

CHICKASAW COUNTY, Iowa

Ordinance No. V-2

Table of Contents

Section I - Title . . . . . 1

Section II - Purpose . . . . . 1

Section III - Applicability . . . . . 1

Section IV - General . . . . . 1

Section V - Private On-Site Sewage Treatment System  
Contractor's Bond and License . . . . . 3

Section VI - Definitions . . . . . 4

Section VII - Site Evaluation . . . . . 7

Section VIII - Building Sewers . . . . . 8

Section IX - Subsurface Absorption System . . . . . 12

Section X - Pressure Systems . . . . . 18

Section XI - Gravelless Systems . . . . . 18

Section XII - Mound Systems . . . . . 19

Section XIII - Individual Mechanical Aerobic Wastewater  
Treatment System . . . . . 23

Section XIV - Intermittent Sand Filters . . . . . 24

Section XV - Impervious Vault Toilets . . . . . 28

Section XVI - Chemical Toilets . . . . . 29

Section XVII - Septage Disposal . . . . . 29

Section XVIII - Sludge Pumps/Haulers . . . . . 30

Section XIX - Alternative or Innovative On-Site  
Wastewater Treatment and Disposal  
Systems . . . . . 31

Section XX - Inspections . . . . . 31

Section XXI - Refusal of Admittance . . . . . 32

Section XXII - Notice . . . . . 32

Section XXIII - Hearings . . . . . 32

Section XXIV - Jurisdiction . . . . . 33

Section XXV - Enforcement . . . . . 33

Section XXVI - Penalty . . . . . 33

Section XXVII - Severability Clause . . . . . 33

Section XXVIII - Supplemental Authority . . . . . 34

CHICKASAW COUNTY, Iowa

Ordinance No. 1-2

Table of Contents

Section I - Title . . . . .	1
Section II - Purpose . . . . .	1
Section III - Applicability . . . . .	1
Section IV - General . . . . .	1
Section V - Private On-Site Sewage Treatment System Contractor's Bond and License . . . . .	3
Section VI - Definitions . . . . .	4
Section VII - Site Evaluation . . . . .	7
Section VIII - Building Sewers . . . . .	8
Section IX - Subsurface Absorption System . . . . .	12
Section X - Pressure Systems . . . . .	18
Section XI - Gravelless Systems . . . . .	18
Section XII - Mound Systems . . . . .	19
Section XIII - Individual Mechanical Aerobic Wastewater Treatment System . . . . .	23
Section XIV - Intermittent Sand Filters . . . . .	24
Section XV - Impervious Vault Toilets . . . . .	28
Section XVI - Chemical Toilets . . . . .	29
Section XVII - Septage Disposal . . . . .	29
Section XVIII - Sludge Pumps/Haulers . . . . .	30
Section XIX - Alternative or Innovative On-Site Wastewater Treatment and Disposal Systems . . . . .	31
Section XX - Inspections . . . . .	31
Section XXI - Refusal of Admittance . . . . .	32
Section XXII - Notice . . . . .	32
Section XXIII - Hearings . . . . .	32
Section XXIV - Jurisdiction . . . . .	33
Section XXV - Enforcement . . . . .	33
Section XXVI - Penalty . . . . .	33
Section XXVII - Severability Clause . . . . .	33
Section XXVIII - Supplemental Authority . . . . .	34

CHICKASAW COUNTY, IOWA

ORDINANCE NO. V-2

SECTION I  
TITLE

Chickasaw County, Iowa, Residential On-Site Sewage Treatment Ordinance.

SECTION II  
PURPOSE

To promote public health in Chickasaw County, Iowa, through County enforcement of state laws and providing such reasonable standards and technical guidance consistent with law and with the rules of the Iowa Department of Natural Resources pertaining to residential on-site sewage treatment facilities, as are deemed necessary for the protection and improvement of the public health, in accordance with the provisions of Chapter 69, Department of Natural Resources 10/27/86.

SECTION III  
APPLICABILITY

Provisions herein are applicable to all residential on-site sewage treatment systems located within Chickasaw County, Iowa.

A. In the event of a difference between the provisions of this ordinance and those contained in applicable state rules and regulations (Iowa Department of Natural Resources Iowa Administrative Code 567 - Chapter 69), the most stringent standards will prevail.

SECTION IV  
GENERAL

A. PROHIBITED DISCHARGE OF LIQUID WASTES

It is prohibited to discharge any untreated household, commercial or industrial liquid waste into any ditch, stream, lake, pond, natural or artificial waterway, field drain tile or to the surface of the ground.

The local board is charged with the responsibility of review and approval of any deviation from the foregoing, and in such cases where discharged effluents will have received secondary treatment by an approved method. Discharge of effluent from residential on-site sewage treatment systems into an abandoned well or sink-hole is not approvable under any circumstances.

B. REQUIREMENTS FOR PRIVATE SEWAGE AND LIQUID WASTE TREATMENT SYSTEMS.

1. It is illegal to construct, reconstruct, or alter any private sewage or liquid waste treatment system for any purpose in Chickasaw County, Iowa, without first having obtained a permit as herein provided.
2. No private sewage treatment system shall be installed where a public sewer hook-up is available within 250 feet of the closest point of the lot line unless approved by the local board.
3. When a public sewer becomes available, any building then served by a private sewage treatment system shall connect to said public sewer within one year from date of completion of the public sewers.
4. When the local board determines that a health hazard exists as the result of an inadequate or faulty private sewage treatment system, immediate corrective action shall be taken in accordance with this ordinance.
5. Every structure wherein persons reside, congregate or are employed which is not connected to a public sewer system shall be provided with a private sewage treatment system in accordance with the provisions of this ordinance.
6. Construction of private sewage treatment systems for all new habitable structures and major reconstruction of existing systems, shall be in accordance with the provisions of this ordinance.
7. Requirements when discharged into surface waters. All discharges from onsite wastewater treatment and disposal systems which are discharged into any surface water shall be treated in such a manner that will conform with the requirements of the Department of Natural Resources, as referenced in Chapter 62.
8. Requirements when discharged into the soil. No septage or wastewaters shall be discharged into the soil except in compliance with the requirements contained in these rules.

C. PERMITS

APPLICATION FOR PERMIT TO CONSTRUCT, RECONSTRUCT, OR ALTER A PRIVATE ON-SITE SEWAGE TREATMENT SYSTEM.

1. Any person, firm or corporation desiring to construct, reconstruct or alter a private sewage treatment system shall file with the Chickasaw County Health Department an application stating therein the owner's name, correct legal description of the property on which the system will be installed, as well as the correct house number, name of street, if any, city or town and such other information as may be required.



2. Upon approval of the application by the local board or sanitarian, a permit shall be issued.
3. Until finally approved, no private on-site sewage treatment system shall be covered or so constructed so as to deny a thorough final inspection by the public health sanitarian or designated representative of the board.
4. No private on-site sewage treatment system for which a permit shall have been granted under this section shall be put in operation until the construction, reconstruction or alteration shall have been inspected and approved by the public health sanitarian.
5. Permits shall expire and have no further validity if the construction, reconstruction or alteration is uncompleted within a period of one year from the date of issuance.
6. The permit shall be signed by the public health sanitarian upon certification of proper tank size, adequate secondary treatment, and following inspection of entire system. All deficiencies shall be corrected before system is put into use.
7. Permits are not transferable.

D. FEES

1. The fee for a permit to construct, reconstruct, or alter a private sewage disposal system shall be payable at the time of application.
2. Permit fees are not refundable.
3. The fee schedule shall be \$25.00.
4. The fee schedule shall be determined by the local board of health.

SECTION V  
PRIVATE ON-SITE SEWAGE TREATMENT SYSTEM  
CONTRACTOR'S BOND AND LICENSE

A. Any person desiring to construct, reconstruct, or alter any private on-site sewage treatment system within Chickasaw County, Iowa, shall first file for approval with the local board a surety bond in the penal sum of five thousand dollars (5,000.00) conditioned on the faithful performance of the provisions of the

ordinance; on the payment to the county of all sums that are due or may become due by reason of this ordinance; and on indemnifying the county from liability from damages arising from his negligence in doing, protecting or completing his work. However, where a person desires to construct, reconstruct, or alter, any private sewage treatment system on property which he is the owner of record, the work may be done by a member of his immediate family without requiring such bond, providing such owner resides or intends to reside on such property.

B. No person or firm shall construct or alter a private sewage system without having a contractor's license from the Chickasaw County Board of Health. The fee for such license shall be set by the Board of Health. The license shall be valid for one year. A list of contractor's will be made available to the public in alphabetical order. However, where a person desires to construct, reconstruct, or alter any private sewage treatment system on property which he is the owner of record, the work may be done by a member of his immediate family without requiring such bond, providing such owner resides or intends to reside on such property.

#### SECTION VI DEFINITIONS

##### A. Definitions

1. Administrative authority - The Chickasaw County Board of Health as authorized by Iowa Code Chapter 137.
2. Approved - means accepted or acceptable under an applicable specification stated or cited in these rules, or accepted as suitable for the proposed use by the administrative authority.
3. Area drain - a drain installed to collect surface or storm water from an open area of a building or property.
4. Building drain - that part of the lowest horizontal piping of a house drainage system which receives the discharge from soil, waste, and other drainage pipes inside the walls of any building and conveys the same to the building sewer.
5. Building sewer - that part of the horizontal piping from the building drain to its connection with the main sewer or onsite wastewater treatment and disposal system conveying the drainage of one building site.
6. Distribution box - a structure or formation of pipes designed to accomplish the equal distribution of wastewater.
7. Dwelling - any house or place used or intended to be used by humans as a place of residence.



8. Foundation drain - that portion of a building drainage system provided to drain ground water from the outside of the foundation or cover of under the basement floor not including any wastewater.
9. Free access filter (open filter\_ - an intermittent sand filter constructed within the natural soil or above the ground surface with access to the distributor pipes and top of the filter media for maintenance and media replacement.
10. Gravel - stone screened from river sand or quarry. Concrete aggregate designated as Class II by the Department of Transportation if acceptable.
11. Gravelless system - an absorption system comprised of large diameter (8 and 10 inches) corrugated plastic pipe perforated with holes on a 120° arc centered on the bottom, wrapped in a sheath of spun bonded nylon filter, knitted polyester or other suitable material and installed level in a trench without gravel bedding.
12. Individual mechanical aerobic wastewater treatment system - an individual wastewater treatment and disposal system employing bacterial action which is maintained by the utilization of air or oxygen and includes the aeration plant and equipment and the method of final effluent disposal.
13. Intermittent sand filters - beds of granular materials 24 to 36 inches deep underlain by graded gravel and collecting tile. Wastewater is applied intermittently to the surface of the bed through distribution pipes or throughs and the bed is underdrained to collect and discharge the final effluent. Uniform distribution is normally obtained by dosing so as to flood the entire surface of the bed. Filters may be designed to provide free access (open filters), or may be buried in the ground (buried filters or subsurface sand filters).
14. Limiting layers - bedrock, high ground water level, or any layer of soil with a stabilized percolation rate exceeding sixty minutes for the water to fall one inch.
15. Mound system - an alternative above-ground system used to absorb effluents from septic tanks in cases where either seasonally high water table, high bedrock conditions, slowly permeable soils or limited land areas prevent conventional subsurface absorption systems.

16. On-site wastewater treatment and disposal system - all equipment and devices necessary for proper conduction, collection, storage, treatment, and disposal of wastewater from a dwelling or other facility serving the equivalent of fifteen persons (1500 gpd) or less. Included within the scope of this definition are building sewers, septic tanks, subsurface absorption systems, mound systems, subsurface sand filters, gravelless systems, open sand filters and individual mechanical aerobic wastewater treatment systems.
17. Percolation test - a procedure used to determine the ability of soils to assimilate primary treated wastewater.
18. Public Health Sanitarian - for the purpose of this ordinance the term public health sanitarian shall mean the designated representative of the Chickasaw County Board of Health in matters pertaining to the issuing of permits for construction, investigation by visiting sites, and inspecting of residential on-site sewage treatment facilities to check compliance with standards contained herein, and providing technical guidance.
19. Reasonably accessible - as it applies to a connection to a public sewer system, shall mean a determination made by the administrative authority as to the practicality of the connection.
20. Roof drain- a drain installed to receive water collecting on the surface of a roof and discharging into an area or storm drain system.
21. Septage- the liquid contents (including sludge and scum) of a septic tank normally pumped out periodically and transported to another site for disposal.
22. Septic tank - a watertight structure into which wastewater is discharged for solids separation and digestion, referred to as part of the closed portion of the treatment system.
23. Sludge- the digested or partially digested solid material accumulated in a wastewater treatment facility.
24. Storm drain - a drain used for conveying rainwater, ground water, subsurface water, condensate, cooling water or other similar discharge to storm sewer or combined sewer.
25. Subsurface absorption system - also referred to as an "oxidation bed," is an open-jointed or perforated system of pipes into which the primary treated effluent from the distribution box is discharged for direct absorption into the soil, referred to as part of the open portion of the treatment system.



26. Subsurface sand filter - a system whereby the effluent from a distribution box is discharged into open-jointed or perforated pipes, filtered through a layer of sand, and collected by lower open-jointed or perforated pipes for discharge to the surface, to a subsurface absorption system or to land application. A subsurface sand filter is an intermittent sand filter which is placed within the ground and provided with a natural topsoil cover over the crown of the distribution pipes.
27. Wastewater - the water-carried waste derived from ordinary living processes.
28. Wastewater management district - An entity organized in accordance with permitting legislation to perform various specific functions such as planning, financing, construction, supervision, repair, maintenance, operation and management of onsite wastewater treatment and disposal systems within a designated area.

## SECTION VII SITE EVALUATION

A. A site evaluation shall be conducted prior to issuance of a construction permit.

B. Minimum distances. All onsite wastewater treatment and disposal systems shall be located in accordance with the distance shown in Table I.

Table I

Minimum Distance in Feet From	Closed Portion of Treatment System (1)	Open Portion of Treatment System (2)
Private water supply well	50	100
Public water supply well	200	200
Ground water heat pump bore hole	100	100
Lake or reservoir	50	100
Stream or open ditch	25	25
Dwelling or other structure	10	10
Property lines	10	10
Other type subsurface treatment system	5	10
Water lines continually under pressure	10	10
Suction water lines	50	100
Foundation drains or subsurface tiles	10	10

(1) Includes septic tanks, mechanical aeration tanks and impervious vault toilets.

(2) Includes subsurface absorption systems, mound systems and intermittent sand filters.

## SECTION VIII BUILDING SEWERS

A. LOCATION AND CONSTRUCTION. The types of construction and distances as shown in Table II shall be maintained for the protection of water supplies. The distances shall be considered minimum and increased where possible to provide better protection.

Table II

Sewer Construction	In Feet The Distance From	
	Well Water Supply Private	Public
1. Schedule 40 plastic pipe with approved type joints or cast iron soil pipe (extra heavy or centrifugally cast) with joints of caulked lead or preformed gaskets, both encased with a minimum of 6" of concrete.	5	10
2. Schedule 40 plastic pipe with approved type joints or cast iron soil pipe (extra heavy or centrifugally cast) with joints of caulked lead or preformed gaskets.	10	20
3. Sewer pipe installed to remain watertight and root-proof.	50	75

### B. REQUIREMENTS FOR BUILDING SEWERS.

1. Type. Building sewers used to conduct wastewater from a building to an on-site wastewater treatment and disposal system shall be constructed of plastic pipe meeting the minimum requirements of ASTM Standards D3033-73 and D3034-73, or cast iron, vitrified clay, and all with approved type joints.
2. Size. Such building sewers shall not be less than four inches in diameter.
3. Grade. Such building sewers shall be laid to the following minimum grades.  
  
4-inch sewer . . . 12 inches per 100 feet  
6-inch sewer . . . 8 inches per 100 feet

C. CLEANOUTS

1. Spacing. A cleanout shall be provided at least every 100 feet.
2. Change of direction. An accessible cleanout shall be provided at each change in direction or grade, if the change exceeds 45 degrees.

D. SEPTIC TANKS - GENERAL REQUIREMENTS.

1. Easements. No septic tank shall be located upon another property or lot other than that property or lot upon which the wastewater originates unless easements to that effect are legally recorded and approved by the proper administrative authority.
2. Fill ground. Any septic tank placed in fill ground shall be placed upon an approved base.
3. Access. Access must be provided to all parts of septic tanks necessary for adequate inspection, operation, and maintenance in accordance with Section VIII F(3).

E. CAPACITY

1. Minimum capacity. Every septic tank shall have a minimum capacity below the water line as specified in the following table.

1-3 Bedroom homes	1,000 gal.
4 Bedroom homes	1,250 gal.
5 Bedroom homes	1,500 gal.
6 Bedroom homes	1,750 gal.
2. Approval required. In the event that any installation serves more than a six-bedroom home or its equivalent, or serves a facility other than a home with the equivalent of fifteen persons or less, approval of septic tank capacity and design must be obtained from the administrative authority. Sufficient liquid volume should be provided for a 24-hour fluid retention time at maximum sludge depth and scum accumulation.
3. Minimum depth. Minimum water depth in any compartment shall be four feet.
4. Maximum depth. Maximum depth of water for calculating capacity of the tank shall not exceed 6 feet.
5. Prohibited wastes. Septic tanks shall not be used for the disposal of chemical wastes or grease in quantities which might be detrimental to the bacterial action in the tank or for the disposal of drainage from roof drains, foundation drains, or area drains.

6. Effluent discharge requirements. All septic tank effluent shall discharge into a subsurface absorption system, an intermittent sand filter, a mound system or other system approved by the administrative authority.

#### F. CONSTRUCTION DETAILS

1. Compartmentation. Every septic tank shall be divided into or have the equivalent of two compartments as follows:
  - (1) The capacity of the influent compartment shall not be less than  $1/2$  nor more than  $2/3$  of the total tank capacity.
  - (2) The capacity of the effluent compartment shall not be less than  $1/3$  nor more than  $1/2$  of the total tank capacity.
2. Baffles. Either tees or baffles shall be used as inlet and outlet fixtures. Inlet baffles shall extend at least 8 inches above and 6 inches below the water level of the tank. The outlet baffle shall extend above the water level a distance of at least 8 inches and below the water level a distance of one quarter of the liquid depth. A minimum clearance above the baffle or tee of 2 inches shall be provided. The inlet pipe shall be a minimum of at least 2 inches higher than the outlet pipe. A horizontal separation of at least 36 inches shall be provided between the inlet baffle and the outlet baffle in each compartment. A horizontal slot 4 by 6 inches, or two suitably spaced 4-inch holes in the tank partition may be used instead of a tee or baffle, the top of the slot or holes to be located below the water level a distance of 0.28 times the liquid depth.
3. Access. An access opening shall be brought close to the ground surface and shall be so located, with respect to the type of tank construction, that sludge and scum measurements may be readily made. This opening shall be 8 inches in its least dimension. In the event the tank is covered by 24 inches or more of earth backfill, a manhole with a suitable cover shall be extended to within 6 inches of the ground surface, such manhole to be at least 30 inches in diameter and placed over an access opening in the top of the tank. In the event a one-piece concrete lid is used, one manhole of at least 24 inches in diameter shall be provided allowing access to each compartment.
4. Dimensions. Every septic tank or compartment shall have a minimum of 4.0 liquid feet from the bottom of the outlet pipe down to the floor; but a liquid depth greater than 6.0 shall not be considered in determining tank capacity. The length of a septic tank should not be less than 5.0 feet and should be approximately two to three times the width, but no tank or compartment shall have an inside width of less than 2.0 feet. The minimum inside diameter of a vertical cylindrical septic tank shall be 5.0 feet.



## G. CONSTRUCTION MATERIALS

1. Tanks shall be constructed of impervious material not subject to excessive corrosion or decay and capable of supporting the loads to which the tank will be subjected. Metal tanks are prohibited.
2. Tank baffles and baffle supports shall be constructed of heavy, durable plastic sanitary tees or other similar approved corrosion resistant material.
3. Inlet and outlet ports of pipe shall be constructed of heavy, durable plastic sanitary tees or other similar approved corrosion resistant material.
4. Wall thickness. Wall thickness for tanks shall conform to the following specifications:

Segmented blocks, bricks, etc. . . . .	8 inches thick
Poured concrete . . . . .	6 inches thick
Poured concrete, reinforced . . . . .	4 inches thick
Special concrete mix, vibrated and reinforced . . . . .	2 inches thick
Fiberglass or plastic . . . . .	(.25) inches thick

5. Tank bottoms. Septic tank bottoms shall conform to the specifications set forth for septic tank walls.
6. Tank tops. Concrete or masonry septic tank tops shall be a minimum of 4 inches in thickness and reinforced with 1/4-inch reinforcing rods in a 6-inch grid or equivalent. Fiberglass or plastic tank tops shall be a minimum of 1/4-inch in thickness and shall have reinforcing and be of ribbed construction.
7. Bedding. Fiberglass or plastic tanks shall be placed upon a firm bed of sand and the space between the tank and the excavation shall be filled with sand or similar stable granular material, or tanks shall be mounted on concrete pads. Provisions should be made to prevent flotation when the tanks are empty.
8. Coating. All concrete, block and brick surfaces in septic tanks shall be sealed for watertightness with a protective coating of bituminous materials.

## H. CONNECTING PIPES

1. Minimum diameter. The pipes connecting septic tanks installed in series may be 4 inches minimum diameter schedule 40 plastic pipe, if laid on firm bedding, or cast iron soil pipe of 4 inches minimum diameter.
2. Tank connections. All inlet and outlet connections at the septic tanks shall be sealed with an appropriate material.

3. Joints. All joints in connecting Schedule 40 plastic or cast iron pipes between septic tanks in series shall be approved plastic pipe connections or caulked lead or compression-type gaskets.
4. Pipe in unstable ground. Cast iron soil pipe shall be used extending across excavations or unstable ground to at least 2 feet beyond the point where the original ground has not been disturbed in septic tank installations. Schedule 40 plastic pipe may be substituted for cast iron soil pipe when laid on a firm bed of sand or similarly stable granular material extending from the bottom of the excavation to the centerline of the pipe throughout its entire length. The first 12 inches of backfill over the pipe shall be applied in thin layers using material free from stones, boulders, large frozen chunks of earth or any similar material that would damage or break the pipe.

## SECTION IX SUBSURFACE ABSORPTION SYSTEMS

### A. GENERAL REQUIREMENTS

1. All subsurface absorption systems shall be located on the property to maximize the vertical separation distance from the bottom of the absorption trench to the seasonal high ground water level, bedrock or other limiting layer, but under no circumstances shall this vertical separation be less than 3.0 feet.
2. During a site analysis and investigation, maximum use should be made of soil survey reports which are available from USDA Soil Conservation Service for most of the counties in Iowa. An identification of the percolation potential can be made from soil map units in Iowa by scientists representing the multiagencies contributing to the Iowa Cooperative Soil Survey Program.
3. Percolation test procedures. Percolation tests are required before any lateral field is installed.
4. Only licensed contractors or professional engineers shall perform percolation tests for single family dwellings. An engineer shall perform percolation tests for Subdivisions, Commercial, Industrial, Multi Unit Housing and Special Uses. Contractors or engineers shall not be permitted to perform percolation tests for projects being erected for personal use or for projects in which they have a pecuniary interest.
5. A minimum of three test holes distributed evenly over the proposed lateral field are required.

6. Percolation test holes shall be 4 to 12 inches in diameter and to the same depth as the proposed absorption trenches (not to exceed 36 inches in depth).
7. Sides and bottoms of the test holes shall be scratched or roughened to provide a natural surface. All loose material shall be removed from each hole.
8. The bottoms of the test holes shall be covered with approximately 2 inches of rock to protect the bottom from scouring action when the water is added.
9. Fill hole with at least 12 inches of clean water and maintain this depth for at least 4 hours and preferable overnight if clay soils are present. It is important that the soil be allowed to soak for a sufficiently long period of time to allow the soil to swell if accurate results are to be obtained.
10. In sandy soils with little or no clay, soaking is not necessary. If, after filling the hole twice with 12 inches of water, the water seeps completely away in less than 10 minutes, the test can proceed immediately.
11. Except for sandy soils, percolation rate measurements should be made at least 15 hours but no more than 30 hours after the soaking period began. Any soil that sloughed into the hole during the soaking period is removed and the water level is adjusted to 6 inches above the gravel (or 8 inches above the bottom of the hole). At no time during the test is the water level allowed to rise more than 6 inches above the gravel.
12. Immediately after adjustment, the water level is measured from a fixed reference point to the nearest 1/16 inch at 30-minute intervals. The test is continued until two successive water level drops do not vary by more than 1/16 inch. At least three measurements are made.
13. After each measurement, the water level is readjusted to the 6-inch level. The last water level drop is used to calculate the percolation rate.
14. In sandy soils or soils in which the first 6 inches of water added after the soaking period seeps away in less than 30 minutes, water level measurements are made at 10-minute intervals for a 1-hour period. The last water level drop is used to calculate percolation rate.
15. The percolation rate is calculated for each test hole by dividing the time interval used between measurements by the magnitude of the last water level drop. This calculation results in a percolation rate in terms of

minutes per inch. To determine the percolation rate for the area, the rates obtained from each hole are averaged. (If tests in the area vary by more than 20 minutes per inch, variations in soil type are indicated. Under these circumstances, percolation rates should not be averaged.) Example: If the last measured drop in water level after 30 minutes is  $5/8$  inch, the percolation rate =  $(30 \text{ minutes}) / (5/8 \text{ inch}) = 48 \text{ minutes/inch}$ .

16. An area is deemed suitable for conventional soil absorption if the averaged percolation test rate is sixty minutes per inch or less and greater than one minute per inch. However, if an alternative type system is proposed (mound, etc.) then the percolation test should be extended to determine whether a percolation rate of 120 minutes per inch is achieved.
17. An additional test hole 6 feet in depth or to rock, whichever occurs first, shall be provided in the center of the proposed absorption area to determine the location of ground water or rock formations. This 6-foot test hole may be augered the same size as the percolation test holes or may be made with a soil probe.
18. The lineal feet or square footage of required absorption fields, as determined from percolation test results, are listed in Tables IIIa, IIIb and IIIc.
19. Storm drains. Roof, foundation and storm drains shall not discharge into nor upon subsurface absorption systems.
20. Prohibited construction. There shall be no construction of any kind, including driveways, covering the septic tank, distribution box or absorption field of an onsite wastewater treatment and disposal system.
21. Connecting lines. Connecting lines under driveways shall be constructed of cast iron or Schedule 40 plastic pipe, and shall be insulated to prevent freezing.
22. Easements. No wastewater shall be discharged upon any property or lot other than the property or lot upon which it originates unless easements to that effect are legally recorded and approved by the administrative authority.
23. Ground water. If ground water is present within three feet of the final grade, the area shall be classified as unsuitable for the installation of a subsurface absorption system. Consult the administrative authority for an acceptable alternative method of wastewater treatment.
24. Site limitations. In situations where specific location or site characteristics would appear to prohibit normal installation of onsite wastewater treatment and disposal systems, design modifications may be approved by the



administrative authority which could overcome such limitations. Examples of such modifications could be the installation of subsurface drainage, use of shallow trenches, use of dual soil treatment areas or water conservation plans.

## B. PERCOLATION RATES

1. Percolation charts. Table IIIa, percolation chart, specifies lineal feet of lateral trenches required in accordance with the results of the standard percolation tests. Tables IIIb and IIIc list optional methods for determining length of lateral trenches or sizing of absorption beds. The alternative option for increased rock usage (Table IIIb) is used when the size of lots limits the use of trench lengths prescribed in Table IIIa. Absorption beds (Table IIIc) are generally installed only when the lot size limitations preclude the installation of a lateral trench system. Further details concerning limitations of these two alternatives should be obtained from the administrative authority prior to requesting authorization for installation.
2. Unsuitable absorption. In the event the percolation rate exceeds 60 minutes per inch of water absorption, the soil conditions are unsuitable for the use of a subsurface absorption system. Soils with a percolation rate below one minute per inch are also unsuitable. Plans for an alternative method of wastewater treatment shall be submitted to the administrative authority for approval prior to construction.

Table IIIa

Percolation Chart  
(Lineal feet of absorption trench)

Min. Per Inch	Two-Bedroom 300 gal/day	Three-Bedroom 450 gal/day	Four-Bedroom 600 gal/day	Five-Bedroom 750 gal/day	Six-Bedroom 900 gal/day
5-10	200	265	320	385	460
11-15	230	300	360	435	520
16-20	275	365	440	530	635
21-25	325	420	500	600	720
26-30	360	470	565	680	815
31-35	390	510	615	740	890
36-40	420	550	660	790	950
41-45	450	585	700	840	1,010
46-50	475	615	740	890	1,070
51-55	495	645	775	930	1,115
56-60	510	660	800	960	1,150

Table IIb

Alternative Option for Increased Rock Usage

<u>Depth of gravel</u> <u>Below distribution line</u>	<u>Reduction in trench lengths</u> <u>as taken from Table IIIa</u>
12"	20%
18"	33%
24"	40%

Table IIc

Alternative Option for Use of Absorption Bed

<u>Percolation Rate</u> <u>Min./Inch</u>	<u>Absorption</u> <u>Area/Bedroom</u> <u>Sq.Ft.</u>	<u>Loading Rate/Day</u> <u>Gal/Sq.Ft.</u>
0 - 35	250	.6
6 - 10	330	.45
11 - 30	500	.3

## C. CONSTRUCTION DETAILS

1. Depth. Lateral trenches shall not exceed 36 inches in depth. Not less than 6 inches of porous soil shall be provided over the laterals. Minimum separation between trench bottom and ground water or rock formation shall be 36 inches.
2. Width. Lateral trenches shall be a minimum of 18 inches and a maximum of 36 inches in width at the bottom of the trench. In the event a trenching machine is used to excavate a wider trench, the lineal feet of lateral required shall remain the same as required for an 18-inch trench. Smeared or compacted trench sidewalls and bottoms must be scarified.
3. Gravel. A minimum of 6 inches of clean, washed gravel shall be laid below the distribution pipe, and enough gravel shall be used to cover the pipe. This gravel shall be of such size as will pass a 2-1/2-inch screen 100 percent and will be retained 100 percent on a 3/4-inch screen. When using clean, washed concrete stone, the size shall fall between 1 inch and 2-1/2 inches in size.
4. Grade. A maximum grade of 6 inches per 100 feet of run shall be given the distribution pipe.

5. Pipe. Distribution pipe shall be not less than 4 inches inside diameter and for open joint clay tile systems not more than 12 inches in length. The tile should be laid with one-quarter inch open joints and strips of tar or asphalt treated paper about 4 inches wide should cover the top half of each joint. Perforated distribution tile or pipe of PVC or other suitable material may also be used in lieu of open-joint tile lines. Perforations shall be at least one-half inch and no more than three-fourths inch in diameter and spaced to provide at least the equivalent total opening of comparable diameter foot-long clay tile laid with one-fourth inch open joints.
6. Joint cover. All open joints in the distribution pipes which would permit entry of material into the pipe shall be covered with tarred felt (tar paper).
7. Gravel cover. Unbacked, rolled, 3-1/2 inches thick fiberglass insulation, untreated building paper, synthetic drainage fabric, 4 inches to 6 inches of marsh hay or straw or other approved material, shall be so laid as to separate the gravel from the porous backfill.
8. Compaction. There shall be minimum use or traffic of heavy equipment on the area proposed for soil absorption. In addition, it is prohibited to use heavy equipment on the bottom of the absorption area.

#### D. DISTRIBUTION BOX

1. Design. When a distribution box is used, it shall be of proper design and installed with separate watertight headers leading from the distribution box to each lateral.
2. Outlets. The distribution box shall have outlets at the same level at least 4 inches above the bottom of the box to provide a minimum of 4 inches of water retention in the box.
3. Baffles. There shall be a tee or baffle at the inlet to break the water flow.
4. Unused outlets. All unused outlet holes in the box shall be securely closed.
5. Interior coating. All distribution boxes shall be constructed of corrosion resistant materials, or if constructed of concrete, shall be given a minimum of one coat of bituminous-type material.
6. Outlet levels. All outlets of the distribution box shall be made level. A small dam of bituminous or similar material in each outlet of the box will facilitate the leveling of these outlets.

7. Equal length required. The soil absorption area serviced by each outlet of the distribution box shall be equal.
8. Effluent discharge. Each distribution box shall discharge into a subsurface absorption field or other approved secondary treatment system.

## SECTION X PRESSURE SYSTEMS

### A. GENERAL REQUIREMENTS

1. Pump requirement. In the event the effluent from the septic tank outlet cannot be discharged by gravity so as to maintain proper lateral depths, the effluent shall discharge into a watertight vented pump pit with an inside diameter of not less than 24 inches, equipped with a tight-fitting manhole cover at grade level. The sump vent shall extend a minimum of 6 inches above grade level and shall be a minimum size of 1-1/4 inches fitted with a return bend. The pump shall be of a submersible-type of corrosion-resistant material.
2. Pump setting. The pump shall be installed in the pump pit in such a manner so as to insure ease of service and protection from frost and settled sludge and to provide a minimum dosing frequency of two times per day. All electrical devices in the pump pit shall be properly sealed and resistant to corrosion.
3. Pressure line size. The pressure line from the pump to the point of discharge shall not be smaller than the outlet of the pump it serves.
4. Drainage. Pressure lines shall be installed to provide total drainage between dosings to prevent freezing.

## SECTION XI GRAVELLESS SYSTEMS

### A. GENERAL REQUIREMENTS

1. Gravelless subsurface absorption systems may be used as an alternative to conventional 4-inch pipe placed in gravel-filled trenches; however, they cannot be used in areas where conventional systems would not be allowed due to poor permeability, high ground water, or insufficient depth to bedrock.
2. Design approval for these systems must be obtained from the administrative authority prior to installation, and all manufacturing specifications and installation procedures shall be closely adhered to.



3. The 8 and 10-inch I.D. corrugated polyethylene tubing used in gravelless systems shall meet the requirements of ASTM F667, Standard Specification for Large Diameter Corrugated Polyethylene Tubing.
4. Two rows of perforations shall be provided located 120 degrees apart along the bottom half of the tubing (each 60 degrees up from the bottom centerline). Perforations shall be cleanly cut and uniformly spaced along the length of the tubing and should be staggered so that there is only one hole in each corrugation.
5. The tubing should be visibly marked to indicate the top of the pipe.
6. All gravelless drainfield pipe shall be encased, at the point of manufacture, with a filter wrap of spun bonded nylon, knitted polyester or other suitable materials.
7. The trench for the gravelless system shall be dug with a level bottom. On sloping ground, the trench should follow the contour of the ground to maintain a level trench bottom and to ensure a minimum backfill of six (6) inches.
8. It is recommended that the minimum trench width for the gravelless system be 18 inches in sandy loam soil to ensure proper backfill around the bottom half of the pipe. In clay soils, the minimum trench width should be 24 inches.
9. The gravelless system may be installed at a trench bottom depth of 18 inches minimum to 36 inches maximum, but a more shallow trench bottom depth of 18 to 24 inches is recommended.
10. To promote equal effluent and suspended solids distribution, the slope of the drain pipe should be 0 to 0.5 inches per 100 feet.
11. The total length of absorption trench for an 8-inch gravelless tubing installation shall be the same as given in Table IIIa for a conventional absorption trench.
12. A reduction of up to 20 percent in total trench length may be considered if 10-inch tubing is used rather than 8-inch.

## SECTION XII MOUND SYSTEMS

A. Mound systems shall be designed by a registered professional engineer and reviewed by the Board of Health prior to construction.

## B. GENERAL REQUIREMENTS

1. Mound systems shall be permitted only after a thorough site evaluation has been made and landscaping, dwelling placement, effect on surface drainage and general topography have been considered.
2. Mound systems shall not be utilized on sites which are subject to flooding with a 10-year frequency.
3. Mound systems shall not be utilized on soils where the high ground water level or bedrock occur within 20 inches of natural grade; or where soil strata having a percolation rate exceeding 120 minutes per inch occur within 20 inches of natural grade.
4. Mound systems shall be constructed only upon undisturbed naturally occurring soils.
5. Mound systems shall be located in accordance with the distances specified in Table I as measured from the outer edge of the mound.
6. No buildings, driveways or other surface or subsurface obstructions shall be permitted within 50 feet on the down gradient side of the mound when said mound is constructed on a slope. No future construction shall be permitted in this effluent disposal area as long as the mound is in use.

## C. MATERIAL FOR MOUND FILL

1. The mound shall be constructed using clean, medium-textured sand, sometimes referred to as concrete sand. The sand size shall be at least twenty-five percent with diameters between 2.0 and 0.25mm, less than thirty-five percent with diameters between 0.25 and 0.05mm and less than five percent with diameters between 0.002 and 0.05mm.
2. Rock fragments larger than 1/16 inch (2.0mm) shall not exceed fifteen percent by weight of the material used for sandy fill.

## D. CONSTRUCTION DETAILS

1. There shall be a minimum of three feet of fill material and undisturbed naturally occurring soils between the bottom of the washed gravel or concrete stone and the highest elevation of the limiting conditions defined in subrule Section XII, B-3.
2. Gravel or concrete aggregate shall be washed and shall range in size from 1/2 to 2-1/2 inches.

3. A minimum of 1 foot of medium-grade sand must be placed between the bottom of the gravel or concrete aggregate and the top of the plowed surface of the naturally occurring soil.
4. Mound systems shall utilize absorption bed distribution design and shall not be installed on land with a slope greater than six percent. The bed shall be installed with the long dimension parallel to the land contour.
5. Minimum spacing between distribution pipes shall be 4 feet, and a minimum of 3 feet shall be maintained between any trench and the sidewall of the mound.
6. No soil under or up to 50 feet down gradient of the mound may be removed or disturbed except as specified herein.
7. Construction equipment which would cause undesirable compaction of the soil shall be kept off the base area. Construction or plowing shall not be initiated when the soil moisture content is high. If a sample of soil from approximately 9 inches below the surface can be easily rolled into a 1/8 to 1/4 inch diameter wire, the soil moisture content is too high for construction purposes.
8. Above-ground vegetation shall be closely cut and removed from the ground surface throughout the area to be utilized for the placement of the fill material.
9. The area shall be plowed to a depth of 7 to 8 inches, parallel to the land contour with the plow throwing the soil upslope to provide a proper interface between the fill and the natural soil. Tree stumps should be cut flush with the surface of the ground, and roots should not be pulled.
10. The soils with a percolation rate of 61 to 120 minutes per inch are to be calculated on the basis of .25 gal. per sq. ft. per day.
11. The base area of the mound is to be calculated on the results of percolation rate as indicated in Table IV. The base area of the mound below and downslope from the trenches, excluding the area under the end slopes, must be large enough for the natural soil to absorb the the estimated daily wastewater flow.

12.

Table IV

<u>Percolation Rate Min./Inch</u>	<u>Permeability</u>	<u>Application Rate Gal./Square Foot/Day</u>
<u>Less than 1</u>	<u>Excessive</u>	<u>Not Suitable</u>
1 - 10	Very High	1.25
10 - 20	High	1.00
20 - 35	Moderate	.75
35 - 50	Slow	.50
50 - 120	Very Slow	.25
Over 120	Too Slow	Not Suitable

13. The area of the fill material shall be sufficient to extend 3 feet beyond the edge of the gravel area before the sides are shaped to a 4:1 slope.

#### E. DISTRIBUTION SYSTEM

1. The distribution pipe shall be rigid plastic pipe, schedule 40 or 80 with 1-inch nominal diameter.
2. The distribution pipe shall be provided with a single row of 1/4-inch perforations in a straight line 30 inches on center along the length of the pipe or an equivalent design that assures uniform distribution. All joints and connections shall be solvent cemented.
3. The distribution pipe shall be placed in the clean gravel or concrete aggregate with holes downward. The gravel or stone shall be a minimum of 9 inches in depth below and 3 inches in depth above the pipe.
4. No perforations shall be permitted within 3 inches of the outer ends of any distribution pipes.
5. The outer ends of all pressure distribution lines shall be securely capped.
6. The central pressure manifold should consist of 1 and 1/2 inch or 2-inch solid plastic pipe using a tee or cross for connecting the distribution lines.
7. Construction should be initiated immediately after preparation of the soil interface by placing all of the sandy fill material needed for the mound (to the top of the trench) to a minimum depth of 21 inches above the plowed surface. This depth will permit excavation of the trenches to accommodate the 9 inches of washed gravel or crushed stone necessary for the distribution piping.



8. Hand excavate the absorption trench or trenches to a depth of 9 inches making certain that the bottoms of the trenches are level.
9. Place 12 inches of gravel in the trench, hand level, and then remove 3 inches of the gravel with a shovel in the location where the distribution pipe will be placed. After placing the distribution pipe, cover the pipe with 2 inches of gravel.
10. The top of the gravel shall be covered with unbacked, rolled 3-1/2 inch thick figerglass insulation, untreated building paper, synthetic drainage fabric, or a 4 to 6-inch layer of march hay or straw or other suitable material. Plastic or treated building paper shall not be used.
11. After installation of the distribution system, gravel and material over the gravel, the entire mound is to be covered with topsoil native to the site or of similar characteristics to support vegetation found in the area. Crown the entire mound by providing 12 inches of topsoil on the side slopes with a minimum of 18 inches over the center of the mound. The entire mound shall be seeded, sodded or otherwise provided with a grass cover to assure stability of the installation.
12. The area surrounding the mound shall be graded to provide for diversion of surface runoff water.

#### F. DOSING

1. Pressure dosing shall be required for mound systems.
2. The mound system shall be dosed not more than two times per day.
3. The size of the dosing pump or siphon shall be capable of maintaining an approximate pressure of one psi at the outer ends of the distribution lines.

### SECTION XIII INDIVIDUAL MECHNICAL AEROBIC WASTEWATER TREATMENT SYSTEMS

#### A. GENERAL REQUIREMENTS

1. All individual mechanical aerobic wastewater treatment plans shall be designed by a registered professional engineer, licensed to practice in the state of Iowa. The design shall meet the standards prescribed in Standard No. 40, Sec. 5 and Sec. 6 of the National Sanitation Foundation and any other Federal, State and local standards.

2. All individual mechanical aerobic wastewater treatment plants shall be installed, operated and maintained in accordance with the manufacturer's instructions and the requirements of the administrative authority. The aerobic plants shall have a minimum treatment capacity of 150 gallons per bedroom per day or 500 gallons, whichever is greater. Installation of these types of plants should be restricted to those locations where they can be monitored by the local administrative authority.
3. The effluent from individual mechanical aerobic wastewater treatment plants shall receive additional treatment through the use of intermittent sand filters, mound systems or subsurface absorption systems of the same magnitude as prescribed in rules Section IX, Section XII, and Section XIV.
4. Maintenance agreements and responsibility waivers shall be recorded in the abstract of title for the premise on which mechanical aerobic treatment systems are installed.
5. These types of systems are allowed only when site conditions preclude any other type of individual private wastewater disposal system as described in this regulation.

#### SECTION XIV INTERMITTENT SAND FILTERS

##### A. GENERAL REQUIREMENTS

1. All intermittent sand filters shall be designed by a registered engineer and reviewed by the Board of Health prior to construction.
2. Location. Intermittent sand filters shall be located in accordance with the distances specified in Table I.
3. Use. Intermittent sand filters shall be used when the administrative authority determines that this method of wastewater treatment is deemed necessary for the protection of the public health.
4. Sampling. A sampling port must be installed at the discharge point or in the discharge line. Effluent sampling of intermittent sand filters shall be performed during the early spring, midsummer and early fall of each year or as directed by the administrative authority. The maximum carbonaceous BOD<sub>5</sub> inhibited and fecal coliform count requirements are as follows:

Effluents Discharging To	Fecal Coliform/100ml	CBOD5
Class "A" waters:		
Primary contact water use*	200	25
Class "B" waters:		
Secondary contact water use	no limit	25
Class "C" waters:		
Source of potable water supply	no limit	25
General water quality criteria	no limit	25

\* A separation distance of 750 feet shall be maintained between any point of discharge and a primary recreational area as specified in the "Recommended Standards for Bathing Beaches" of the Great Lakes-Upper Mississippi River Board of State Public Health and Environmental Managers.

5. Prohibited construction. There shall be no construction such as buildings or concrete driveways, covering any part of an intermittent sand filter.

#### B. CONSTRUCTION

1. Number. A subsurface sand filter shall consist of one filtering bed or two or more filtering beds connected in series and separated by a minimum of 6 feet of undisturbed earth.
2. Pipelines. Each bed shall contain horizontal sets of distribution lines and collector lines. These lines shall be equivalent to Schedule 40 PVC pipe or other suitable materials.
3. One collector line shall be provided for each 6 feet of width or fraction thereof. A minimum of 2 collector lines shall be provided. The upper end of each collector line shall be sealed or plugged.
4. The collector lines shall be laid to a grade of one inch in 10 feet (or 0.5 to 1.0%). The tops of open joints in the collector lines may be covered with tarred felt (tar paper) to prevent intrusion of the media.
5. Gravel 3/4 inch to 2-1/2 inches in size shall be placed around and over the lower collector lines until there is a minimum of 4 inches of gravel over the pipes.

6. The gravel shall be overlain with a minimum of 3 inches of washed pea gravel 1/8 inch to 3/8 inch size interfacing with the filter media.
7. A minimum of 24 inches of coarse washed sand shall be placed over the pea gravel. The sand shall have an effective size of 0.5 to 2.0mm with a uniformity coefficient of less than 3.5. Not more than 1.0% of the media shall be less than 0.13mm in size.
8. Six inches of gravel 3/4 inch to 2-1/2 inches in size shall be placed upon the sand in the bed.
9. Distribution lines shall be level and shall be horizontally spaced a maximum of 3 feet apart, center to center.
10. Venting shall be placed on the downstream end of the distribution lines with each distribution line being vented or connected to a common vent. Vents shall extend at least 12 inches above the ground surface with the outlet screened, or provided with a perforated cap.
11. Enough gravel shall be carefully placed to cover the distributors.
12. A layer of material such as unbacked, rolled 3-1/2 inches thick fiberglass insulation, untreated building paper of 40 to 60 lb. weight, synthetic drainage fabric or 4 inches to 6 inches of marsh hay or straw shall be placed upon the top of the upper layer of gravel. In dry sandy soils, a 4-inch layer of hay or straw covered with untreated building paper is suggested to prevent the backfill from filtering down into the rock unless fiberglass or drainage fabric is used.
13. A minimum of 12 inches of backfill shall be provided over the beds.

#### C. DISTRIBUTION BOXES

1. A distribution box shall be provided for each filter bed.
2. Box location. The distribution boxes shall be placed upon undisturbed earth outside the filter bed.
3. Distribution. Separate watertight lines shall be provided leading from the distribution boxes to each of the distributor lines in the beds.

#### D. PUMPS

1. A pump shall be installed when adequate elevation is not available for the system to operate by gravity.
2. The pump shall be of corrosion-resistant material.



3. The pump shall be installed in a watertight pit.
4. The dosing system shall be designed to flood the entire filter during the dosing cycle. A dosing frequency of greater than two times per day is recommended.

#### E. DOSING SIPHONS

1. When a dosing siphon is used where elevations permit, such siphon shall be installed as follows:
  - a. Dosing siphons shall be installed between the septic tank and the first filter bed.
  - b. Dosing siphons shall be installed with strict adherence to the manufacturer's instructions.
2. Dosing tanks. The dosing tank shall be of such size that the siphon will flood the entire filter during the dosing cycle. A dosing frequency of greater than two times per day is recommended.

#### F. SIZING OF SUBSURFACE SAND FILTERS

1. Residential systems shall be sized at a rate of 240 square feet of surface area per bedroom.
2. Effluent application rates for commercial systems shall not exceed the following:
  - a. 1.5 gallon/square feet/day for double bed sand filters.
  - b. 1.0 gallon/square feet/day for single bed sand filters.
  - c. Total surface area for any sand filter system shall not be less than 200 square feet.

#### G. FREE ACCESS SAND FILTER

1. Description. Media characteristics and underdrain systems for free access filters are similar to those for subsurface filters. Distribution is often provided through pipelines and directed on splash plates located at the center or corners of the sand surface. Occasionally, troughs or spray nozzles are employed as well, and ridge and furrow application has been successful during winter operation in severe climatic conditions. Dosing of the filter should provide for flooding the bed to a depth of approximately 2 inches. Dosing frequency is usually greater than two times per day. For coarser media (greater than 0.5mm), a dosing frequency greater than 4 times per day is desirable. Higher acceptable loadings on these filters as compared to subsurface filters relates primarily to the accessibility of the filter surface for maintenance. Gravel is not used on top of the sand media, and the distribution pipes are normally exposed above the surface.

2. Distribution. Distribution to the filter may be by means of troughs laid on the surface, pipelines discharging to splash plates located at the center or corners of the filter, or spray distributors. Care must be taken to insure that lines discharging directly to the filter surface do not erode the sand surface. The use of curbs around the splash plates or large stones placed around the periphery of the plates will reduce the scour. A layer of washed pea gravel placed over the filter media may also be employed to avoid surface erosion. This practice will create maintenance difficulties, however, when it is time to rake or remove a portion of the media surface.
3. Covers. Free access filters may be covered to protect against severe weather conditions, and to avoid encroachment of weeds or animals. The cover also serves to reduce odor conditions. Covers may be constructed of treated wooden planks, galvanized metal, or other suitable material. Screens or hardware cloth mounted on wooden frames may also serve to protect filter surfaces. Where weather conditions dictate, covers should be insulated. A space of 12 to 24 inches should be allowed between the insulated cover and sand surface.
4. Loading. The hydraulic loading for free-access sand filters should be from 2.0 to 5.0 gpd/sq.ft. when treating septic tank effluent and 5.0 to 10.0 gpd/sq.ft. when treating the effluent from a mechanical aerobic wastewater treatment facility.
5. Number of filters. Dual filters each sized for the design flow, are recommended for treating septic tank effluent. Single filters are adequate for mechanical aerobic wastewater treatment facility effluent.

## SECTION XV IMPERVIOUS VAULT TOILETS

### A. GENERAL REQUIREMENTS

1. All impervious vault toilets hereafter constructed or required by the administrative authority to be reconstructed shall comply with the following requirements:
2. Location. Impervious vault toilets shall be located in accordance with the distances given in Table I.
3. Construction. The vault shall be constructed of reinforced, impervious concrete at least 4 inches thick. The superstructure including floor slab, seat, seat cover, riser and building shall comply with good design and construction practices to provide permanent safe, sanitary facilities. The vault shall be provided with a cleanout opening fitted with a fly-tight cover.

4. Requirements for portable toilets. All portable toilets shall be designed to receive and retain the wastes deposited therein and shall be located and maintained in a manner that will prevent the creation of any nuisance condition.

## SECTION XVI CHEMICAL TOILETS

### A. GENERAL REQUIREMENTS

1. Tank. Chemical toilets for use in isolated residences shall have a receptacle of smooth, impervious material that is resistant to chemicals and easily cleanable.
2. Vent. When vents are required for chemical toilets, they shall be of durable corrosion-resistant material installed in a womanlike manner.
3. Mixing and chemical charge. The fixture shall be equipped with a mixing device and shall be charged with a chemical or chemicals of bactericidal nature and proper concentration. Chemical recharges shall be added and mixed with the contents when necessary to maintain sufficient solution strength and to suppress odors.
4. Toilet rooms. Chemical toilets shall be located in toilet rooms which are well-lighted, ventilated and maintained in a nuisance-free condition.

### B. FINAL DISPOSAL OF RECEPTACLE CONTENTS

1. The receptacle contents shall be disposed of in such a manner that a nuisance will not be created. The recommended method of disposal is discharging to a municipal sewage treatment facility.

### C. OTHER METHODS OF WASTEWATER DISPOSAL

1. Other methods or types of private wastewater treatment and disposal systems shall be installed only after plans and specifications for each project have been approved by the administrative authority.

## SECTION XVII SEPTAGE DISPOSAL

A. Disposal of septage from onsite wastewater treatment and disposal systems. The collection, storage, transportation and disposal of all septage shall be carried out in a sanitary manner which does not endanger the public health or create a nuisance condition.

## B. METHODS OF SEPTAGE DISPOSAL

1. Discharge (with owner approval) to a municipal or other permitted wastewater treatment system.
2. Discharge (with owner approval) to permitted sludge lagoons or sludge drying beds.

C. Land application of stabilized septage shall be in accordance with these rules:

1. Septage is considered stabilized if treated as follows:  
Stabilize the septage by adding and thoroughly mixing sufficient lime to produce a mixture with a pH of 12.  
Provide a minimum of two hours of contact time after mixing the lime with the septage prior to applying to land.

D. Discharge (with owner approval) to a permitted sanitary landfill in accordance with Chapters 102 and 103 of these rules and the following requirements:

1. Stabilize the septage by adding and thoroughly mixing sufficient lime to produce a mixture with a pH of 12.
2. Provide a minimum of two hours of contact time after mixing the lime with the septage prior to applying to the landfill.
3. Dewater the septage.
4. Obtain a special waste authorization permit from the department.

## SECTION XVIII SLUDGE PUMPERS/HAULERS

A. Individual Administrative authorities shall have the option to require a licensing program for sludge pumper/haulers in their respective counties. As a minimum, these program may include but not be limited to the following program elements.

1. Fee assessment for all qualified pumpers/haulers.
2. Periodic inspection of pumpers/haulers equipment.
3. Require minimum equipment standards.
4. Provide acceptable disposal methods for pumper/haulers.
5. Require pumpers/haulers to maintain a log of day-to-day activities including specific information about individual systems.



6. Require pumpers/haulers to periodically submit requested log information to administrative authority.

SECTION XIX  
ALTERNATIVE OR INNOVATIVE ON-SITE WASTEWATER  
TREATMENT AND DISPOSAL SYSTEMS

A. Alternative or innovative systems are to be designed in accordance with, and operated in accordance with approved standards and operating procedures established by individual administrative authorities.

1. Plans and specifications, meeting all applicable rule requirements, should be prepared and submitted to the administrative authorities by a registered professional engineer. Included with the engineering submittal should be adequate supporting data relating to the effectiveness of the proposed system.
2. For systems designed to discharge treated effluent into waters of the state, it will be necessary to obtain a discharge permit from the department of natural resources. The administrative authority is responsible for determining that the requirements of the permit are met including the monitoring program.
3. Wastewater management districts may be formed for the purpose of providing specialized control of on-site wastewater treatment and disposal systems located in certain problem areas or in intensive development areas. Formation of such wastewater management districts shall be coordinated under the guidance of the administrative authority and shall meet all applicable rule requirements.

SECTION XX  
INSPECTIONS

A. Wherever the public health sanitarian or designated representative of the Board, has reasonable ground to believe a violation of the ordinance exists, such employee shall ask permission of the owner or occupant to enter upon and make an inspection of such premises, dwelling or other building, and to gather other necessary information, including water samples or other necessary specimens for the purpose of laboratory analysis, or to introduce into the system necessary testing materials for tracing the source of any apparent sewage discharge to the surface of the ground. The provisions of this section shall apply to all premises, buildings, or dwellings, vacant or occupied. The public health sanitarian, or designated representative of the Board, may make as many additional inspections of such premises as are necessary, and for which that person shall have permission.

SECTION XXI  
REFUSAL OF ADMITTANCE

A. In the event the public health sanitarian, in proceeding to enter any premises for the purpose of making an inspection to carry out the provisions of this ordinance, is refused entry to all or part of the structure, a complaint may be made under oath to any magistrate of the county, and said magistrate may thereupon issue a warrant directed to some peace officer of the county commanding that officer between the hours of sunrise and sunset, accompanied by the public health sanitarian, or designated representative of the Board, to enter upon such premises and to make such inspection, and to obtain such samples as may be required to carry out the provisions of this ordinance, which order shall be executed by said officer in accordance with the request of the public health sanitarian.

SECTION XXII  
NOTICE

A. Whenever the public health sanitarian determines that there are reasonable grounds to believe that there has been a violation of any provision of this ordinance, that employee shall give notice of such alleged violation to the persons responsible therefor, as hereinafter provided. Such notice shall:

1. Be in writing.
2. Include a statement of the reasons why it is being issued and the section or sections being violated.
3. Request compliance with this ordinance.
4. Allow a reasonable time for the performance of any act it requires.
5. Be served upon the owner, or agent of, or the occupant, as the case may require; provided that such notice shall be deemed to be properly served upon such personally, or if a copy thereof is sent by certified mail to the last known address; or if a copy thereof is posted in a conspicuous place in or about the premises affected by the notice, and notice is published in accordance with the Rules of Civil Procedure, or if served with such notice by any other method authorized or required under the laws of this state.
6. Such notice may contain an outline of remedial action which, if taken, will effect compliance with the provision of this ordinance.

SECTION XXIII  
HEARINGS

A. In the event any person is aggrieved by any action taken by the public health sanitarian, such person may within twenty (20) days of the date of such action appeal to the local board, and such appeal shall be in writing delivered to the Chickasaw County Health Department, and shall state the reason for requesting such action be rescinded or modified. If in said appeal a hearing before the local board is requested, such hearing shall be granted on or before the next regularly scheduled local board meeting. If the request for hearing is served within seven days of the next regularly scheduled Board of Health meeting, the hearing may be deferred until the following regularly scheduled meeting; but in no event shall a hearing be held more than thirty (30) days after service of the request. If no request is made for a hearing, the right of hearing shall be deemed waived. The local board shall review the action of public health sanitarian, and if reasonable grounds exist, shall modify, withdraw or order compliance with the said action.

#### SECTION XXIV JURISDICTION

A. The provision of the ordinance shall apply throughout Chickasaw County, Iowa, including cities and towns therein.

#### SECTION XXV ENFORCEMENT

A. It shall be the duty of the Chickasaw County Board of Health to enforce the provisions of the ordinance, and this duty may be delegated to an authorized representative.

#### SECTION XXVI PENALTY

A. Any person violating this ordinance or any provision thereof after an order of the public health sanitarian, or local board, and after the time for the appeal has expired, or who interferes or obstructs the local board or public health sanitarian in the conduct of official duties, shall be guilty of a misdemeanor and upon conviction thereof may be fined not more than One Hundred Dollars (\$100.00) or imprisoned in jail for a period not to exceed thirty (30) days. Each day that a violation exists constitutes a separate offense.

#### SECTION XXVII SEVERABILITY CLAUSE

A. If any part of this ordinance is found to be inconsistent or in conflict with state and/or federal legal principals, that part shall not invalidate the remainder of the ordinance.



SECTION XXVIII  
SUPPLEMENTAL AUTHORITY

A. No section, clause or provision of this ordinance shall limit the authority of the public health sanitarian, or local board to obtain injunctive or other relief or to enforce public health laws or regulations or standards in any other lawful manner.




EFFECTIVE DATE: This Ordinance shall be in full force and effect after final passage and publication of Ordinance in full. Any and all prior rules and regulations enacted by the Chickasaw County Board of Health pertaining to residential on-site sewage treatment are hereby repealed.

VOTES AS FOLLOWS: AYES: ALLEN D. BORLAUG NAYS: NONE  
FRANK J. ASHLEY  
FRANK SCOTT  
ARNIE BOGE

ABSENT: MARY BETH DONOVAN

PASSED AND ADOPTED this 8th day of August, 1988.

ATTEST:

  
Gloria Hansen County Auditor

Allen D. Borlaug  
Allen D. Borlaug, Chairman  
Chickasaw County Board of Supervisors

Passed and Approved by the Chickasaw County Board of Health on the 14th day of June, 1988.

ATTEST:

Jane Lynch  
Jane Lynch, Board of Health  
Secretary

Thomas Deutsch  
Thomas Deutsch, Chairman, Chickasaw  
County Board of Health

Date 6/14/88

Motion by G Dole D.O. seconded by Arnie Boye

that the Chickasaw County Board of Health approve the ordinance titled "Chickasaw County, Iowa Residential On-Site Sewage Treatment Ordinance" a copy of which is on file with the Secretary, and that the ordinance be forwarded to the Chickasaw County Board of Supervisors with the Board of Health's recommendation for passage and adoption.

Tom Deutsch Chairman  
BOT