

CHATHAM HEALTH DISTRICT

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DISTRICT HEALTH DIRECTOR

Thad D. King, MPH

Memo 05-1

To: Chatham Health District Staff
From: Thad D. King, Director of Health
Re: Groundwater Monitoring
Date: 1/31/05

Purpose

At the discretion of the Chatham Health District, groundwater monitoring may be required on any site where there is reason to believe that maximum groundwater is less than 36" below grade. In general, if there is any question that groundwater is less than 18" from the ground surface for a month or more of the year, monitoring will be required to document suitability. Any questions regarding the requirement to monitor should be directed to the Chief Sanitarian for the District. Any unresolved questions beyond that are referred to the Director of Health for the District. The Health District shall assess a fee to review/conduct monitoring on a per lot basis.

Assessing High Groundwater

Groundwater observed at less than 18" from the ground surface for a duration of one month or more during the wet season, indicate unsuitable conditions for new septic systems and cannot receive permits or approvals for septic construction under Public Health Code (PHC) Section 19-13-B103e(a)(3). Groundwater must be monitored on a regular basis (minimum weekly) during the wet season, which is identified in PHC Section 19-13-B103d(e)(2) as the period between February 1st and May 31st. Supplementary monitoring to assess how a site responds to significant rainfall events is also recommended.

Monitoring should continue through May 31st unless the Chatham Health District authorizes otherwise. If monitoring begins after February 1st, the results can be used if the applicant's engineer demonstrates that monitoring took place during the peak period. If the peak period started before monitoring began, the results may not be valid for the current season and additional monitoring may be required.

Procedure to Install Monitoring Pipes

Monitoring is best accomplished by installing lengths of 4" PVC pipes in small diameter holes (8-12") dug to a depth of about 36". The Design Manual refers to holes dug to a depth of at least 24" below the bottom of the proposed system. This is specifically intended for cases where a groundwater control drain is being installed to demonstrate that the system can go in at a specific elevation. The 36" depth is sufficient to prove the 18" to groundwater called for by the Health Code.

The holes can be dug using a posthole digger or augur, and care should be taken not to excessively smear shut the sides of the hole. The Design Manual calls for placing 3" of stone or sharp (clean) sand at the bottom of the hole followed by installation of the 4" solid or slotted pipe. The pipe should be surrounded by stone or sharp sand to within 6" of the ground surface. The hole should then be backfilled to the surface and slightly mounded with soil. The mound should be very minor, since it is important to record the "stickup" of the pipe above existing grade. Cap the monitor pipe to prevent vandalism or entry of foreign material into the pipe. A sketch is attached from the design manual showing a typical groundwater monitoring well construction. The applicant's engineer is responsible for correct installation of the monitor wells.

It is also acceptable to use no stone or sand in relatively free draining native material. In siltier soils, it is acceptable to wrap solid, slotted or perforated pipe with filter fabric before backfilling the pipe with material dug from the hole. Standpipes in test pits are unacceptable.

Monitoring Groundwater Control Drains

If monitoring is being conducted for purposes of a demonstration drain to show that groundwater can be controlled, the monitoring pipes should be set up as follows. A grid of monitor wells should be constructed with part of the network of wells installed 15-25' up-gradient of the drain and the rest installed in a grid 25-50' down-gradient of the drain. This pattern will allow assessment of pre and post drain groundwater conditions.

Responsibility for Monitoring and Recording

All groundwater monitoring is to be conducted by the applicant's engineer. The engineer should provide the Chatham Health District with a proposed schedule for reading the standpipes. While the actual schedule may have occasional fluctuations, it will allow the Health District the opportunity to "check" the pipes for accuracy with the reported data. Data should be reported on at least a monthly basis to the district. When data is reported, it should include; the total depth of the monitor well, height of stickup and depth to water from the top of the pipe. It should also include dates and amounts of precipitation. One last column should record the actual depth below grade to water. Provide data in electronic format.