

APPLICATION FOR ENVIRONMENTAL HEALTH SERVICES - NHC

PERMIT NO _____

PLEASE PRINT

Name: _____ Mailing Address: _____ City/State/Zip _____

Home Phone: _____ Business/Mobile Phone: _____ E-mail Address: _____

Street Address for Site: _____ Zip: _____ Subdivision: _____ Lot/Section: _____

Directions to Property: _____

Installation for: _____ County Sewer: (YES) (NO) Tax Parcel # _____

Residence: _____ Lot Size: _____ Industry or Business: _____

Industrial / Commercial _____ (Type) _____ Number of Bedrooms: _____

Duplex: _____ Number of Occupants: _____ Number of Employees: _____

Private Well: (YES) (NO) fixtures: _____

Public System Name: _____

TO MAKE APPLICATION FOR ENVIRONMENTAL HEALTH SERVICES
YOU MUST SUBMIT A PLAT OR SITE PLAN DRAWN TO SCALE OF YOUR
PROPERTY WITH THIS APPLICATION for EOP and Soil Wetness Monitoring.

Please show the location of the residence or building, including
driveways, and any other improvements/additions (pools, decks, etc.)

Please submit storm water plans for Subdivisions and Commercial Developments.
Permits issued pursuant to this application shall not be affected by change
in ownership provided the site plan remains unchanged.

I have read this application and certify that the information provided herein is
true, complete and correct. Authorized county and state officials are granted
right of entry to conduct necessary inspections to determine compliance with
applicable laws and rules. It is understood that any permit issued hereafter is
subject to suspension or revocation if the site plans or the intended use change
or if the information submitted on this application is falsified.

- Engineered Option Permit (EOP) _____
- Soil Wetness Monitoring _____
- Water Sample (Bacteriological) _____
- Water Sample (Inorganic) _____
- Water Sample (Organic) _____

OFFICE USE ONLY:

Amount Received: \$ _____ Receipt #: _____
Cash _____ Check # _____ Credit Card _____

Property owner's or owner's legal representative** signature (required).
**Must provide documentation to support claim as owner's legal representative.

Date

DOCUMENTATION TO AUTHORIZE AN OWNER'S LEGAL REPRESENTATIVE

Applications for permits require the "signature of the owner or owner's legal representative" (15A NCAC 18A .1937). If the owner does not sign the application himself or herself, they can submit any one of the following documents to designate their legal representative:

1. Power of Attorney
2. Real Estate Contract
3. Estate executor
4. Bankruptcy trustee
5. Court ordered guardianship

In the absence of the above documentation, the property owner may provide the local health department with documentation that designates a legal representative. A property owner may:

1. Complete this form to document his or her legal representative, or
2. Provide his or her own form that contains the information in this form.

If there are multiple property owners, then all property owners must sign the form that designates a legal representative.

6. By signing a form that designates a legal representative for purposes of 15A NCAC 18A .1937, the property owner authorizes that representative to act on their behalf in matters pertaining to the application and permitting process, including signing or receiving any application, document or permit. The owner retains full responsibility to meet all permit conditions specified by the local health department.

I, _____, am the legal owner(s) of the property located at _____, identified as PIN (Parcel Identification Number) _____, located in New Hanover County, North Carolina.

I do hereby authorize (print legal representative/company name) _____, to act as an agent on my behalf in applying for/signing/obtaining any of the documents described below.

- Application for Improvement Permit (IP) / Authorization to Construct (AC)
- Improvement Permit (IP) / Authorization to Construct (AC)
- Application for soil-site evaluation (new/repair)
- Application/permit for private drinking water well/well abandonment
- Application for Compliance Inspection

I agree to abide by all decisions and/or conditions between the legal representative acting on my behalf and the _____ County Department of Public Health, Environmental Health Division.

Signature of Owner(s)	Date	Signature of Witness	Date

DOCUMENTACION PARA AUTORIZAR A UN REPRESENTANTE LEGAL DEL PROPIETARIO

Las aplicaciones para los permisos requieren "firma del representante legal del propietario o propietarios" (15A NCAC 18A.1937). Si el propietario no firma la aplicación el mismo o ella misma, ellos pueden enviar cualquiera de los siguientes documentos para designar su representante legal.

1. Poder Legal
2. Contrato de Bienes y Raices
3. Albacea de Propiedad
4. Fideicomiso de Insolvencia
5. Orden de la Corte de la tutela

En ausencia de la documentación mencionada arriba, el propietario puede proporcionar al departamento de salud local con la documentación que designa a un representante legal. Un propietario puede

1. Completar esta forma para documentar a su representante legal, o
2. Proporcionar su propia forma que contiene la información en esta forma

Si hay múltiples propietarios, entonces todos los propietarios deben firmar la forma que designa a un representante legal.

6. Firmando la forma que designa a un representante legal para propósitos de 15A NCAC 18A. 1937, el propietario autoriza a ese representante a actuar sobre su beneficio en los asuntos que pertenecen a la aplicación y permitir el proceso, inclusive firmar o recibir cualquier aplicación, el documento o el permiso. El propietario retiene la responsabilidad completa para encontrar todas condiciones del permiso especificados por el departamento de salud local.

I _____, soy el propietario legal (propietarios) de la propiedad localizada en _____, identificado como NIP (el número de identificación del paquete) _____, localizado en el Condado de New Hanover _____, Carolina de Norte.

Yo por la presente autorizo (imprimir el nombre legal del representante/nombre de la compañía) _____, Para actuar como un representante en mi beneficio al solicitar/firmar/obteniendo cualquiera de la documentación descrita abajo.

- Aplicación de mejora (IP)/autorización para construir (C.A.)
- Permiso de mejora (IP)/autorización para construir(C.A.)
- Aplicación para la evaluación del terreno (nuevo/reparación)
- Aplicación/permiso para el poso de agua potable/abandono del pozo
- Aplicación para la inspección de cumplimiento

Estoy de acuerdo en acatar todas la decisiones y/o las condiciones entre el representate legal que está actuando sobre mi beneficio y el _____ El Departamento del condado de la salud pública del medio ambiente.

Firma del Propietario (Propietarios) Fecha Firma del Testigo Fecha

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and Montmorillonite that will shrink and swell when dried and wetted. The type of clay minerals in the clay-sized fraction shall be determined by a field evaluation of moist soil consistence or of wet soil consistence using Soil Taxonomy, Appendix I, which is hereby adopted by reference in accordance with G.S. 150B-14(c). The Department may substitute laboratory determination of the expansive clay mineralogy as defined in these Rules for field testing when conducted in accordance with ASTM D-4318, procedures A and B, for the determination of liquid limit, plastic limit, and plasticity index of soils. These procedures are hereby adopted by reference in accordance with G.S. 150B-14(c). If the liquid limit exceeds 50 percent and the plasticity index exceeds 30, the soil shall be considered as having an expansive clay mineralogy. Copies may be inspected in, and copies obtained from, the Department of Environment, Health, and Natural Resources, Division of Environmental Health, P.O. Box 27687, Raleigh, NC 27611-7687.

- (A) SLIGHTLY EXPANSIVE CLAY MINERALOGY - Soils which have loose, very friable, friable or firm moist soil consistence, or have slightly sticky to sticky or nonplastic, slightly plastic to plastic wet soil consistence, are considered to have predominantly 1:1 clay minerals and shall be considered SUITABLE as to clay mineralogy.
 - (B) EXPANSIVE CLAY MINERALOGY - Soils which have either very firm or extremely firm moist soil consistence, or have either very sticky or very plastic wet soil consistence, are considered to have predominantly 2:1 clay minerals (including mixed mineralogy clays) and shall be considered UNSUITABLE as to clay mineralogy.
- (4) Organic Soils - Organic soils shall be considered UNSUITABLE.
- (b) Where the site is UNSUITABLE with respect to structure or clay mineralogy, it may be reclassified PROVISIONALLY SUITABLE after an investigation indicates that a modified or alternative system may be installed in accordance with Rule .1956 or Rule .1957 of this Section.

*History Note: Authority G.S. 130A-335(e);
Eff. July 1, 1982;
Amended Eff. January 1, 1990.*

15A NCAC 18A .1942 SOIL WETNESS CONDITIONS

(a) Soil wetness conditions caused by seasonal high-water table, perched water table, tidal water, seasonally saturated soil or by lateral water movement shall be determined by field evaluation for soil wetness colors and field observations, and may be assessed by well monitoring, computer modeling, or a combination of monitoring and modeling as required by this Rule. All sites shall be evaluated by an Authorized Agent of the Department using Basic Field Evaluation Procedures pursuant to Paragraph (b) of this Rule.

(b) Basic Field Evaluation Procedures:

- (1) A soil wetness condition shall be determined by the indication of colors of chroma 2 or less (Munsell Color Charts) at $\geq 2\%$ of soil volume in mottles or matrix of a horizon or horizon subdivision. However, colors of chroma 2 or less which are relic from minerals of the parent material shall not be considered indicative of a soil wetness condition.
- (2) A Soil wetness condition shall also be determined by the periodic direct observation or indication of saturated soils or a perched water table, or lateral water movement flowing into a bore hole, monitoring well, or open excavation above a less permeable horizon or horizon subdivision, that may occur without the presence of colors of chroma 2 or less. A soil wetness condition caused by saturated soils or a perched water table shall be confirmed to extend for at least three consecutive days. The shallowest depth to soil wetness condition determined by Subparagraph (b)(1) or (b)(2) of this Rule shall take precedence.

(c) Site Suitability as to Soil Wetness: Initial suitability of the site as to soil wetness shall be determined based upon the findings of the Basic Field Evaluation Procedures made pursuant to Paragraph (b) of this Rule. Sites where soil wetness conditions are greater than 48 inches below the naturally occurring soil surface shall be considered SUITABLE with respect to soil wetness. Sites where soil wetness conditions are between 36 and 48 inches below the naturally occurring soil surface shall be considered PROVISIONALLY SUITABLE with respect to soil wetness. Sites where soil wetness conditions are less than 36 inches below the naturally occurring soil surface shall be considered UNSUITABLE with respect to soil wetness. Sites where a soil wetness condition is determined based upon the observation or indication of

lateral water movement within 48 inches of the naturally occurring soil surface shall be considered UNSUITABLE, except when such water can be intercepted in accordance with 15A NCAC 18A .1956(4).

(d) Alternative Procedures for Soil Wetness Determination: The Owner or the Owner's Legal Representative (Applicant) shall have the opportunity to submit documentation that the soil wetness condition and resultant site classification be alternately determined and reclassified by direct monitoring, computer modeling, or a combination of monitoring and modeling, in accordance with a Direct Monitoring Procedure, Monitoring and Modeling Procedure, or Modeling Procedure made pursuant to Paragraphs (e), (f), or (g) of this Rule. This determination shall take precedence over the determination made pursuant to the Basic Field Evaluation Procedures [Paragraph (b) of this Rule], when the conditions of Paragraphs (e), (f), or (g) of this Rule are met. Determination by one of these Monitoring or Modeling procedures shall also be required when:

- (1) the Owner proposes to use a wastewater system requiring a deeper depth to a soil wetness condition than the depth determined by the Basic Field Evaluation Procedures pursuant to Paragraph (b) of this Rule; or
- (2) the Owner proposes to use sites with Group III or IV soil within 36 inches of the surface and where drainage modifications are proposed to be made, including the installation of subsurface drain tile, open drainage ditches, or surface landscape modifications, or on such sites when fill is proposed to be used in conjunction with existing or proposed drainage modifications. Final determination of soil wetness condition for these sites shall be made pursuant to the Modeling Procedure in Paragraph (g) of this Rule

(e) Direct Monitoring Procedure. Soil wetness conditions may be determined by direct observation of the water surface in wells during periods of typically high water elevations utilizing the following monitoring procedures and interpretation method.

- (1) The applicant shall notify the local health department of the intent to monitor water surface elevations by submitting a proposal that includes a site plan, well and soil profile at each monitoring location, and a monitoring plan no later than 30 days prior to the monitoring period. An applicant other than the property owner shall have written authorization from the owner to be the owner's legal representative. Soil wetness and rainfall monitoring shall be conducted under the responsible charge of a third-party consultant or by the property owner or the owner's agent. A third party consultant is qualified when licensed or registered in accordance with G.S. 89C (Engineers), G.S. 89E (Geologists), G.S. 89F (Soil Scientists), or G.S. 90A Article 4 (Registered Sanitarians), if required. The Owner shall submit the name(s) of the consultant(s) performing any monitoring on their behalf to the local health department.
- (2) The applicant shall submit a site plan showing proposed sites for wastewater system, shall provide the longitude and latitude of the site, location of monitoring wells, and all drainage features that may influence the soil wetness conditions, and specify any proposed fill and drainage modifications.
- (3) The applicant shall submit a monitoring plan indicating the proposed number, installation depth, screening depth, soil and well profile, materials and installation procedures for each monitoring well, and proposed method of analysis. A minimum of three water level monitoring wells shall be installed for water surface observation at each site. Additional wells shall be required for sites handling systems with a design flow greater than 600 gallons per day (minimum of one additional well per 600 gallons per day increment).
- (4) The local health department shall be given the opportunity to conduct a site visit and verify the appropriateness of the proposed plan. Well locations shall include portions of the initial and replacement drainfield site(s) containing the most limiting soil/site conditions. Prior to installation of the wells the local health department shall approve the plan. If the plan is disapproved, the local health department shall include specific changes necessary for approval of the monitoring plan.
- (5) Wells shall extend at least five feet below the natural soil surface, or existing soil surface for fill installed prior to July 1, 1977 meeting the requirements for consideration of a site with existing fill of G.S. 130A-341 and the rules adopted pursuant thereto. However, a well or wells which extend(s) down only 40 inches may be used if they provide a continuous record of the water table for at least half of the monitoring period, and one or more shallower wells may be required on sites where shallow lateral water movement or perched soil wetness conditions are anticipated.
- (6) Water surface in the monitoring wells shall be recorded at least daily from January 1 to April 30, taken at the same time during the day (plus or minus three hours). A rain (precipitation) gauge is required within one-half mile of the site. At least daily rainfall shall be recorded beginning no later than December 1 through April 30 (the end of the well monitoring period).

- (7) Interpretation Method for Direct Monitoring Procedure: The following method of determining depth to soil wetness condition from water surface observations in wells shall be used when the 60-day weighted rainfall index for the January through April monitoring period equals or exceeds the site's long-term (historic) 60-day weighted rainfall index for January to April rainfall with a 30 percent recurrence frequency (wetter than the 9th driest year of 30, on average). The 60-day weighted rainfall index for the monitoring period and historic rainfall record shall be computed as:

$$WRI_{60} = 0.5P_D + P_J + P_F + P_M + 0.5P_A$$

Where WRI_{60} = 60-day weighted rainfall index for January to April
 P_D = Total December rainfall
 P_J = Total January rainfall
 P_F = Total February rainfall
 P_M = Total March rainfall
 P_A = Total April rainfall

The Department shall prepare contour maps for each county where this interpretation procedure is proposed. Contours shall be prepared following standard interpolation procedures using normalized data collected from all National Weather Service Stations, or equivalent, from which appropriate data are available, at least prior to February 1 of the monitoring season. Data from each station shall be normalized by fitting a 2-parameter gamma distribution to the 60-day weighted rainfall index computed for at least the most recent three decades of historic data, in accordance with procedures outlined in Chapter 18 of the National Engineering Handbook, NRCS, USDA. From this fitted distribution, the 60-day weighted rainfall index for January through April rainfall with a 30%, 50%, 70% and 80% recurrence frequency shall be computed for each Station, to provide the raw data points from which the contour maps shall be prepared. From these maps, the site's 60-day weighted rainfall index for the January through April monitoring period shall be compared to the long-term (historic) January to April 60-day weighted rainfall index at different expected recurrence frequencies. The soil wetness condition shall be determined as the highest level that is continuously saturated for the number of consecutive days during the January through April monitoring period shown in the following table:

Recurrence Frequency Range January to April 60-Day Weighted Rainfall Index	Number of Consecutive Days of Continuous Saturation for Soil Wetness Condition
30% to 49.9%	3 days or 72 hours
50% to 69.9%	6 days or 144 hours
70% to 79.9%	9 days or 216 hours
80% to 100%	14 days or 336 hours

- (8) If monitoring well data is collected during monitoring periods that span multiple years, the year which yields the highest (shallowest) soil wetness condition shall be applicable.
- (f) Monitoring and Modeling Procedure: A combination of monitoring and modeling may be used to determine a soil wetness condition utilizing the following monitoring procedures and interpretation method.
- (1) The procedures described for the Direct Monitoring Procedure in Subparagraphs (e)(1), (2), (3), (4), (5), and (6) of this Rule shall be used to monitor water surface elevation and precipitation for determining soil wetness conditions by a combination of direct observation and modeling, except that the rainfall gauge and each monitoring well shall use a recording device and a data file (DRAINMOD-compatible) shall be submitted with the report to the local health department (devices shall record rainfall at least hourly and well water level at least daily).
- (2) The ground water simulation model DRAINMOD shall be used to predict daily water levels over at least a 30 year historic time period after the model is calibrated using the water surface and rainfall observations made on-site during the monitoring period. The soil wetness condition shall be determined as the highest level predicted by the model to be saturated for a 14-day continuous period between January 1 and April 30 with a recurrence frequency of 30 percent (an average of at least 9 years in 30).
- (A) Weather input files, required to run the DRAINMOD, shall be developed from hourly rainfall gauge data taken within a half-mile of the site and from daily temperature and hourly or daily

rainfall data collected over a minimum 30-year period from the closest available National Weather Service, or equivalent, measuring station to the site. DRAINMOD weather data files on file with the Department shall be made available upon request to the applicant or applicant's consultants. Daily maximum and minimum temperature data for the January 1 through April 30 monitoring period, plus for at least 30 days prior to this period, shall be obtained from the closest available weather station.

- (B) Soil and Site inputs for DRAINMOD, including a soils data file closest to the soil series identified, depths of soil horizons, estimated saturated hydraulic conductivity of each horizon, depth and spacing of drainage features and depression storage, shall be selected in accordance with procedures outlined in the DRAINMOD Users Guide, and guidance is also available in Reports 333 and 342 of the University of North Carolina's Water Resources Research Institute. DRAINMOD soils data files on file with the Department shall be made available upon request to the applicant or applicant's consultants.
- (C) Inputs shall be based upon site specific soil profile descriptions. Soil and site input factors shall be adjusted during the model calibration process to achieve a best fit by least squares analysis of the daily observations over the whole monitoring period (mean absolute deviation between measured and predicted values no greater than eight inches), and to achieve the best possible match between the highest water table depth during the monitoring period (measured-vs-predicted) that is saturated for 14 consecutive days.
- (D) For sites intended to receive over 1500 gallons per day, the soil wetness determination using DRAINMOD shall take into consideration the impact of wastewater application on the projected water table surface.
- (E) The ground water simulation analysis shall be prepared and submitted to the local health department by individuals qualified to use DRAINMOD by training and experience and who are licensed or registered in North Carolina if required in G.S. 89C (Engineers), G.S. 89E (Geologists), and G.S. 89F (Soil Scientists). The local health department or Owner may request a technical review by the Department prior to approval of the soil wetness condition determination.

(g) Modeling Procedure: A soil wetness condition may be determined by application of DRAINMOD to predict daily water levels over at least a 30 year historic time period after all site-specific input parameters have been obtained, as outlined in the DRAINMOD Users Guide. This modeling procedure shall be used when a ground water lowering system is proposed for a site with Group III or IV soils within 36 inches of the naturally occurring soil surface. This procedure shall also be used to evaluate sites with Group III or IV soils within 36 inches of the naturally occurring soil surface, where the soil wetness condition was initially determined using a procedure described in Paragraphs (e) or (f) of this Rule and where drainage modifications are proposed or when fill is proposed to be used in conjunction with existing or proposed drainage modifications. The soil wetness condition shall be determined as the highest level predicted by the model to be saturated for a 14-day continuous period between January 1 and April 30 with a recurrence frequency of 30 percent (an average of at least 9 years in 30).

- (1) Weather input files, required to run DRAINMOD, shall consist of hourly rainfall and daily temperature data collected over the entire period of record but for at least a 30-year period from the closest available National Weather Service, or equivalent, measuring station to the site. DRAINMOD weather data files on file with the Department shall be made available upon request to the applicant or applicant's consultants.
- (2) Soil and Site inputs for DRAINMOD, including a soils data file closest to the soil series identified, depths of soil horizons, hydraulic conductivity of each horizon, depth and spacing of proposed drainage features and surface storage and drainage parameters, shall be selected in accordance with procedures outlined in the DRAINMOD User's Guide. DRAINMOD soils data files on file with the Department shall be made available upon request to the applicant or applicant's consultants. Inputs shall include:
 - (A) Soil input file with the soil moisture characteristic curve and data for the soil profile that is closest to the described soil profile that is present on the site;
 - (B) Soil horizon depths determined on site;
 - (C) Site measured or proposed drain depth and spacing, and drain outlet elevation;
 - (D) In-situ saturated hydraulic conductivity measurements for at least three representative locations on the site and at each location for at least three most representative soil horizons within five feet of the surface. Conductivity measurements shall be for one representative soil

