

**OSAGE COUNTY, KANSAS  
ON-SITE WASTEWATER MANAGEMENT CODE**

and

**STANDARDS FOR ON-SITE WASTEWATER SYSTEMS  
IN OSAGE COUNTY, KANSAS**

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# OSAGE COUNTY, KANSAS, ON-SITE WASTEWATER MANAGEMENT CODE

## Section 1 - Authority, Purpose, Jurisdiction

- 1.1 This code shall be known as the Osage County, Kansas, On-Site Wastewater Management Code hereby referred to as the Osage County Wastewater Management Code. It is adopted by the Osage County Board of County Commissioners under the authority of state law, K.S.A. 19-3701 et. seq. and/or KSA 12-3301 et. seq. as amended.
- 1.2 The purpose of this code is to prevent the development of conditions which impair the beneficial uses of this State's waters, adversely affect health or create public nuisances, and to correct existing conditions that result in the same. The County On-Site Wastewater Management Code establishes standards for the construction of on-site wastewater systems and administrative procedures to implement the regulations.
- 1.3 This code shall apply to all residences the unincorporated area of Osage County, Kansas.

## Section 2 - Definitions

- 2.1 **Planning Commission:** That commission which is appointed by the County Commissioners to hear appeals from the decisions of the Land Use Coordinator.
- 2.2 **Sewage:** Any substance that contains any of the waste products or excrementitious or other discharges from the bodies of human beings or animals, or chemical or other wastes from domestic, manufacturing or other forms of business and industry.
- 2.3 **Wastewater System:** Any system along with attendant pipes and fixtures which is designed and constructed to collect, store, treat, and dispose of wastewaters.
- 2.4 **Land Use Coordinator:** The person authorized and empowered by the Board of County Commissioners to administer the requirements of the Wastewater Code.
- 2.5 **Nonconforming Lot of Record:** A tract or parcel shown by a recorded plat, deed, affidavit of equitable interest or other similar evidence to have been owned separately and individually from adjoining tracts of land at a time when the creation of a lot of such size

and width at such location would not have been prohibited by any land use regulations or the wastewater code.

- 2.6 Expiration: A private sewage system installation permit shall be valid for one year from the date of issuance. If the system has not been installed within that period, the permit shall become invalid and the fee shall not be refunded.

### **Section 3 - Prohibited Practices**

- 3.1 No facility shall be constructed, or disposal practice initiated, after the adoption date of this wastewater code unless a permit has been obtained.
- 3.2 No sewage shall be discharged onto the ground surface or into any waters of the state except as provided under Section 2 (IV) -- "Emergency Procedures for Preventing Overflow" index. (Note: There shall be no surfacing of sewage from a wastewater system of the soil absorption type such as a lateral field.)
- 3.3 Cesspools are prohibited in all areas under all conditions.
- 3.4 Portable holding tanks and pit privies serving special events and camping or recreation vehicles and boats are acceptable. Holding tanks may be approved by the County Commission after review and recommendation by the Planning Commission.
- 3.5 No wastewater system shall be operated in a manner which results in a health hazard, a nuisance or reduces the beneficial use of this State's waters.

### **Section 4 - Requirements for Wastewater Systems**

Wastewater systems shall be in compliance with the following requirements:

- 4.1 The property or site shall be at least three (3) acres in area unless the site is a nonconforming lot of record. A nonconforming lot of record must meet all other standards for the wastewater system.
- 4.2 If the property or site is within 400 feet of a public sewer, it must be connected to the public sewer unless the Board of County Commissioners, after receiving a

recommendation from the Planning Commission, determines that it is impracticable or unfeasible to be served by such public sewer.

- 4.3 If the wastewater system is to be of a soil absorption type such as a lateral field, soil and geology conditions must include a soil and unconsolidated formation depth of at least four (4) feet above impervious rock formations, a natural slope of the land flatter than ten percent, and a depth of at least ten (10) feet to the annual average groundwater table level. The separation of four (4) feet between the system and impervious rock formation is an absolute minimum and where this condition is encountered, the applicant is encouraged to provide one (1) foot or more of top soil to the lateral field prior to the installation of lateral lines or to install alternative systems such as raised lateral beds or mounds.
- 4.4 No system shall be approved for construction until site characteristics are known. An excavation or bore hole four (4) feet deep at the lowest point of the system will be considered adequate to determine the minimum separation between the ground surface and the lateral field. This determination will not be required if depth to rock is known from past tests or if other information is available that is acceptable to the Land Use Coordinator.
- 4.5 Prior to construction, the property owner or agent must apply for a wastewater permit. A plan for the wastewater system must be submitted to the Land Use Coordinator and approved. The Land Use Coordinator shall be guided by the recommended standards presented in the latest edition of the pamphlet titled Standards for On-Site Wastewater Systems in Unincorporated Osage County, Kansas. A current copy is attached and incorporated by reference on date of adoption of this resolution.
- 4.6 Compliance with this code does not preclude or exempt compliance with township, state or federal regulations that are more restrictive and are applicable at the time of construction.
- 4.7 The wastewater system must be inspected and approved by the Land Use Coordinator prior to occupancy of the dwelling.
- 4.8 The wastewater system must be maintained in good working condition.

- 4.9 A wastewater system that was installed prior to the adoption of this code shall be exempt unless the system fails, is replaced or is to be used for a new residence on the site. If the system fails or if a new residence is built or located on property or if the system is extended, then it shall be reconstructed, extended or newly constructed in accordance with the requirements of this code.
- 4.10 If public sanitary sewers become available to the property, the wastewater systems shall be abandoned and the property shall be connected to the public sewers in accordance with standards provided by the public sewer system. The permit for the on-site wastewater system shall be rendered invalid six months after the date that the public sanitary sewers become available.
- 4.11 This wastewater code only regulates the disposal of domestic sewage. All other types of sewage disposal shall be approved by the Kansas Department of Health and Environment.

#### **Section 5 - Multi-Family, Commercial, Industrial and Other Non-Residential Uses**

The requirements for a wastewater treatment system for multi-family, commercial, industrial, and other non-residential uses shall be determined by the Kansas Department of Health and Environment or by an analysis performed by a professional engineer licensed in the State of Kansas. The wastewater treatment plan shall determine the method of treatment, size of facility and other significant factors. A copy of this plan, sealed by the engineer, shall be submitted with the permit application. If public sanitary sewers become available to the property, the private system shall be abandoned and the property shall be connected to the public sewer system within six months of its date of availability.

#### **Section 6 - Temporary Uses**

Temporary uses such as rodeos, golf courses, quarries, rock festivals, etc. may use portable units provided that the disposal is properly handled, no public health hazards are created, no sewage is discharged onto the ground surface or into any waters of this State and a wastewater permit has been approved by the Land Use Coordinator. Portable holding tank units may be used to provide temporary facilities, but must be approved by the Land Use Coordinator before being placed into service. All units shall comply with minimum Osage County On-Site Wastewater Code requirements.

## **Section 7 - Waiver of Design Requirements**

In unusual cases where compliance with the Osage County, Kansas On-Site Wastewater Management Code is not feasible, the Board of County Commissioners after receiving a recommendation from the Planning Commission may waive wastewater system design requirements. The applicant is required to provide reliable data from a professional engineer licensed in the State of Kansas demonstrating that such waiver will not create a hazard or otherwise endanger health and safety. This power of waiver may need to allow temporary or experimental sewage systems such as evapotranspiration or absorption beds. Such waiver does not relieve the Owner of the responsibility for correcting deficiencies or constructing a replacement system in the event of experimental system failure.

For soil absorption systems, the septic tank size and length of lateral line requirements as set out in the Standards shall not be waived. The Land Use Coordinator is authorized to issue a permit for a modified installation if a waiver is approved by the County Commission.

## **Section 8 - Requirements for Sanitary Service**

No person shall perform or offer to perform the removal or transport of domestic sewage, septage sludge, or human excreta from a wastewater system unless currently licensed by the County. Application for such licensure shall be made upon standard forms provided by the Land Use Coordinator, and accompanied by a license fee as determined by administration procedures of the County. All equipment used for the sanitary service or removing domestic sewage and septage shall be of watertight construction, of adequate design, and maintained in good working condition to perform the intended function without leakage or spillage. Disposal of transported sewage, septage and human excreta shall be in accordance with the license holder's plan as to method and location of disposal as approved by the Board of County Commissioners.

## **Section 9 - Subdivision Plat Approval**

Where public sewers will not initially be available, the Planning Commission shall evaluate the suitability of the development for private sewage systems. This may require the submission of soil studies and engineering analysis by the subdivider. Where public

sewers will be utilized, the subdivider shall submit plans for sewage disposal as required by the County Development Regulations and the Kansas Department of Health and Environment.

### **Section 10 - Application for Wastewater Permit**

Application for a wastewater permit required by this wastewater management code shall be made by the property owner or agent on standard forms provided by the Land Use Coordinator. The applicant shall submit a plan showing the location of all buildings on the site, the proposed location of the wastewater system, and the location of wells, livestock confinement, chemical storage, and fuel storage. The Land Use Coordinator or his designated representative shall begin any investigations and inspection necessary to determine whether the permit should be issued or denied. The decision on permit issuance shall be made within 30 days of application. If the permit is denied the applicant shall be provided with a written notice setting forth the reasons for rejection. If the permit is to be provisionally approved, the applicant shall be provided with a written notice indicating the conditions and reasons of such provisions. Permits shall be nontransferable.

### **Section 11 - Inspection Procedure**

- 11.1 A forty-eight (48) hour minimum notice to the Land Use Coordinator's Office is required for a wastewater system inspection.
- 11.2 The site address must be posted and visible from the road.
- 11.3 There will be at least two (2) inspections required for each **septic system installation**.
  1. The first site inspection is made after an application is submitted to verify:
    - a. That the minimum percolation test holes were dug, if percolation tests are to be performed. Percolation tests are not required if the applicant meets the requirements of Section 1.3a and 1.3b of the 5 Standards.

- b. That an excavation or bore hole was dug, if determined necessary, to check for ground water and rock depth.
  - c. That there is the minimum designated usable area for a lateral field.
  - d. That the contour of the ground meets the requirements of this Code.
2. The second inspection is made when the system is being installed. The tank and pipe shall be in the ground but must leave as much of the system uncovered as construction conditions and techniques allow. Upon demand of the Land Use Coordinator, the installer will uncover small areas within the covered part of the system for spot checks. Should these spot checks indicate that specifications are not being met, the entire system will have to be uncovered.
- 11.4 There will be two (2) inspections required for each waste stabilization pond installation.
1. The first inspection is made after an application is submitted to verify conditions of the site including the location of the proposed waste stabilization pond, the presence of rock or porous soils, setback requirements, topography and slope.
  2. The second inspection shall be made after the waste stabilization pond is constructed to determine whether it meets the required County standards.
- 11.5 There will be two (2) inspections required for all other wastewater systems permitted by this code which will include an on-site preconstruction inspection and an on-site post-construction inspection. For all systems required to be designed by a professional engineer, the professional engineer shall be responsible for certifying that the system was built according to the plans and specifications.

## **Section 12 - Permit Fees**

A fee as established by County administrative procedures shall be required for a wastewater permit, the purpose being to defray all or part of the cost of administration. Such fees shall be paid to the Land Use Coordinator prior to any processing of a permit application. A receipt of the fee shall be attached to or written upon the permit

application which is filed with Land Use Coordinator. This fee will include two inspections. If additional inspections are required to verify compliance with standards, a charge will be made for each additional inspection.

### **Section 13 - Notice of Violation**

The Land Use Coordinator or a designated representative shall be responsible for routine monitoring inspections for compliance and proper operation and for the investigation of complaints or nuisance reports.

The Land Use Coordinator, upon determination of a violation of this code, shall give written notice of such alleged violation to the responsible person. Such written notice may be personally served or sent by registered or certified mail to the last known address of the violator. The notice shall include a statement describing the violation, a directive defining the needed correction and a time schedule in which the violation must be corrected.

### **Section 14 - Enforcement Procedures and Penalties**

The County Attorney shall enforce the provisions of the On-Site Wastewater Management Code and is hereby authorized and directed to file appropriate actions for such enforcement upon request of the Land Use Coordinator, except that if the County has appointed a County Counselor, the County Counselor shall commence, prosecute or defend all civil suits or actions. Actions of injunction, mandamus, and quo warranto are appropriate for enforcement. In addition to these enforcement procedures, conviction of any violation of a provision of this code shall be deemed to be an unclassified misdemeanor and punishable by a fine of up to two hundred dollars (\$200.00) for each offense, and each days violation shall constitute a separate offense.

### **Section 15 - Appeal and Hearing**

Any person aggrieved by any notice or order issued by the Land Use Coordinator under this code may request, and upon application shall be granted, a hearing before the Planning Commission. The request for such a hearing must be in writing and filed with the Land Use Coordinator within ten (10) days of issuance of the notice or order. The request for such a hearing must set forth the grounds and reasoning as to why the notice

or order should be modified or withdrawn. The hearing request shall be filed at least fourteen (14) days prior to the regular meeting of the Planning Commission at which the appeal is to be considered. Special meetings may be called by the Chairman of the Planning Commission. A filing fee as established by administration procedures shall accompany each application. The Planning Commission shall have the powers and jurisdiction to confirm, modify, or withdraw the notice or order of the Land Use Coordinator. Persons dissatisfied with the determination of the Planning Commission may appeal to the District Court for redress. Appeals to the District Court must be filed within thirty (30) days after the decision of the Planning Commission is recorded.

### **Section 16 - Obstruction of Administration**

No person shall willfully impede or obstruct the Land Use Coordinator or his representatives in the discharge of official duties prescribed by this code.

### **Section 17 - Right of Entry**

The Land Use Coordinator or his representatives shall have the right to go upon private property to inspect wastewater systems for compliance with the County On-Site Wastewater Code. Such right does not extend to the interior of residences without a court order or permission of the owner or tenant.

### **Section 18 - Disclaimer of Liability**

This code shall not be interpreted as imposing upon the County or its officials or employees any liability for damages to any property, or any warranty that any system constructed under permit and inspections required by code will function properly.

### **Section 19 - Separability**

If any section, subsection, paragraph, sentence, clause or phrase of this code should be declared invalid for any reason, such decision shall not affect the remaining portion, which shall remain in full effect; and to this end the provisions of this code are hereby declared to be severable and shall be presumed to have been adopted knowing that the part or section declared invalid would be so declared.

**Section 20 - Effective Date**

This code shall take effect and be in force from and after publication of the adopted resolution in the official County newspaper.

**Section 21 - Amendments**

This code may be amended from time to time by the same procedure required for initial adoption.

**STANDARDS FOR ON-SITE WASTEWATER SYSTEMS  
IN UNINCORPORATED  
OSAGE COUNTY, KANSAS**

These requirements are established as minimum standards to construct, operate and maintain on-site wastewater management systems. Osage County has almost two dozen different soil types. Each has one or more characteristics that may severely limit its suitability to accommodate an on-site wastewater management system. Only a complete individual site evaluation can determine system feasibility. It is stressed that these standards are minimums and the responsibility of operating and maintaining a wastewater management system without creating a public health hazard or nuisance rests with the landowner.

**Section 1 - Septic Tank Absorption Field System**

**1.1 Site Requirements**

- 1.1a The building site shall be a minimum of three (3) acres in area unless the site is a nonconforming lot of record.
- 1.1b The building site shall contain 10,000 square feet in unencumbered area that is suitable and exclusively used for an absorption field. An additional 10,000 square feet are required for an additional facility should the original system fail.
- 1.1c Existing lots of record that are smaller than specified in 1.1a above may be built on using septic tank absorption field systems provided they meet specifications in 1.1b above.
- 1.1d In some instances, it may be necessary to prepare the ground for the lateral field by removing rocks and/or trees, replacing soils, etc.
- 1.1e Soil and geology conditions for the site shall have a slope of less than 10%. Annual average groundwater level shall be at least ten (10) feet below the ground

surface in the absorption field. Rock formations or other impervious layers shall be more than (4) feet below the ground surface in the absorption field.

## 1.2 Tank and Lateral Requirements

- 1.2a The septic tank shall have a minimum 1000 gallon capacity (residential use) and shall be constructed of solid concrete or other approved material.
- 1.2b If a sequential lateral system is not used, a concrete distribution box or other approved methods of distributing the sewage flow must be provided. It shall be installed at an elevation that will prevent any lateral to be relieved of the sewage load through the distribution box. If a sequential lateral system is used, the overhead distribution line must be disconnected at the center of each lateral line, and at an elevation so the bottom of the overhead line is about 2 inches above the crushed rock in the lateral trench.
- 1.2c Each lateral shall not exceed 100 feet in length from where it is fed. All pipe shall be 4 inches in diameter. Most lots are not level; therefore, installations of laterals must be along contour lines so that level trenches of uniform depth can be constructed. The bottom of the lateral trench is to be level. Decomposable paper or straw shall be used to cover lateral rock. A 15-inch depth of 3/4 to 1-1/2 inches washed lateral rock shall be provided. The earth cover over the lateral rock must be of uniform depth. Only 12-inch minimum to 18-inch maximum will be acceptable for earthen cover material. All lateral trenches must be at least 24 inches wide and 24 inches deep. Provisions shall be made to route surface water away from the lateral field.
- 1.2d The house line shall be a 4 inch pipe of cast iron with leaded joints, "Schedule 40" plastic or equivalent, and shall have a fall of at least 1/4 inch per foot.
- 1.2e If risers are to be used, the applicant will use reasonable care to assure that the excavation for the riser goes no deeper than the top of the preceding drain tile and no shallower than three inches above the top of the preceding drain tile.
- 1.2f The installer will not install lateral trenches when the upper two feet of soil is sufficiently moist to smear. Provided that, if in the opinion of the installer, the

system must be installed during times when the soil will smear, provisions must be made to scarify the sides and bottom of all trenches. In these cases, the inspector will be called to inspect the system before the rock is installed.

- 1.2g Lateral pipe shall be 4 inches and may be vitrified clay, PVC or other equivalent material and shall be marked to indicate it meets or exceeds a 1,000-lb "crush test" rating. All "solid" pipe from the structure to the lateral field shall be laid "bells up" if bell and spigot pipe is used. Lateral lines shall be at least 8 feet on center. Lateral lines shall not have a fall greater than 3 inches per 100 feet.
- 1.2h All sewage must go into the septic tank, including laundry wastes. Foundation drain water or other non-sewage or surface water must not go into the septic tank or lateral field.
- 1.2i Minimum separation distances.

<u>Any Part of On-Site Wastewater System:</u>	<u>Feet</u>
Public Water Well	100
Public Water Line	50
Private Well (including own)	50
Private Cisterns	50
Private Water Lines	10
Property Lines	25
Non-Residential Buildings	10

Lateral Field:

Basements and Cellars	25
Ponds, Creeks and Major Drainageways	25
Buried Utility Lines (telephone, electric, gas, etc.)	10
Driveways	10
Foundation Drains	10
Drop-offs	10
Other Lateral Lines	8

Septic Tank:

Public Water Lines	50
House, Office or Shop (septic tank above lowest floor)	25
House, Office or Shop (septic tank below lowest floor)	10

**1.3 Determining Length of Laterals for Single-Family Residences**

- 1.3a Based on a percolation rate of one inch fall in sixty minutes, the minimum lineal feet of lateral line for a three bedroom or smaller residence shall be 500 feet for a 24" wide trench or 400 feet for a 30" wide trench except that the lineal feet may be reduced if percolation tests performed as set out in Section Four are faster than one inch fall in sixty minutes. If, however, the percolation rate is slower than one inch fall in sixty minutes, an additional one hundred feet of lateral line shall be added for a 24" wide trench and 80 feet for a 30" wide trench.
- 1.3b An applicant has the option of not performing a percolation test provided that the minimum lineal feet of lateral line installed for a three bedroom or smaller residence shall be 600 feet for a 24" wide trench or 480 feet for a 30" wide trench.

- 1.3c For residences containing more than three bedrooms, an additional 165 feet of lateral line shall be installed for a 24" wide trench and 132 feet additional lateral line be installed for a 30" wide trench for each additional bedroom over three.

## **Section 2 - Waste Stabilization Ponds**

### **2.1 Site Requirements**

- 2.1a The minimum lot area shall be three (3) acres unless the site is a nonconforming lot of record.
- 2.1b A percolation test shall be performed and the rate must be less than one inch fall per hour in order to be considered for a waste stabilization pond.
- 2.1c There shall be a minimum separation of 100 feet between the maximum operational water level of the pond and property lines. Public roadways (total right-of-way) may be considered part of the separation if necessary.
- 2.1d There shall be a minimum separation of 100 feet between the maximum operational water level of the pond and any water supply well, except that if the well involved serves only the applicant's needs; then the separation can be reduced to 50 feet.
- 2.1e There must be a minimum separation of 25 feet between the maximum operational water level of the pond and any water supply line (public or private) but under no circumstances can the dikes infringe on any easement or right-of-way including easements for water supply lines,.

### **2.2 Construction Specifications**

- 2.2a The completed construction of the facility shall conform to the plans and specifications approved by Osage County or its representative.

- 2.2b When the pond excavation penetrates or terminates in either a rock strata or a porous (sand or gravel) strata, the excavation shall be extended a distance of one foot on both the bottom and side slopes. The area of supplemental excavation shall be filled with a nonpermeable earthen material to limit seepage from the pond to a maximum value of one-fourth inch per day. This normally may be accomplished by using a clayish soil which is free of rocks. If a clayish soil is not available, the fill soil should be mixed with bentonite clay at the manufacturer's recommended rate and compacted.
- 2.2c Once the pond is constructed according to size and shape, the builder shall smooth the dike so that no clods, rocks or ruts will interfere with a mower.
- 2.2d A stand of grass shall be established on the dike. This grass should be short-rooted perennial such as blue, fescue, or brome and shall be mowed regularly.
- 2.2e The entire pond area shall be fenced with minimum four-foot high woven or welded wire fencing with 2" x 4" maximum openings. This fence is to discourage entry by unauthorized persons (especially children), pets, and livestock.
- 2.2f A gate of sufficient size and location to accommodate the entrance of a mower must be provided.
- 2.2g Roof drains shall not be discharged to the waste stabilization pond.
- 2.2h All waste stabilization ponds must comply with minimum construction standards.
- 2.2i For dwellings with three bedrooms or less, the dimensions of the maximum operation water level shall be fifty-five (55) feet by fifty-five feet (55) and for dwellings with four or more bedrooms said dimensions shall be sixty (60) feet by sixty (60) feet. The specification sheet for a 55' wide pond is attached and identified as Form WSP55 and the sheet for a 60' wide pond is attached as Form WSP60.

2.3f Water levels in the pond shall be maintained between 1.5 feet and 5 feet in depth.

## **2.4 Emergency Procedures for Preventing Overflow**

2.4a Irrigation is not to be considered a normal operating procedure but rather an emergency procedure to be used on rare occasions. If the threat of overflow persists, other measures must be taken such as enlargement of the existing pond or construction of an additional cell.

2.4b One method suitable for preventing overflow is to use some of the pond water for irrigation. This irrigation water must be distributed so all water is absorbed into the ground without runoff. Therefore, irrigation is not an option when the ground is saturated or frozen; at these times, one alternative is to have the excess sewage hauled away by a septic tank cleaning service. The area to be irrigated shall not be within 50 feet of property not under the control of the facility owner nor within 100 feet of a water supply well. The preferred irrigation area is plowed cropland. The irrigation area should not be a children's play area, a food garden or an area accessible to lactating dairy animals. Care should be taken to minimize the taking of fresh or untreated sewage and sewage solids within the irrigation water; the intake should be suspended about midway in the water's depth.

## **Section 3 - Other Systems**

### **3.1 Temporary Systems**

Portable toilets equipped with holding or storage tanks, chemical or otherwise, shall be permitted on a temporary basis not to exceed the duration of an event or of the wastewater permit.

### **3.2 Holding Tanks**

Pit privies (vault privies) and holding tanks may be permitted if approved by the County Commission after review and recommendation by the Planning Commission.

## 2.3 Operational and Maintenance Requirements

- 2.3a The facility shall be operated in such manner that a public health nuisance or water pollution problem will not arise.
- 2.3b All of the area bounded by the outside bottom edge of the dikes (or the fence where there is no dike) shall have a good stand of grass established and maintained on it. This grass should be a short-rooted perennial such as blue, fescue, or brome. Once this vegetation is established, it should be regularly mowed during the growing season and under no circumstances shall trees or tall weeds be allowed to develop in this area. General vegetation should not be allowed to grow higher than six inches since it could provide cover for rodents that could feed upon the sewage and/or burrow into the dikes; also, rank growth reduces air circulation at the pond's surface. Special attention should be given to mowing the faster growing vegetation at the water's edge.
- 2.3c It is important to control all trees and weeds (like cattails) as soon as the first ones develop in the water. Mosquito production is directly proportional to the amount of such vegetation, essential air circulation is reduced, the pond's seal can be destroyed, organic overloading can occur and evaporation can be reduced. Pulling them out by hand is generally the best method. Remove them from the water so that they do not contribute to the organic loading of the pond. If you choose to use a herbicide, first call your county extension agent for the latest advice on what product to use. Follow the manufacturer's recommendations, and avoid spillage or drift that would kill the grass on the dikes.
- 2.3d Any damage to the dikes shall be repaired by reshaping the area to the original plan and then establishing a good stand of grass on the worked areas. Among the most common causes of dike damage are settling, erosion and rodent burrowing. Surface water shall be diverted around the pond so it will not contribute to the hydraulic loading of the pond or create an erosion problem.
- 2.3e Essential features of the waste stabilization pond, such as the fence, gate and pipe, shall be maintained in the condition called for in the original plans and specifications.

### **3.3 Seepage Pits**

A seepage pit may be approved by the Land Use Coordinator upon certification that a septic or waste stabilization pond is not feasible. All requirements of K.A.R. 28-5-8 must be met.

### **3.4 Alternative Systems**

Alternative systems may be permitted upon the approval of the Land Use Coordinator. Approval of these systems shall be based on a design plan submitted by the applicant and designed by an engineer licensed in the State of Kansas. Each system shall be designed to prevent the discharge of sewage onto the ground surface or into a watercourse or impoundment and shall not be operated in a manner which results in a health hazard, a nuisance or reduces the beneficial use of this State's water.

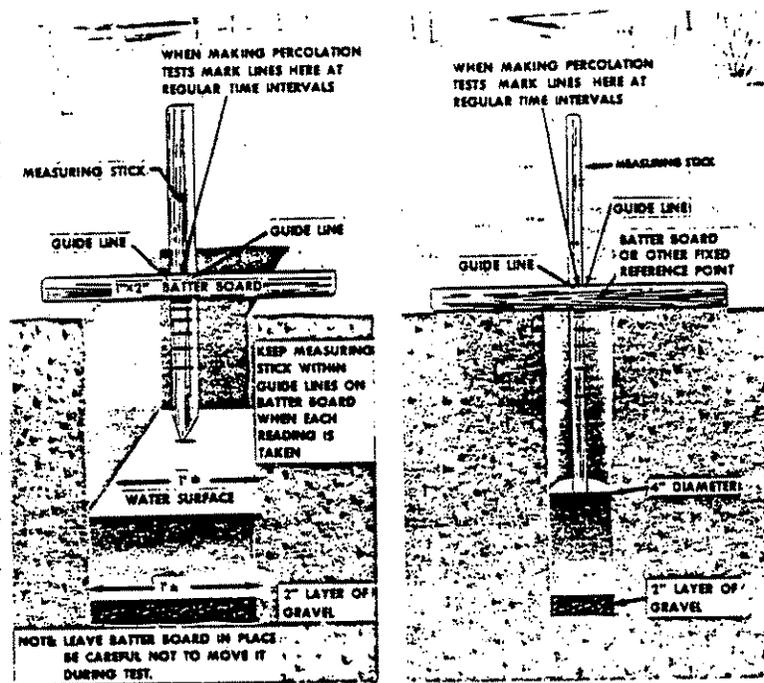
**Section 4 - Percolation Tests, Acceptability of Site  
and Design of Subsurface Disposal System**

The length of time required for percolation tests will vary in different types of soil. The safest method is to make tests in holes which have been kept filled with water overnight. Percolation rates should be figured on the basis of the test data obtained after the soil has had an opportunity to become thoroughly wetted or saturated and has had an opportunity to swell for at least 24 hours. Enough tests should be made in separate holes to assure that the results are valid. Percolation tests may only be performed by a professional engineer licensed in the state of Kansas, a Contractor or other person that has been approved by the County or by the applicant under the direction of one of the above. If the applicant assists in performing the percolation test, he may only do Items 4.1a through 4.1d. Item 4.1e Percolation Rate Measurement shall be done by a licensed engineer or contractor or other person on the approved list. The County will not be responsible for performing any percolation tests.

**4.1 Procedure for Making Percolation Tests**

- 4.1a Number and location of tests: Six or more tests shall be made in separate test holes spaced uniformly over the proposed absorption field site.
- 4.1b Type of test hole: Dig or bore a hole, with horizontal dimensions of from 4 to 12 inches and vertical sides to the depth of the proposed absorption trench. In order to save time, labor, and volume of water required per test, the holes can be bored with a 4-inch auger (See Figure 1).

**Figure 1 - Methods of Making Percolation Tests**



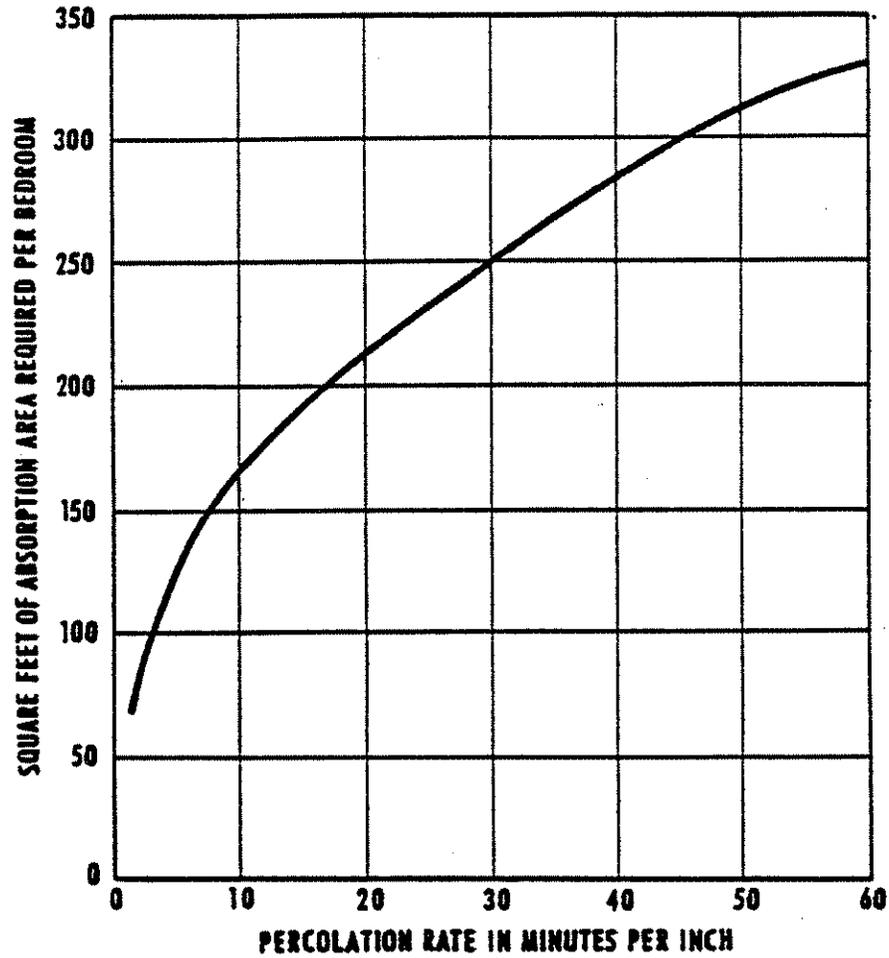
- 4.1c Preparation of test hole: Carefully scratch the bottom and sides of the hole with a knife blade or sharp pointed instrument, in order to remove any smeared soil surfaces and to provide a natural soil interface into which water may percolate. Remove all loose material from the hole. Add two inches of coarse sand or fine gravel to protect the bottom from souring and sediment.
- 4.1d Saturation and swelling of the soil: It is important to distinguish between saturation and swelling. Saturation requires that the void spaces between soil particulates be full of water. This can be accomplished in a short period of time. Swelling is caused by intrusion of water into the individual soil particle. This is a slow process, especially in clay type soil, and is the reason for requiring a prolonged soaking period.

In conducting the test, carefully fill the hole with clear water to a minimum depth of 12 inches over the gravel overnight. In most soils, it will be necessary to refill the hole periodically with water from a tank or reservoir in order that 12 inches of water is kept in the hole. Determine the percolation rate 24 hours after water is first added to the hole. The delay in starting measurements is to ensure that the soil is given ample opportunity to swell and to approach the condition that will exist during the wettest season of the year. Thus, if properly done the test will give comparable results in the same soil, whether made in a dry or in a wet season. In sandy soils containing little or no clay, the swelling procedure is not essential, and the test may be made as described in item E3 below, after the water from one filling of the hole has completely seeped below.

- 4.1e Percolation rate measurement: With the exception of sandy soils, percolation rate measurements should be made on the day following the soaking procedure described under Item 4.1d, above.
1. If water remains in the test hole after the overnight swelling period, adjust the depth to approximately 6 inches over the gravel. From a fixed reference point, measure the drop in water level over a 30-minute period. This drop is used to calculate the percolation rate.
  2. If no water remains in the hole after the overnight swelling period, add clear water to bring the depth of water in the hole to approximately 6 inches over the gravel. From a fixed reference point, measure the drop of water level at approximately 30-minute intervals for 4 hours, refilling to the 6-inch depth over the gravel after each reading or measurement. The drop that occurs during the final 30-minute period is used to calculate the percolation rate. The drops during prior periods provide information for possible modification of the procedure to suite local circumstances.
  3. In sandy soils (or other soils in which the first 6 inches of water seeps away in less than 30 minutes, after the overnight swelling period), the time interval between measurements shall be taken as 10 minutes and is used to calculate the percolation rate.

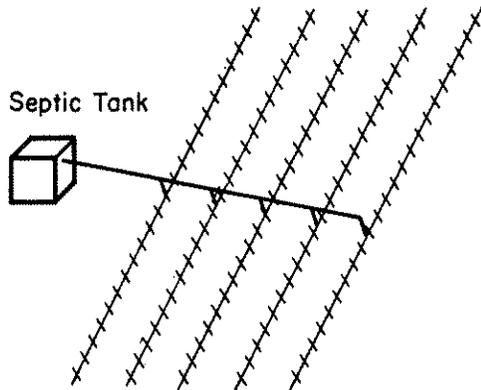
4. Figure 2, Absorption Area Requirements, establishes the square feet of absorption area required based on the percolation rate and the area includes a garbage disposal, dish washer, and washing machine.

**Figure 2 - Absorption Area Requirements**

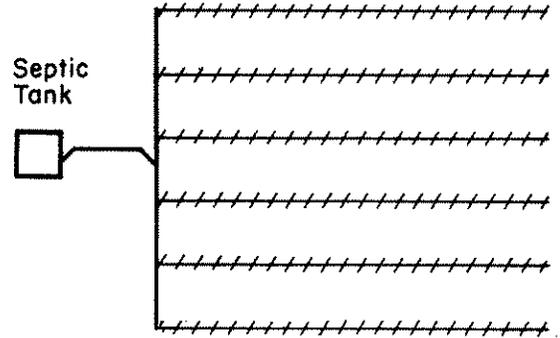


# SUGGESTIONS FOR LATERAL FIELD DESIGNS

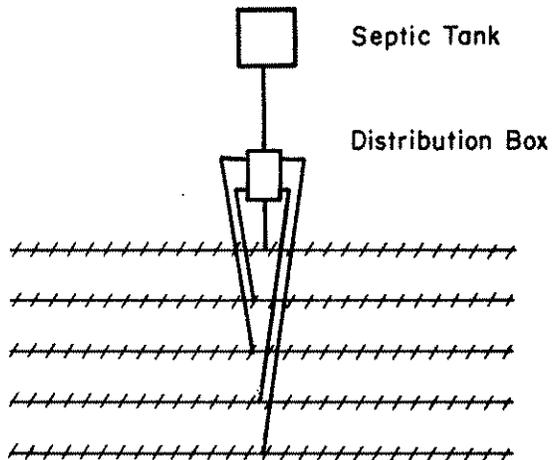
## SEQUENTIAL SYSTEM FOR LEVEL OR SLOPING GROUND



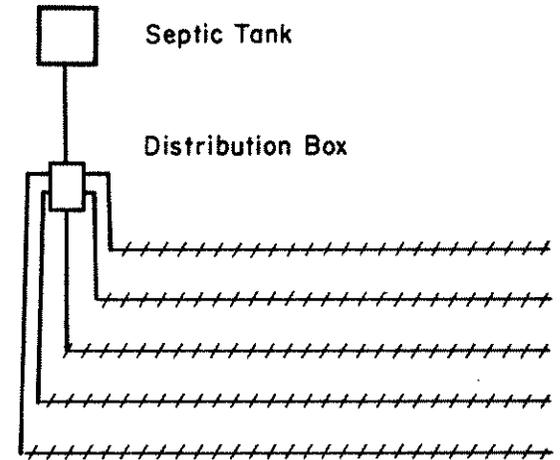
## FOR LEVEL GROUND



## FOR SLOPING GROUND

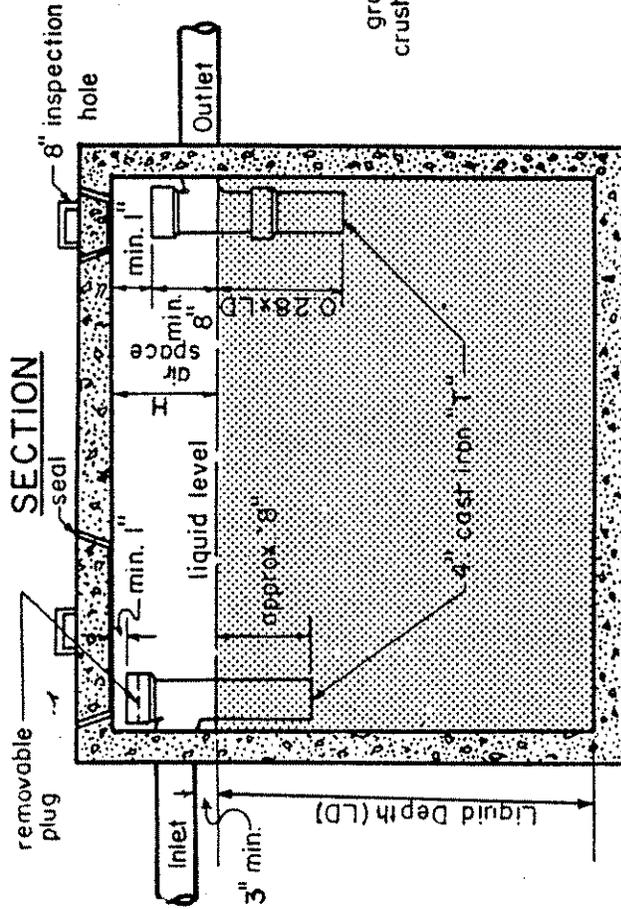
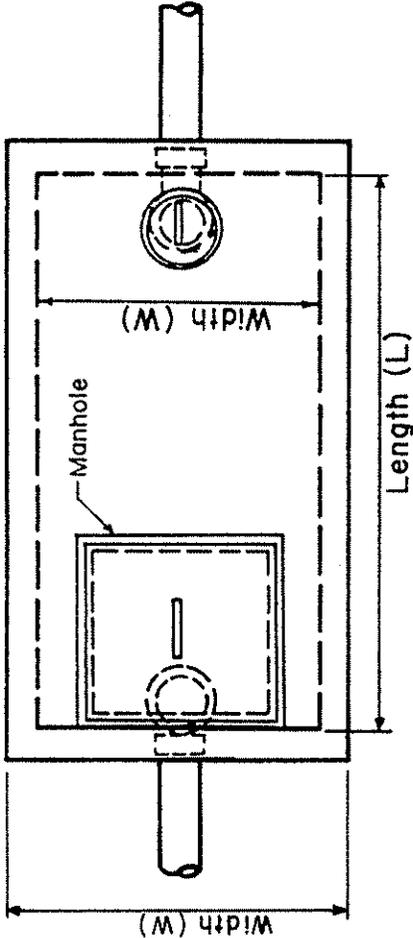


## FOR SLOPING GROUND

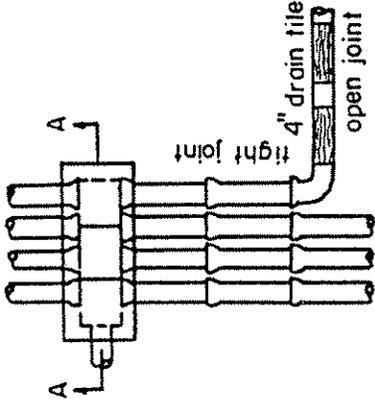


# PRIVATE SEWAGE DISPOSAL SYSTEM PLAN

## SEPTIC TANK PLAN

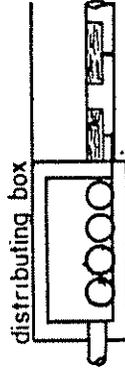


## DISTRIBUTION BOX

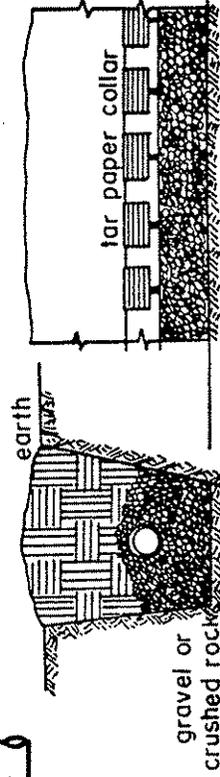


### NOTES:

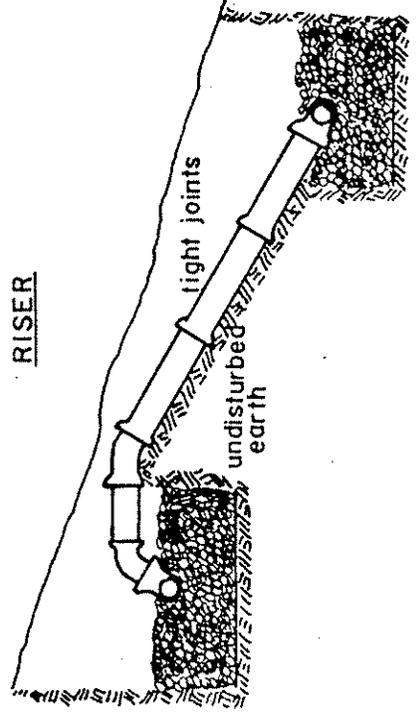
1. In no case shall parallel drain lines be closer than 8 feet.
2. Trench depths shall be neither less than 24 inches nor greater than 36 inches.
3. Trenches shall be between 24 and 30 inches wide.
4. In no case shall the fall of drain lines exceed 3 inches per 100 feet.
5. PVC plastic pipe approved by the Land Use Coordinator may be substituted for the vitrified clay pipe or cast iron pipe.



## IRRIGATION FIELD



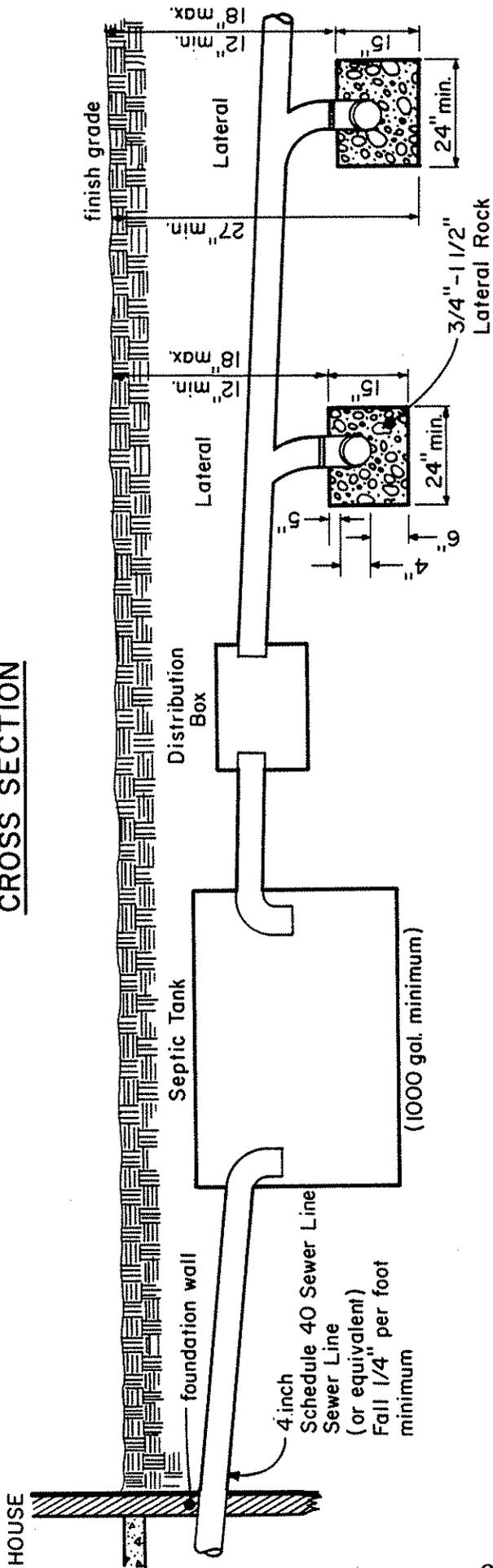
## RISER



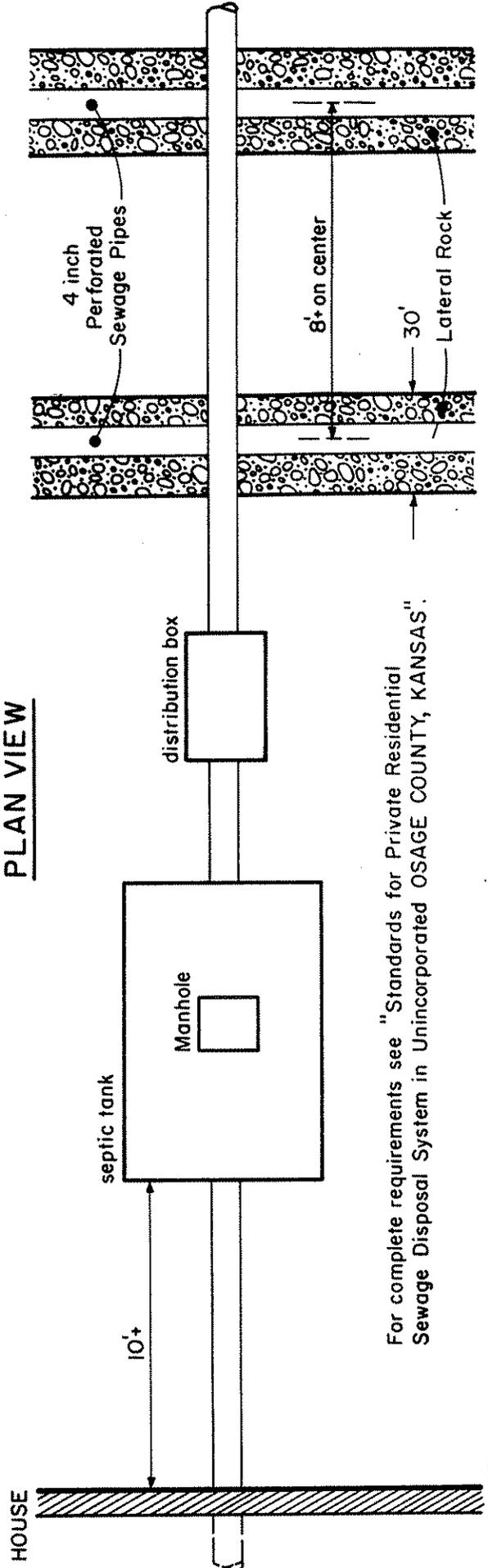
CAPACITY	LIQUID DEPTH (LD)	WIDTH (W)	LENGTH	0.28 x LD
1000 gal.	4 ft. 4 in.	4 ft.	8 ft.	13 in.

# LAND USE COORDINATOR Osage County Courthouse

## CROSS SECTION



## PLAN VIEW



For complete requirements see "Standards for Private Residential Sewage Disposal System in Unincorporated OSAGE COUNTY, KANSAS".

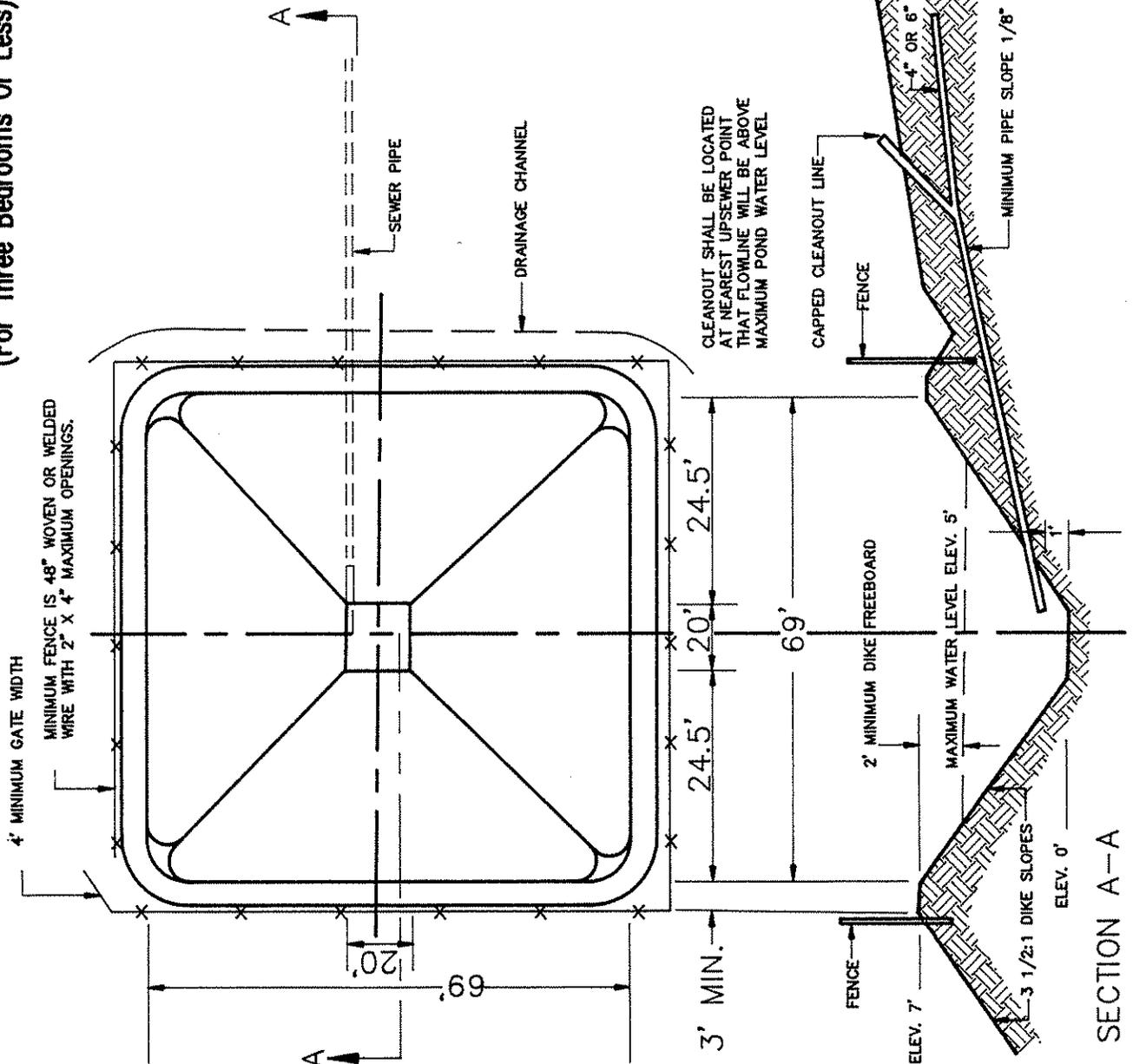
# Waste Stabilization Ponds - Form # WSP55 (For Three Bedrooms Or Less)

## GENERAL NOTES

- WASTE STABILIZATION POND BOTTOM SHALL BE CONSTRUCTED AT AN ELEVATION ABOVE THE GROUND WATER TABLE.
- POND AREA TO BE ADEQUATELY FENCED TO PREVENT ENTRANCE OF UNAUTHORIZED PERSONNEL OR LIVESTOCK.
- ALL DIKE SLOPES TO BE 3 1/2 FEET HORIZONTAL TO 1 FOOT VERTICAL.
- SURFACE DRAINAGE TO BE DIVERTED AROUND POND.
- POND BOTTOM AND INTERIOR DIKES UP TO ELEVATION 2' TO BE TREATED WITH AN HERBICIDE AT THE MANUFACTURER'S RECOMMENDED STERILIZATION RATE. CARE SHALL BE TAKEN NOT TO APPLY HERBICIDE ABOVE ELEV. 2' WHERE GRASS WILL BE SEED.
- ALL DIKE AREAS NOT STERILIZED ARE TO BE SEED WITH A DENSELY GROWING SHORT-ROOTED GRASS SUCH AS BLUE, FESCUE, BROME OR BERMUDA.
- INLET PIPE BETWEEN POND AND CLEANOUT WYE TO BE OF RIGID, FREEZE BREAKAGE RESISTANT MATERIAL SUCH AS STEEL OR PLASTIC P.V.C. OR A.B.S. AT LEAST EQUAL TO CLASS 100 PIPE REQUIREMENTS.
- MINIMUM DIKE BERM WIDTH TO BE 3 FEET.
- MINIMUM DIKE FREEBOARD TO BE 2 FEET.
- MAXIMUM FENCEPOST SPACING TO BE 16 1/2 FEET.

A MINIMUM SEPARATION OF 100 FEET SHALL BE PROVIDED BETWEEN POND WATER SURFACE AND ADJACENT PROPERTY.

FOR RESIDENCES WITH MORE THAN FIVE BEDROOMS, THE LAGOON SIZE WILL BE DETERMINED BY THE COUNTY.



Drawings provided by KDHE

Prepared by

**Bucher, Willis & Ratliff**

For

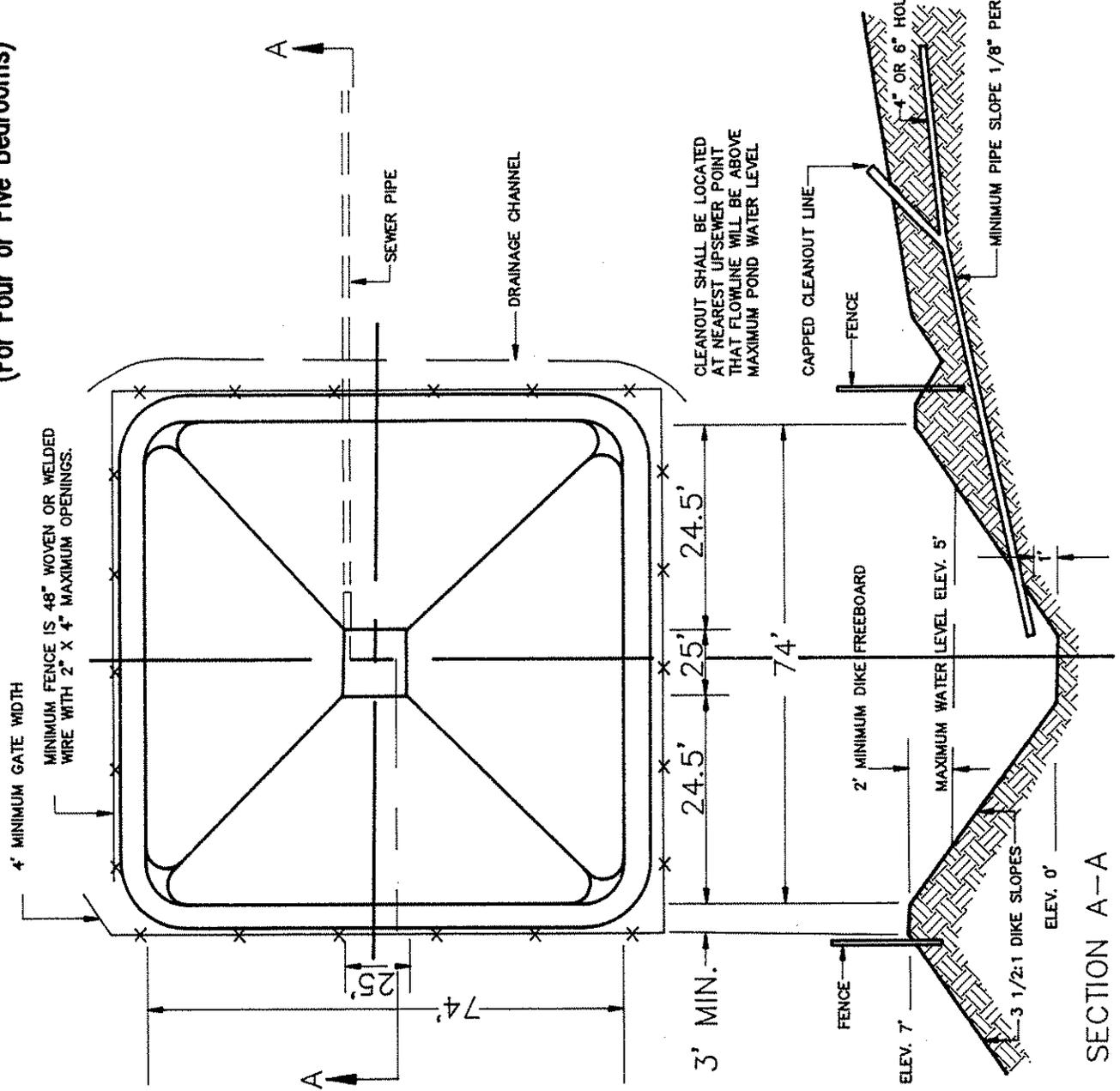
Osage County, Kansas

January 16, 1990

# Waste Stabilization Ponds - Form # WSP60 (For Four or Five Bedrooms)

## GENERAL NOTES

- WASTE STABILIZATION POND BOTTOM SHALL BE CONSTRUCTED AT AN ELEVATION ABOVE THE GROUND WATER TABLE.
- POND AREA TO BE ADEQUATELY FENCED TO PREVENT ENTRANCE OF UNAUTHORIZED PERSONNEL OR LIVESTOCK.
- ALL DIKE SLOPES TO BE 3 1/2 FEET HORIZONTAL TO 1 FOOT VERTICAL
- SURFACE DRAINAGE TO BE DIVERTED AROUND POND.
- POND BOTTOM AND INTERIOR DIKES UP TO ELEVATION 2' TO BE TREATED WITH AN HERBICIDE AT THE MANUFACTURER'S RECOMMENDED STERILIZATION RATE. CARE SHALL BE TAKEN NOT TO APPLY HERBICIDE ABOVE ELEV. 2' WHERE GRASS WILL BE SEEDED.
- ALL DIKE AREAS NOT STERILIZED ARE TO BE SEEDED WITH A DENSELY GROWING SHORT-ROOTED GRASS SUCH AS BLUE, FESCUE, BROME OR BERMUDA.
- INLET PIPE BETWEEN POND AND CLEANOUT WYE TO BE OF RIGID, FREEZE BREAKAGE RESISTANT MATERIAL SUCH AS STEEL OR PLASTIC P.V.C. OR A.B.S. AT LEAST EQUAL TO CLASS 100 PIPE REQUIREMENTS.
- MINIMUM DIKE BERM WIDTH TO BE 3 FEET.
- MINIMUM DIKE FREEBOARD TO BE 2 FEET.
- MAXIMUM FENCEPOST SPACING TO BE 16 1/2 FEET.
- A MINIMUM SEPARATION OF 100 FEET SHALL BE PROVIDED BETWEEN POND WATER SURFACE AND ADJACENT PROPERTY.
- FOR RESIDENCES WITH MORE THAN FIVE BEDROOMS, THE LAGOON SIZE WILL BE DETERMINED BY THE COUNTY.



Drawings provided by KDHE  
Prepared by **Bucher, Willis & Ratliff**  
For **Osage County, Kansas**  
January 16, 1980