STATE OF CONNECTICUT

DEPARTMENT OF PUBLIC HEALTH

DEH Circular Letter #2002-25

TO: Directors of Health
Chief Sanitarians
Professional Engineers
Licensed Installers

FROM: RWS Robert W. Scully, PE
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DATE: June 12, 2002

SUBJECT: On-Site Sewage Disposal Updates

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1. **Groundwater Monitoring/Drought Issues** –Although precipitation has been running close to normal this spring, and has actually been above normal for the last month or so, Connecticut is still experiencing some drought effects due to an approximate 10 inch precipitation deficit over the last year. While a sustained drought is a major concern for water supplies, it is not a concern for existing on-site sewage disposal systems. In fact, septic systems typically work better during such conditions due to increased hydraulic capacity of the soil, and to water conservation practices of the user. However, drought effects are a concern in regard to maximum groundwater investigations for potential subsurface sewage disposal systems.

   The Public Health Code requires that local health departments assure the accuracy of the findings of soil tests and deep observation pits. When maximum groundwater level is in doubt, the local director of health may require an investigation for maximum groundwater levels between February 1st and May 31st, the wet season. The dry weather our State has been experiencing over the last year, especially from October through February, has resulted in below normal groundwater levels in parts of the State. Data collected during monitoring this year must be evaluated with this in mind. Wet season monitoring is a tool utilized to establish normal maximum groundwater levels. During a drought, the normal springtime levels may not be achieved, and other maximum groundwater indicators need to be relied on more heavily.

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Attached is the May, 2002 Water Resources Conditions report prepared by the U.S. Geological Survey (USGS). The report includes groundwater observations from a network of 70 monitoring wells. Groundwater levels are provided for May 2002, April 2002, May 2001, and the May median. Hydrographs of six monitoring wells with long term monitoring periods are also provided. The report includes a small portion of the groundwater data collected by USGS at sites in Connecticut. Contact information including web sites where monthly USGS reports can be obtained is listed on page 1. The USGS groundwater readings are typically taken the last week of each month, and the statewide data is usually available within the first 10 days of the following month.

Although rainfall since March 1st of this year has been running close to normal, it has not been enough to raise groundwater to normal levels in some parts of the State. A review of the May 2002 data indicates a substantial rebound in groundwater levels in a significant number of the monitoring wells, however, some wells are still classified as being in the below normal range. Previous USGS monthly reports indicated that March 2002 had 43 record lows, April 2002 had 36 record lows, and May 2002 had 10 record lows. The extent that groundwater will return to normal springtime levels will be dependent upon site location and precipitation events during the next few weeks. Groundwater levels are usually falling at this time of year due to increased evapotranspiration.

Although the USGS data is helpful in evaluating general groundwater conditions throughout the State, it is not site specific enough to utilize in adjusting groundwater observations taken at nearby sites. This means an engineer cannot conclude that since a nearby USGS monitoring well had groundwater levels one foot below normal, that, the maximum groundwater level on a proposed development site was determined by adding one foot to the levels observed on the site. Such an analysis would require a statistical assessment of the State's monitoring well network, and would include variables such as soil type, watershed area, and topographic location. Connecticut does not have such a methodology in place.

This office has the following recommendations for maximum groundwater determinations this year:

- Historic groundwater monitoring data on a particular site must be considered in evaluating maximum groundwater levels. If previous monitoring established a site was unsuitable per PHC Section 19-13-B103e (a)(3), then a site does not instantly become suitable as a result of additional monitoring during a drought year.
- The USGS monitoring data should be utilized as a guide as to the extent groundwater is below normal levels. Additional site investigation may be necessary if groundwater does not reach normal springtime levels.
- Local health departments may request further evaluation of soil indicators. Experienced soil evaluators such as soil scientists can be requested to evaluate the soil characteristics to better ascertain maximum groundwater levels. A detailed assessment of the redoximorphic features can be required to establish maximum groundwater levels when they are in doubt. These evaluations require an assessment of mottles, low chroma soil colors, and gleyzation to ascertain whether oxidation-reduction processes are occurring.

- Professional engineers should prepare reports on groundwater conditions on lots that local directors of health have requested wet season monitoring. The report should take into account the above noted items and the design plans must demonstrate groundwater will not interfere with the proper operation of the subsurface sewage disposal system. If applicable, an assessment of the effectiveness of the groundwater control systems should also be included in the report.
- Local health department can require a study (i.e., hydraulic analysis) of the capacity of the surrounding natural soil to satisfactorily handle the sewage flows if, in their opinion, problems associated with groundwater may occur. No permit or approval can be issued for any new subsurface sewage disposal system where the surrounding naturally occurring soil cannot adequately absorb or disperse the expected volume of sewage effluent without overflow, breakout or detrimental effect on ground or surface water.

2. **Accessory Structures/Building Additions on DEP Jurisdiction Sites** – Enclosed please find DEH Circular Letter # 2002-24. The letter contains guidance from this office and the Department of Environmental Protection (DEP) on how to handle requests from local building officials for sign-offs on incidental construction projects on properties that fall under DEP jurisdiction relative to on-site sewage disposal.

3. **Environmental Engineering (Sewage Disposal Program) Staff/Region Updates** – As most of you are undoubtedly aware Frank Schaub retired effective April 1st, 2002. The program has recently brought on a new sanitary engineer as a result of Frank's retirement. Matthew Pawlik, Sanitary Engineer II will be assigned the western region of the State. I have assumed the responsibilities of Supervising Sanitary Engineer for our program. Attached is a map detailing the regions Matt Pawlik, Sean Merrigan, and I will be covering. Please feel free to contact your area representative if we can provide assistance.

4. **Gorman Aggregates Manufactured Select Fill** – Attached is a copy of a March 19, 2002 Environmental Engineering Section correspondence to Gorman Aggregates concerning the manufactured select fill that they produce. This office has approved their manufactured fill for use in subsurface sewage disposal systems with the stipulation that it conforms to the gradation requirements included in Technical Standard Section VIIIA. Please note that all manufactured fill must be identified as manufactured, and the sewage disposal system designer must specify it as an acceptable alternative.

5. **House Rebuilds and Building Additions** – This office has received numerous inquiries from local health departments on construction projects involving existing residential buildings. Many of the questions concern the reconstruction of existing homes. This office provided detailed guidance on this issue in DEH Circular Letter #99-19 dated July 22, 1999. The Environmental Engineering Section has been asked to provide clarification as to whether building reconstruction projects that do not increase the habitable (livable) or potentially habitable space constitute building additions pursuant to Public Health Code Section 19-13-B100a (B100a). The short answer to this question is no. However, the project still must be reviewed for compliance with B100a to verify the potential repair area is not reduced.

In cases where houses are proposed to be razed and a smaller house constructed, this office recommends local health departments review existing and proposed house plans to verify that the habitable space or potentially habitable space is not being increased. Potentially habitable space would include non-finished space such as full basements and second floor areas that could easily be modified to a finished state. If it is confirmed that the proposal does not constitute a change in use (additional bedrooms) or a building addition, and it is demonstrated that the modified footprint and associated accessory structures (decks, garages, etc) do not reduce the potential repair area, then the project can be approved for B100a purposes. There are instances where it is preferable from a sewage disposal viewpoint to raze an existing home and rebuild the same size or smaller house in a different location. This would be the case with home reconstruction projects that result in an increase in potential repair area.

During our recent B100a training sessions sponsored by the Connecticut Environmental Health Association, this office provided guidance on building additions. Although B100a does not define building addition, it is generally understood to be an enlargement of the building served. Any physical or structural modification to a building that results in an increase in habitable (livable) or potentially habitable floor space, other than finishing off pre-existing basement space, would constitute a building addition. As such, adding a full basement to a house that currently has a crawl space would constitute a building addition. At the training sessions it was pointed out that most dormer installations go beyond simply adding a window to a room, therefore, dormer proposals must be evaluated as possible building additions. Substantially modifying a room with sloping ceilings to increase the floor area with full ceiling height would constitute a building addition. This would be the case in most dormer installations, and in instances where A-frame rooms are proposed to be reconstructed as "boxed" rooms by raising the roofline and providing studded walls.

This office recommends that for any proposed home rebuilds or building modifications, local health departments review the existing and proposed building plans to determine if the project constitutes a building addition or change in use. Plans must not only detail floor layout, but also side views to document potential increases in habitable space, potentially habitable space, or full ceiling height space.

6. **Engineered Plan Preparation/Plan Review Checklist** –This office requests that engineers and local health departments review the guidance and the checklist of items that are included in Chapters 18 and 19 of this program's Design Guidelines. The guidance references information that should be considered as part of any well-prepared engineered report and detail plan. On occasion engineered plans have been received lacking the most rudimentary information (i.e., system elevations, soil test data, and design criteria). In these cases, if the design engineer reviewed the checklist, it would have been apparent the plans were not complete. The Environmental Engineering Program encourages all local health departments utilize the checklist in their review of engineered sewage disposal systems. Design Guidelines can be purchased from our program for 3 dollars (payable: Treasurer, State of Connecticut) or it can be downloaded from our web site: www.dph.state.ct.us/.

Although non-engineered repair plans typically do not require the same level of detail, the completeness of non-engineered plans can also be a concern. Non-engineered plans must also contain basic information such as basis of design, design calculations, system layout/depth into grade, location of structures/wells, property information, date, plan designer, direction of slope, and benchmark. This office has been recommending that even non-engineered plans be drawn to scale, and include spot elevations.

7. **Septic Tank Additives** – The Environmental Engineering Section has been receiving an unusually high number of inquiries about septic tank additives. Our program does not support the use of additives. Many of the calls received, concern an additive called Bio-Clean which is being distributed by a Rhode Island based company, Instant Septic.

   The Department of Public Health is requesting your assistance in getting the word out to property owners that septic tank additives for the most part are not beneficial. Property owners would be better served to focus their attention scheduling routine tank maintenance. The Design Guidelines (Chapter 9: Septic tank maintenance) recommends additives not be used. Our Section will be investigating complaints against septic cleaners who allegedly didn't properly pump the solids out of septic tanks and instead sold homeowners septic tank additives to "break down the solids".

   DEP requires registration of additives that are going to be offered for sale in Connecticut. The Department of Public Health has notified DEP that Bio-Clean is not on the list of registered additives. The Environmental Engineering Section has requested DEP to pursue action against the company, and to ensure the additive is properly registered if it is to be offered for sale in CT. Information on which additives are registered with DEP can be obtained from Bryan Sousa (860) 424-3848. It should be pointed out that DEP does not endorse the use of additives, however, they can insure additives are properly registered.

c: Leonard McCain
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