ROUTING SLIP SEP 1 8 1980

| | ACTION | INFO | INITIAL |
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| BMO | | | |
| ABMO | | ✓ | BWE |
| ADMIN | | ✓ | S |
| ENVIRON AFF | ✓ | | |
| F&A BRANCH | | | |
| MAINT NCO | | | |
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| TELE | | | |
| UMACS | | | |
| UTIL | | | |
| SECRETARY | | | |

COMMENTS:

Julian,

Lets Discuss.

BWE

ASSISTANT CHIEF OF STAFF, FACILITIES
HEADQUARTERS, MARINE CORPS BASE

M

DATE 16 Sep 80

TO:

[BASE MAINT O]

PUBLIC WORKS O

COMM-ELECT O

MOTOR TRANSPORT O

DIR, QUARTERS & HOUSING

DIR, BOQ/BSQ

BASE FIRE CHIEF

ATTN: _____

1. Attached is forwarded for ~~info~~/action.

a. Request comments with regard to to recommendation in par 4b.

b. Keep this office advised of up coming meetings in ~~them~~ regard to this subject.

2. Please initial, or comment, and return all papers to this office.

3. Your file copy

K. P. Mullen J

"LET'S THINK OF A FEW REASONS
WHY IT CAN BE DONE"

UNITED STATES MARINE CORPS
MARINE CORPS BASE
CAMP LEJEUNE, NORTH CAROLINA 28542

IN REPLY REFER TO
FAC:JCT:jae
6~~4~~000
9 April 1980

From: Base Commander
To: Staff Judge Advocate (Attn: Major JANEGA)

Subj: Ground Absorption Sewage Disposal Systems of 3000 Gallons of less Design Capucity

Ref: (a) Section 1900 of the North Carolina Administrative Code Title 10 Department of Human Resources Chapter 10 Health Services; Sanitary Engineering Subchapter 10A Sanitation.

1. Reference (a), has been interpretted by your office and NREA to be applicable to the use of "4 holers", by Marines involved in field training.

2. Accordingly, it is requested that the local agency be requested to specifically address the use of "4 holers" IAW reference (a), and provide a ruling.

3. If utilization of "4 holers" by Marines is denied, it is requested that action be initiated via this Headquarters to obtain an exemption to reference (a) which will authorize the use of "4 holers" at Camp Lejeune. Inherent in our mission to train Marines is a requirement to include training in Field Sanitation Procedures. Compliance with reference (a) as presently defined adversely impacts on our need to meet this requirement.

K. P. Millice, Jr.

K. P. MILLICE, Jr.
By direction

Copy to:
BMO
AC/S Trng

ASSISTANT CHIEF OF STAFF FACILITIES
HEADQUARTERS, MARINE CORPS BASE

DATE 18 Aug 1980

TO: [Staff Judge Advocate]

| | |
|---|---|
| BASE MAINT O | DIR, FAMILY HOUSING |
| PUBLIC WORKS O | DIR, BACHELOR HOUSING |
| COMM-ELECT O | BASE FIRE CHIEF |
| MOTOR TRANSPORT O | |

ATTN: _____

1. Attached is forwarded for info/action

(2) Please ~~initial, or~~ comment, and return all papers to this office.

3. Your file copy.

J. A. MARAPOTI
By direction

"LET'S THINK OF A FEW REASONS
WHY IT CAN BE DONE"

P-MCBCL-1757

**BASE MAINTENANCE DEPARTMENT**
**Marine Corps Base**
**Camp Lejeune, North Carolina 28542**

MAIN/DDS/th
11015/1
AUG 1 4 1980

From: Base Maintenance Officer
To: Assistant Chief of Staff, Facilities

Subj: Field Sanitation Facilities for Training Exercises; requirements for

Ref: (a) MCO P11000.8A
(b) NC Ground Absorption Sewage Disposal System Act of 1973
(c) Clean Water Act
(d) Clean Air Act
(e) FONECON btwn LT Harbac, 2dMarDiv G-4, and Mr. Danny Sharpe, BMaintDept, on 12 Aug 1980

Encl: (1) Excerpts from Environmental Engineering Survey, MCBCLNC, FY-80 update
(2) Laws and Rules for Grounds Absorption Sewage Disposal System of 3,000 gallons or less Design Capacity

1. Reference (a) directs activities to make maximum effort to rehabilitate or modify facilities which have been identified as failing to meet pollution abatement standards of federal, state and local agencies. Enclosure (1) appears to be sufficient documentation that the subject sanitation facilities fail to meet the criteria of references (b) and (c). The potential for conflicts with reference (d) is also of concern.

2. Reference (e) is one of several recent contacts regarding this subject. A review of guidelines contained in enclosure (2) for implementation of reference (b), indicate that acceptable, alternatives may be available for onsite waste disposal other than "porta-john" systems presently used aboard base. An engineering survey, with emphasis on soil conditions, would be necessary to identify and evaluate alternatives available for upgrading the subject facilities.

3. Accordingly, enclosure (2) should be forwarded to Base Legal to determine the applicability of reference (b) to Marine Corps Base. During the interim period, only systems where human wastes are collected and discharged into the sanitary sewer system such as "porta-john" systems should be authorized.

B W Elston
B. W. ELSTON
Acting

EXCERPTS FROM

# ENVIRONMENTAL ENGINEERING SURVEY
# MARINE CORPS BASE, CAMP LEJEUNE
# JACKSONVILLE, NORTH CAROLINA

## FY-80 UPDATE


UTILITIES, ENERGY AND ENVIRONMENTAL DIVISION
ATLANTIC DIVISION, NAVAL FACILITIES ENGINEERING COMMAND
NORFOLK, VIRGINIA

PREPARED BY:

Doreen Cantor
D. CANTOR
Environmental Engineer

W. L. Carter
W. L. CARTER
Environmental Engineer


ENCLOSURE ( 1 )

sewage treatment plant. Accordingly, it is recommended that personnel from the Base Maintenance Department be brought in to work on/put the facility back into operation.

9. The MARCORB CAMP LEJEUNE boilers are contract-serviced by the Dearborn Aqua Service of Wilson, North Carolina. It was indicated that services were provided approximately every two months. At this time, samples are taken, tests are run and personnel are trained to properly operate the equipment. Hence, there does exist a need for a technically trained individual to administer the boilers feedwater treatment program to adequately interpret test data and to provide optimum boiler operation. Finally, no boiler samples are currently being submitted to BUMINES for check analysis, as required.

RECOMMENDATION NO. 8 - An experienced chemist with technical knowledge of boiler water treatment should be hired to supervise the boiler feedwater treatment program at all the MARCORB CAMP LEJEUNE steam plants.

RECOMMENDATION NO. 9 - In accordance with the requirements set forth through NAVFACINST 5450.19B and LANTDIVINST 11300.4A, it is recommended that a boiler water sample for each applicable boiler be collected/ submitted to the Bureau of Mines Water Service Laboratory, 4900 LaSalle Road, Avondale, Maryland 20782 for check analysis. NOTE: This is their new address.

10. The MARCORB CAMP LEJEUNE water and sewage treatment plants are excellently run operations. Nevertheless, there was evidence of sporadic maintenance problems which indicated the periodic shortages of plant personnel. Likewise, a severe personnel shortage was reported in the Natural Resources and Environmental Affairs Division.

RECOMMENDATION NO. 10 - It is recommended that additional personnel be hired at both the water and sewage treatment facilities to provide adequate staffing.

RECOMMENDATION NO. 11 - It is further recommended that the Natural Resources and Environmental Affairs Division be adequately staffed to perform/meet the necessary demands for the environmental program.

## Field Head Facilities

1. During a recent conversation with Mr. Jack Knight at the North Carolina State Board of Health, existing state statutes governing the installation and use of ground absorption sewage disposal systems were discussed. It was stated that primary regulatory responsibility for these systems lies with the local health departments. For sanitary sewage disposal systems with 3,000 gallons or less which do not discharge to surface waters, permits are issued by the North Carolina Health Department. For all other such facilities of greater than 3,000 gallons capacity, the North Carolina Department of Natural Resources and Community Development issues permits. These permit requirements are primarily applicable to the

private sector, unless it is established that the sewage disposal (from military installations) result in the discharge or runoff of pollutants affecting public waters.

RECOMMENDATION NO. 1 - Attachment 4 provides a copy of North Carolina's statute for Ground Absorption Sewage Disposal Systems of 3,000 gallons or less design capacity for review. Accordingly, it is recommended that these requirements to construct/operate an "approved privy" as outlined in the legislation be strictly adhered to.

2. Field head facilities at the MARCORB CAMP LEJEUNE Veronah Loop K Range are wooden structures consisting of a pit, floor and seat assembly. Drums are placed at the bottom of these pits to collect humanwastes. It was learned that, in certain instances, these drums had been found sitting in pools of water, due to the high groundwater table.

RECOMMENDATION NO. 2 - In no case should the depth of the pit be excavated such that contamination of groundwater will occur. The recommended depth should be no less than 12" above the groundwater table. It is also recommended that any existing field head facilities located in or found contaminating the groundwater be abolished, the pit completely covered with earth and the privy building moved to a suitable site.

Erosion/Sediment Control

1. Accelerated erosion from unprotected construction sites and other land disturbing activities constitute a major pollution problem. Sediment suspended in water runoff settles out depositing soil and other materials into rivers, lakes and streams. As a result, stream channels, lakes and reservoirs become filled, thereby having detrimental impact upon the environment. Accordingly, Federal and State regulations have been created and are being enforced to effectively control erosion/sedimentation during active construction or after stabilization. Preventive measures, however, are generally considered from both a technical and economic view point.

2. It was observed during the recent visit that MARCORB CAMP LEJEUNE does have significant erosion/sediment control problems associated with the sanitary landfill site, and the Engineering Equipment/Rifle Range training areas. Comments on construction site erosion problems have been addressed to the ROICC.

RECOMMENDATION NO. 1 - Compliance with Soil Conservation Service erosion control requirements, and other Federal or North Carolina State regulations (Attachment 5) are legally mandated. It is therefore recommended that a separate FY-82 pollution abatement MCON project be submitted as soon as possible. An A/E preliminary study may be required to outline the scope of this project and the scope of work for this project should be coordinated with North Carolina State Coastal Zone Management Office.

# ARTICLE 13C OF CHAPTER 130
# OF THE GENERAL STATUTES OF NORTH CAROLINA

## GROUND ABSORPTION SEWAGE DISPOSAL SYSTEM ACT OF 1973

§130-166.22. Short title. -- This Article shall be known and may be cited as the "Ground Absorption Sewage Disposal System Act of 1973." (1973, c. 452, s. 2.)

§130-166.23. Preamble. -- The General Assembly finds and declares that continued installation, at a rapidly and constantly accelerating rate, of septic tanks and other types of ground absorption sewage disposal systems in a faulty or improper manner and in areas where unsuitable soil and population density adversely affect the efficiency and functioning of these systems has a detrimental effect on the public health through contamination of the ground water supply. Recognizing, however, that ground absorption sewage disposal can be rendered ecologically safe and the public health protected if such methods of sewage disposal are properly regulated and recognizing that ground absorption sewage disposal will continue to be necessary for the adequate and economical housing of an expanding population, the General Assembly intends hereby to insure the regulation of ground absorption sewage disposal systems so that such systems may continue to be used, where appropriate, without jeopardizing the public health. (1973, c. 452, s. 3.)

§130-166.24. Definitions. -- As used herein, unless the context otherwise requires:

(1) "Construction" means any work at the site of placement done for the purpose of preparing a dwelling or mobile home for initial occupancy;
(2) "Ground absorption sewage disposal system" means a sewage disposal method relying primarily on the soil for leaching and removal of dissolved and suspended organic or mineral materials from human waste, including a privy;
(3) "Health department" means any county, city, district, consolidated city-county or other health department authorized to be organized under Chapter 130 of the General Statutes;
(4) "Location" means the initial placement of a mobile home;
(5) "Mobile home dealer" means every person or firm offering mobile homes for sale within this State;
(6) "Mobile home sales lot" means any place where two or more mobile homes are displayed and offered for sale;
(7) "Relocation" means the displacement of a dwelling or mobile home from one site to another;
(8) "Septic tank system" means a ground absorption sewage disposal system consisting of a holding or settling tank and a ground absorption field. (1973, c. 452, s. 4.)

§130-166.25. Improvements permit require. -- (a) No person shall commence the construction or relocation of any dwelling nor shall any person locate, relocate or cause to be located or to be relocated any mobile home intended for use as a dwelling, other than one in a mobile home park, on a site in an area not served by a public or community sewage disposal system without first obtaining an improvements permit from the local health department having jurisdiction.

(b) The local health department shall issue an improvements permit authorizing work to proceed and the use of a septic tank or other ground absorption disposal system when it has determined, after a field investigation of the area, including such factors as character and porosity of soil, percolation rate, topography, depth to water table and rock or other impervious formations and location or proposed location of any water supply wells, that such a system can be installed at the site in compliance with the rules and regulations of the local board of health governing such installations; provided, however, that no septic tank system which is attempted to be installed shall be covered with the soil until the local health department determines that the system as installed is in compliance with the rules and regulations governing such installations; provided further, that this Article does not limit or interfere with the authority of the Department of Human Resources to adopt and enforce reasonable rules and regulations under authority of G.S. 130-160. (1973, c. 452, s. 5; c. 476, s. 128.)

§130-166.26. Certificate of completion. -- Upon determining that a ground absorption sewage disposal system is properly installed, the local health department shall issue a certificate of completion authorizing a conventional dwelling to be occupied following construction or relocation activity upon that dwelling. Upon determining that a ground absorption sewage disposal system is properly installed, the local health department shall issue a certificate of completion authorizing a mobile home to be occupied following its location or relocation. No person shall occupy a dwelling or mobile home until a certificate of completion has been issued. (1973, c. 452, s. 6.)

§130-166.27. Improvements permit or certificate of completion required before other permits to issue. -- (a) Where construction or relocation activity is proposed to be done upon a conventional dwelling, no permit required for electrical, plumbing, heating, air conditioning or other construction, location or relocation activity under any provision of general or special law shall be issued until after an improvement permit has been issued.

(b) Where location or relocation is proposed for a mobile home, no permit required for electrical, plumbing, heating, air conditioning or other construction, location or relocation activity under any provision of general or special law shall be issued until after a certificate of completion has been issued. (1973, c. 452, s. 7.)

§130-166.28. Limitation on electrical service. -- It shall be unlawful for any person, partnership, firm, or corporation to allow any electric current for use at the locating or relocating of a mobile home intended to be used as a dwelling, other than one in a mobile home park, or to a dwelling upon construction, location or relocation until the official electrical inspector with jurisdiction as provided in G.S. 143-143.2 certifies to the electrical supplier that the required improvements permit for conventional dwellings or the required certificate of completion for mobile homes has been issued. (1973, c. 452, s. 8.)

§130-166.29. Appeal to local board of health. -- Any owner or builder denied an improvements permit or a certificate of completion under this Article shall have a right of appeal to the local board of health, provided such action is taken within 15 days of denial. Notice of appeal shall be given by filing with the local health director a demand for a hearing. Upon filing of such notice the local health director shall, within three days, transmit to the board of health the papers and materials constituting the record upon which the decision appealed from was made.

The local board of health shall hold a hearing within 15 days of the receipt of the notice of appeal. The board shall give the appellant not less than five days' notice of the date, time, and place of the hearing. Any party may appear in person or by agent or attorney. In considering appeals, the board shall have authority only to determine whether a ground absorption system can be installed in compliance with its rules and regulations or whether the work done so complies.

No person denied an improvements permit or certificate of completion shall proceed with any work or improvement activity whatsoever or shall occupy any dwelling or reside in any mobile home unless and until the department issues the necessary permit. (1973, c. 452, s. 9.)

§130-166.30. Judicial review. -- Any owner or builder denied a permit under this Article shall have a right of appeal to the district court having jurisdiction, if such appeal be made within 10 days after the date of the denial by the board. (1973, c. 452, s. 10.)

§130-166.31. Duties of mobile home dealers. -- (a) Every mobile home dealer doing business in this State shall be required to furnish each purchaser of a mobile home an easily understandable summary of the provisions of this Article. The Department of Human Resources shall prepare the summary and shall make sufficient copies available to dealers.

(b) Each mobile home dealer shall be required to post conspicuously at the office of each mobile home sales lot the following:

> "NOTICE: State law requires that the local health department determine the method and adequacy of sewage disposal before a mobile home is placed on the premises."

(1973, c. 452, s. 11; c. 476, s. 128)

§§130-166.32. Exemptions. -- No provision of this Article shall apply to persons developing land in areas not served by community sewer systems who present acceptable plans for installation of community sewer systems to the local health department and the North Carolina Environmental Management Commission and who certify that such system will be installed before permitting occupancy. (1973, c. 452, s. 12; 1974, c. 1262, s. 23.)

§§130-166.33. Penalties. -- Any person who knowingly violates any provision of this Article shall be guilty of a misdemeanor and shall be punishable by a fine not to exceed two hundred dollars ($200.00). (1973, c. 452, s. 13.)

File 21 July 78
Sewage
R.d.w.

# LAWS AND RULES
# FOR
# GROUND ABSORPTION SEWAGE DISPOSAL SYSTEMS
# OF 3000 GALLONS OR LESS DESIGN CAPACITY

SECTION .1900
OF THE
NORTH CAROLINA ADMINISTRATIVE CODE
TITLE 10
DEPARTMENT OF HUMAN RESOURCES
CHAPTER 10
HEALTH SERVICES: SANITARY ENGINEERING
SUBCHAPTER 10A
SANITATION

NORTH CAROLINA
DEPARTMENT OF HUMAN RESOURCES
DIVISION OF HEALTH SERVICES
SANITARY ENGINEERING SECTION
EFFECTIVE
JULY 1, 1977

ENCLOSURE (2)

CONTENTS

SECTION 130-160 OF CHAPTER 130
OF THE GENERAL STATUTES OF NORTH CAROLINA

SANITARY SEWAGE DISPOSAL

§130-160. Sanitary Sewage Disposal; Rules. -- Any person owning or controlling any single or multiple family residence, place of business or place of public assembly shall provide a sanitary system of sewage disposal consisting of an approved privy, an approved septic tank system, or a connection to a public or community sewerage system. Any such sanitary sewage disposal system with 3,000 gallons or less design capacity serving a single or multiple family residence, place of business, or place of public assembly, the effluent from which is not discharged to the surface waters, shall be approved under rules and regulations promulgated by the Commission for Health Services. All other such sanitary sewage disposal systems with more than 3,000 gallons design capacity shall be approved under rules and regulations promulgated by the Board of Water and Air Resources pursuant to the applicable provisions of Article 21 of Chapter 143. (1957, c. 1357, s. 1; 1973, c. 471, s. 1; c. 476, s. 128.)

Amended 1977 subsections b, c and d

10 NCAC 10A .1900; SEWAGE DISPOSAL SYSTEMS; has been adopted and reads as follows:

.1901 PURPOSE

To protect the health and well being of the general public, any single or multiple-family residence, place of business or place of public assembly in North Carolina, which is served by a ground absorption sewage disposal system of 3,000 gallon or less design capacity, and which does not result in a discharge to the surface waters of the state shall be governed as set out in .1902 - .1931 of this section.

History Note: Statutory Authority G.S. 130-160;
Eff. July 1, 1977.

.1902 PROPER DISPOSAL

The Commission for Health Services:

(1) Finds and declares that continued installation, at a rapidly and constantly accelerating rate, of septic tanks and other types of ground absorption sewage disposal systems in a faulty or improper manner and in areas where unsuitable soil and population density adversely affects the efficiency and functioning of these systems, has a detrimental effect on the public health through contamination of ground and surface water and through the exposure of sewage-carried pathogens to man, animals, birds, and insects.

(2) Recognizes, that ground absorption sewage can be rendered ecologically safe and the public health protected if such methods of sewage disposal are properly regulated and recognizes that ground absorption sewage disposal will continue to be necessary for the adequate and economical housing of an expanding population.

(3) Intends to insure the regulation of ground absorption sewage disposal systems so that such systems serving residences, places of business, and places of public assembly in North Carolina may continue to be used, where appropriate, without jeopardizing the public health.

(4) Intends that, consistent with the General Statutes, the primary responsibility for regulating the installation and use of ground absorption sewage disposal systems be with local health departments.

History Note: Statutory Authority G.S. 130-160; 130-166.23;
Eff. July 1, 1977.

.1903 DEFINITIONS

The following definitions shall apply throughout this section:

(1) "Alluvial soils" shall mean stratified soils without distinct horizons, deposited by flood waters.

(2) "Approved" shall mean that which has been considered acceptable to the state or local agency.

(3) "Approved privy" shall mean a fly-tight structure consisting of a pit, floor slab, and seat riser constructed in accordance with .1905 (a) of this section.

(4) "Approved sewerage system" shall mean a public, community or institutional sewerage system for the collection and treatment of sewage or other liquid wastes constructed and operated in compliance with applicable requirements of the state or local agency.

(5) "Areas subject to frequent flooding" shall mean those areas consisting of alluvial soils, indicating soils deposited from flooding of less than a 10-year frequency.

(6) "Horizon" shall mean a layer of soil, approximately parallel to the surface, that has distinct characteristics produced by soil forming processes.

(7) "Local health director" shall mean the local health director as defined in G.S. 130-3(g), or his authorized representative.

(8) "Nitrification field" shall mean the system of nitrification lines or field lateral lines which receive the septic tank effluent.

(9) "Nitrification lines" or "field lateral lines" shall mean the open-jointed pipe, drain lines, especially designed porous blocks, or other approved materials which receive the septic tank effluent for nitrification, distribution, and absorption into the soil beneath the ground surface.

(10) "Organic soils" shall mean those organic mucks and peats consisting of more than 20% organic matter to depths of 18 inches or greater.

(11) "Ped" shall mean a unit of soil structure such as an aggregate, crumb, prism, block, or granule, formed by natural processes.

(12) "Perch" shall mean restricting vertical movement of liquids.

(13) "Person" shall mean any individual, firm, association, organization, partnership, business trust, corporation, or company.

(14) "Place of business" shall mean and include any store, warehouse, manufacturing establishment, place of amusement or recreation, service station, office building, or other places where people work.

(15) "Place of public assembly" shall mean and include fairgrounds, auditoriums, stadiums, churches, campgrounds, theaters, and other places where people assemble.

(16) "Privy building" shall mean and include any and all buildings which are used for affording privacy in acts of urination and defecation which are not connected to a residential septic tank or community type sewerage system.

(17) "Residence" shall mean and include any private home, tenant house, hotel, motel, summer camp, labor work camp, mobile home, institution, or places where people reside for any period of time.

(18) "Septic tank" shall mean a water-tight, covered receptacle designed and constructed to:

(a) Receive the discharge of sewage from a building sewer;
(b) Separate settleable and floating solids from the liquid;
(c) Digest organic matter by anaerobic bacterial action;
(d) Store digested solids through a period of detention; and,
(e) Allow clarified liquids to discharge for additional treatment and final disposal.

(19) "Septic tank system" shall mean a ground absorption sewage disposal system consisting of a holding or settling tank and a ground absorption field.

(20) "Sewage" shall mean the waste water and its contents from any single or multiple-family residence, place of business, or place of public assembly.

(21) "Sewer connection" shall mean a connection with an approved community or public sewerage system which provides for the collection and disposal of sewage or other liquid wastes.

(22) "Site" shall be that area in which the septic tank system is to be located, and the area required to accommodate repairs and/or replacement of field and permit proper functioning of the system.

(23) "Soil," for the purposes of subsurface sewage disposal, shall mean the unconsolidated mineral and organic material of the land surface. It consists of sand, silt, and clay minerals and variable amounts of organic materials. It exists as natural undisturbed material or as disturbed material (such as cut and fill).

(24) "Soil absorption system" shall mean a system that utilizes the soil for absorption of effluent from treated sewage.

(25) "Local agency" shall mean the local agency (or its authorized representative) having legal jurisdiction for implementation of this section.

(26) "Structure," as it relates to soil, shall mean the arrangement of primary soil particles into compound particles or clusters that are separated from adjoining aggregates and have properties unlike those of an equal mass of unaggregated primary soil particles.

(27) "Subsurface disposal" shall mean the process of sewage treatment inwhich sewage effluent is applied to land by distribution beneath the surface of the ground through open-jointed pipes; approved drains; approved, specially designed porous block; or other approved materials.

History Note: Statutory Authority G.S. 130-160;
Eff. July 1, 1977.

.1904 SEWAGE DISPOSAL REQUIREMENTS

(a) Every residence, place of business or place of public assembly as defined in this section shall be provided with either an approved number of privies constructed in accordance with the requirements of this section, a septic tank system constructed in accordance with the provisions of this section, or connection to an approved sewer system.

(b) Where an approved privy, an approved septic tank system, or a connection to an approved sewer system is impossible, impractical, or undesirable, this section shall not prohibit the state or local agency from permitting alternate systems, approved vault type privies, or approved mechanical toilet facilities utilizing heat or other approved means for reducing the toilet contents to an inert or stabilized residue or to an otherwise harmless condition, rendering such contents non-infectious or non-contaminating. Alternative systems to septic tank systems shall be designed to

comply with the purposes and intent of this section.

(c) Nothing in this section shall prohibit the state or local agency from permitting the use of portable toilets at construction sites or at mass gathering events of a temporary nature, provided such use shall be contingent upon the provision of adequate cleaning and disposal service in accordance with the directions of the state or local agency.

History Note: Statutory Authority G.S. 130-160;
Eff. July 1, 1977.

.1905 PRIVY AND SEPTIC TANK CONSTRUCTION

(a) An "approved privy" shall consist of a pit, floor slab, and seat assembly housed in a building which affords privacy and reasonable protection from the weather.

(1) The pit shall consist of an excavation at least 42 inches square and 5 feet deep, but in no case shall the depth be such that contamination of ground water will occur.

(2) The pit shall be properly curbed to prevent caving. In sandy or loose soil the curb should extend the full depth of the pit. In tight soils partial curbing is acceptable if it prevents caving.

(3) The privy floor slab shall be constructed of reinforced concrete. Where it is impractical to secure or construct reinforced concrete floor assemblies, wood construction will be accepted provided the floor slab is made of rough sub-flooring and covered with tight tongue-and-groove flooring or other type flooring materials to provide strength and prevent entrance of flies and mosquitoes to the privy pit. Where wood construction is used, floors shall be anchored to at least 4 inch by 4 inch sills. All wood material within 12 inches of finished grade should be treated to prevent rot or insect infestation.

(4) Wood used for riser and seat assemblies shall be tongue-and-groove or plywood (exterior or marine) material.

(b) A "septic tank" shall be of watertight construction, structurally sound and not subject to excessive corrosion or decay. Tanks of rectangular design are recommended. Septic tanks of 1,600 gallon liquid capacity or larger shall be of two-compartment design and construction. The inlet compartment of a two-compartment tank shall be between 2/3 and 3/4 of the total tank capacity. Two-compartment septic tanks are recommended for tanks of less than 1,600 gallon capacity.

(c) Minimum liquid capacities for septic tanks shall be in accordance with the following:

(1) Residential Septic Tanks (For each individual residence)

| Number of Bedrooms | Minimum Liquid Capacity | Equivalent Capacity Per Bedroom |
|---|---|---|
| 2 or less | 750 gallons | 375 gallons |
| 3 | 900 gallons | 300 gallons |
| 4 | 1,000 gallons | 250 gallons |

For each additional bedroom, add 250 gallons. These figures provide for use of garbage grinders, automatic clothes washers, and other household appliances.

(2) Septic Tank Other Than Residential

(A) Septic tanks for commercial or institutional installations shall be sized according to accepted engineering practice and the size of each installation shall be determined on the basis of specific needs.

(B) For determining required minimum capacities for installations serving other than residences, use the daily flows in Table I, .1925 of this section.

(3) The minimum capacity of any septic tank shall be 750 gallons.

History Note: Statutory Authority G.S. 130-160;
Eff. July 1, 1977.

.1906 PREFABRICATED TANKS

If prefabricated tanks, or tanks of other design are used, they shall be constructed in accordance with plans which have been approved by the state agency, and shall comply with all requirements of .1907 of this section. For tanks of 3,000 gallons or less capacity, three (3) complete sets of plans and specifications for the design of the prefabricated septic tank shall be submitted to the Engineering Planning Branch, Sanitary Engineering Section, Division of Health Services, Post Office Box 2091, Raleigh, North Carolina 27602. These plans and specifications shall show the design of the septic tank in detail, including:

(1) All pertinent dimensions,
(2) Reinforcement material,
(3) Concrete strength,
(4) Liquid depth,
(5) Cleanout provisions, and
(6) Other design features.

History Note: Statutory Authority G.S. 130-160;
Eff. July 1, 1977.

.1907 MINIMUM STANDARDS FOR PREFABRICATED SEPTIC TANKS

(a) The Department of Human Resources shall use the following minimum standards as guides in the review and approval of design plans for precast reinforced concrete septic tanks:

(1) The minimum requirement for the liquid depth level is 36 inches; however, 48 inches is strongly recommended.

(2) A minimum of 9 inches freeboard is required, the freeboard being the air space between the top of the liquid and the bottom side of the lid or cap of the tank.

(3) The length of the septic tank shall be at least twice as long as the width, but in no case shall the length exceed three (3) times the width.

(4) The inlet shall be a straight pipe.
(5) The outlet shall be a sanitary tee that extends down 2/5's of the liquid depth. There shall be at least 2 inches difference in elevation between the invert of the inlet and the invert of the outlet.
(6) Cleanouts shall be provided over the inlet and outlet of the tank. In the event that adequate manholes are installed or the top is cased in multiple slabs, cleanouts may be omitted.
(7) At least one manhole or access opening approximately 21 inches by 21 inches shall be provided. In case the top is to be cast as multiple slabs, no single slab directly over the inlet or outlet shall weigh in excess of 150 pounds.
(8) A minimum reinforcing of 6 inches by 6 inches by No. 10 gauge mesh must be used in all faces of the tank, and consideration should be given to increasing the reinforcing in the top of the tank as needed.
(9) A minimum concrete strength of 3,000 pounds per square inch.
(10) The wall thickness of septic tanks shall be not less than 2 1/2 inches. It is the direct responsibility of the manufacturer to design a septic tank in such a manner that the structure will withstand any and all stresses generally attributed to this type of installation.
(11) If a partition is to be used, it is recommended that it be placed near the outlet end of the tank at approximately 2/3's the length of the tank.

(b) Plans for prefabricated tanks, other than those for precast reinforced concrete tanks, shall be approved on an individual basis as determined by the information furnished by the designer which indicates the tank will provide equivalent effectiveness as those designed in accordance with the provisions of .1907 (a).

History Note: Statutory Authority G.S. 130-160;
Eff. July 1, 1977.

.1908 SITE EVALUATION

(a) The local agency shall investigate each proposed site. The investigation shall include the evaluation of the following factors:
(1) Topography.
(2) Soil character, which includes texture, structure, depth, restrictive horizons, and drainage.
(3) Ground water elevation.
(4) Depth to impervious strata.
(5) Soil percolation rate and porosity.

(b) Evaluations shall be made in accordance with .1917 - .1927 of this section and other accepted public health principles. Based on this evaluation, each of the factors listed in .1908 (a) (1-5) shall be classified as SUITABLE, PROVISIONALLY SUITABLE,

or UNSUITABLE. Lowest of the uncorrectable characteristics will determine site classification.

History Note: Statutory Authority G.S. 130-160; 130-166.23 through -166.27;
Eff. July 1, 1977.

.1909 APPLICATION RATES

(a) In determining the volume of sewage from residences, the flow rate shall be 75 gallons per person per day; and each bedroom shall be considered the equivalent of 2 persons. For establishments other than residences, the flow rate shall be determined from Table I, .1925 of this section.

(b) In calculating the number of square feet of area needed for the nitrification field in trench system, the maximum trench width used in the calculations shall be 36 inches, even though the actual trench width may be constructed larger. Trenches shall be not less than 8 feet on centers.

(c) The local agency may permit the use of a bed system in lieu of a trench system for the nitrification field when it has been determined that the trench system is impractical or impossible because of topography, space limitations, or other site planning considerations. In such cases, the number of square feet of area needed shall be increased by 50% over what would be required for a trench system; or in lieu of the added area, the amount of gravel or stone under the drain lines shall be increased to a depth of not less than 12 inches. The extra area is needed to compensate for the loss of trench sidewall area in the bed systems. Drain lines shall be at least 18 inches from the side of the bed and shall be not less than three feet on centers.

History Note: Statutory Authority G.S. 130-160; 130-166.23 through -166.27;
Eff. July 1, 1977.

.1910 SITE CLASSIFICATION

(a) Sites classified as SUITABLE may receive application of septic tank effluents up to 1.5 gallons per square foot per day.

(b) Sites classified as PROVISIONALLY SUITABLE may receive septic tank effluents up to 0.75 gallons per square foot per day; except that where percolation rates exceed 60 minutes per inch, the application rate shall not exceed 0.5 gallons per square foot per day.

(c) Sites originally classified as UNSUITABLE may be used for soil absorption disposal systems, provided engineering, hydrogeologic, and soil studies indicate to the local agency that a suitable septic tank system or a suitable alternate system can reasonably be expected to function satisfactorily. Such sites may be reclassified as PROVISIONALLY SUITABLE, upon submission to the

local agency of:

(1) Adequate substantiating data to indicate that a ground absorption system can be installed so that the septic tank effluent will receive adequate treatment;
(2) The effluent will not contaminate any drinking water supply or any surface water;
(3) The effluent will not be accessible to insects, rodents, or other possible carriers which may come in contact with food or drinking water; and,
(4) The effluent will not be readily accessible to people.

History Note: Statutory Authority G.S. 130-160; 130-166.23 through -166.27;
Eff. July 1, 1977.

.1911 SPACE REQUIREMENTS

Sites shall have sufficient available space to permit the installation and proper functioning of ground absorption sewage disposal systems, based upon the square footage of nitrification field required for the application rate previously determined. Sites classified as PROVISIONALLY SUITABLE should have sufficient available space to accommodate a replacement nitrification field.

History Note: Statutory Authority G.S. 130-160; 130-166.23 through -166.27;
Eff. July 1, 1977.

.1912 LOCATION OF SEPTIC TANK SYSTEMS AND PRIVIES

(a) Every septic tank system and privy shall be located at least the minimum horizontal distance from the following:

(1) Any private water supply source-----100 feet, or maximum feasible distance, but in no case less than 50 feet.
(2) Any community water supply source-----100 feet.
(3) Streams classified as A-II-----50 feet.
(4) Waters classified as S. A.-----100 feet from normal high tide mark.
(5) Any other stream, canal, marsh, or coastal waters----- 50 feet.
(6) Any Class I or Class II impounded reservoir used as a source of drinking water-----100 feet from normal high water line.
(7) Any other lake or impoundment-----50 feet from normal high water line.
(8) Any building foundation-----10 feet.
(9) Any basement-----15 feet.
(10) Any property line-----10 feet.
(11) Top of slope of embankments or cuts of 2 feet or more vertical height-----15 feet.
(12) Any water line-----10 feet.

(b) Septic tank systems and privies may be installed in fill ground when the site complies essentially with the requirements of this section and is specifically approved by the state or local agency. In such fill areas, the soil used for fill shall have such soil characteristics so as to be classified as SUITABLE or PROVISIONALLY SUITABLE soil. There should be a mix of the fill soil and the original soil at the interface of the two soils. The fill area shall be compacted so as to prevent settling of the nitrification lines.

(c) Septic tank systems and privies:

(1) Shall not be installed in areas where the seasonal high water is at or near the ground surface at any time of the year, unless the site is modified.

(2) Should be located downhill from sources of drinking water.

(3) Shall not be located in areas subject to frequent flooding.

(d) Septic tank systems shall not be located under paved areas or driveways, except that a solid cast iron or other suitable pipe may be permitted to convey the effluent under a driveway or other paved areas.

History Note: Statutory Authority G.S. 130-160; 130-166.23 through -166.27;
Eff. July 1, 1977.

.1913 MAINTENANCE OF PRIVIES

(a) Any person owning or controlling the property upon which a privy is located shall be responsible for these requirements:

(1) The privy building shall afford a reasonable degree of protection from bad weather conditions.

(2) When the pit becomes filled to within 18 inches of the top of the ground, the privy building must be moved to a new pit and the old pit completely covered with earth.

(3) If the pit should cave in, a new pit shall be provided.

(b) The tenant or person occupying the property shall be responsible for these requirements:

(1) The walls, floors, and seat of the privy and grounds immediately adjacent to the building must be kept in a clean and decent condition.

(2) Chickens and other animals shall not be harbored in the privy building.

(3) Seat cover shall be hinged and closed at all times when the privy is not in use.

(4) Flies shall be excluded from the pit at all times. The application of a cup full of kerosene or used oil once each week will assist in controlling mosquito breeding and keep down odors.

(5) Ashes, garbage, and trash shall be kept out of the pit.

History Note: Statutory Authority G.S. 130-160;
Eff. July 1, 1977.

.1914 MAINTENANCE OF SEPTIC TANK SYSTEMS

Any person owning or controlling the property upon which a septic tank system is installed shall be responsible for the following items regarding the maintenance of the system.

(1) Septic tank system shall be maintained at all times to prevent seepage of sewage or effluents to the surface of the ground.

(2) Septic tanks need occasional cleaning and should be checked at least each three years to determine if sludge needs removing (once a year if garbage grinders are discharging to the tank).

(3) Contents removed from septic tanks shall be discharged into an approved sewer system, buried or plowed under at an approved location within 24 hours, or otherwise disposed of at a location and in a manner approved by the state or local agency.

History Note: Statutory Authority G.S. 130-160;
Eff. July 1, 1977.

.1915 PERMITS

(a) No person shall install, repair or renovate, or cause to be installed, repaired, or renovated any sewage disposal system or privy without first having obtained a written permit from the local agency. The local agency shall issue such permits only after the agency has determined that the system is designed and can be installed so as to meet the provisions of this section. Permits shall become invalid after 36 months from the date of issue, if the installation has not been completed during that time period, unless otherwise specified in writing. When a permit has become invalid, the installation shall not be commenced or completed until a new permit has been obtained.

(b) Any person other than the owner, tenant, or manager of a residence, place of business, or place of public assembly, who engages in the business of constructing or installing septic tank systems, or the cleaning of septic tanks, shall register with the local health director in each county where he operates before constructing or installing septic tank systems, or collecting and disposing of septic tank contents.

History Note: Statutory Authority G.S. 130-160; 130-166.25 through -166.28;
Eff. July 1, 1977.

.1916 RESPONSIBILITIES

(a) The design, construction, and maintenance of ground absorption sewage systems, whether septic tank systems or alternative systems, shall be the responsibility of the owner, developer, installer, and user of the system as applicable in the circumstances.

(b) Actions of representatives of state or local agencies engaged in the evaluation and determination of measures required to effect compliance with the provisions of this section shall in no way be taken as a guarantee that sewage disposal systems approved

and permitted will function in a satisfactory manner for any given period of time, or that such employees assume any liability for damages, consequential or direct, which are caused, or which may be caused, by a malfunction of such systems.

History Note: Statutory Authority G.S. 130-160;
Eff. July 1, 1977.

.1917 TECHNICAL GUIDE

Rules .1918 - .1927 of this section shall be used in the evaluation of proposed sites for soil absorption systems except where the local agency determines that peculiar or unusual circumstances justify the use of other criteria which shall be consistent with good public health practice.

History Note: Statutory Authority G.S. 130-160; 130-166.25;
Eff. July 1, 1977.

.1918 SITE FACTORS

In order to determine whether a site can be used for disposing of a septic tank effluent, the factors in .1919 - .1921 of this section shall be taken into consideration.

History Note: Statutory Authority G.S. 130-160; 130-166.25;
Eff. July 1, 1977.

.1919 TOPOGRAPHY

(a) Uniform slopes under 15% shall be considered SUITABLE with respect to topography. When slopes are less than 2%, provisions shall be made to insure good surface drainage of rainfall or run-off from buildings or paved areas. When slopes are greater than 4%, the nitrification lines shall follow the contour of the ground. Complex slope patterns and slopes dissected by gullies and ravines are not suitable. The surface area on or around a soil absorption system shall be graded to provide adequate drainage; and such a system shall not be located in a depressed area. Good surface drainage is essential and shall be provided to prevent soil saturation around the system during rainy periods.

(b) Uniform slopes between 15% and 30% shall be considered PROVISIONALLY SUITABLE with respect to topography, if the soils are deep (36 inches or more). Complex slope patterns and slopes dissected by gullies and ravines are not suitable. Slopes within this range may require installation of drainage lines up-slope from the soil absorption system to remove all excess water that might be moving laterally through the soil during wet periods of the year. The interception of lateral ground water movement shall be provided where necessary to prevent soil saturation around the soil absorption system. Usable areas larger than minimum are ordinarily required in this slope range.

(c) Slopes greater than 30% may be considered PROVISIONALLY SUITABLE, provided a thorough study of the soil characteristics indicates that a soil absorption system will function satisfactorily and sufficient ground area is available to properly install

such a system. Slopes greater than 30% may be classified as PROVISIONALLY SUITABLE when:

(1) The slope can be terraced or otherwise graded or the nitrification lines located so as to maintain a minimum 5 foot horizontal distance from the bottom of the nitrification lines and the ground surface;
(2) The soil characteristics can be classified as SUITABLE or PROVISIONALLY SUITABLE;
(3) Surface water runoff is diverted around the nitrification field so that there will be no scouring or erosion of the soil over the field;
(4) If necessary, ground water flow is intercepted and diverted to prevent such water from running into or saturating the soil absorption system; and
(5) There is sufficient ground area available to install the septic tank system with these modifications.

History Note: Statutory Authority G.S. 130-160; 130-166.25; Eff. July 1, 1977.

.1920 SOIL CHARACTERISTICS

Unless soil characteristics have been previously established, soil borings shall be taken in the area to be used for soil absorption systems. Such borings shall be taken to depths of at least 48 inches. From these soil borings and observation of core samples, most of the significant soil characteristics can be evaluated and a determination can be made as to the suitability of the soil to absorb septic tank effluent. The important soil characteristics which shall be determined by the approving agency are as follows:

(1) Texture - The relative amounts of the different sizes of mineral particles in a soil are referred to as soil texture. All soils are composed of sand, (2.0 - 0.05 mm in size); silt, which includes intermediate-sized particles that cannot be seen with the naked eye, but feels like flour when pressed between the fingers, (0.05 - 0.002 mm in size); and clay, which is extremely small in size and is the mineral particle that gives cohesion to a soil (less than 0.002 mm in size). The texture of the different horizons of soils may be classified into three general classes.
(a) Sandy texture soils are soils that exhibit a gritty feel when rubbed between the fingers, that crumble when moist or wet, and that will not leaf out when pressed between the thumb and index finger, should be classified as sandy textures. Sandy soils contain more than 70% sand sized particles in the soil mass. These soils do not have enough clay to be cohesive. Sandy soils have favorable percolation rates, but may have a low filtering capacity leading to malfunction due to contamination of ground water. Sandy soils shall be considered SUITABLE with respect to texture.

(b) Loamy texture soils are soils that when moist or wet may be rolled into a ball that will stick together but is easily crushed. When pressed between the fingers, loamy soils will leaf from between the fingers to ¼ to ½ inch before breaking. Loamy soils contain less than 70% sand sized particles and more than 18% clay sized particles in the soil mass. They exhibit little or no stickiness. Loamy soils generally have favorable percolation rates and are excellent filters. Loamy soils are the most desirable for effluent treatment and shall be considered SUITABLE with respect to texture.

(c) Clayey texture soils are soils with more than 40% of the soil mass made up of clay particles. Clayey soils, when moist or wet, may be rolled into a compact, smooth ball and resist pressure when crushed between the fingers. When wet and pressed between the fingers, clayey soils will leaf out to ½ inch or more in length before breaking. The type or kind of clay in soils is very significant. There are two major types of clays: the 1:1 clays (Kaolinite) which do not shrink when dry or swell when wet; and the 2:1 (Montmorillonite) that will shrink when dry and swells when wet. The 2:1 clays crack when dry and allow water or septic tank effluent to move freely through the soil for 48 to 72 hours. They then become saturated and swell, resulting in no movement of liquids through the soil. 2:1 clays may sometimes be identified by the presence of cracks in the soil when dry, and are plastic and sticky when wet. These clays will have an olive and greyish mottled appearance, or splotches intermingled with the yellow and red clay colors. 1:1 clay soils shall be considered PROVISIONALLY SUITABLE as to texture; 2:1 clays shall be considered UNSUITABLE as to texture.

(d) Organic soils shall be considered UNSUITABLE as to texture.

(2) Soil Structure - In many soils, the sand, silt, and clay particles tend to cling or stick to one another to form a ped or a clump of soil. This is known as soil structure. Soil structure may have a significant effect on the movement of effluent through a soil. The structure may determine the rate of movement of liquids through clayey soils. Structure is not important in sandy-textured soils or in loamy-textured soils, and these types of soils shall be considered SUITABLE as to structure. The three kinds of soil structure that are most significant in movement of sewage effluent through clayey soils are blocky, platy, and the absence of soil structure or massive conditions are described as follows:

(a) Blocky soil structure

(i) In clayey soils, if the soil exhibits many peds of angular and subrounded peds, then the soils have blocky structure. The sewage effluent may move between the cracks of these blocky types of peds.

Blocky soil structure in clayey soils is frequently destroyed by mechanical equipment manipulating the soil when it is too wet. Trenches for nitrification lines being placed in clayey soils with blocky structure should only be dug when soils are moist or dry. Blocky soil structure in clayey soils shall be considered PROVISIONALLY SUITABLE as to structure.

(ii) Some rocks, even though weathered, such as slates or creviced or fractured rocks, exhibit blocky structure, which is not changed by moving water, thereby allowing fluids to move downward without filtration. Such soils shall be considered UNSUITABLE as to structure.

(b) Platy soil structure - If clayey soils fall out into platelike sheets, then the soil would have platy structure. Water or effluent movement through these horizons would be extremely slow, and the structure shall be considered UNSUITABLE.

(c) Absence of soil structure - Some clayey soils exhibit no structure aggregates. In these kinds of soils, percolation would be zero or extremely slow. Such structure shall be considered UNSUITABLE.

(3) Soil Depth - The depth of soils classified as SUITABLE OR PROVISIONALLY SUITABLE as to texture and structure shall be at least 48 inches when conventional ground absorption systems are to be utilized.

(4) Restrictive Horizons - Restrictive layers or horizons in soils may generally be recognized by the resistance offered in digging a hole or in using a soil auger. Restrictive horizons are variable in their characteristics. Massive or solid bedrock may be classed as a restrictive horizon. Where this bedrock lies shallower than 48 inches to the surface, it will perch sewage effluent and in many instances will allow sewage effluent to move laterally and seep to the surface on a lower part of the landscape. Another restrictive horizon may be caused by iron pans or plinthite. These horizons may generally be recognized by their brittleness and by the presence of red and grey colored soil materials. The red materials quite frequently will be in the form of nodules of very brittle fragments. These kinds of horizons will also perch sewage effluent and limit the storage capacity of a soil being used for disposition of effluent. The third common restrictive horizon is a cemented iron-aluminum-organic hardpan. This is very brittle when dry and will perch sewage effluent. Soils in which restrictive horizons are less than 48 inches below the ground surface or less than 12 inches below the trench bottom of subsurface nitrification lines shall be considered UNSUITABLE, except in cases where restrictive horizons occurring close to the ground surface have underlying soil stratas suitable for subsurface disposal, and the ground water table complies with (5) of this rule. In these cases, the soil shall be considered SUITABLE with respect to restrictive horizons, provided the restrictive

horizon is penetrated.

(5) Soil Drainage - Soils with seasonally high water tables are of major concern in evaluating sites for sewage effluent disposal. These are the soil areas that give good percolation rates during dry seasons of the year but force sewage effluent to the surface during the wetter seasons. The depth of the seasonal high water table can commonly be recognized by those examining soil profiles. The criterion for recognition of high water tables is that of soil color. Subsurface horizons that are in colors of reds, yellows, and browns indicate good soil aeration and drainage throughout the year. Subsurface horizons that are in colors of grey, olive or bluish colors indicate poor aeration and poor soil drainage. These dull or greyish colors may occur as a solid mass of soil or may be in mottles of localized spots. The volume of greyish colors is indicative of the length of time that free water stands in that soil profile. There are soils that have light-colored mottles which are relic from the light-colored rock from which the soils have weathered. These soils would not have high water tables, so one must distinguish between a true soil composed of sand, silts and clays, or the rock material that may still exist in the soil profile. Any soil profile that has the greyish colors, indicative of high water tables, or is subject to tidal or periodic high water, within 36 inches of the surface shall generally be considered UNSUITABLE as to drainage. Where the soil is considered suitable as to structure and texture, and modifications can be made to keep the ground water table at least 12 inches below the bottom of the trench, such soils shall be considered PROVISIONALLY SUITABLE as to drainage.

History Note: Statutory Authority G.S. 130-160; 130-166.25; Eff. July 1, 1977.

.1921 PERCOLATION TESTS

Unless soil characteristics have been previously established by the state or local agency which indicates adequate permeability, percolation tests shall be made in the exact area where the nitrification lines are to be installed. Such percolation tests shall be conducted in accordance with the following procedures:

(1) Number and location of tests: Three or more tests should be made in separate test holes spaced uniformly over the proposed absorption field site.

(2) 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. Post hole diggers are satisfactory for digging holes.

(3) Preparation of test hole: Carefully scratch the bottom and sides of the hole with 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.

(4) Saturation and swelling of the soil: Carefully fill the hole with clear water to a minimum depth of 12 inches from the bottom. By refilling if necessary, keep water in the hole for at least 4 hours or until the soil is saturated. This saturation procedure insures that the soil is given the opportunity to swell and approach the condition that it will be in during the wettest season of the year. Thus the test will give comparable results in the same soil whether made in a dry or 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 (5) (c) of this rule, after the water from one filling of the hole has completely seeped away.

(5) Percolation rate measurement: With the exception of sandy soils, percolation rate measurements shall be made on the day following the procedure described in (4) of this rule:

(a) If water remains in the test hole after the overnight swelling period, adjust the depth to approximately 6 inches from the bottom. 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.

(b) 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 from the bottom. From a fixed reference point measure the drop in water level at approximately 30-minute intervals for 4 hours, refilling 6 inches from the bottom as necessary. 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 suit local circumstances.

(c) 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 the test run for one hour. The drop that occurs during the final 10 minutes is used to calculate the percolation rate.

(6) If the average time for the water to fall 1 inch in the test hole is 30 minutes or less, the percolation test shall be considered SUITABLE; between 30 minutes and 60 minutes, PROVISIONALLY SUITABLE; between 60 minutes and 120 minutes PROVISIONALLY SUITABLE only when the soil texture and structure are classified as suitable or provisionally suitable. Rates between 60 minutes and 120 minutes are UNSUITABLE when soil texture and structure are unsuitable; rates above 120 minutes are UNSUITABLE.

History Note: Statutory Authority G.S. 130-160; 130-166.25;
Eff. July 1, 1977.

.1922 DETERMINATION OF SOIL SUITABILITY

All of the criteria in .1919 - .1921 of this section shall be determined to be SUITABLE, PROVISIONALLY SUITABLE or UNSUITABLE as indicated. If all criteria are classified the same, that classification will prevail. However, it is unlikely that all criteria will be classified the same in all situations. Where there is a variation in classification of the several criteria, the following shall be used in making the overall determination, and is summarized in Table II, .1926 of this section. The lowest of the uncorrectable characteristics will determine the site classification.

(1) If the soil structure is classified as unsuitable, the overall classification will be UNSUITABLE, regardless of the classification of the other criteria unless provisions of .1908 through .1911 of this section are met.

(2) If the soil texture is classified as unsuitable, and the soil structure is provisionally suitable, the soil texture may be reclassified as PROVISIONALLY SUITABLE.

(3) When soil depth is classified as unsuitable, it may be reclassified as PROVISIONALLY SUITABLE if shallower trenches, a mound system, or other modifications to obtain adequate soil depth can be provided.

(4) When the restrictive horizon is classified unsuitable, it may be reclassified as PROVISIONALLY SUITABLE under the conditions outlined in .1920 (4) of this section.

(5) When drainage (ground water level) is unsuitable, it may be reclassified as PROVISIONALLY SUITABLE under the conditions outlined in .1920 (5) of this section.

(6) Percolation rates in excess of 60 minutes, but not exceeding 120 minutes may be classified as PROVISIONALLY SUITABLE under conditions outlined in .1921 (6) of this section.

History Note: Statutory Authority G.S. 130-160; 130-166.25; Eff. July 1, 1977.

.1923 AVAILABLE SPACE

Sites shall have sufficient available space to permit the installation and proper functioning of ground absorption sewage disposal systems, based upon the square footage of nitrification field required for the application rate previously determined. It is desirable that sites classified as PROVISIONALLY SUITABLE have sufficient available space to accommodate a replacement nitrification field.

History Note: Statutory Authority G.S. 130-160; 130-166.25; Eff. July 1, 1977.

.1924 OTHER APPLICABLE FACTORS

The site evaluation should include consideration of any other applicable factors involving accepted public health principles, such as:

(1) The proximity of a large-capacity water-supply well, the cone of influence of which would dictate a larger separation

distance than the minimum distance specified in .1912 of this section.

(2) The potential public health hazard of possible failures of soil absorption systems involving large quantities of sewage, which would dictate larger separation distances than the minimums specified in .1912 of this section.

(3) The potential public health hazard of possible massive failures of soil absorption systems proposed to serve large numbers of residences, as in residential subdivisions or mobile home parks.

(4) Other circumstances peculiar to individual situations.

History Note: Statutory Authority G.S. 130-160; 130-166.25; Eff. July 1, 1977.

.1925 ESTIMATES OF SEWAGE QUANTITIES

Table No. I gives estimates of sewage quantities that are the minimums required for use in determining the volume of septic tanks being designed to serve selected types of establishments. The figures include volume necessary to handle the sewage flow and provide sludge storage, and may differ from estimated sewage flows used in the design of municipal or community sewerage systems.

TABLE NO. I

| TYPE OF ESTABLISHMENT | DAILY FLOW FOR DESIGN |
|---|---|
| Airports (also R.R. stations, bus terminals) (not including food service facilities) | 5 gal/passenger |
| Barber Shops | 100 gal/chair |
| Beauty Shops | 125 gal/booth or bowl |
| Bowling Alleys | 50 gal/lane |
| Camps | |
| Construction or work camps | 50 gal/person |
| Summer Camps | 50 gal/person |
| Campgrounds | 150 gal/campsite |
| Churches | 5 gal/member |
| Country Clubs -Resident Members | 75 gal/person |
| Non-resident Members | 20 gal/person |
| Day Care Facilities | 15 gal/person |
| Factories (exclusive of industrial wastes) - per shift | 25 gal/person |
| Hospitals | 300 gal/bed |
| Laundries (self-service) | 500 gal/machine |
| Motels/Hotels | 75 gal/room |
| with cooking facilities in room | 125 gal/room |
| Resort | 200 gal/room |
| Offices - per shift | 25 gal/person |
| Nursing/Rest Homes - with laundry | 150 gal/bed |
| - without laundry | 75 gal/bed |
| Residential Care Facilities | 75 gal/person |
| Restaurants | 40 gal/seat |

| | | |
|---|---|---|
| Schools: Day schools | 15 | gal/person |
| NOTE: Use 20 gal/person if aerobic treatment is proposed. | | |
| Boarding schools | 75 | gal/person |
| Day workers | 25 | gal/person |
| Service Stations | 250 | gal/water closet or urinal |
| Stores | 250 | gal/water closet or urinal |
| NOTE: If food service is included, add 40 gal/seat. | | |
| Swimming Pools and Bathhouses | 10 | gal/person |
| Theaters - Auditoriums | 3 | gal/seat |
| Drive-In | 5 | gal/car space |
| Travel Trailer Parks | 150 | gal/space |

History Note: Statutory Authority G.S. 130-160; 130-166.25; Eff. July 1, 1977.

.1926 POSSIBLE MODIFICATIONS OF INITIAL CLASSIFICATIONS

Table No. II does not include all possible combinations, but includes those which could result in upgrading the initial classification.

TABLE NO. II

| Criteria | Initial Classification | Modifying Factors | Final Classification |
|---|---|---|---|
| 1. TOPOGRAPHY | UNSUITABLE | Soil Characteristics Suitable or Provisionally Suitable, and sufficient area available and factors included in reference can be applied. Ref: .1919 (c) | PROVISIONALLY SUITABLE |
| 2. SOIL CHARACTERISTICS | | | |
| (a) Texture | UNSUITABLE | Soil Structure Provisionally Suitable, Soil Depth, Restrictive Horizon and Drainage Suitable or Provisionally Suitable. Ref: .1920 (2), (3), (4), and (5) | PROVISIONALLY SUITABLE |

| | | | | |
|---|---|---|---|---|
| (b) | Structure | UNSUITABLE | Provisions of .1910 and .1911 are met. Ref: .1910 (c) | PROVISIONALLY SUITABLE |
| (c) | Depth | UNSUITABLE | Use of Shallow Trench, Use of Mound System. Ref: .1910 and .1911 | PROVISIONALLY SUITABLE |
| (d) | Restrictive Horizon | UNSUITABLE | Restrictive Horizon Close to Surface; Underlying Soil Strata Suitable or Provisionally Suitable; Water Table 1 Foot or More Below Bottom of Trench. Ref: .1920 (4) | PROVISIONALLY SUITABLE |
| (e) | Drainage | UNSUITABLE | Lower Ground Water Table to at Least 1 Foot Below Bottom of Trench. Ref: .1920 (5) | PROVISIONALLY SUITABLE |
| 3. | GROUND WATER ELEVATION | UNSUITABLE | Lower Ground Water Table to at Least 1 Foot Below Bottom of Trench. Ref: .1920 (5) | PROVISIONALLY SUITABLE |
| 4. | DEPTH TO IMPERVIOUS STRATA | UNSUITABLE | Restrictive Horizon Close to Surface; Underlying Soil Strata Suitable; Water Table 1 Foot or More Below Bottom of Trench. Ref: .1920 (4) and (5) | PROVISIONALLY SUITABLE |
| 5. | PERCOLATION TEST | UNSUITABLE (60-120 min/inch) | Soil Structure and Texture Suitable or Provisionally Suitable. Ref: .1921 | PROVISIONALLY SUITABLE |

History Note: Statutory Authority G.S. 130-160; 130-166.25;
Eff. July 1, 1977.

.1927 INTERPRETATION AND TECHNICIAL ASSISTANCE

(a) The provisions of .1917 through .1926 of this section shall be interpreted, as applicable, in accordance with the recognized principles and practices of soil science.

(b) State agencies will provide technical assistance. Local agencies shall obtain technical assistance from soil scientist personnel, and local soil survey information as may be needed for interpretation of this section.

History Note: Statutory Authority G.S. 130-160;
Eff. July 1, 1977.

.1928 APPLICABILITY OF RULES

(a) Except as required in subsections (b) and (c) of this rule, the minimum horizontal distance requirements in .1912 (a) (4), (8), (9), (10) or (11) shall not apply to the installation of a single septic tank system serving a single family residence not to exceed four (4) bedrooms, on a lot or tract of land:

(1) Which on the effective date of this section is specifically described in a deed, contract, or other instrument conveying fee title or which is specifically described in a recorded plat and the lot or lots contiguous thereto have been conveyed by the subdivider so as to prevent enlargement of said lot or tract of land retained by the subdivider in order to satisfy the provisions of .1912 (a) (4), (8), (9), (10) or (11) of this section; and

(2) Which on the effective date of this section is of insufficient size to satisfy the minimum horizontal distance requirements in .1912 (a) (4), (8), (9), (10) or (11) of this section; and

(3) Which on the date system construction is proposed to begin, is not capable of being served by a community or public sewerage system.

(b) However, if any two or more contiguous lots or tracts of land, such as are described in .1928 (a) (1), are under single ownership on the effective date of this section, they shall not be exempted from any of the minimum horizontal distance requirements of .1912 (a) (4), (8), (9), (10) or (11) of this section, if such lots or tracts of land under single ownership can be combined to meet said minimum horizontal distance requirements.

(c) For those lots or tracts of land described in .1928 (a) and (b) of this section, where any of the minimum horizontal distance requirements prescribed in .1912 (a), (4), (8), (9), (10) or (11) of this section, can be met, such minimum horizontal distances shall be required.

(d) For those lots or tracts of land described in .1928 (a) and (b) of this section, where a specific minimum horizontal distance requirement prescribed in .1912 (a) (4), (8), (9), (10) or (11) of this section, cannot be met, the maximum feasible horizontal distance, as determined by the local agency, shall be required. Provided, however, that at least the following

minimum horizontal distances shall be required in all cases:

(1) .1912 (a) (4) of this section, the minimum horizontal distance shall be not less than 50 feet.

(2) .1912 (a) (8), (10) and (11) of this section, the minimum horizontal distance shall be not less than 5 feet.

(3) .1912 (a) (9) of this section, the minimum horizontal distance shall be not less than 8 feet.

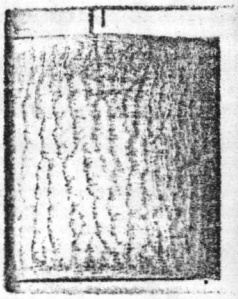
(e) All other provisions of this section except as exempted by this rule shall apply to the lots or tracts of land described in .1928 (a) of this section. Any rules and regulations of the Commission for Health Services, or any local board of health in effect on the day before the effective date of this section, which establish greater minimum distance requirements than those provided for in this section, shall remain in effect and shall apply to a lot or tract of land to which .1912 (a) (4), (8), (9), (10) or (11) of this section do not apply.

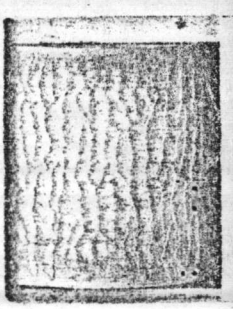
(f) The provisions of .1928 (a) of this section shall be inapplicable to a conveyance, as described in this rule, which is effected primarily for the purpose of exempting a tract of land from the provisions of .1912 (a) (4), (8), (9), (10) or (11) of this section and in which the party or parties conveying the tract of land are united in interest with the party or parties receiving the conveyance, or the entity receiving the conveyance is controlled by the same party or parties making the conveyance, or the parties to the conveyance have colluded for the purpose of exempting the tract of land from the provisions of .1912 (a) (4), (8), (9), (10) or (11) of this section.

(g) The provisions of .1928 (a) of this section shall be inapplicable to a tract of land when the conveyance of the tract or tracts of land adjacent thereto is effected primarily for the purpose of exempting the tract of land from the provisions of .1912 (a) (4), (8), (9), (10) or (11) of this section and in which the party or parties conveying the tract or tracts of land are united in interest with the party or parties receiving the conveyance, or the entity receiving the conveyance is controlled by the same party or parties making the conveyance, or the parties to the conveyance have colluded for the purpose of exempting the tract of land from the provisions of .1912 (a), (4), (8), (9), (10) or (11) of this section.

(h) It shall be the responsibility of any owner of a lot or tract of land, who applies for a permit required by .1915 (a) of this section and who seeks, under the provisions of .1928 (a) of this section, to exempt his lot or tract of land from any of the minimum horizontal distance requirements of .1912 (a) (4), (8), (9), (10) or (11) of this section to provide to the local agency necessary records of title to both the lot or tract of land, for which the exemption is sought, and to all contiguous lots or tracts of land, in order that the local agency may determine whether the applicant is entitled to any such exemption.

History Note: Statutory Authority G.S. 130-160;
Eff. July 1, 1977.





.1929 EXEMPTION

If the application of this section would prohibit the use of such systems, the provisions of this section shall not apply to septic tank systems and other types of ground absorption sewage disposal systems in use or for which a valid permit has been issued prior to the effective date of these rules and regulations.

History Note: Statutory Authority G.S. 130-160;
Eff. July 1, 1977.

.1930 DISUSE OF SEWAGE SYSTEM

Notwithstanding the foregoing provisions of .1928 (a) and .1929 of this section, if, for any reason (except for destruction by fire), a ground absorption sewage disposal system falls into disrepair or has been disconnected, or the use of which has been abandoned, such system shall not be used again unless it meets all of the provisions of this section except those included in .1912 (a) (4), (8), (9), (10) and (11) of this section, provided such reuse will not create a public health hazard.

History Note: Statutory Authority G.S. 130-160;
Eff. July 1, 1977.

.1931 VIOLATIONS

If any person shall willfully violate any of these rules or shall willfully fail to perform any acts required by these rules, he shall be guilty of a misdeameanor and shall be punished as provided in G.S. 130-203 through 205.

History Note: Statutory Authority G.S. 130-160;
Eff. July 1, 1977.

.1932 CONFLICTING RULES REPEALED

All rules heretofore adopted by the Commission for Health Services which are in conflict with the provisions of this section, except as provided in .1928 of this section, are hereby repealed.

History Note: Statutory Authority G.S. 130-160;
Eff. July 1, 1977.

.1933 SEVERABILITY

If any provision of these rules or the application thereof to any person or circumstance is held invalid, the remainder of the rules or the application of such provisions to other persons or circumstances shall not be affected thereby.

History Note: Statutory Authority G.S. 130-160;
Eff. July 1, 1977.

NOTE: "THE FORM OF THIS RULE MAY BE REVISED BY THE ATTORNEY GENERAL PURSUANT TO THE PROVISIONS OF G.S. 150A-61."

Maint

DEPARTMENT OF THE NAVY
HEADQUARTERS UNITED STATES MARINE CORPS
WASHINGTON, D.C. 20380

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MCBul 6280
LFF-2-ncs
1 Oct 1980

MARINE CORPS BULLETIN 6280

From: Commandant of the Marine Corps
To: Distribution List

Subj: Procedural Requirements of State and Local Pollution Control Agencies

Ref: (a) MCO P11000.8A

1. Purpose. To advise addressees of the requirement to comply with State and local procedural requirements in implementation of national pollution control laws.

2. Discussion

a. As outlined in the reference, Marine Corps commands have been required to comply with all substantive requirements (e.g., emission standards) of Federal, State, and local environmental regulations. Recent national laws, including the Resource Conservation and Recovery Act, the Safe Drinking Water Act, amendments to the Clean Air Act, and amendments to the Federal Water Pollution Control Act, have given specific direction to Federal agencies to now comply with State and local procedural (e.g., permits) as well as substantive requirements.

b. States and local agencies may impose requirements for permits, testing, monitoring, recordkeeping, reporting, and operator certification. Agencies may also require payment of permit application and renewal fees. Such fees will be budgeted as an operations and maintenance expense. Activities will consider the payment of fees as a mandatory requirement.

c. National Pollutant Discharge Elimination System permits administered by the Environmental Protection Agency (EPA) may now be turned over to States which have primary enforcement authority. Activities in those States should contact the State to determine the proper local procedures. In States which do not have primary enforcement authority, the EPA will continue to administer the permits. If States request an additional permit, activities should comply and advise the Commandant of the Marine Corps (Code LFF).

d. Activities receiving requests for permits or other controls on military unique structures, equipment, or vehicles should contact the Commandant of the Marine Corps (Code LFF) for guidance. The word "vehicle" is defined as a self-propelled vehicle designed for use on the highways other than vehicles designed or used for military field training, combat, or tactical purposes. EPA has determined that vehicles that exhibit features which render their use on a street or highway unsafe, impractical, or highly unlikely (e.g., tracked vehicles, vehicles of inordinate size, or with features ordinarily associated with military combat or tactical purposes such as armor and/or weaponry) are not subject to the Clean Air Act, as amended (40 CFR 85.1703(a)(3)). In view of the foregoing, military vehicles and other mobile sources which are designed and used for military field training, combat, or tactical purposes are not subject to EPA-established emissions standards applicable to new motor vehicles.

e. The cognizant engineering field division of the Naval Facilities Engineering Command will provide assistance, upon request, in complying with both substantive and procedural requirements.

f. Headquarters Marine Corps will include the contents of this Bulletin in a forthcoming change to the reference.

3. Action. Addressees shall comply with the substantive and procedural requirements of the State and local pollution control agencies. Advise the Commandant of the Marine Corps (Code LFF) of any significant problems encountered.

4. Self-Cancellation. 30 September 1981.

H. A. Hatch

H. A. HATCH
Deputy Chief of Staff
for Installations and Logistics

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NATURAL RESOURCES AND ENVIRONMENTAL AFFAIRS DIVISION
BASE MAINTENANCE DEPARTMENT
MARINE CORPS BASE
CAMP LEJEUNE, NORTH CAROLINA 28542

23 April 80

From: Director, NREA Division
To: BMO

Subj: Field Head Facilities

1. I discussed "4 holers" with Capt Trulease prior to attached memo and advised that the clean air act and clean Water act were involved where the burn out type and trench type were being used respectively. I recommended all applicable Regulation Requirements be investigated.

Jim

Twylah,
Please file
f d/w

| | ACTION | INFO | INITIAL |
|---|---|---|---|
| | | APR 1 0 1980 | |
| BMO | | | |
| ABMO | | | |
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| SAFETY CHMN | | | |
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| SECRETARY | | | |
| F&A BRANCH | | | |
| UMACS | | | |

UNITED STATES MARINE CORPS
MARINE CORPS BASE
CAMP LEJEUNE, NORTH CAROLINA 28542

IN REPLY REFER TO
FAC:JCT:jae
4000
9 April 1980

From: Base Commander
To: Staff Judge Advocate (Attn: Major JANEGA)

Subj: Ground Absorption Sewage Disposal Systems of 3000 Gallons of less Design Capucity

Ref: (a) Section 1900 of the North Carolina Administrative Code Title 10 Department of Human Resources Chapter 10 Health Services; Sanitary Engineering Subchapter 10A Sanitation.

1. Reference (a), has been interpretted by your office and NREA to be applicable to the use of "4 holers", by Marines involved in field training.

2. Accordingly, it is requested that the local agency be requested to specifically address the use of "4 holers" IAW reference (a), and provide a ruling.

3. If utilization of "4 holers" by Marines is denied, it is requested that action be initiated via this Headquarters to obtain an exemption to reference (a) which will authorize the use of "4 holers" at Camp Lejeune. Inherent in our mission to train Marines is a requirement to include training in Field Sanitation Procedures. Compliance with reference (a) as presently defined adversely impacts on our need to meet this requirement.

K. P. MILLICE, Jr.
By direction

Copy to:
BMO
AC/S Trng