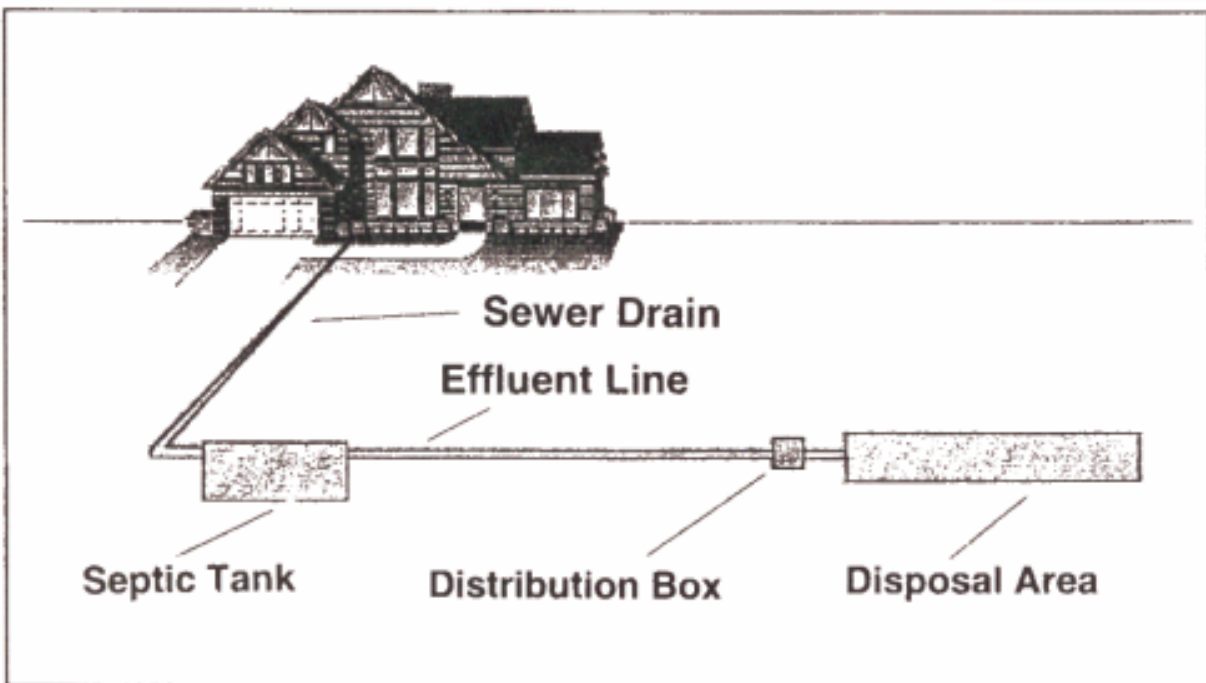


ON-SITE WASTEWATER DISPOSAL SYSTEM INSTALLATION MANUAL



A helpful, concise manual and guidebook for new
and experienced septic system installers



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DEPARTMENT OF ENVIRONMENTAL SERVICES
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Produced by Granite State Designers and Installers Association as
part of a grant it received from the N. H. Department of Environmental
Services, using funds from the U. S. Environmental Protection Agency



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Glossary of Terms

BIOMAT: the bacterial layer that forms between the bottom of the EDS and the sand fill or receiving layer which treats and purifies the sewage effluent.

BLACK WATER: all residential wastewater including toilet waste.

CESSPOOL: an underground pit into which raw sewage or untreated wastes are discharged and from which the liquid seeps or leaches into the surrounding soil, no longer a viable option for sewage disposal in New Hampshire.

CHAMBER SYSTEM: an effluent disposal system constructed of preformed, interconnected, open bottom leaching units providing effluent storage space and mechanical support for the soil overburden.

CONSTRUCTION APPROVAL: written approval for construction of a planned or proposed sewage disposal systems under RSA 485-A:32, I.

DESIGN INTENT: a statement of the actual bed bottom elevation of the EDA in relation to an established reference elevation on site, usually the highest original grade contour elevation under the effluent disposal system.

DISTRIBUTION BOX or D-BOX: a small concrete or plastic box from which all pipes lead to disperse equal amounts of effluent throughout a leach field. The D-box serves as a 'mail box' for written communications between the DES Regional Inspector and the system installer. Check it often to see when or if you can cover a system.

DO NOT BACKFILL (DNBF): a written inspection report issued by the DES Regional Inspector which prohibits the installer from covering an effluent disposal system before correcting items listed on the DNBF form. The DES Regional Inspector places the DNBF form in the distribution box for the convenience of the installer.

DRY WELL: a sewage disposal area constructed as a covered, underground pit with open-jointed lining, surrounded with septic stone into which settled or other treated wastes are discharged for final disposal into the surrounding soil.

EFFLUENT: liquid sewage which overflows or flows out from a septic tank.

EFFLUENT DISPOSAL AREA or "EDA": a sewage disposal area designed for the final disposal of septic tank effluent.

EFFLUENT DISPOSAL SYSTEM or "EDS": all the components used to convey and/or treat effluent, including all methods used to distribute effluent into the EDA.

FAILURE: the condition produced when a subsurface sewage or waste disposal system does not properly contain or treat sewage or causes or threatens to cause the discharge of sewage on the ground surface or into adjacent surface or groundwaters.

GREY WATER: residential wastewater that does not include toilet waste.

INVERT ELEVATION: the control elevation measured at the bottom of a pipe.

INSPECTION: means an overview by the department of the effluent disposal system to ensure that the installed system is in compliance with the approved plans and specifications.

MOTTLES: spots of contrasting color in a soil horizon that indicate the seasonal high water table.

OPERATIONAL APPROVAL: written approval to cover and use or operate the constructed sewage disposal system, which is issued only after inspection by an authorized agent of the department. Operational Approval forms are placed in the d-box to inform the installer the system may be covered and backfilled.

PERCOLATION TEST (Perc test): a test hole dug to measure the rate of absorption of water into the soil under partially controlled conditions. The results of the perc test are expressed in the number of minutes it takes water to drop one inch in the hole.

SEASONAL HIGH WATER TABLE: the highest in-ground elevation to which the water table may rise during the wettest season of the year as evidenced by mottles.

SEPTIC DESIGN: a set of plans prepared by a licensed septic system designer, approved by the Dept. of Environmental Services, used to construct a septic system. A septic design contains specific information about site topography, lot lines, soil conditions, a perc test, test pit, water supply and subdivision status.

TEST PIT: a hole dug in the soil with a backhoe or excavator to determine the soil characteristics and profile description. Only a licensed septic system designer may inspect a test pit to determine the seasonal high water table for system replacement or design purposes.

Remember that this is a partial list of definitions will need to know. Other definitions relating to effluent disposal systems can be found in the manual entitled, "Subdivision and Individual Sewage Disposal System Design Rules" published in August 1999.

by Jay Baas, Environmentalist III, DES Subsurface Systems Bureau, Concord, NH

Some of the State Laws Affecting Design and Installation of Sewage Disposal Systems

485-A:29 Submission and Approval of Plans

I. Any person proposing either to subdivide land, except as provided in RSA 485-A:33, or to construct a sewage or waste disposal system, shall submit 2 copies of such locally approved plans as are required by the local planning board or other local body having authority for the approval of any such subdivision of land, which is subject to department approval, and 2 copies of plans and specifications for any sewage or waste disposal systems which will be constructed on any subdivision or lot for approval in accordance with the requirements of the department as provided in this paragraph. In the event that such subdivision plans which receive final local approval differ from the plans which are reviewed by the department, the person proposing the subdivision shall resubmit those plans to the department for re-approval. The planning board or other local body having final local approval authority shall submit one copy of such plans which receive final local approval to the department for informational purposes with 30 days of granting such final approval. The department shall adopt rules, pursuant to RSA 541-A, relative to the submission of plans and specifications as necessary to effect the purposes of this subdivision. The rules shall specify when and where the plans and specifications are to be submitted, what details, data and information are to be contained in the plans and specifications, what tests are to be required, what standard, guidelines, procedures, and criteria are to be applied and followed in constructing any sewage or waste disposal system, and other related matters. The rules shall also establish the methodology and review process for approval of innovative/alternative wastewater treatment systems and for approval of a plan for operation, maintenance, and financial responsibility for such operations. For any part or parts of the subdivisions where construction or

and Specifications.

waste disposal is not contemplated, only the lot lines, property boundaries drawn to scale, and general soil and related data shall be required. The constructed sewage or waste disposal systems shall be in strict accordance with approved plans, and the facilities shall not be covered or placed in operation without final inspection and approval by an authorized agent of the department. All inspections by the department shall be accomplished within 7 business days after receipt of written notification from the builder that the system is ready for inspection. Plans and specifications need not be submitted for subdivision approval for subdivisions consisting of the division of a tract or parcel of land exclusively in lots of 5 or more acres in area. The presence of hydric soils on lots of 5 or more acres in area shall be insufficient, without additional supporting data, to classify these lots as wetlands, or to make such lots unsuitable for sewage or waste disposal systems designed for poorly drained soils. This exemption in no way relieves any person from responsibility for obtaining approval under this chapter for construction of individual or other sewage or waste disposal systems or both in any exempted lots. In such cases, it shall be the responsibility of the subdivider to provide to the lot purchasers satisfactory assurance as the purchasers may require at the time of sale that lots sold shall be adequate to support individual sewage or waste disposal systems or both in accordance with rules adopted by the department and the requirements of this subdivision.

II. Permitted designers of subsurface sewage disposal systems shall obtain the registry of deeds volume and page numbers for each lot that relates to the septic system application and provide them to the department. The department shall develop and approve an outline of brief instructions for the

periodic maintenance, care and proper usage of waste disposal systems, including a warning of the potential public health hazard and pollution of public and private water supplies and surface water of the state from improperly maintained sewage and waste disposal systems.

485-A:30 Fees

I. Any person submitting plans and specifications for a subdivision of land shall pay to the department a fee of \$80 per lot. Said fee shall be for reviewing such plans and specifications and making site inspections. Any person submitting plans and specifications for sewage or waste disposal systems shall pay to the department a fee of \$80 for each system. Said fee shall be for reviewing such plans and specifications, making site inspections, and for the administration of sludge and septage management programs. The fees required by this paragraph shall be paid at the time said plans and specifications are submitted and shall be deposited with the treasurer as unrestricted revenue. For the purposes of this paragraph, the term Alot shall not include tent sites or travel trailer sites in recreational parks which are operated on a seasonal basis for not more than 9 months per year.

I-a. In addition to fees required under paragraph I, any person submitting plans and specifications for sewage or waste disposal system shall pay to the department a fee of \$10 for each system. Said fee shall be for supporting a general-funded position at the department to advocate for and implement long-term septage disposal solutions in partnership with New Hampshire municipalities. The fees required by this paragraph shall be paid at the time said plans and specifications are submitted and shall be deposited with the state treasurer as unrestricted revenue.

II. [Repealed.]

III. Any persons submitting plans and specifications as a re-submission for re-approval

(b) Encroachment waiver requests shall appear on the plans. No application which includes any request for an encroachment waiver shall be accepted by the department unless the application includes a copy of the notice, a list of the names and addresses of the abutters to whom the notice

of such shall not be required to pay any additional fee under RSA 485-A:30, I or I-a if changes to such plans and specifications would not constitute a new subdivision under the provisions of RSA 485-A:2, XIII.

485-A:30-a Notice Requirements; Encroachment Waivers.

I. (a) Any person intending to submit an application for approval of a sewage or waste disposal system, which application will include a request for an encroachment waiver, shall notify the local code enforcement officer or other appropriate designated authority and all abutters as defined in RSA 672:3 that the person intends to file the application. Such notification shall include:

(1) The name and address of the property owner.

(2) Identification of the property for which an encroachment waiver is being requested, including tax map and lot numbers.

(3) Names of abutters, together with applicable tax map and lot numbers.

(4) A description of the specific waivers being requested.

(5) A reasonable facsimile of the plan.

(6) Identification of any local code or ordinance for which a waiver, variance or exception is required, and whether such waiver, variance or exception has been obtained.

(7) Notice that the department is required by law to act on the application within 15 working days of receipt of the application, and that objections to the proposed encroachment waiver may be submitted to the department during the review process or by filing a motion for reconsideration of the decision with the department within 20 days of the department's decision on the application.

was mailed, and a statement signed by the applicant or property owner certifying that the notices were sent by certified mail to the abutters listed.

II. No construction permit shall be issued for a septic system until the department has received a

copy of the recorded notice showing that all easements and encroachment waivers associated with the application have been recorded by the property owner in the registry of deeds.

485-A:30-b Protective Well Radii

I. All lots, including lots created prior to August 20, 1989, shall be subject to the following conditions:

(a) Rules adopted under this section concerning such lots shall include provisions allowing abutting lot owners to overlap their respective well radii for their mutual benefit and provisions allowing well radii to extend over property lines onto state and locally-mandated property line setbacks, recorded easements, or land which is permanently dedicated to a use which precludes development.

(b) For private wells serving commercial buildings, the entire protective well radius shall be maintained on one or more of the following: on-lot, on a recorded easement, or land which is permanently dedicated to a use which precludes development, or on state and locally-mandated property line setbacks. For the purposes of this section, the term Acommercial building≅ shall not include a residence which is also used for commercial purposes unless the total water withdrawal exceeds 600 gallons per day.

(c) For private wells serving buildings other than commercial buildings, if the protective well radius cannot be wholly maintained on an existing lot of record due to the size or other physical

(g) When, for reasons of the condition of the lot or the placement of buildings thereon, the well cannot be installed as shown on the approved plan, the water well contractor shall advise and consult with the property owner, or the property owner=s agent, on the best possible alternative location, considering distance to property boundaries and to the sewage or waste disposal system. Using a standard release form prepared by the department, the water well contractor shall alert the owner to the consequences of the alternate installation, including the potential loss of the protection of any portion of the radius which extends over the property line. The owner, or the owner=s agent, may defer to the designer of the sewage or waste

characteristics of the lot, then the on-lot protective radius shall be maximized to the extent practicable. Subject to the foregoing sentence, the protective well radius shall be maintained on one or more of the following: on-lot, on a recorded easement, on land which is permanently dedicated to a use which precludes development, or on state and locally-mandated property line setbacks.

(d) Any person submitting plans and specifications for a sewage or waste disposal system for a property which is or will be served by an on-lot well, shall show the location or proposed location of the well, or a designated area within which the well will be located, on such plans and shall show the protective radius as specified in the department=s rules.

(e) Whenever the department approves a septic plan with an on-lot well radius which is less than the optimum standard, the department shall notify the applicant of the consequences of such reduced radius and advise the applicant whether special precautions should be taken relative to well installation.

(f) If the well is not installed prior to the sewage or waste disposal system being constructed, then the property owner shall provide the water well contractor with a copy of the approved plan showing the location of the well, and the water well contractor shall ensure, to the best of his ability that the well is installed in accordance with the approved plan.

disposal system or may allow the water well contractor to proceed in the identified alternative location. Prior to installing the well in the identified alternative location, the well contractor shall, using the standard release form, obtain a written acknowledgment, from the property owner, or the owner=s agent, that the consequences are understood. The designer shall prepare an amended plan showing the actual location of the well. The property owner shall forward the amended plan, together with a copy of the signed release form, to the department and the local code enforcement officer or other appropriate designated local official prior to using the well. If the on-lot protective well radius is less

than the optimum prescribed standard, the owner shall record the release form, upon which the actual protective radius shall be noted, together with a narrative description of the location of the well in the registry of deeds, and a copy of the recorded release form shall be filed with the department.

II. For lots approved under RSA 485-A:29, the rules adopted under this section concerning such lots shall include provisions allowing abutting lot owners to overlap their respective well radii for their mutual benefit by allowing well radii to extend over property lines, onto state and locally-mandated property line setbacks, recorded easements, or land which is permanently dedicated to a use which precludes development. If after a lot is created pursuant to this section, the well cannot be installed as shown on the subdivision plan, then the provisions of RSA 485-A:30-b, I(d), (e), (f), and (g) shall apply.

III. For the purposes of this paragraph, the term Acluster development≅ means a form of residential subdivision that permits dwelling units to be grouped on sites or lots with dimensions, frontages, and setbacks reduced from conventional requirements, provided that the remaining land area is permanently designated as open space for cluster development. For cluster developments the following provisions shall apply:

(a) Where the sewage waste disposal systems are located off of the individual home lots or the cluster development is served by municipal sewers, the wells and associated protective radii

The department shall give notice in writing to the person submitting the plans and specifications for subdivision of land of its approval or disapproval of such plans and specifications with 30 days of the date such plans and specifications and the required fees are received by the department and shall give notice in writing to the person submitting plans and specifications for sewage or waste disposal systems of its approval or disapproval of such plans and specifications within 15 working days of the date such plans and specifications and the required fees are received by the department. Unless such written disapproval shall be mailed to the person submitting plans and specifications within 30 days

servicing those home lots need not be confined to the individual lot which each well serves so long as all wells and their associated protective radii are confined within the tract of home lots and common land permanently designated as open space, and shall not encumber property situated outside of the cluster development except by recorded easement.

(b) Where the home lots are serviced by on-lot sewage or waste disposal systems, wells and their protective radii may be located wholly or partially on common land permanently designated as open space and shall not encumber adjacent lots or property situated outside of the cluster development except by recorded easement. The department shall not approve such off-lot wells and radii unless the lot owner or developer demonstrates to the department=s satisfaction, by means of recorded easements, land use restrictions or other appropriate mechanisms, that the well owner will be able to maintain and service the well in perpetuity and that the area covered by the protective well radius is permanently dedicated to a use which precludes development.

IV. The commissioner shall adopt rules under RSA 541-A providing for protective well radii for private water wells, and for regulation of land use within the radii boundary.

485-A:31 Action on Applications

in the case of plans and specifications for subdivision of land, and 15 working days in the case of plans and specifications for sewage or waste disposal systems from the date of receipt with the required fees by the department, the plans and specifications shall be deemed to have been approved. The department shall send a copy of the approval or disapproval of such plans and specifications to the planning board or board of selectmen of the affected municipality.

485-A:32 Prior Approval; Permits.

I. No person shall construct any building from which sewage or other wastes will discharge or construct a sewage or waste disposal system

without prior approval of the plans and specifications of the sewage or waste disposal system by the department. Nothing herein shall be construed to modify or lessen the powers conferred upon local authorities by other statutes; provided, however, that in all instances the requirements contained in this chapter shall be considered as minimum.

II. Any person submitting an application and plans for construction approval shall also certify in writing that he has complied with all local government requirements as relate to water supply and sewage disposal which must be complied with prior to application to the department of environmental services in those municipalities where regulations require prior local approval; and, at the same time, a copy of the certification shall be sent to the board of selectmen of the town or the city council of the city.

III. No person required to submit subdivision plans pursuant to paragraph I shall commence the construction of roads within the lot, tract, or parcel proposed to be subdivided, by clearing the land thereof of natural vegetation, placing any artificial fill thereon, or otherwise altering the land, nor shall he do any other act or acts which will alter the natural state of the land or environment, unless the subdivision plan relating thereto has been submitted and approved in accordance with the requirements of this chapter. Nothing in the paragraph shall be construed to prevent the taking of test borings, the digging of test pits, or any other preliminary testing and inspection necessary to comply with the requirements of the department of environmental services relative to information necessary for review and approval of the subdivision plans.

485-A:33 Exemptions.

I. No plans and specifications shall be required whenever the proposed sewage or waste disposal system will be connected to any public

III. In all cases involving inspection of sewage or waste disposal systems in cities or towns which employ a full time health officer and/or building inspector, the department may delegate to such officer or inspector the responsibility for inspecting the proposed system

sewer system operated by any municipality or other government body within the state.

II. No plans and specifications shall be required whenever land is subdivided and the purpose of such subdivision is to correct or conform boundary lines or when land is exchanged between abutters and no building is contemplated on the exchanged land.

III. No plans and specifications shall be required for subdivision whenever land is proposed to be subdivided solely for the purpose of a bona fide gift of a lot or lots, and the person intending to subdivide the land certifies upon forms provided by the department that the proposed subdivision is a gift; provided that this limited exemption shall not relieve the donee of the lot, or lots, of the responsibility, and it shall be the responsibility of such donee to submit plans and specifications in accordance with this chapter in the event that such donee subsequently intends to (1) convey to others for consideration any such lot, or lots, or (2) intends to construct thereon a structure from which sewage or other waste will be discharged.

485-A:34 Soil Testing; Inspections.

I. The department shall require soil data describing soil types and their physical and related characteristics as exist in the proposed subdivision. Such soil data will consist of soils maps and charts as prepared by the U. S. Department of Agriculture, Natural Resources Conservation Service, or equivalent. The data provided by the soils map will supplement the information obtained by percolation tests and such other independent examination as the department may require to establish the adequacy of the proposed sewage or waste disposal facilities.

II. Lot sizes will be in accordance with the type of soil and its ability to absorb wastes without polluting water supplies or adjoining waters.

as required under paragraph I of this section. In cities and towns which do not maintain full time health officers and/or building inspectors, the department may delegate the responsibility for such inspections to any local official deemed qualified by the department to fulfill the

appeal from such decision to revoke, suspend or not renew a permit may be taken pursuant to RSA 21-O:14. All fees shall be deposited with the state treasurer as unrestricted revenue.

II. Any person who desires to install or repair a waste disposal system for his own domicile shall not be required to obtain an installer=s permit as provided in paragraph I, provided he complies with rules adopted by the department relative to such systems.

As in effect at November 1, 2002

We've come a long way from this!.....

