (b) (1) Material. Suitable building sewer pipe materials are~~
13 ~~Ppolyvinyl Chloride (PVC), or Acrylonitrile Bbutadiene-Sstyrene (ABS), cast~~
14 ~~or ductile iron, portland cement, or vitrified clay pipe shall be used for sewer~~
15 ~~pipes. The septic tank inlet and outlet pipes shall be cast or ductile iron or~~
16 ~~schedule 40 PVC or ABS pipe and shall span the excavation for the septic tank~~
17 ~~and/or dosing chamber. American Society for Testing and Materials (ASTM) D-~~
18 ~~3034 Standard Dimension Ratio (SDR) 35 plastic pipe may be used if the void at~~
19 ~~the tanks side is filled with material that is granular, clean, and compacted—extend~~
20 ~~past the septic tank excavation to solid ground.~~

21
22 b. ~~Formerly Section 21, (b) (2) Size. Building sewer pipes shall not be smaller than~~
23 ~~four inches in diameter. They shall be sized to handle the peak hourly flow from~~
24 ~~the building. Building sewer pipes shall be sized to handle the peak hourly flow~~
25 ~~from the building and shall not be smaller than four (4) inches in diameter. When~~
26 ~~two different sizes or types of sewer pipes are to be connected, a proper type of~~
27 ~~fitting or conversion adapter shall be used.~~

28
29 c. Sewer pipe shall not decrease in size flowing downstream.

30
31 d. ~~Formerly Section 21, (b) (3) Slope. Building sewer pipes shall should be laid at a~~
32 ~~minimum standard slope of 1/4 inch per foot, but and shall not be flatter than 1/8~~
33 ~~inch per foot.~~

34
35 ~~Formerly Section 21, (b) (4) Alignment. Building sewer pipes should be laid in a~~
36 ~~straight line. Any single change or cumulative change of alignment of 22 1/2~~
37 ~~degrees or greater shall be served by a cleanout.~~

38
39 e. ~~Formerly Section 21, (b) (5) Cleanouts. Cleanouts shall be provided between the~~
40 ~~structure and the tank, at branch connections, every change in alignment, and at~~
41 ~~least every 100 feet in straight runs maximum.~~

42
43 f. ~~Formerly Section 21, (b) (6) Backfilling. All sewer piping shall be laid on a firm~~
44 ~~bed throughout its entire length. It shall be protected from damage due to rocks,~~
45 ~~hard lumps of soil, debris and the like.~~

46
47 g. ~~Formerly Section 21, (b) (6) Special care shall be utilized used to prevent lateral~~
48 ~~movement or evulation deformation during backfilling. The backfill material~~

shall be compacted to a density at least equivalent to the trench walls. Backfill over the pipe shall be of sufficient depth to protect the pipe from expected traffic loads and the wastewater from freezing.

Section 21-Section 22. Soil Absorption System Sizing.

- a. ~~Formerly Section 22 a.~~ Trench, bed and seepage pit systems. The total infiltrative infiltration surface area of a soil absorption system shall be calculated by dividing the design flow rates (gpd) from Table 1 or Table 2 by the loading rate (gpd/ft²) found in Table 5 based on the flow rate as determined by the criteria stated in Section 18 and with the allowable loading rate as determined by using Figure 7. The total infiltrative surface is the sum of the sidewall and the bottom areas of the absorption system below the invert of the distribution pipe.

Table 5. Rates of Wastewater Application for Soil Absorption System Areas

Percolation Rate (mpi)	Loading Rate (gpd/ft ²)	Percolation Rate (mpi)	Loading Rate (gpd/ft ²)
5	0.80	21	0.45
6	0.75	22	0.44
7	0.71	23-24	0.43
8	0.68	25	0.42
9	0.65	26-27	0.41
10	0.62	28-29	0.40
11	0.60	30-31	0.39
12	0.58	32-33	0.38
13	0.56	34-35	0.37
14	0.54	36-37	0.36
15	0.52	38-40	0.35
16	0.50	41-43	0.34
17	0.49	44-46	0.33
18	0.48	47-50	0.32
19	0.47	51-55	0.31
20	0.46	56-60	0.30

- b. ~~Formerly Section 22 b.~~ Soils with a percolation rate of 60 minutes per inch or greater are unacceptable for standard absorption systems. The total infiltration area shall be defined as follows:

- (1) For standard trenches the total infiltration area shall be calculated based on the following formula:

$$A = L(W + 2S)$$

A = Total Infiltration area

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L = Total length of trench

W = Bottom width

S = Sidewall height of 12 inches or less

- (a) The sidewall height is the depth below the flowline of the pipe to the bottom of the trench.
- (b) The maximum credit for sidewall height shall not exceed twelve (12) inches even if the actual sidewall height exceeds twelve inches.

- (2) For Chamber trenches, the total infiltration area shall be calculated based on the following formula:

$$A = L(E + 2S)$$

A = Total infiltration area

L = Total length of trench

E = Effective bottom width (Multiply width of the chamber by factor of 1.43 to get effective bottom width)

S = Sidewall height of 12 inches or less

- (a) The factor of 1.43 incorporates a thirty percent (30%) reduction of the bottom area.
- (b) The maximum credit for sidewall height shall not exceed twelve (12) inches even if the actual sidewall height exceeds twelve (12) inches.
- (c) The sidewall height is the height of the slotted sidewall of the chamber or depth below the flow line of the inlet pipe, whichever is less.
- (d) The total length of the trench is the number of chambers in a row multiplied by the length of one piece of chamber.

- (3) For standard bed systems, the total infiltration area shall be calculated based on the following formula:

$$A = LW$$

A = Total infiltration area

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$L =$ Total length of bed

$W =$ Width of the bed

- (a) The sidewall credit shall not be used in calculating the total infiltration area for a bed system.

- (4) For Chamber bed systems, the total infiltration area shall be calculated based on the following formula:

$$A = L(E \times R)$$

$A =$ Total infiltration area

$L =$ Total length of bed

$E =$ Effective bottom width of the chamber (Multiply width of the chamber by factor of 1.43 to get effective bottom width)

$R =$ Number of chamber rows (Multiply effective bottom width of chamber by number of chamber rows to get effective bottom width of bed.)

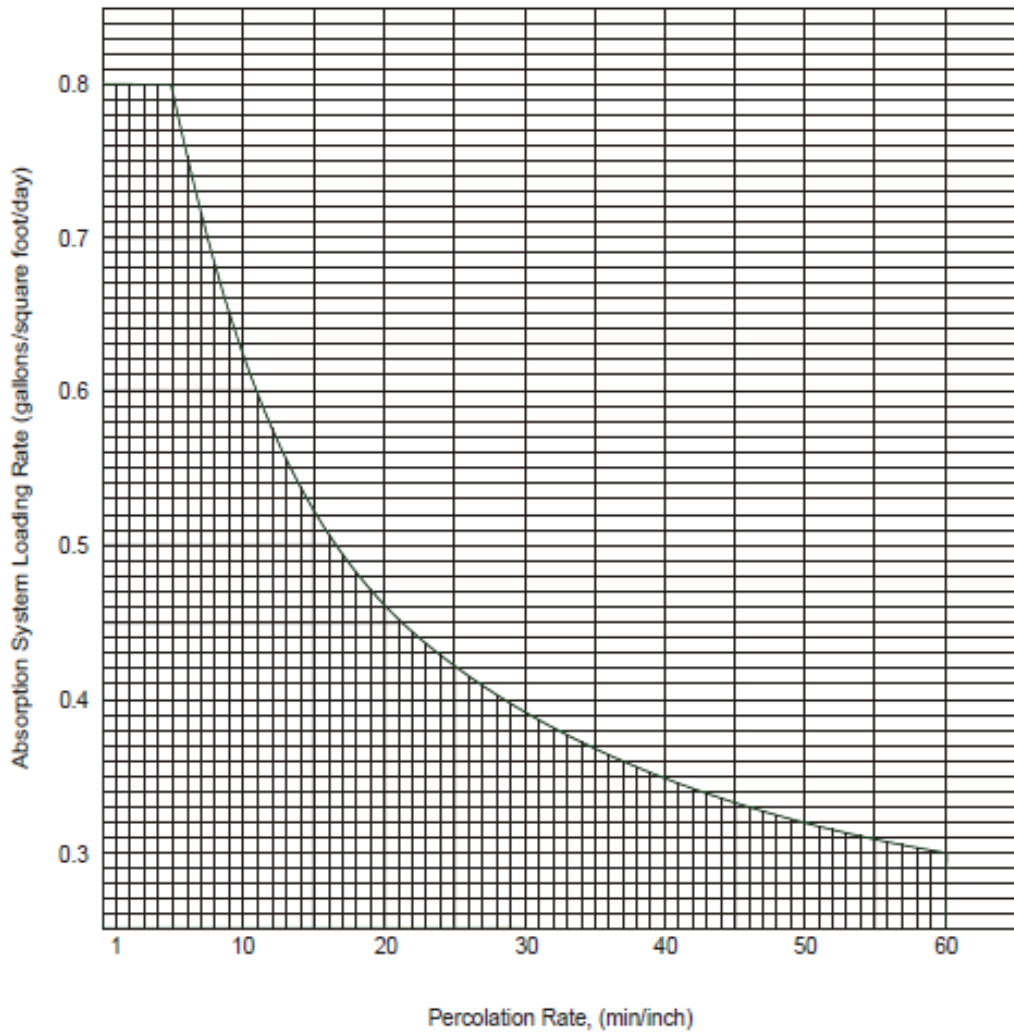
- (a) The factor of 1.43 incorporates a thirty percent (30%) reduction for the bottom area.
- (b) The total length is the number of chambers in a row multiplied by the length of one piece of chamber.

- c. ~~Formerly Section 20 d Excessively permeable soils.~~ Coarse sand or soils having a percolation rate of less than one (1) minute per inch (mpi) or less are unsuitable for subsurface effluent sewage disposal. These soils may be used if a six-inch one (1) foot layer of soil fine sand or loamy sand having a percolation rate of five minutes per inch or greater is placed between the leach system stone and the existing soil below the constructed soil absorption system. The soil absorption system shall be sized based on the percolation rate of the fill material.

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Figure 7

Comment [JW7]: Remove



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1 **Section 22-Section 23. Pretreatment, Septic Tank and Other Treatment Tanks.**

2
3 a. Septic Tanks.

- 4
5 (1) ~~Formerly Section 23, a, (1) Material.~~ The s Septic tanks shall be
6 fabricated or constructed of durable concrete, fiberglass, thermoplastic or
7 an approved material. ~~not subject to excessive corrosion or decay and~~
8 ~~structurally capable of supporting the loads to which it will be subjected.~~
9 The t Tanks shall be water-tight and fabricated to constitute an individual
10 structure, and shall be designed and constructed to withstand anticipated
11 loads.
12
- 13 (2) ~~Formerly Section 23, a, (5) Installation~~ The septic tank shall be placed on
14 a level grade and a firm bedding to prevent settling. Where rock or other
15 undesirable protruding obstructions are encountered, the opening for the
16 septic tank shall be over excavated, as needed, and backfilled with, sand,
17 crushed stone, or gravel to the proper grade.
18
- 19 (a) Septic tanks shall not be buried deeper than the tank
20 manufacturer's maximum designed depth for the tank. The
21 minimum depth of the cover over the top of the tank is six (6)
22 inches.
23
- 24 (b) Backfill around and over the septic tank shall be placed in such a
25 manner as to prevent undue strain or damage to the tank or
26 connected pipes.
27
- 28 (c) Septic tanks shall not be placed in areas subject to vehicular traffic
29 unless engineered for the anticipated load.
30
- 31 (3) ~~Formerly Section 23,a,(2)~~ Size.
32
- 33 (a) ~~Residential units serving no more than 4 families.~~ The
34 Minimum liquid volume of a septic tanks shall be 1000 gallons
35 for residences through four bedroom capacity up to a four (4)
36 bedroom capacity. Additional capacity of 250150 gallons per
37 bedroom shall be provided for each bedroom over four (4).
38
- 39 (b) ~~Commercial/Industrial Units.~~ Septic tanks for high strength
40 wastewater or non-residential units shall have a minimum effective
41 liquid capacity sufficient to provide at least 36 48 hour retention at
42 peak flow or 1,000 gallons, whichever is greater.
43
- 44 (4) ~~Formerly Section 23,a,(3)~~ Configuration.

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- (a) ~~Formerly Section 23, a, (3), (a)~~ The Single compartment septic tanks shall have a length to width ratio of no less than two (2) to one (1), or be so partitioned as to provide protection protect against short circuiting of flow. The inlet pipe shall be at least three inches higher than the outlet pipe.
- (b) ~~Formerly Section 23, a, (3), (b)~~ If the septic tank is partitioned, For septic tanks with two (2) compartments or more the volume of the first compartment must be at least 50 percent of the total required volume, the inlet compartment shall not be less than one-half (1/2) of the total capacity of the tank.
- (c) ~~Formerly Section 23, a, (3), (a)~~ The water depth shall be no less than four feet nor greater than six feet. The liquid depth shall not be less than three (3) feet nor greater than six (6) feet.
- (d) ~~Formerly Section 23, a, (3), (b)~~ The partition shall allow venting of the tank. The tank partition shall allow the venting of gases between compartments and out through the vent stack on the plumbing system of the house.

~~Formerly Section 23, a, (3), (e)~~ The outlet elevation shall be designed to provide a distance of 20 percent of the liquid depth between the top of the liquid and the bottom of the septic tank cover for scum storage.
- (e) ~~Formerly Section 23, a, (3), (a)~~ The septic tank inlet and outlet on all tanks or tank compartments shall be provided with a open-ended sanitary tees or baffles. The outlet shall be provided with a tee or baffle that extends into the middle third of the water depth to prevent floating or settled solids from carrying over into the disposal field or bed made of approved material constructed to distribute flow and retain scum in the tank or compartments.
 - (i) The tees or baffles shall extend above the liquid level a minimum distance of five (5) inches.
 - (ii) The inlet tees or baffles shall extend below the liquid level at least eight (8) inches but no more than 40% of the liquid level. The outlet tees or baffles shall extend below the liquid level at least ten (10) inches but no more than 45% of the liquid level.

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- (iii) A minimum of one (1) inch of clear space shall be provided over the top of the baffles or tees for venting.
 - (iv) ~~Formerly Section 23,a,(3),(a)~~ The inlet pipe shall be at least ~~three~~ two (2) inches higher than the outlet pipe. ~~Formerly Section 23,a,(3)(e)~~ The outlet elevation shall be designed to provide a minimum distance of nine (9) inches or twenty (20) percent of the liquid depth between the top of the liquid and the bottom of the septic tank cover for scum storage and the venting of gases.
- (5) If additional septic tank capacity over 1,000 gallons is needed, it may be obtained by joining tanks in series provided the following requirements are met:
- (a) The inlet of each successive tank shall be at least two (2) inches lower than the outlet of the preceding tank, and shall have no tee or baffle except for the inlet to the first tank and the outlet for the last tank.
 - (b) The first tank or the first compartment of the first tank shall be equal to fifty percent (50%) or larger of the total septic tank system volume.
- (6) ~~Formerly Section 23,(a)(4) Access. A manway~~ An access opening shall be provided to each compartment of the septic tank for inspection and cleaning. ~~A cleanout having a minimum diameter of six inches shall be provided in each tank compartment and shall extend to the ground surface and be capped.~~
- (a) ~~Formerly Section 23,a,(4)~~ The ~~manway~~ access opening(s) in the cover/lid of the tank shall have a minimum opening diameter of twenty (20) inches in the least dimension. Both inlet and outlet devices shall be accessible.
 - (b) The riser from the access opening shall terminate at a maximum of six (6) inches below the ground surface. Riser covers terminating above grade shall have an approved locking device.
- (7) Land application of domestic septage in remote areas that meet the conditions found in Chapter 25 Appendix B, WYDEQ, WQD rules and regulations will be permitted as a permit by rule. The County Sanitarian may issue individual permits with approval of WYDEQ.

Comment [JW8]: Can delegated county permit? May be this is not applicable and if it comes up; DEQ can permit. Appendix B not added.....DEQ will clarify

- 1
2 (8) An effluent filter with an opening of 1/8-inch or smaller shall be provided
3 on the outlet of a septic tank or other tank that precedes a small diameter
4 pressure distribution system.

5 **Section 24. Dosing Systems Following the Septic Tank.**

6 a. Pumping system for flow up to 2000 gallons per day.

7 **b. Dosing Tanks**

- 8
9 (1) ~~Formerly Section 24,a,(1) Pump tank.~~ Where only one pump is provided,
10 the pump tank shall have the minimum volume as required in Table 3
11 below. The Dosing tanks shall comply with the ~~meet the same~~ material
12 and ~~installation~~ requirements for as septic tanks. The pump tank shall be
13 vented. The vent shall have a downward turn that terminates at least 12
14 inches above ground and shall be provided with a screen. The pump tank
15 shall have an access manhole provided with an opening at least 20 inches
16 in least dimension. Dosing tanks shall have a minimum 20-inch diameter
17 access opening and it shall have a riser from the access opening to the
18 ground surface. The following table shall be used to calculate the size of
19 the dosing tank:

20 Table 3
21 Pump Tank

22 Volume (gallons) Required Between

AVERAGE FLOWS (gallons per day)	"OFF" & "ON" SWITCH	"ON" & "ALARM" SWITCH	"ALARM" SWITCH & TANK INLET	PUMP CAPACITY (gpm)
0-499	100	50	200	10
500-999	200	100	400	20
1000-1499	300	100	600	30
1500-2000	400	100	800	40

24 **Table 6. Dosing Tank Volume (gallons)**

Average Design Flows (gpd)	0-499	500-999	1000-1499	1500-2000
Between Pump "off" and Tank Inlet	350	700	1000	1300
Between Tank Inlet and Alarm Switch	200	400	600	800
Between Alarm switch and Pump "on"	50	100	100	100
Between Pump "on" and Pump "off"	100	200	300	400
Recommended Pump Capacity (gpm)	10	20	30	40

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(2) ~~Formerly Section 24 a,(2) Pumps.~~

(a) ~~Formerly Section 24 a,(2),(a) Sizing.~~ The pump shall have a flow rate of at least ten gallons per minute when installed. The pressure loss (feet of head) of the system can be calculated by adding: the elevation difference between the discharge outlet at the soil absorption system and the low water level in the pump tank; and the friction losses incurred in the pressure transfer pipe and distribution piping. Table 4 may be used to estimate the head loss of the pipe when pumping ten gallons per minute and using plastic pipe.

Table 4

Head Loss
(for 10 gallons per minute)

<u>Diameter (inches)</u>	<u>Head Loss per 100 feet of pipe (in feet)</u>
1	12
1-1/4	4
1-1/2	2

(b) ~~Installation/removal.~~ The pump shall be installed in the tank so that it can be removed without entering the tank. This can be accomplished by (1) looping the pipe up near the access manhole with a pipe union provided at the top of the loop, (2) using a quick disconnect sliding coupler, or (3) using a pitless adapter. Chains, cable, or piping can be used to lift the pump out of the tank if designed for this loading. ~~Setting the pump on an 8-inch block minimizes the transfer of any solids that may enter the pump tank.~~

~~(c) Formerly Section 24 a,(2),(c) Electrical controls.~~ The electrical control system for the wastewater pump shall consist of a “pump off” switch, a “pump on” switch, and a “high water alarm” switch which shall be located to provide the necessary volumes as stated in Table 3. **High water alarms shall be provided for all tanks that use pumps or siphons. The alarm device shall be an audible alarm or an indoor illuminated alarm or both.** All electrical controls (pump electrical cord, switches, etc.) shall comply with the National Electrical Code 1981, Class 1, Group D, Division 1 locations. All openings around the cables or cords entering the tank shall be sealed.

(3) ~~Formerly Section 24, a, (3) Pressure Transfer Pipe.~~ The pressure transfer piping between the tank and the leach system shall be designed to drain after each pump cycle to prevent freezing. This can be accomplished by

1 either eliminating the check valve at the pump or by providing a weep
2 hole in the pipe in the tank. If the pipe is long, the tank shall be enlarged
3 by the volume of the pipe to accommodate the volume of liquid drained
4 from the pipe. The minimum effluent level shall achieve complete
5 submergence of the pump.
6

- 7 (4) Dosed systems using a siphon shall have a dose counter installed to check
8 for continued function of the siphon.
9

10 ~~b. Syphons. Where automatic syphons are used, they shall be designed to empty the~~
11 ~~syphon tank in less than 20 minutes. The syphon tank shall be sized in~~
12 ~~accordance with subsection 24.a.1. above.~~
13

14 c. ~~Formerly Section 27~~ Holding Tanks

- 15 (1) Holding tanks shall meet the same material requirements as septic tanks.
16 Holding tanks shall have a twenty (20)-inch minimum diameter access
17 opening. A riser shall be brought to the ground surface from the access
18 opening.
19
20 (2) ~~Formerly Section 27,a, Uses.~~ Holding tanks shall not be used for residential
21 systems when other alternative systems are available, except on a
22 temporary, seasonal or intermittent basis, or when used to correct a failed
23 subsurface disposal soil absorption system when other alternatives are
24 unavailable. ~~Use of holding tanks for new construction is prohibited.~~
25
26 (3) ~~Formerly Section 27,e, Location.~~ The location and construction of
27 holding tanks shall meet the requirements for septic tanks in Sections 19.a
28 and Section 23.a.1 respectively. Holding tanks must be located in an area
29 readily accessible to the pump truck and where the tank itself will not float
30 due to a high groundwater. If seasonal high groundwater may be present,
31 the tank shall be properly anchored.
32
33 (4) ~~Formerly Section 27,a, Where holding tanks are allowed, they shall be~~
34 ~~sized on the basis of seven days storage at the flow rate determined from~~
35 ~~Table 1. The minimum liquid volume shall be the greater of 1,000 gallons~~
36 ~~or seven (7) days storage based upon flow rate determined from Section~~
37 ~~18.~~
38 (5) ~~Formerly Section 27,e, Alarm.~~ All holding tanks shall be equipped with a
39 high water level alarm. The device shall be an audible alarm or an indoor
40 illuminated alarm or both. The device shall be installed so the alarm is
41 triggered when the water alarm level reaches shall be placed at 3/4 of the
42 depth of the tank capacity.
43

44 d. Grease Interceptors

- 45 (1) A commercial or institutional food preparation facility with a waste stream
46 containing fat, oil, and grease (FOG) in excess of 25 mg/L shall install an
47 exterior grease interceptor or a device approved by the county. Facilities
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that typically have waste streams high in FOG are, but not limited to, restaurants, cafeterias, slaughterhouses, and institutional kitchens.

- (2) Waste streams high in FOG shall be plumbed separately and directly to a grease interceptor prior to the waste treatment process.
- (3) Waste streams from sanitary facilities such as bathrooms, toilets, urinals, or other similar fixtures shall not be discharged into the grease interceptor. These sources must be connected at least four to six (4-6) feet downstream of the grease interceptor's discharge. The design shall prevent any backflow from the sanitary sources into the grease interceptor.
- (4) Only one source facility per grease interceptor shall be allowed.
- (5) Grease interceptors shall be located so that they are easily accessible for inspection, cleaning, and removal of the collected wastes. The interceptor shall not be closer than fifteen (15) feet from the last discharging fixture and no further away than thirty-five (35) feet.
- (6) Grease interceptors shall have at least two (2) compartments with a 20-inch minimum diameter access opening for each compartment for cleanout. Each access opening shall have a riser brought to the surface and have a sealed lid that is rated for any anticipated load. There shall be a means provided to sample the effluent.
- (7) There shall be no internal cleanout tees or bypasses.
- (8) The inlet and outlet of the grease interceptor shall be vented. The vent pipe shall be at least two (2) inches in diameter. The inlet and outlet vents shall not be interconnected.
- (9) The outlet pipe invert shall be no more than two (2) inches lower than the inlet invert.
- (10) The dividing wall between compartments shall be the same height as the other walls and the cover should contact the top of the dividing wall. If the partition/dividing wall does not contact the cover, the outlet tee or baffle shall extend below the liquid level, 40-50% of the total liquid depth.
- (11) The effluent from each compartment shall be drawn from the bottom of a riser pipe that terminates at least eighteen (18) inches below the inlet pipe invert of that same compartment.
- (12) Grease interceptors shall be accessible during normal business hours without interrupting normal business operations.
- (13) Grease interceptors shall be installed in accordance with the manufacturer's instructions and applicable requirements of this section. A

copy of the manufacturer's instructions shall be submitted with every permit to construct application submitted to the county.

(14) Grease interceptors shall be sized according to the following:

Kitchens (grease, garbage)

Number of Meals per peak hour	X	Waste Flow rate*	X	Retention time**	X	Storage factor***	=	Interceptor size (liquid capacity)
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*Waste flow rate –see Table 2.

**Retention times

Kitchen waste:	
Dishwasher and/or disposal	2.5 hours
Single Service kitchen:	
Single serving with disposal	1.5 hours

***Storage factors

Fully equipped commercial kitchen	8 hr. operation: 1 16 hr. operation: 2 24 hr. operation: 3
Single Service Kitchen	1.5

(a) The minimum interceptor size (liquid capacity) shall be 750 gallons.

e. Other Interceptors

(1) Interceptors are required for oil, grease, sand, and other substances harmful or hazardous to the building drainage system, or the small wastewater treatment system.

(a) Laundries

(i) Commercial laundries, laundromats, and dry-cleaners shall be equipped with an interceptor in order to reduce the quantity of lint and silt that enter the collection system.

(ii) The system must be of adequate size and design to allow for cooldown of wastewater so that separation can be more readily achieved.

(iii) The interceptor shall be installed with a wire basket or similar device. The wire basket or similar device shall be removable for cleaning and shall prevent passage into the drainage system of solids ½ inch (12.7 mm) or larger in

size, such as string, rags, buttons, or other materials which are detrimental to the waste treatment system.

(iv) Sizing must be in accordance with the following formula:

Laundries (grease, lint, silt)

Total gallons per cycle	X	Cycles per hour	X	Retention time*	X	Storage factor**	=	Interceptor
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*Retention Times

Institutional laundries	2.5 hours
Standard commercial laundry	2.0 hours
Light commercial laundry	1.5 hours

**Storage factors

8 hours of operation	1.0
12 or more hours of operation	1.5

(b) Car Washes

- (i) Where automobiles are washed (including detail shops using hand wash practices), separators shall have a minimum capacity of 1000 gallons for the first bay, with an additional 500 gallons of capacity for every other bay.
- (ii) Additionally, wash racks must be constructed to eliminate or minimize the impact of run-off from rain/storm events. Minimum requirements are roofed structures with at least two walls and appropriate grading to prevent stormwater infiltration into the sanitary sewer.
- (iii) An effluent sampling point is required.

f. Abandonment of Septic and Holding Tanks

The following is the procedure to abandon septic tanks and holding tanks when the system is upgraded, equipment replacement is necessary, or central sewer lines are made available.

- (1) The abandoned tank should be pumped and the septage hauled to a licensed facility approved to receive the waste or the septage pumped into the newly constructed septic or holding tank. Discharging to a central sewer requires coordination with, and the approval of, the owner/operator of the sewer system.

- 1 (2) Once the abandoned tank is empty, it should be removed and the
2 excavation backfilled. As an alternative to removing the tank, the access
3 covers can be removed; the bottom drilled or broken up sufficient to drain;
4 and the tank filled with native soil, pit run, or sand.
5
6 (3) If the abandoned tank is part of a Class V UIC facility, the abandonment
7 must also be in compliance with Wyoming Department of Environmental
8 Quality Water Quality Division Rules and Regulations, Chapter 27,
9 Section 19.

10 **Section 23 ~~Section 25.~~ Effluent Distribution Boxes.**

11
12
13 Distribution boxes and flow divider tees are suitable for level or nearly level ground and
14 are installed before the soil absorption system with the goal of splitting flows equally between
15 soil absorption system laterals. Drop boxes are suitable for sloping ground and are installed to
16 achieve serial loading.
17

18 a. **Distribution Boxes**

- 19
20 (1) The distribution box shall be installed on a level, stable base to prevent
21 tilting or settling, and to minimize movement from frost heave.
22
23 (2) ~~Formerly Section 25, a General. When a~~ The distribution box is used it
24 shall be provided with a means of access and shall be installed between
25 the tank and disposal area.
26
27 (3) ~~Formerly Section 25, a~~ Distribution boxes shall be watertight and
28 constructed of concrete or other durable material.
29
30 (4) ~~Formerly Section 25, a~~ They Boxes shall be designed to accommodate the
31 inlet pipe and the necessary distribution lines. The inlet piping leading to
32 the distribution box shall be disposal area to provide equal distribution of
33 sewage liquids. ~~Formerly Section 25 b,~~ at least one inch above the outlet
34 pipes and all pipes shall have a watertight connection to the distribution
35 box.
36
37 (5) Boxes shall have flow equalizers installed on each outflow.
38
39 b. ~~Formerly Section 25, b~~ Distributing piping. The inlet piping to the distribution
40 box shall be at least one inch above the outlet pipes. Flow divider tees may be
41 used in place of distribution boxes.
42
43 c. ~~Formerly Section 25, c~~ The distribution box shall be of a construction approved
44 by the small wastewater program administrator. Drop boxes are suitable for
45 sloping ground and are installed to achieve serial loading. The drop boxes shall
46 meet the requirements in subsection a. of this section.
47
48 d. ~~Formerly Section 25, d~~ Distribution boxes are not recommended.
49

1 **Section 24** ~~Section 26. Subsurface Treatment and Disposal Systems.~~ **Standard Soil**
2 **Absorption Systems.**
3

4 a. General Requirements:-
5

- 6 (1) All soil absorption systems shall be designed in such a manner that the
7 effluent is effectively filtered and retained below the ground surface. The
8 absorption surface accepts, treats, and disperses wastewater as it
9 percolates through the soil.

10 ~~Formerly Section 26, a, (1) Replacement Area. An area shall be designated~~
11 ~~and shown on the plans for future installation of a replacement absorption~~
12 ~~system. If a trench system is used, the replacement area may include the~~
13 ~~area between the trenches if sufficient spacing has been provided. At least~~
14 ~~three feet of undisturbed soil shall remain between the existing and~~
15 ~~replacement trench side walls.~~
16

- 17
18 (2) ~~Formerly Section 26, a, (2) Protection. Effort shall be made to protect the~~
19 ~~natural absorptive properties of the soil. Soil absorption systems shall not~~
20 ~~be installed during adverse weather or soil conditions. Rain, severely cold~~
21 ~~temperatures, or excessively moist soils are considered adverse weather or~~
22 ~~soil conditions. All smeared or compacted surfaces shall be restored to~~
23 ~~their original infiltrative conditions prior to placement of the stone. Soil~~
24 ~~absorption systems shall not be excavated when the soil is wet enough to~~
25 ~~smear or compact easily. Open soil absorption system excavations shall~~
26 ~~be protected from surface runoff to prevent the entrance of silt and debris.~~
27 ~~All smeared or compacted surfaces shall be raked to a depth of one (1)~~
28 ~~inch, and loose material removed before filter or filler material is placed in~~
29 ~~the soil absorption system excavation.~~
30

- 31 (3) ~~Formerly Section 26, a, (3) Runoff. Surface runoff shall be diverted~~
32 ~~around or away from all soil absorption systems. Soil absorption systems~~
33 ~~shall be designed to approximately follow the ground surface contours so~~
34 ~~that variation in excavation depths will be minimized. The trenches may~~
35 ~~be installed at different elevations, but the bottom of each individual~~
36 ~~trench shall be level throughout its length.~~
37

- 38 (4) ~~Formerly Section 26, a, (8) Earth Cover. Shallow soil absorption system~~
39 ~~depths are encouraged to promote treatment and evapotranspiration. A~~
40 ~~minimum of 12 inches of earth shall be placed over the absorption system~~
41 ~~stone. The minimum soil cover depth over the soil absorption system is~~
42 ~~one (1) foot. The maximum depth to the bottom absorption surface of the~~
43 ~~soil absorption system is five (5) feet. The earth shall be permeable soil~~
44 ~~that will allow aeration of the system and will support the growth of grass.~~
45 ~~The earth cover shall be graded to insure that water will not pond on the~~
46 ~~surface. Finished grading shall prevent ponding and promote surface~~
47 ~~water runoff.~~
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- (5) Pipes, chambers or other products shall be bedded on firm, stable material. Heavy equipment shall not be driven in or over soil absorption systems during construction or backfilling.

 - (6) Standard trenches refer to perforated pipe embedded in aggregate-filled trenches that shall conform to the following:
 - (a) ~~Formerly Section 26, a, (5)~~ Gravity pipe. All plastic gravity absorption system. The perforated pipes shall have a minimum diameter of four (4) inches and shall conform to ASTM standard ~~D2729~~. Suitable pipe materials include: ASTM D-2729-11 PVC, ASTM D 3034-08 PVC, Schedule 40 PVC ASTM D 1784-11, and ASTM F 810-07 PE. Piping in all horizontally constructed absorption systems shall be layed with the holes centered around the vertical axis at the bottom of the pipe. All field tile pipe shall be spaced 1/4 inch apart. Piping in horizontally constructed absorption systems shall have a maximum slope of three inches per 100 feet. It is recommended that the ends of drain field pipe shall be capped or hooked together to form a complete circuit.

 - (b) ~~Formerly Section 26, a, (4)~~ Stone. Soil absorption system stone. The aggregate shall be crushed rock, gravel or other acceptable, durable and inert material that is free of fines, sized and has an effective diameter between 1/2-inch to 2 1/2-inches.

 - (c) ~~Formerly Section 26, a, (7)~~ Stone cover. A suitable cover such as untreated building paper, filter cloth, or straw shall be placed over the stone prior to backfilling the system. Prior to backfilling, the aggregate shall be covered throughout with a woven/non-woven geotextile material or a three (3) inch layer of straw. If straw is used, the uncompacted depth should be six to eight inches.

 - (d) ~~Formerly Section 26, a, (4)~~ At least two inches of stone shall be placed over the distribution pipe, and at least 12 inches of stone shall be placed under and beside the distribution piping. A minimum of 12 inches of stone shall be placed between a seepage pit wall and structural liner. The stone shall be free from sand, silt and clay. Aggregate shall extend the full width and length of the soil absorption system to a depth of at least twelve (12) inches with at least six (6) inches of drain gravel under the distribution pipe and at least two (2) inches over the distribution pipe.

 - (e) Maximum width of trench excavation is three (3) feet.

 - (f) ~~Formerly Section 26, d~~, Special requirements for trench systems. An undisturbed soil column shall be maintained between trench sidewalls. The minimum spacing of trenches (wall to wall) is horizontal separation distance shall be three (3) feet or 1.25 times the vertical depth of the trenches, whichever is greater. Trench

1 spacing shall be increased to nine (9) feet when the area between
2 each trench is considered as reserve area. For clay soils that have
3 percolation rates greater than 60 min/in., the nine foot spacing shall
4 also be required but it is not considered as reserve area.

5
6 ~~Formerly Section 26, a, (6) Pressure pipe. All pressure distribution~~
7 ~~piping shall be designed to withstand the anticipated pressures with~~
8 ~~a safety factor of two, provide uniform application of the~~
9 ~~wastewater, and have non-clogging orifices.~~

- 10
11 (7) ~~Formerly Section 26, f, Special requirements for bed systems. The~~
12 ~~distribution system piping shall be spaced no more than ten feet apart.~~
13 ~~Standard beds shall conform to the same pipe and aggregate requirements~~
14 ~~for trenches as found in subsection (6), (a) through (d) of this section.~~
15 ~~Standard beds shall also conform to the following:~~

- 16
17 (a) ~~Formerly Section 26, a, (9) Levelness. The soils shall have~~
18 ~~percolation rates less than 60 minutes per inch (5-60 mpi). The~~
19 ~~bottom of soil absorption systems and each segment of a sidehill~~
20 ~~system the bed shall must be level, therefore the site shall be~~
21 ~~relatively flat, no sloping more than one (1) foot from the highest~~
22 ~~to the lowest point in the installation area.~~
23
24 (b) ~~Distribution laterals within a bed must be spaced on not greater~~
25 ~~than six (6) feet centers. Sidewalls shall not be more than three (3)~~
26 ~~feet from a distribution lateral.~~
27
28 (c) ~~Beds must not be wider than twenty-five (25) feet if gravity~~
29 ~~distribution is used. Multiple beds must be spaced at one-half the~~
30 ~~bed width.~~
31
32 (d) ~~Rubber tired vehicles must not be driven on the bottom surface of~~
33 ~~any bed excavation.~~

- 34
35 (8) ~~Chambered trenches, when used in lieu of perforated pipe and aggregate,~~
36 ~~shall be installed in conformance with the manufacturer recommendations.~~
37 ~~No cracked, weakened, modified, or otherwise damaged chamber units~~
38 ~~shall be used in any installation.~~

- 39
40 (a) ~~All chambers shall be an open, arched-shaped structure of durable,~~
41 ~~non-degradable design, suitable for distribution of effluent without~~
42 ~~filter material.~~
43
44 (b) ~~All chamber endplates shall be designed so that the bottom~~
45 ~~elevation of the inlet pipe is at least six (6) inches from the bottom~~
46 ~~of the chamber.~~
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- (c) Inlet and outlet effluent sewer pipes shall enter and exit the chamber endplates. Inspection ports shall be installed at all outlet effluent sewer pipes.
- (d) All chambers shall have a splash plate under the inlet pipe or another design feature to avoid unnecessary channeling into the trench bottom.
- (e) The maximum width of the bottom absorption surface for a chambered trench is three (3) feet. The excavation to install a chambered trench may exceed three (3) feet.
- (f) Minimum spacing of trenches (wall to wall) is three (3) feet. Trench spacing shall be increased to nine (9) feet when the area between each trench is considered as reserve area. For clay loam soils that have percolation rates greater than 60 min/in., the nine (9) foot spacing shall also be required but it is not considered as reserve area.

(9) Chamber beds shall conform to the same requirements for chambered trenches as found in subsection (8), (a) through (d) of this section. Aggregate, as specified in subsection (6), (b) of this section, or native soil shall be used to fill the space between the chambers.

(10) ~~Formerly Section 26, e Special Requirements for Serial Sidehill Trench or Bed Systems.~~ **Serial Sidehill Trench:**

- (a) ~~Formerly Section 26, e, (1) Separation.~~ A minimum of ~~three~~ **six** (6) feet of undisturbed soil shall be maintained between adjacent trench or bed side walls.
- (b) ~~Formerly Section 26, e, (2) Levelness.~~ The bottom of each serial trench or bed system shall be level.
- (c) ~~Formerly Section 26, e, (3) Overflow.~~ The overflow pipe between serial leach systems shall be set no higher than the mid-point of the upstream distribution pipe. The overflow pipe shall not be perforated.

~~Formerly Section 26, b Special Requirements for Seepage Pits. If a structural lining is needed to support stone in a seepage pit, it shall be constructed of durable material not subject to excessive corrosion or decay and structurally capable of supporting the loads to which it will be subjected. The lining shall be perforated or otherwise designed to allow the passage of wastewater. Seepage pits shall be separated by a minimum distance equal to 3 times their diameter.~~

Section 25. Pressure Distribution Systems.

a. **General Design Requirements:**

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- (1) The basic elements of a pressure distribution system include a dosing tank, filter, and a means to deliver specified doses to a small diameter pipe network within a soil absorption system. Pressure distribution is required for mound systems or for bed systems with a width greater than twenty-five (25) feet.
- (2) Pumps must be sized to match the distribution system curve or demand. Pumps shall be designed for sewage pumping applications and be accessible from the ground surface.
- (3) The control system for the pump and dosing tank shall, at a minimum, consist of a “pump off” switch, a “pump on” switch, and a “high liquid alarm”.
 - (a) All electrical connections must be made outside of the chamber in either an approved weatherproof box or an explosion-proof junction box.
 - (b) The wiring from the junction box to the control box must pass through a sealing fitting to prevent corrosive gases from entering the control panel.
 - (c) All wires must be contained in solid conduit from the dosing chamber to the control box.
- (4) The pressure transport piping between the tank and the soil absorption system shall be designed to prevent freezing.
 - (a) The ends of lateral piping shall be constructed with long sweep elbows or an equivalent method to bring the end of the pipe to finished grade. The ends of the pipe shall be provided with threaded plugs, caps, or other devices to allow for access and flushing of the lateral.
 - (b) All joints in the manifold, lateral piping and fittings shall be solvent welded using the appropriate joint compound for the pipe material. Pressure transport piping may be solvent-welded or flexible gasket jointed.
 - (c) ~~Formerly Section 24 b, Siphons~~ Where automatic siphons or other devices are used, they shall be designed to empty the syphon dosing tank in less than ten (10) ~~20~~ minutes. ~~The syphon tank shall be sized in accordance with subsection 24.a.1 above.~~
- (5) The pressure distribution system shall have a combination of at least three (3) vertical feet of filter sand and/or unsaturated native soil above the high groundwater level. The filter sand shall conform to ASTM C-33, with less than 2% passing the #200 sieve.

1
2 **Section 26. Sand Mound Systems.**
3

4 The sand mound consists of a sand fill, an aggregate bed, and a soil cap.
5

6 a. Selection Criteria:
7

8 The high groundwater level, bedrock, or impervious clay layer is less than four (4) feet below the
9 bottom of the soil absorption system excavation.
10

11 b. Site Requirements:
12

- 13 (1) A minimum of one (1) foot of vertical separation of the native soil is
14 required between the bottom of the sand fill and the top of the high
15 groundwater level, any restrictive layer, or any highly permeable material.
16
17 (2) The percolation rate of the native soil at the interface of the sand fill shall
18 be greater than five (5) and less than sixty (60) minutes per inch (5-60
19 mpi). The percolation shall be measured in the top twelve (12) inches of
20 native soil.
21

22 c. ~~Formerly Section 26, c. Special Requirements for Mounded Systems. General~~
23 ~~Design Requirements:~~
24

- 25 (1) ~~Formerly Section 26, c.(1) Sizing Sand Layer~~
26 ~~Formerly Section 26, c.(1),(a) The infiltrative surface between the stone~~
27 ~~and the fill material shall be sized based on the flow rate as determined by~~
28 ~~Section 18 and the allowable loading rate as determined by Figure 7 of~~
29 ~~Section 22 for the percolation rate of the fill. The total infiltrative surface~~
30 ~~is the sum of the sidewall and bottom areas of the stone-soil interface~~
31 ~~below the distribution pipe.~~
32
33 (a) Filter sand shall conform to ASTM C-33, with less than two
34 percent (2%) passing through the #200 sieve.
35
36 (b) The minimum depth of sand below the aggregate bed surface shall
37 be one (1) foot.
38
39 (c) The sand mound shall have a combination of at least four (4)
40 vertical feet of filter sand and unsaturated native soil above the
41 high groundwater level.
42
43 i. For sand mounds using pressure distribution systems, the
44 depth to high groundwater shall be three (3) feet below the
45 bottom of the absorption surface if the percolation rate of
46 the soil is five (5) minutes per inch or greater (5-60 mpi)
47
48 (d) The top of the sand layer under the aggregate bed shall be level in
49 all directions.

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- (e) The sand layer shall fill around the perimeter of and to the top of the aggregate bed.
- (f) ~~Formerly Section 26, c, (2) Grade.~~ The finished grade shall extend at least three feet horizontally beyond the stone and then be sloped to the parent soil at a grade no steeper than four horizontal to one vertical. ~~The slope of all sides shall be (3) horizontal to one (1) vertical or flatter. The side slopes shall be graded to prevent seepage and/or ponding at the bottom of the slope.~~
- (g) ~~Formerly Section 26, c, (1), (b)~~ The interface infiltration area between the fill soil and the native soil, which is the bottom of the sand fill, shall be sized ~~calculated~~ based on the infiltration rate of the native soil as determined by Figure 7 of Section 22 by dividing the design flowrates (gpd) from Table 1 or Table 2 by the loading rate (gpd/ft²) found in Table 5. ~~but shall not be smaller than a system designed to the requirements of subsection 2 below.~~

(2) Aggregate Bed

- (a) The aggregate shall be crushed rock, gravel or other acceptable, durable and inert material that is free from fines, and has an effective diameter between one-half (1/2) inch and two and one half (2 1/2) inches.
- (b) The aggregate bed depth shall not be less than nine (9) inches with a minimum of six (6) inches of clean aggregate placed below the distribution pipe and two (2) inches above the distribution pipe. The aggregate shall be covered with an approved geotextile material after installation and testing of the pressure distribution system.
- (c) The design shall be a long, narrow bed design with a maximum width of twenty-five (25) feet.
- (d) The infiltration area, which is the bottom of the aggregate bed, shall be calculated by dividing the design flowrates (gpd) from Table 1 and Table 2 by the loading rate of 0.8 gpd/ft².

(3) Soil Cover

- (a) The soil cap shall be constructed of a sandy loam, loamy sand, or silt loam. The depth of the soil cap shall be at least six (6) inches at the edges to twelve (12) inches at the center. The slope of all sides shall be three (3) horizontal to one (1) vertical or flatter.
- (b) ~~Formerly Section 26 c, 3~~ Fill soil. ~~The fill soil that is~~ A layer of top soil at least six (6) inches thick shall be placed ~~between the~~

1 native soil and the stone over the entire sand mound area. shall
2 have a minimum percolation rate of five minutes per inch. Topsoil
3 shall be placed over the mound to promote vegetative cover. The
4 sand mound should be planted with vegetation that does not
5 require watering and will not establish deep roots. Native grasses
6 are commonly used.

- 7
8 (c) ~~Formerly Section 26, c, 4~~ Preparation. All trees, roots, and other
9 organic matter shall be removed from the area to be occupied by
10 the mound.
11

12 **Section 27. ~~Formerly Section 30. Small Waste Stabilization Ponds. Small~~**
13 **Wastewater Lagoons.**
14

15 a. ~~General requirements.~~ Selection Criteria:

- 16
17 (1) ~~Formerly Section 30 a, 1~~ The use of this section for small waste
18 stabilization ponds applies only to those systems defined as small
19 wastewater systems. All other treatment systems shall meet the
20 requirements of Part B or Part C of Chapter XI of the Wyoming Water
21 Quality Rules and Regulations as applicable. Lagoons shall only be
22 considered in areas of Wyoming where the annual evaporation exceeds the
23 annual precipitation during the active use of the lagoon.
24
25 (2) ~~Formerly Section 30 a, 2, Small waste stabilization ponds~~ Lagoons shall
26 only be constructed in soils allowed where when the percolation rate
27 exceeds sixty (60) minutes per inch and the soil is at least 1 foot thick on
28 both the sides and bottom of the pond extends vertically down at least two
29 (2) feet from the bottom of the lagoon to the seasonal high groundwater
30 table or bedrock formations. If the 60 minute per inch percolation rate
31 cannot be obtained, sufficient clay shall be incorporated into the top foot
32 of soil until the 60 minute per inch percolation rate is reached. An
33 artificial impermeable liner of 20 mils in thickness may be substituted.
34
35 ~~Formerly Section 30, a, (3)~~ Small waste stabilization ponds are not
36 recommended for lots smaller than 10 acres.
37
38 (3) A lagoon shall not be constructed within the 100 year floodplain.

39
40 b. General Design Requirements

- 41
42 (1) ~~Formerly Section 30, b, Isolation.~~ The isolation distances shall meet the
43 requirements for absorption systems as specified in Section 19.a. Beyond
44 the horizontal setback distances requirements specified in Section 19 (g)
45 of this regulation, the lagoon shall not be placed within one hundred (100)
46 feet of the owner's property line.
47
48 (2) The use of a septic tank that meets the specifications in Section 22 of this
49 regulation shall be required before the small wastewater lagoon.

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- (3) The lagoon shall be located and constructed so it will not receive surface runoff water.
- (4) The slope of the lagoon site shall not exceed five percent (5%).
- (5) The lagoon site must be located in an area of maximum exposure to sun and wind.
- (6) The lagoon shall be designed for complete retention.
- (7) ~~Formerly Section 30, d, Sizing~~ The area of the lagoon shall be calculated based on the following formula.

$$A = \frac{584 \times Q}{(365 \times S) + (E - P)} \times 1.3$$

A = Area of the lagoon (in square feet) at the maximum operating depth of five (5) feet water level in square feet.

Q = Average daily sewage flow, gallons per day. ~~(0.6 times the flow determined from Table 1~~ Multiply values from Table 1 or 2 by 0.6 to get average daily flow)

E = Average Annual lake evaporation rate in inches per year. (Note: lake evaporation is less than pan evaporation; lake evaporation equals pan evaporation times a pan coefficient of 0.7)

P = Average Annual precipitation rate in inches per year.

S = Soil permeability in inches per day "S" cannot be greater than 0.25 inches per day "S" shall equal zero for an artificial liner or for bedrock Seepage rate in decimal form, in inches per day.

~~Formerly Section 30, e Construction requirements:~~

- (8) ~~Formerly Section 30, e, (1)~~ The slopes of the inside dikes shall not be steeper than three (3) horizontal to one (1) vertical ~~nor flatter than four horizontal to one vertical. The slopes of the outside dikes shall not be steeper than three horizontal to one vertical and shall not allow surface runoff to enter the pond. Formerly Section 30, e, (4)~~ The minimum top width of the top of the dike shall be ~~eight~~ four (4) feet.
- (9) ~~Formerly Section 30, e, (3)~~ All fill material shall consist of impervious material that is well compacted and free of rocks, frozen soil, or other large material.
- (10) ~~Formerly Section 30, d, (2)~~ A The minimum water level operating depth of at least two feet shall be two (2) feet maintained in the pond at all times,

1 including start up. ~~Formerly Section 30, d, (3)~~ A minimum free board of
2 two feet shall be provided between the lowest embankment berm and the
3 maximum water level. The maximum water level shall not be less than
4 five feet. The dikes shall provide a minimum freeboard of two (2) feet.

- 5
- 6 (11) ~~Formerly Section 30, e, (2)~~ All organic material and debris shall be
7 removed from the pond site prior to construction. The floor of the lagoon
8 shall be level and maintained free of all vegetation.
- 9
- 10 (12) The influent line into the lagoon must discharge near the center.
- 11
- 12 (13) A cleanout, with a tightly fitting cap, shall be provided in the influent line
13 near the dike.
- 14
- 15 (14) ~~Formerly Section 30, e, (5)~~ The pond area around the small wastewater
16 lagoon shall be enclosed fenced to preclude the entrance of livestock, pets,
17 and humans with a six foot high fence which has a maximum opening of
18 six inches. The fence shall be equipped with a locking gate topped with
19 two strands of bard wire. An access gate shall be provided for
20 maintenance equipment. The gate shall provide the security equivalent to
21 the fence. ~~Formerly Section 30, e, (6)~~ A minimum of one have a sign
22 indicating shall be placed on each side of the pond and shall be attached to
23 the fence. The sign shall describe the facility and advise against “NO
24 TRESPASSING – WASTEWATER LAGOON” trespassing.

25

26 ~~Formerly Section 30, e~~ Groundwater protection and bedrock or impermeable soil
27 separation.

28

29 ~~Formerly Section 30 e, (1)~~ For single family homes, the depth to seasonally high
30 groundwater shall be at least four feet from the bottom of pond.

31

32 ~~Formerly Section 30 e, (2)~~ For all “small wastewater systems” other than single
33 family homes, a minimum of three feet of unsaturated soil shall be maintained
34 between the bottom of the pond and the estimated groundwater mound imposed
35 on the seasonally high groundwater table. The height of the groundwater mound
36 can be estimated from Figures 1-6, Section 20 in conjunction with the average
37 daily sewage flow.

38

39 **Section 27. Holding tanks.**

- 40
- 41 a.—Uses. Holding tanks shall not be used for residential systems when other alternative
42 systems are available, except on a temporary, seasonal or intermittent basis, or when
43 used to correct a failed subsurface disposal system when other alternatives are
44 unavailable. Use of holding tanks for new construction is prohibited. Where holding
45 tanks are allowed, they shall be sized on the basis of seven days storage at the flow
46 rate determined from Table 1.
- 47
- 48 b.—Acceptance. A letter of verification from the receiving agency, denoting acceptance
49 of the wastewater generated shall be submitted with the plans.

- 1
2 e. ~~Location. The location and construction of holding tanks shall meet the requirements~~
3 ~~for septic tanks in Sections 19.a and Section 23.a.1 respectively.~~
4
5 d. ~~Vent. Each holding tank shall be provided with a two inch minimum diameter vent~~
6 ~~ending in a return elbow above final grade. The vent shall terminate at least 30 feet~~
7 ~~from any door, window, or fresh air inlet. The vent should be screened.~~
8
9 e. ~~Alarm. All holding tanks shall be equipped with a high water level alarm. The device~~
10 ~~shall be an audible alarm or an indoor illuminated alarm. The alarm level shall be~~
11 ~~placed at 3/4 the depth of the tank.~~
12
13 f. ~~Pumpout. A six inch pump out pipe which extends to the surface shall be provided.~~
14 ~~It shall be capped at all times.~~
15

16 **Section 28. Privies or Outhouses.**
17

18 Privies or outhouses that meet the requirements of this section are permitted by rule. A
19 permit by rule requires the owner to submit the following information to the county prior to
20 constructing or installing the facility: owner's name, address, phone number, legal description of
21 privy (address, latitude/longitude and/or ¼ ¼, Section, Township & Range). By submission of
22 the required information, the owner acknowledges and certifies they will comply with the
23 requirements contained in this section.
24

25 Pre-fabricated privies or outhouses shall be sealed, water-tight vaults and shall meet the
26 following conditions.
27

28 a. ~~General requirements.~~
29

- 30 1) ~~All privies shall be designed and constructed to prevent access by flies and~~
31 ~~rodents.~~
32 2) ~~If indoor plumbing is installed, the grey water disposal method shall meet the~~
33 ~~requirements of Section 18 through 26. The minimum design flow for grey water~~
34 ~~shall be obtained from Table 1 with a reduction of 33 percent allowed for the~~
35 ~~elimination of black wastes.~~
36 3) ~~The privy shall consist of a watertight vault and an outhouse building.~~
37

38 ~~Formerly Section 28 b Isolation. The isolation horizontal setback distance~~
39 ~~requirements for sealed privies or outhouses shall comply with Section 19.a 22, a. for~~
40 ~~absorption systems septic tanks.~~
41

42 ~~Formerly Section 28 c Soil exploration. Soil exploration to a minimum depth of 4 feet~~
43 ~~below the bottom of the proposed vault shall be made to provide information on~~
44 ~~subsoil condition.~~
45

- 46 b. ~~Formerly Section 28 d Groundwater and bedrock separation. The depth to~~
47 ~~seasonally high groundwater shall be sufficient to prevent floatation of an empty~~
48 ~~water tight vault, and at least four feet from the bottom of an unlined water tight~~
49 ~~vault shall be sufficient to prevent floatation of the empty vault.~~

- 1
2 c. The vault must have sufficient capacity for the dwelling served, and must have at
3 least 27 cubic feet or 200 gallons capacity.
4
5 d. Privies or Outhouses must be insect tight; must have a self-closing door; the privy
6 or outhouse seat must include a cover, and all exterior openings, including vent
7 openings shall be screened.
8
9 e. ~~Formerly Section 28, e Sizing. Vaults shall have a minimum capacity of 500~~
10 ~~gallons per riser and shall be a minimum of 4.5 feet deep.~~

11 ~~Formerly Section 28, f Construction.~~

- 12
13
14 1) ~~The vault shall be constructed and installed to resist breakage and damage~~
15 ~~imposed by frost heave, uplift pressures from a fluctuating water table, loads~~
16 ~~imposed by the outhouse building and soils, and damage that may be caused by~~
17 ~~vandalism or rough cleaning procedures. The vault shall be constructed to~~
18 ~~prevent access by flies.~~
19
20 2) ~~Materials used for vault construction shall be resistant to alkali attack, hydrogen~~
21 ~~sulfide gas, and other corrosive elements associated with decomposing waste.~~
22
23 3) ~~A clean out manhole shall be installed and shall have a minimum opening of 20~~
24 ~~inches in the least dimension. The manhole shall be located outside of the~~
25 ~~outhouse building and be equipped with a tight fitting secure cover.~~
26
27 4) ~~The vault shall be ventilated to a point outside and above the outhouse building.~~
28 ~~The outhouse building shall have a set of vents installed near the floor on two~~
29 ~~opposite sides of the building and a roof vent that has a rain cap. All vents shall be~~
30 ~~screened~~ Privies or outhouses must be adequately vented.

31
32 ~~Formerly Section 28, g Vault additives. No chemical or biological additive shall be~~
33 ~~placed in the vault that may adversely effect the operation of a sewage treatment~~
34 ~~facility where the vault waste will ultimately be disposed or that may adversely~~
35 ~~impact the quality of the groundwater as specified in Chapter VIII, "Quality~~
36 ~~Standards for Groundwater of Wyoming".~~

- 37
38 f. Privies or outhouses shall not constructed within the 100 year floodplain.
39

40 **Section 29. Chemical Toilets.**

- 41
42 a. ~~General requirements. Chemical toilets shall only be used in the containment of body~~
43 ~~wastes. These requirements apply only to the use of chemical toilets for permanent~~
44 ~~structures.~~
45
46 b. ~~Greywater. If indoor plumbing is installed, a separate greywater disposal is required~~
47 ~~and shall meet the requirements of Section 18 through 28. The minimum design flow~~
48 ~~for greywater shall be obtained from Table 1 with a reduction of 33 percent allowed~~
49 ~~for the elimination of blackwater wastes.~~

- 1
2 e. ~~Disposal. All chemical toilet wastes shall be disposed of at an approved wastewater~~
3 ~~facility. A letter of verification from the receiving agency, denoting acceptance of the~~
4 ~~wastewater generated shall be submitted with the plans. These wastes shall not be~~
5 ~~discharged into a soil absorption system.~~
6
7 d. ~~Construction. Chemical toilets shall be constructed and installed to resist breakage or~~
8 ~~damage from routine usage. Outdoor chemical toilets shall be adequately stabilized~~
9 ~~and secured to prevent overturning. Materials used shall be resistant to the sewage~~
10 ~~wastes and the chemicals encountered. The holding compartment of the toilet shall~~
11 ~~be constructed to prevent accessibility by the public and by flies and rodents.~~
12
13 e. ~~Additives. No chemical or biological additive shall be placed in the toilet that may~~
14 ~~adversely affect the operation of a sewage treatment facility where the toilet waste~~
15 ~~will ultimately be disposed or that may adversely impact the quality of the~~
16 ~~groundwater as specified in Chapter VIII, "Quality Standards for Groundwater of~~
17 ~~Wyoming."~~
18

19 **Section 29. Greywater Systems.**

20
21 Greywater systems that meet the requirements of this section are permitted by rule. A
22 permit by rule requires the owner to submit the following information to the county prior to
23 constructing, modifying, or installing the facility: owner's name, address, phone number, legal
24 description of privy (address, latitude/longitude and/or ¼ ¼, Section, Township & Range). By
25 submission of the required information, the owner acknowledges and certifies they will comply
26 with the requirements contained in this section.
27

28 a. Greywater Operation and Requirements

29
30 (1) Restrictions

- 31
32 (a) Greywater shall not leave the property on which it is generated.
33 Ponding or runoff is prohibited.
34
35 (b) Greywater systems shall not be installed in a delineated floodplain.
36
37 (c) The volume of greywater shall not exceed an average of 2000
38 gallons per day.
39
40 (d) Greywater shall not come in direct contact with or adversely
41 impact surface or groundwater
42
43 (e) Food crops for direct human consumption should not be harvested
44 for 30 days after application of greywater
45

46 (2) Odor control of the greywater system shall meet the requirement of the
47 Wyoming DEQ Air Quality Regulations Chapter 2, Section 11.
48

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(3) If the greywater system is to be used during the winter, the greywater system shall be designed to prevent freezing.

b. Estimating Greywater Discharge

- (1) The greywater discharge for single family and multi-family dwellings shall be calculated by estimates of greywater use based on water use records, or the following procedure:
 - (a) The number of occupants of each dwelling unit shall be calculated as 2 occupants per bedroom.
 - (b) The estimated greywater flows of each occupant shall be calculated in gallons per day (gpd) as follows:
 - Showers, bathtubs and wash basins—25gpd/occupant
 - Laundry—15 gpd/occupant
- (2) The total number of occupants shall be multiplied by the applicable estimated greywater discharge as provided above and the type of fixtures connected to the greywater system.

c. Greywater System Configurations

- (1) All greywater systems shall have means to direct greywater to either the blackwater system or the greywater system.
- (2) Diverter valves shall not have the potential to allow backflow from the blackwater system into the greywater system.
- (3) Greywater used for surface irrigation should be disinfected. The disinfection should achieve a fecal coliform level of 200 cfu/100 mL or less.

d. Setbacks

- (1) A 30 foot buffer zone is required between the greywater application site and adjacent property lines and any public right-of-way.
- (2) A 30 foot separation distance is required between greywater application sites and all surface waters.
- (3) A 100 foot separation distance is required between greywater application sites and all potable water supply wells.

~~Section 30. Small Waste Stabilization Ponds.~~

1 a. General requirements.

2
3 (1) The use of this section for small waste stabilization ponds applies only to
4 those systems defined as small wastewater systems. All other treatment
5 systems shall meet the requirements of Part B or Part C of Chapter XI of
6 the Wyoming Water Quality Rules and Regulations as applicable.

7
8 (2) Small waste stabilization ponds shall only be constructed in soils where
9 the percolation rate exceeds 60 minutes per inch and the soil is at least 1
10 foot thick on both the sides and bottom of the pond. If the 60 minute per
11 inch percolation rate cannot be obtained, sufficient clay shall be
12 incorporated into the top foot of soil until the 60 minute per inch
13 percolation rate is reached. An artificial impermeable liner of 20 mils in
14 thickness may be substituted.

15
16 (3) Small waste stabilization ponds are not recommended for lots smaller than
17 10 acres.

18
19 b. Isolation. The isolation distances shall meet the requirements for absorption
20 systems as specified in Section 19.a.

21
22 e. Groundwater protection and bedrock or impermeable soil separation.

23
24 (1) For single family homes, the depth to seasonally high groundwater shall
25 be at least four feet from the bottom of pond.

26
27 (2) For all "small wastewater systems" other than single family homes, a
28 minimum of three feet of unsaturated soil shall be maintained between the
29 bottom of the pond and the estimated groundwater mound imposed on the
30 seasonally high groundwater table. The height of the groundwater mound
31 can be estimated from Figures 1-6, Section 20 in conjunction with the
32 average daily sewage flow.

33
34 d. Sizing.

35
36 (1) The area of the lagoon shall be calculated based on the following formula:

37
38
39
$$A = \frac{584 \times Q}{(365 \times S) + (E - P)} \times 1.3$$

40 where:

41 A = Area of the lagoon at the 5 foot water level in square feet

42 Q = Average daily sewage flow (0.6 times the flow determined from Table 1)

43 S = Soil permeability in inches per day

44 "S" cannot be greater than 0.25 inches per day

45 "S" shall equal zero for an artificial liner or for bedrock

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~~E = Annual evaporation rate in inches per year~~

~~P = Annual precipitation rate in inches per year~~

~~(2) A minimum water level of at least two feet shall be maintained in the pond at all times, including start up.~~

~~(3) A minimum free board of two feet shall be provided between the lowest embankment berm and the maximum water level. The maximum water level shall not be less than five feet.~~

~~e. Construction requirements.~~

~~(1) The slopes of the inside dikes shall not be steeper than three horizontal to one vertical nor flatter than four horizontal to one vertical. The slopes of the outside dikes shall not be steeper than three horizontal to one vertical and shall not allow surface runoff to enter the pond.~~

~~(2) All organic material and debris shall be removed from the pond site prior to construction.~~

~~(3) All fill material shall consist of impervious material that is well compacted and free of rocks, frozen soil, or other large material.~~

~~(4) The minimum top width of the dike shall be eight feet.~~

~~(5) The pond area shall be enclosed with a six foot high fence which has a maximum opening of six inches. The fence shall be topped with two strands of barb wire. An access gate shall be provided for maintenance equipment. The gate shall provide the security equivalent to the fence.~~

~~(6) A minimum of one sign shall be placed on each side of the pond and shall be attached to the fence. The sign shall describe the facility and advise against trespassing.~~

Section 30. Operation and Maintenance.

- a. For any system that disposes of wastewater through land application or subsurface filtration, the owner shall not add any chemical or biochemical additive to the system that would adversely affect the quality of the groundwater as stated in the WDEQ Water Quality Rules & Regulations, Chapter 8.
- b. Septic tanks shall be pumped as needed to prevent solids carryover into the soil absorption system.
- c. Holding tanks and sealed vaults shall be pumped prior to reaching their maximum capacity.

- 1 d. Any service provider that pumps septic tanks, holding tanks, or sealed vaults,
2 shall dispose of the wastewater contents at a permitted wastewater treatment
3 facility or in a manner approved by the Division or the county.
4
5 e. Damaged fittings and broken, crushed or plugged piping associated with any
6 small wastewater system shall be replaced in a timely manner.
7
8 f. Composting or non-discharging toilets, where permitted, shall have their waste
9 disposed of at a permitted wastewater treatment facility or landfill, or in a manner
10 approved by the Division or the county.
11

12 **Section 31. Validity Clause.** If any section, subsection, sentence, clause, or phrase of
13 these rules and regulations is for any reason held to be unconstitutional or invalid, such decision
14 shall not affect the validity of the remaining portions of these rules and regulations.
15

16 **Section 32. Enforcement.** Any person, firm or corporations violating the provisions of
17 this regulation shall be deemed guilty of a misdemeanor. Each and every day or portion thereof
18 during which any violation of any of the provisions of the regulation is committed, continued or
19 permitted shall be considered a separate offense. Upon conviction of any such violation, such a
20 person may be punished as provided by law with a fine of up to \$250.00 and/or 30 days in jail
21 per day of violation.
22

23 **Section 33. Installers and pumpers.** The small wastewater program administrator shall
24 maintain a list of septic tank installers and pumpers.
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APPENDIX A

Percolation Test Procedure

Section 1. Purpose.

- a. Percolation test are used to determine absorption system site suitability and to size the absorption system.

Section 2. Procedure.

a. ~~Location.~~ **General Requirements:**

- (1) Percolation test shall not be conducted in test holes that extend into groundwater, bedrock, or frozen ground.
- (2) The percolation test shall be conducted only after the soil exploration pit has been dug and examined.
- (3) ~~Formerly Percolation Test Procedure, a~~ A minimum of three (3) test holes are required.
- (4) ~~Formerly Percolation Test Procedure, a~~ The percolation test holes shall be spaced uniformly over the proposed absorption field site.

b. Preparation-

- (1) ~~Formerly Percolation Test Procedure, b~~ A 4-inch to twelve (12) inch hole shall be dug or bored to the proposed depth of the absorption ~~field~~ system.
- (2) ~~Formerly Percolation Test Procedure, b~~ The walls shall be vertical, with the natural soil surface exposed without.
- (3) ~~Formerly Percolation Test Procedure, b~~ To expose a natural soil surface, the sides and bottom shall be ~~scraped~~ scarified with a sharp pointed instrument and the loose material shall be removed from the hole.
- (4) ~~Formerly Percolation Test Procedure, b~~ Two (2) inches of ~~Coarse sand or gravel~~ or coarse sand shall be placed in the bottom of the hole to prevent it from scouring and sealing during water addition.

c. Presoaking-

- (1) ~~Formerly Percolation Test Procedure, e~~ The purpose of presoaking is to have the water conditions in the soil reach a stable condition similar to that which exists during continual wastewater application. The minimum time of presoaking varies with soil conditions but must be sufficiently long so that the water seeps away at a constant rate. The following presoaking instructions are usually sufficient to obtain a constant rate.

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- (a) ~~Formerly Percolation Test Procedure, e, 1~~ In sandy soils, place 12 inches of water in the hole. Fill each hole with clear water to a level at least eighteen (18) inches above the gravel or coarse sand and allow it to seep away. Fill the hole again with 12 inches of water and if the water seeps away in ten minutes or less, it indicates that the soil is excessively permeable and requirements in Section 20.d. of these regulations shall be followed. If the eighteen (18) inches of water seeps away in eighteen (18) minutes or less, add eighteen (18) inches of water a second time. If the water remains after ten minutes, additional saturation is necessary. Refer to section c.2. below second filling of eighteen (18) inches of water seeps away in eighteen (18) minutes or less, this indicates the soil is sandy and is excessively permeable. The soil absorption system shall meet the requirements of **Section 21, c.**
- (b) ~~Formerly Percolation Test Procedure, e, 2~~ In other soils, maintain 12 inches of water in the hole for at least four hours. If either the first or second fillings of eighteen (18) inches of water does not seep away in ninety (90) minutes, eighteen (18) inches of water must be maintained in the hold for at least four (4) hours to presoak the test hole. After the four (4) hours of water contact time, allow the soil to swell for wait at least twelve (12) hours before starting the percolation rate measurement as stated in section d. below.

d. ~~Percolation Rate Measurement.~~ Percolation Rate Measurement. The water level should be adjusted to six inches above the gravel initially and after each time interval measurement when necessary.

- (1) ~~Formerly Percolation Test Procedure, d, 1~~ In other soils, establish a fixed reference point and measure the drop in water level at constant intervals. The water level drop should be measured to the nearest 1/8 of an inch. The test may be terminated when the water drop is consistent for three consecutive measurements. Fill each test hole with twelve (12) inches of water and allow the soil to rehydrate for 15 minutes prior to any measurements.
- (2) Establish a fixed reference point to measure the incremental water level drop at constant time intervals. The water level drop should be measured to the nearest 1/8 of an inch and the minimum time interval is ten (10) minutes.
- (3) Refill the test hole to twelve (12) inches above the gravel before starting the measurements. Continue to measure the incremental water level drop at a constant time interval until a consistent incremental water level drop is achieved. A consistent water level drop is achieved when three (3) consecutive water level drops are within 1/8 inches of each other.

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- (4) Before the water level drops below one (1) inch above the gravel, refill the test hole to twelve (12) inches and continue to measure the incremental water level drop.
- (5) ~~Formerly Percolation Test Procedure, d, 2~~ The percolation rate for each hole is calculated as follows for each hole using the following formula:

$$\frac{\text{Time Interval (minutes)}}{\text{Final Water Level Drop (inches)}} = \text{Percolation Rate (minutes/inch)}$$

- (6) ~~Formerly Percolation Test Procedure, d, 2~~ If only three to five percolation tests are performed, the design percolation rate for the absorption system is the slowest rate from all the holes tested. If six or more percolation tests are performed, the design percolation rate for the absorption system is the average of all holes tested as determined by the above formula.

e. The following information shall be recorded:

- (1) Date(s) of test(s);
- (2) Location, diameter, and depth of each test hole;
- (3) Duration of presoak;
- (4) Time of day for beginning and end of each water-level drop interval;
- (5) Each water-level drop measurement;
- (6) Calculated percolation rate;
- (7) Name and Signature of person performing the test;
- (8) Name of owner or project name; and
- (9) Certification that the percolation test was done in accordance with the Johnson County Small Wastewater Rules and Regulations.