

## **MEMORANDUM**

**DATE:** October 17, 2007

**TO:** District Health Directors  
Environmental Health Managers  
Office of Environmental Health Services Staff

**FROM:** Jeffrey Lake, M.S.  
Deputy Commissioner for Community Health Services

**SUBJECT:** Implementation of the Onsite Sewage Quality Assurance Program

Early in 2006, Dr. Stroube directed the Office of Environmental Health Services (OEHS) to work with the health districts to develop a Quality Assurance (QA) Program for the onsite sewage program. With my full support and the support of Jim Burns, M.D., MBA, Deputy Commissioner for Public Health, the Quality Assurance Committee has completed its initial work in the form of the enclosed Procedures Manual for the Onsite Sewage Program. I commend the members of the committee and its facilitators for their thoughtful and insightful work and thank them for their valuable time and effort. A list of committee members is attached. Development of the QA program was a team effort and will be given priority attention in the onsite sewage program to provide you with technical assistance or respond to your questions.

The Procedures Manual identifies measurable standards for four major internal processes - Bare Applications, AOSE Applications, Inspection and Approval of Installations, and Subdivision Review. While I recognize that many of you have already implemented similar procedures and standards in your districts, Dr. Stroube's expectation is that the agency needs a common tool for assessing the quality of the basic elements of the onsite program. The committee identified best practices they believe will reduce errors and inconsistencies and promote a quality program. In addition, the manual will provide a framework for collecting meaningful data on the quality of VDH services in the onsite sewage program.

Each district which operates an onsite sewage program is to begin implementing this program during the fourth quarter of 2007 (October-December); however, the data you collect during the fourth quarter will be for your own use. Districts will begin to send reports to OEHS starting with the first calendar quarter of 2008 (January-March) and quarterly thereafter. In the sections that follow I have established some minimum, baseline expectations for initiating the program. As we begin to collect data and have an opportunity to get your feedback and that of the committee, we will modify elements of the program as needed.

Implementation of the Onsite Sewage Quality Assurance Program

October 17, 2007

Page 2 of 2

1. Each review team should include the manager (or a supervisor), an environmental health specialist and an office support person who works in the onsite sewage program. This should create an atmosphere that will help identify areas that need improvement, determine potential causes of problems and identify solutions and or changes that may be needed.
2. Each district's QA team will review 4% (or 5 whichever is less) of the files completed by each Environmental Health Specialist working in the district. The files should be proportionate to the types of applications received for the quarter.
3. The district will complete the QA Worksheets that follow each of the four processes in the manual. Health Department Identification Numbers for each file are to be included on the worksheets.
4. Where significant achievement or non-achievement is noted, please look carefully at those cases to help us all learn what factors contributed to the success or opportunity for improvement. We are interested in hearing about what works as well as what doesn't work. Where the opportunity for improvement is indicated, the district shall identify steps that will be taken to improve performance. Please include this information with your quarterly reports.
5. The QA worksheets and other information are to be sent electronically to Jim Bowles no later than 15 days after the end of each quarter. For example, the first report is due to OEHS by April 15, 2008.
6. The introduction to the manual includes language to be inserted in the EWP for each employee with responsibilities in the onsite sewage program. Because we have just completed EWPs for the upcoming performance year, we are deferring this requirement until the beginning of the 2009 evaluation cycle (October 2008).

Please begin as soon as possible to brief staff on this program and to implement it. As noted above, districts are expected to collect the first round of data during the current quarter. As time and resources allow we will meet with combined environmental health staff in different areas of the state to get your feedback, to provide technical assistance and to discuss your experience with the program. OEHS will develop responses to Frequently Asked Questions and post them on the OEHS intranet website.

I appreciate your personal attention to assuring the QA effort is implemented in your district's onsite sewage program so we can collect uniform data to assist in improving our collective efforts.

If you have questions or suggestions, please send them to Jim Bowles at [jim.bowles@vdh.virginia.gov](mailto:jim.bowles@vdh.virginia.gov).

Enclosure: Procedure Manual on CD

Attachment: List of Committee Members

c: Robert B. Stroube, M.D., M.P.H.  
James E. Burns, M.D., M.B.A.

## Quality Assurance Committee Summary

The Quality Assurance Committee was formed to identify measurable standards for internal processes associated with the Virginia Department of Health (VDH) On-site Sewage Program that would raise the overall quality. Best practices were developed for processes within the On-site Sewage Program to reduce errors and inconsistencies among VDH staff.

The Committee's goal was to develop a map back to the basics for the permitting process. VDH, over time, has strayed from the basic practices that ensure quality work. In doing so, VDH has made mistakes that have created financial implications to home owners and tax payers, at the same time, reduced the level of trust. Examples of problems created by not documenting records, not taking proper measurements or taking short cuts are in abundance. The problems that are being created are not due to highly technical decisions. On the contrary, the problems are being created because staff did not take the time to do a complete site evaluation or properly document records. In some instances sewage systems are being installed and approved based on substandard work. Having a detailed process that utilizes best practices is paramount in achieving a quality program.

The Committee was comprised of a cross-section of district staff from different disciplines and different regions of the state. This was done to obtain a broad spectrum of viewpoints. This enabled the Committee to address issues in the program from different perspectives and create processes that could be implemented statewide.

The Committee focused on the following processes: bare applications for permits and certification letters, Authorized Onsite Soil Evaluator (AOSE) applications, inspection and approval of sewage systems, and subdivision review and approval. The processes have individual action steps that are shown utilizing flow charts. An accompanying narrative describes the process. The narrative includes the responsible party for each step, the purpose and required resources, the customer and customer requirements, along with standards and measures.

The vision of the Committee is to have the combined documents utilized as an implementation manual. Following the action steps as shown in the accompanying flow charts and narratives for the individual processes will reduce errors and inconsistencies and promote a quality program.

## **Committee Members**

**Kathy Baird**, Office Services Specialist – Chesterfield Health District

**Phil Cobb**, Consulting Soil Scientist, VPISU

**Jay Duell**, Environmental Health Supervisor – Western Tidewater Health District

**Diane Helentjaris**, M.D., M.P.H., District Director – Lord Fairfax Health District

**Mark Levine**, M.D., M.P.H., Health Director – Henrico Health District

**Beth Manghi**, Onsite Technical Consultant – Chickahominy Health District

**John Morley**, Environmental Health Supervisor – Rappahannock Health District

**Danna Revis**, Training Coordinator, Office of Environmental Health Services

**Brad Stallard**, Environmental Health Manager – Lenowisco Health District

**Brad Williams**, Environmental Health Specialist, Sr., Central Shenandoah Health District

## **Facilitators**

**Jim Bowles**, Environmental Health Coordinator, Office of Environmental Health Services

**Dave Tiller**, Environmental Health Coordinator, Office of Environmental Health Services

## Establishing a Quality Assurance Program

Establishing a quality assurance (QA) program involves four steps: outlining processes, determining quality standards for important steps in those processes, establishing measures that can be used to determine whether those standards are being met and, finally, implementing the program. The work of the committee represents the first three steps of the process. The products of the first three steps are contained in the flowcharts and other materials within this document.

Implementing the QA program at the district and local level involves making sure that local procedures align with the processes outlined in this document, making sure that all staff are aware of and understand the standards and measures that will be used to monitor the processes, and making regular measurements. Using data from the process measurements to “manage by fact” will help districts to manage service quality and improve processes. More specifically, measurement data is used to:

1. Ensure that process outputs meet the requirements of both internal and external customers,
2. Identify where a process needs to be adjusted to meet customer requirements, and
3. Monitor the process to ensure that defined standards are met.

Once measurements have been made, the collected data needs to be analyzed. Although data analysis is typically considered a management task, the quality assurance process is a team effort. Input from staff who are actually involved in each step of a process may identify problems or solutions not readily seen by the manager or supervisor. Data analysis can be divided into the following steps:

1. Identify problems or areas for improvement.
2. Document the problems.
3. Determine potential causes of the problems.
4. Determine potential solutions to the problems.
5. Plan the necessary changes.
6. Implement the change.
7. Continue to measure whether the standards are being met, in order to determine whether the situation has improved.

As stated above, this document includes suggested measures. The frequency of taking measurements is, to some extent, dependent on which standard is being measured. Measurements need to be made often enough that corrections can be made before too many instances of poor quality ensue. On the other hand, too little data may not show whether or not a problem exists. The number of administrative denials due to incomplete applications can easily be measured on almost an ongoing basis, as can the number of days required to process bare applications. Meaningful analysis of this information may be done on a monthly basis. Quarterly analysis of Level I reviews of environmental health specialist (EHS) permits may be sufficient, in most districts, to determine whether or not problems exist that need to be addressed on a district-wide, rather than individual, basis.

When measuring process standards and analyzing the collected data, it is important to keep in mind that this information has been collected primarily to determine system level compliance with the established standards. When a problem is identified, the primary question should be “What is the problem with the system in this district or office?” not “What is wrong with our clerk (or any other individual)?” Placing blame or using data to punish individuals is usually counter-productive, in part because doing so discourages staff from active participation in identifying and correcting problems.

On the other hand, because QA is a team, or group process, it is important that Employee Work Profiles (EWP's) include individual performance measures that support the QA effort and reflect the role of the individual in the QA process. For example, an individual performance measure for an EHS might be “X percent of all bare applications are completed within 15 days of receipt” with the particular percentage adjusted based on district staffing and workload. Other suggested performance measures are included below.

This document includes spreadsheets that summarize the standards and measures included in the description of each process. These spreadsheets can also be used to summarize the specific district or local health department goals for each measure and performance in reaching those goals. In the future, many of these metrics may be generated by the Virginia Environmental Information System (VENIS).

### Roles and Responsibilities

#### Office of Environmental Health Services (OEHS)

- Monitor quality of the process across the districts
- Suggest changes to state policies and procedures to help achieve and maintain process standards

#### Local Health Department (LHD)

##### District Director

- Ensure that district has QA program in place
- Consult with EH manager to determine and institute necessary changes to local policies and procedures

##### Environmental Health Manager

- QA program
- Monitor processes to determine compliance with standards
- Consult with district director to determine and institute necessary changes to local policies and procedures
- Implement changes
- Report monitoring results to stakeholders

##### Environmental Health Supervisor

- Ensure that EWP's of subordinates include individual performance measures that support QA goals for the program

- Monitor performance of subordinates and take appropriate actions to improve performance
- Monitor processes within assigned area to identify barriers to meeting goals
- Report identified barriers to EH manager
- Consult with subordinates and EH manager to design and implement changes necessary to remove barriers to quality

#### Environmental Health Specialist

- Ensure that completed work meets quality standards
- Report to supervisor any identified barriers to quality

#### Office Support Staff

- Ensure that completed work meets quality standards
- Report to supervisor any identified barriers to quality

### Suggested Language for Employee Work Profiles

The statement below is suggested for inclusion in the “Core Responsibilities and Other Factors” section of the EWP. The language is broad, and should be appropriate for employees at all levels.

“Implements and promotes district quality assurance plans by complying with applicable agency standards established by regulation and policy. Identifies barriers to quality, and suggests and implements methods to improve accuracy, completeness, consistency, timeliness and customer (both internal and external) satisfaction. Shares problems and solutions with colleagues within and outside of district to identify and implement best practices for improving quality and customer satisfaction.”

The statements below are suggested for inclusion in the “Performance Measures” section of each employee’s EWP. No performance measures for the Technical Specialist position is included, because some districts do not have such a position, and because districts vary in how tasks are assigned among EHS, Technical Specialist and Supervisor positions. Districts should adapt the suggested performance measures to fit their specific needs.

#### Office Support Staff

Assigned tasks are completed within established time-frames. Takes appropriate steps to eliminate barriers to customer satisfaction. Utilize effective verbal and written communication. Creates/maintains complete accurate and effective files and filing system. Data entry is complete and accurate.

#### EHS & EHS, Sr.

Assigned tasks are completed within established time-frames. Site evaluations, inspections, case decisions, and documentation are technically appropriate and comply with state and local regulations, policies and standards.

#### EH Supervisor/Technical Specialist

Completes at least one Level II review for each assigned subordinate each quarter. Completes at least ten file reviews for each subordinate. Documents findings and implements plan to address deficiencies and improve performance. Identifies and informs manager of resources (training, equipment, etc) needed by subordinates to maintain and improve quality. Encourages collaboration among all levels of staff to promote program excellence.

#### EH Manager

Initiates and manages QA process for each environmental health program to ensure compliance with state and local regulation, policies and program standards. Evaluates individual and system performance, identifies problems, develops and implements plan to resolve problems and improve performance. Reports results to district director and/or OEHS as requested. Obtains necessary resources to maintain and improve program performance. Collaborates with other EH managers and OEHS staff to identify and implement methods to improve environmental health services.

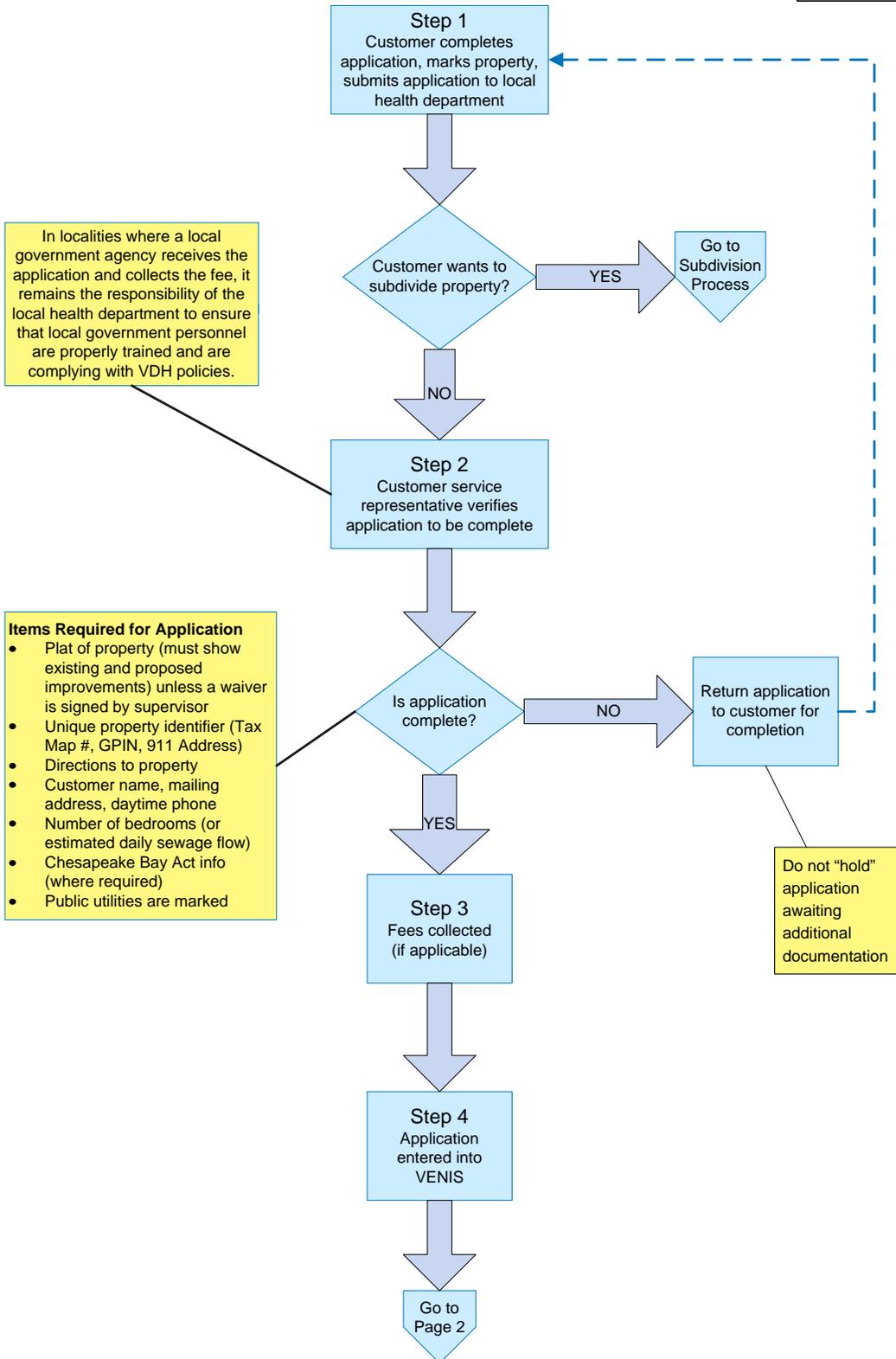
#### District Director

At least annually, reviews with EH manager results of QA monitoring and improvement plans.

# Septic & Well Bore Application Process

Page 1 of 4

DATE  
8/16/2007



DATE  
8/16/2007

**Step 5**  
Support staff creates file,  
including existing information  
on subject property and  
surrounding properties

**Step 6**  
Application  
assigned to EHS

Is file  
complete?

Return to support  
staff to complete

**Step 7**  
EHS sets  
appointment with  
applicant

**Step 8**  
EHS makes site  
visit

Can site  
evaluation be  
completed?

Applicant  
completes  
application

**Step 9**  
Inform applicant &  
send  
administrative  
denial letter

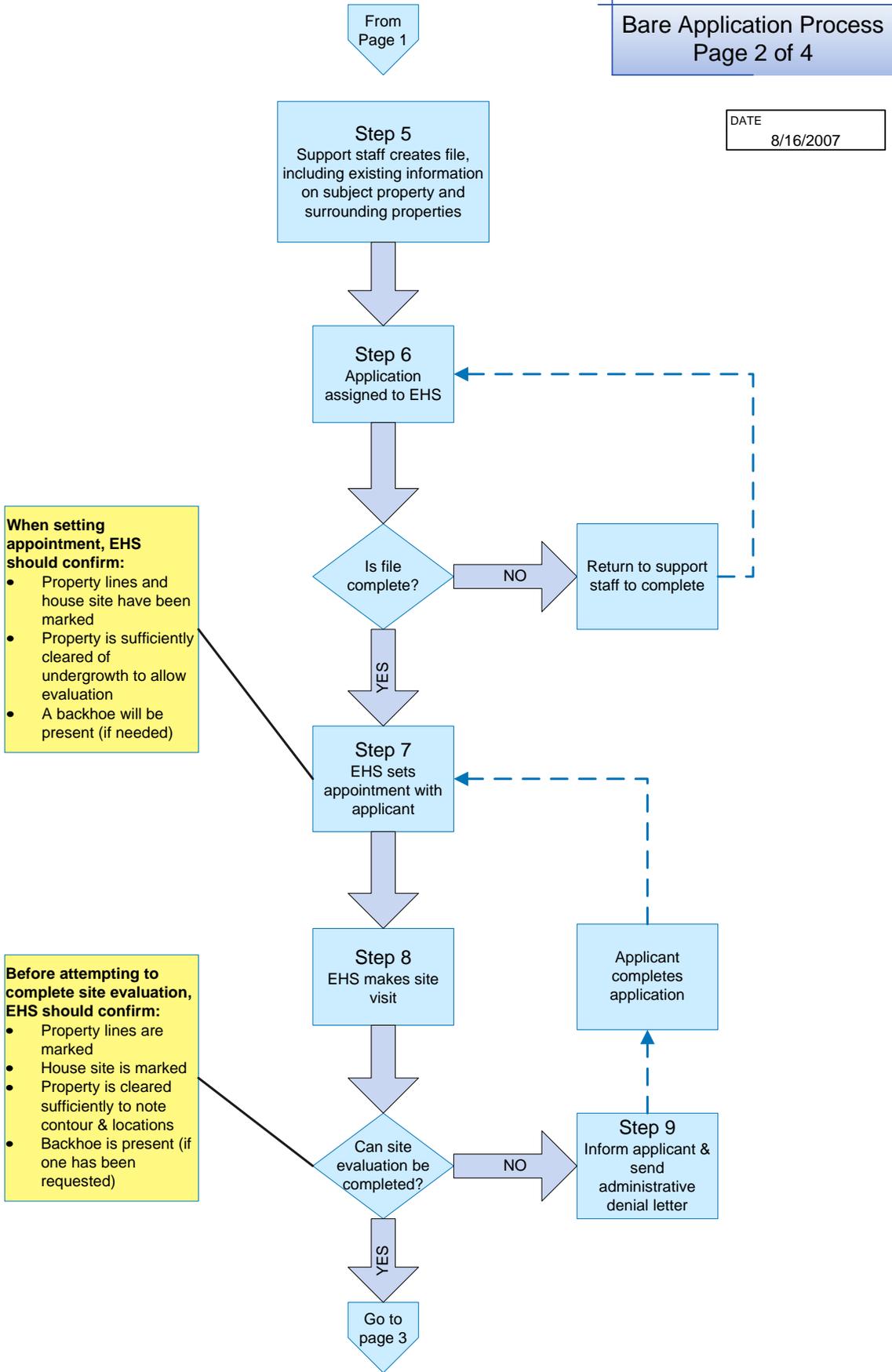
Go to  
page 3

**When setting  
appointment, EHS  
should confirm:**

- Property lines and house site have been marked
- Property is sufficiently cleared of undergrowth to allow evaluation
- A backhoe will be present (if needed)

**Before attempting to  
complete site evaluation,  
EHS should confirm:**

- Property lines are marked
- House site is marked
- Property is cleared sufficiently to note contour & locations
- Backhoe is present (if one has been requested)

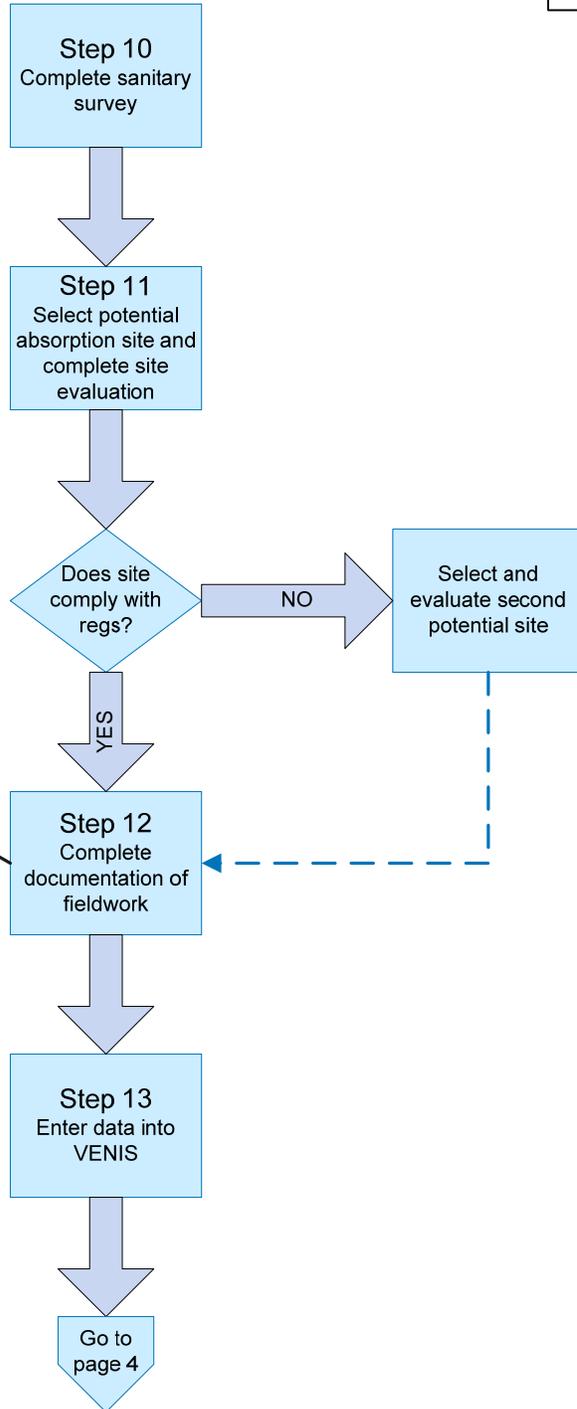


From  
Page 2

Bare Application Process  
Page 3 of 4

DATE  
8/16/2007

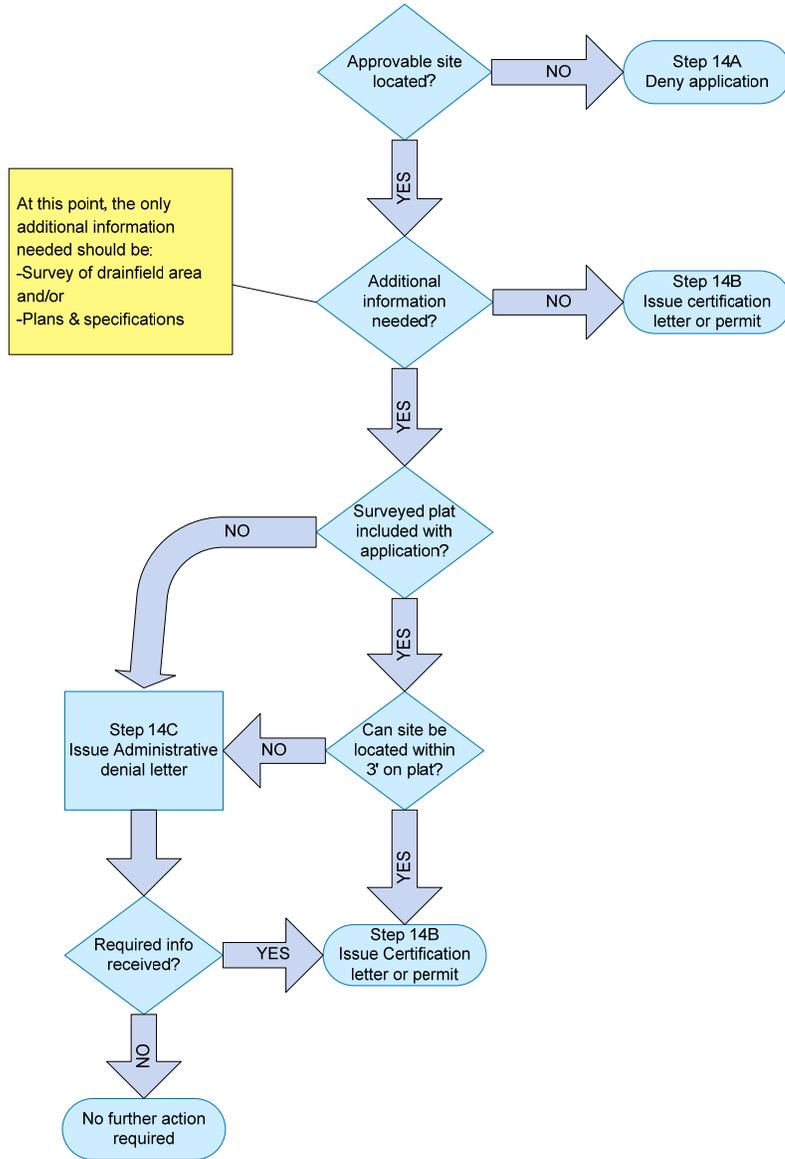
- Minimum documentation includes:**
- Description of all soil borings
  - Description of topographic and other site features
  - Sketch showing property lines, location of all borings/pits, landscape features, slope, existing & proposed utilities, house site, wells & system components



From  
Page 3

# Bare Application Process Page 4 of 4

DATE  
8/16/2007



## Page One of Bare Application Flowchart

### Step 1: Customer completes application and submits to LHD.

**Responsible Party:** Applicant

**Purpose:** Provide the LHD with sufficient information to process application and issue permit or denial in an accurate and timely manner.

**Resources needed:** Plat of property; zoning information; tax map number, GPIN, or 911 address; building plans; application; information about LHD application requirements.

**Customer:** LHD Environmental Health Specialist

**Customer requirements:** Complete and accurate documentation of current and proposed site conditions, directions to property, clearly marked property lines and building site, sufficient clearing of brush and undergrowth to allow site evaluation.

**Standard:** Applicants are aware of site preparation requirements prior to submitting application to health department.

**Measure:** LHD informs and educates potential applicants about VDH application and site preparation requirements (See “Instructions for Well & Septic Applications”). Fewer than 80 percent of initial site evaluation visits result in administrative denial due to incomplete or inaccurate application. See Appendix Two for suggested information for applicants.

### Step 2: Application verified by LHD support staff for completeness.

**Responsible party:** Support staff

**Purpose:** Determine if application documents meet requirements.

**Resources needed:** Completed application, understanding of customer requirements for Step 1.

**Customer:** Applicant, EHS.

**Customer requirements:** Timely review of documentation before application is accepted by LHD.

**Standard:** Support staff are not in a position to determine accuracy of documentation or proper marking of site. However, support staff should verify that the application contains the following items:

- Unique property identifier
- Plat showing all property dimensions
- Location and dimensions of improvements
- Name, address, daytime phone number of applicant/agent
- CBPA info, where appropriate

**Measure:** 100 percent of hand-delivered applications are reviewed before being accepted by LHD and all applications are reviewed by the end of the day upon which they are received. Fewer than five percent of screened applications are administratively denied due to lack of proper documentation. See Appendix Three for OSS Checklist.

### Step 3: Fees collected by support staff.

**Responsible party:** Designated support staff

**Purpose:** Appropriate fees are collected and properly documented.

**Resources needed:** Knowledge and understanding of fee regulations and policies, receipts.

**Customer:** Applicant, VDH.

**Customer requirements:** Accurate charges and correct documentation.

**Standard:** Customer is charged appropriate fee for application and provided proper documentation for use in refund. Charges are accurately documented and assigned proper billing code. Where appropriate, documentation for waiver of fee is complete and accurate.

**Measure:** 100 percent of charges/waivers meet regulations and are properly documented.

**Step 4: Application is entered into VENIS database.**

**Responsible party:** LHD support staff.

**Purpose:** Create electronic record of application.

**Customer:** EHS, EH Manager, OEHS.

**Resources needed:** Access to computer and VENIS software, knowledge and understanding of data entry into the system.

**Customer requirements:** Complete and accurate documentation of current proposal.

**Standard:** Applications are entered in an accurate and timely manner.

**Measure:** 90 percent of applications are entered into VENIS within one business day and 100 percent are entered within two business days. Fewer than five percent of records contain data entry errors.

## Page Two of Bare Application Flowchart

### Step 5: Research files, pull existing documentation

**Responsible Party:** EHS, OSS

**Purpose:** Determine onsite and offsite features that may affect the sewage disposal system site evaluation.

**Resources needed:** Effective filing system, good Tax Parcel Maps and Records from local government entity

**Customer:** EHS

**Customer requirements:** Accurate and complete information on previous work on file in the health department for the lot applied for and for surrounding lots.

**Standard:** The file should contain documentation of previous work on the parcel applied for and within 200 feet of the property line of that lot. The district maintains an accurate filing system from which files are readily retrieved.

**Measure:** 95 percent of files contain available documentation of all items within 200 feet of the property line. (District reviews filing system).

### Step 6: Application assigned to EHS.

**Responsible Party:** EHS Supervisor (OSS).

**Purpose:** Ensure that processing of application continues in a timely manner.

**Resources Needed:** Knowledge of current workloads and district/local policy for assignment.

**Customer:** EHS

**Customer Requirements:** An application should be complete when it is handed to an EHS for processing. An incomplete application, if returned to the applicant at this point, leads to frustrating delays and causes unnecessary tension. If an incomplete application is processed without required corrections/additions and an EHS takes it upon himself/herself to assume the answers to questions on an application, this may cause implication should the resulting permit be denied and appealed or become an indemnity case.

**Standard:** Complete files are assigned to appropriate EHS in timely manner.

**Measure:** 100 percent of applications have been assigned to appropriate EHS within two business days after application is accepted. EH Supervisor reviews VENIS routinely to determine timeliness and appropriateness.

### Step 7: An appointment is made after verifying the lot is ready for evaluation and file is reviewed by EHS.

**Responsible Party:** EHS (in some areas support staff)

**Purpose:** Ensure efficient site evaluation by ensuring that property is ready for evaluation, backhoe is available if required, and that applicant will be available to answer questions.

**Resources Needed:** Understanding of the expectation of a site being ready for evaluation.

**Customer:** Applicant

**Customer Requirements:** The applicant should be reminded of the health department requirements for completing an evaluation, in order to prevent delays due an

administrative denial. The applicant expects the EHS to be reasonable flexible in setting appointment times.

**Standard:** All appointments are made such that a final action (permit, denial, etc.) can be taken within 15 working days of the application date. Weather events or applicant initiated delays are documented if 15 days is exceeded. See the above note for consequences of processing an application if the site has not been properly prepared.

**Measure:** 98 percent of applicants are contacted within two business days after file is assigned. Fewer than 10 percent of applications are subsequently administratively denied because application or required site work is incomplete.

**Step 8: EHS makes site visit, determines if site evaluation can be completed**

**Responsible Party:** EHS

**Purpose:** Determine whether property is properly marked and located before attempting to complete site evaluation.

**Resources Needed:** Application and site plan.

**Customer:** Applicant

**Customer Requirements:** Applicant needs timely notice if site preparation is inadequate to allow satisfactory completion of site evaluation. EHS should not attempt to complete a site evaluation in conditions that may lead to inaccurate evaluation and interpretation of site.

**Standard:** EHS attempts to evaluate only those sites that are adequately prepared. Site visits are made in a timely manner.

**Measure:** 100% of site visits are made within 10 business days of receipt of application.

**Step 9: If site cannot be evaluated, notify customer and send administrative denial letter.**

**Responsible Party:** EHS

**Purpose:** Notify applicant that applicant's site preparation is inadequate to allow proper evaluation and what needs to be done to allow evaluation.

**Resources needed:** (Telephone), administrative denial form letter

**Customer:** Applicant

**Customer Requirements:** Applicant needs timely and accurate notification if the site evaluation cannot be completed and clear instructions about how to resolve the problem encountered.

**Standard:** Administrative denial letter is mailed in a timely manner following initial site visit and includes all reasons for denial. (EHS is encouraged to telephone the applicant, in addition to sending the letter.)

**Measure:** 98 percent of applicants with insufficient site preparation (marking, clearing) are notified by mail within 1 business day of initial site visit and all reasons for denial are included in letter.

## Page Three of Bare Application Flowchart

### Step 10: EHS Completes Sanitary Survey

**Responsible Party:** EHS

**Purpose:** To determine onsite and offsite features that may affect suitability of property for an onsite sewage disposal system.

**Resources needed:** Site evaluation tools, completed file, property lines and house site marked.

**Customer:** Applicant

**Customer requirements:** Applicant needs assurance that permit issuance or denial is based on accurate identification and consideration of onsite and offsite features that affect placement and installation of sewage disposal system.

**Standard:** 100 percent of sanitary surveys conducted. All onsite and offsite features evaluated.

**Measure:** 100 percent of features within 200 feet of proposed well and/or sewage disposal system site are correctly identified by the EHS.

### Step 11: EHS Selects Potential Absorption Site & Completes Site Evaluation

**Responsible Party:** EHS

**Purpose:** Select a site for the absorption area

**Resources Needed:** Results of sanitary survey, soil evaluation tools (backhoe)

**Customer:** Applicant

**Customer Requirements:** System design and location that matches the applicant's plans as closely as possible while meeting all provisions of VDH regulations and policies.

**Standard:** An appropriate site is selected, based on sanitary survey, regulations and owner input. Site evaluations are complete and accurate as described by regulations and policies.

**Measure:** District staff completes, and documents, at least one Level II review per quarter per EHS. Every review indicates substantial compliance with regulations and policies.

### Step 12: Complete Documentation of Field Work

**Responsible Party:** EHS

**Purpose:** To accurately record information gathered during sanitary survey and site evaluation.

**Resources needed:** Field notes and field sketch, plat of property, engineering scale.

**Customer:** Applicant, VDH

**Customer requirements:** Complete and legible record of findings from site work.

**Standard:** Documentation meets the standards set by regulation and policy for completeness and accuracy, and can be readily interpreted upon review.

**Measure:** 98 percent of documents are complete, accurate and legible upon review.

### Step 13: Data entry into VENIS

**Responsible Party:** EHS

**Purpose:** Create a searchable electronic record of findings.

**Resources needed:** Computer, understanding of VENIS data entry rules

**Customer:** Future applicants, VDH, AOSEs

**Customer requirements:** Readily accessed, complete and accurate information regarding the application, site evaluation and outcome.

**Standard:** All relevant information is correctly entered into VENIS in a timely manner.

**Measure:** All documentation is correctly entered into VENIS within two business days following completed review.

## Page Four of Bare Application Flowchart

### Step 14A: Deny Application

**Responsible party:** EHS

**Purpose:** Notify the applicant that no site meeting the regulations has been identified and to inform the applicant of right to appeal.

**Resources needed:** Application, complete documentation of field work, computer.

**Customer:** Applicant.

**Customer requirements:** Applicant needs an understanding of why the application is being denied and of any other options available, including appeals.

**Standard:** Findings of site and soil evaluation are correctly interpreted and support the conclusion that the application should be denied. Notification of applicant provides reasons for denial and options for further action on the part of the applicant. Notification is made in a timely manner.

**Measure:** All denial letters are sent within two days following completion of review, contain all reasons for denial, and meet APA requirements for notification of rights. 90 percent of denial letters are sent within 12 days of receipt of completed application.

### Step 14B: Issue permit or certification letter.

**Responsible party:** EHS

**Purpose:** To complete the bare application process by issuing a certification letter or a sewage disposal construction permit.

**Resources needed:** Application, Complete documentation of field work, computer.

**Customer:** Applicant, contractor

**Customer requirements:** Permit that meets the regulatory requirements and has sufficient information to be properly installed.

**Standard:** Findings of site and soil evaluation are correctly interpreted and support the conclusion that the permit (or certification letter) should be issued for the specified design. Permit provides sufficiently clear documentation of design that the system can be installed in accordance with regulations and policies. Permit is issued in a timely manner.

**Measure:** Permit is issued according to site evaluation findings, regulations and policies. All permits are issued within two days of completing site evaluation, 90 percent are completed within 12 business days of receipt of completed application.

### Step 14C: Issue administrative denial letter

**Responsible party:** EHS

**Purpose:** To complete the bare application process by issuing an administrative denial letter.

**Resources needed:** Application, complete documentation of field work, computer.

**Customer:** Applicant.

**Customer requirements:** Applicant is notified in a timely manner of any action required by the applicant to complete the application.

**Standard:** Administrative denial letter is mailed within one business day following initial site visit. (EHS is encouraged to telephone the applicant, in addition to sending the letter.)

**Measure:** 98 percent of applicants whose application needs additional information are notified by mail within one business day of initial site visit and all reasons for denial are included in letter.

### QA Worksheet for Bare Applications

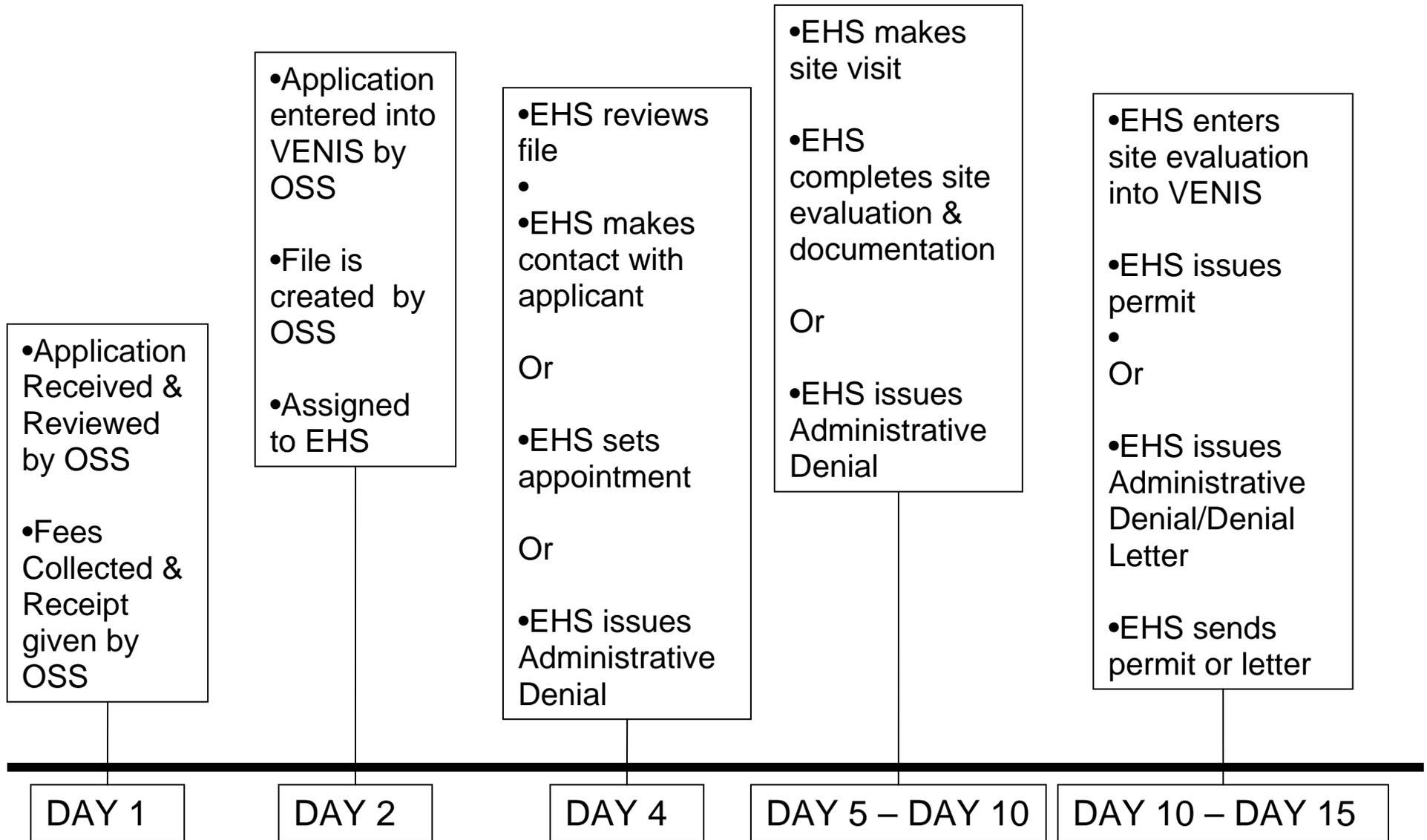
Step	Standard	Measure	Local Goal	Local Performance
1	Applicants aware of site preparation requirements	% of administrative denials due to inadequate site prep		
2	Support staff verify completeness of application and do not accept incomplete applications	% of accepted applications denied to incompleteness		
3	Fees charged/waivers granted are correct and properly documented	% of fees correct and properly documented		
4	Applications entered into VENIS accurately and in a timely manner	% of VENIS application records without data entry errors		
4A	Applications entered into VENIS in a timely manner	% of applications entered into VENIS in one business day		
5	Support staff assemble complete file on property, including past records and current application	% of files that are missing appropriate information		
6	District/LHD maintains accurate filing system	Is accurate filing system in place and in use?		
6A	Applications are assigned to EHS in timely manner	% of applications assigned to EHS within 2 business days after application is received		
7	All appointments are made such that a final action (permit, denial, etc.) can be taken within 15 working days of the application date. Weather events or applicant initiated delays are documented if 15 days is exceeded	% of applicants that are contacted within 2 business days after file is assigned.		
7A	When making appointment, EHS reminds applicant of site preparation requirements.	% of applications administratively denied because application or required site work is incomplete		
8	EHS makes site visit in a timely manner	Average # of days from assignment to site visit		
8A	Only sites that are adequately prepared are evaluated	# of sites/EHS that are only partially evaluated due to inadequate marking or clearing		
9	Administrative denial letters are sent in a timely manner	% of administrative denial letters that are sent within 1 business day of initial site visit		
9A	Administrative denial letters contain all applicable deficiencies for that lot	% of applications with multiple administrative denial letters		

10	Sanitary surveys note all applicable site features within 200' of proposed well &/or sewage system	% of site evaluations reviewed that are have not identified all applicable site features		
11	District conducts Level II reviews of EH staff	# of level II reviews/EHS/quarter		
11A	Site evaluations are complete and accurate	% of level II reviews that indicate substantial compliance		
12	Documentation is complete, accurate and readily interpretable	% of files reviewed that have complete and accurate documentation		
13	Data entry into VENIS is complete and accurate	% of VENIS files requiring correction		
13A	Data entry is made in a timely manner	% of VENIS files completed within 2 business days		
14	Findings from site evaluation are correctly interpreted and support decision	% of decisions that are correct and support decision		
14A	Documentation is complete (either permit or denial letter)	% of documentation that requires correction or additional information		
14B	Notification is made to applicant in a timely manner	% of applications for which notification is made within 12 days of receipt of application		

## **Appendix One**

### **Application Processing Timeline**

Appendix One



Time Line for Processing Bare Application

## **Appendix Two**

### **Sample Hand-out for Applicants**

#### **Instructions for Completing an Application**

## INSTRUCTIONS FOR WELL AND SEPTIC PERMIT APPLICATIONS

Our goal is to process your application as quickly and accurately as possible. In order for us to achieve our goal, applicants must provide a **complete application (including an accurate site sketch), accurate directions to the property, and property lines and house site clearly and accurately marked on the property.** We can not accept an incomplete application.

### *The following MUST be attached to your application:*

1. Surveyed plat of your property
2. Tax Map Number or GPIN
3. Zoning/Chesapeake Bay approval, if required by your locality.
4. Proper fee (\$112.50 Septic, \$77.50 Well, \$190.00 for combined application)  
For septic repair and well replacement (if old well is abandoned) there is no fee.

The following checklist is provided to assist you with the application process. The items below must be completed by the applicant before the application is submitted to the health department. If you have questions, or need assistance with your application, please ask any of the environmental health staff. We will be happy to assist you.

### **A. The Application**

- Are all items are properly filled in?
- Have you included a telephone number where you can be reached during the day?
- Are directions to the property clear?
- Have you included the tax map number (or GPIN)?
- Have you signed and dated the application?
- Do you have the proper fee?

### **B. Site sketch** (These items may be drawn on a copy of the plat)

- Is the shape of property correct?
- Is the length of each property line indicated?
- Are the shape and dimensions of house (including any porches & decks) shown?
- Is the house location shown by measurements to at least two property corners or property lines?
- Is the location of driveway correct?
- Are all proposed or existing location of any utilities shown?
- Does the plat or site sketch show all legal easements located on property?
- Is the location of any septic systems, wells or buried fuel tanks within 200 feet of property shown?
- Have you shown the location and dimensions planned accessory items (sheds, pools, etc.)?
- Have you indicate your preferred location for the well and septic system?

### **C. The building site for which the application is made**

- Are the property lines clearly and accurately marked?
- Has the house site been clearly and accurately marked?
- Is the location of property is easily identified from the road?
- Have existing underground utilities been marked?
- Is the site sufficiently cleared of vegetation that surface contours can be clearly seen?

I understand that the health department cannot accept incomplete applications and that if the property is not clearly marked and property lines staked, my application will be DENIED.

I intend to begin construction on this property within 18 months.  Yes  No

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Date

## TIPS ON MARKING YOUR PROPERTY

It is important that the property lines and proposed house are accurately marked and easy to see when the Environmental Health Specialist (EHS) arrives at your property. Failure to clearly mark the proposed property lines and house site, and/or to sufficiently clear undergrowth result in your application being denied until you correct the situation, causing a delay in processing your application. It is imperative that the EHS be able to clearly observe surface contours and property lines.

You are responsible for providing accurate information regarding your property lines. Improperly identified property lines can (and have) resulted in wells and septic system components being located on the wrong property, and can result in your permit being unusable. **If you are unsure about the location of your property lines, you should contact a surveyor for assistance.**

You will need a few materials to properly mark the property:

1. A roll of flagging tape (available at most hardware stores)
2. Eight or more wooden stakes, preferably at least three feet long.
3. A hammer to drive the stakes
4. A permanent ink marker to label the flags
5. A measuring tape at least 50 feet long (longer is better)
6. An assistant to help measure

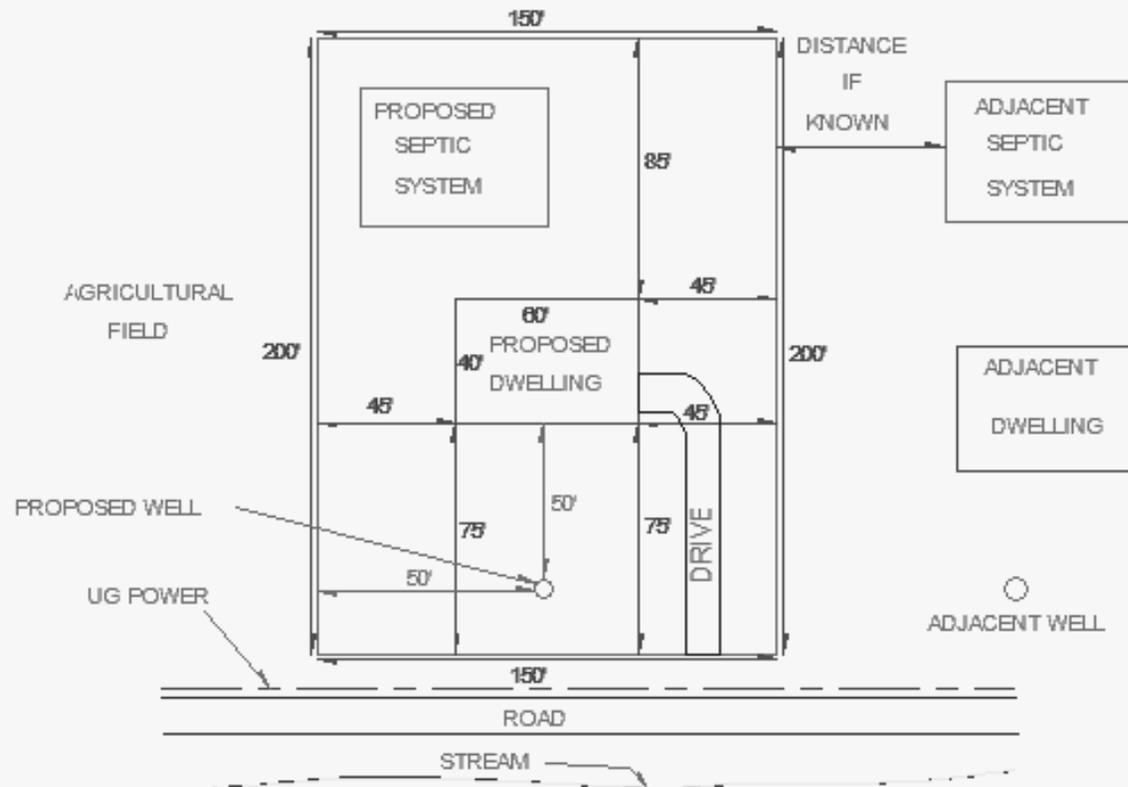
Suggested steps to mark the property:

1. Locate each property corner. Set a stake at each corner and tie a three-foot long piece of flagging tape onto the stake. Label the stake or the flagging to show what is marked (for example, “corner lot 8” or “corner John Doe property”).
2. Measure the distance between your stakes to double check that the distance between the stakes agrees with the survey plat or legal description of your property.  
[NOTE: If the property has recently been surveyed, and the surveyor’s marks are easy to see, you may skip steps 1 and 2.]
3. If you cannot easily see from one corner of the property to the next, it will be necessary to mark the property line by setting stakes and flagging between the corners. It is important that these markers be accurate. If you are unable to accurately mark the lines between the corners, you may need to contact a surveyor for assistance.
4. Locate the house site by measuring from the property lines or corners, and set a stake at each corner of the proposed house site. Flag and label each stake.
5. Be sure that the house measurements and the location are the same as those shown on your site sketch. Be sure to include porches and decks in the measurements and markings for the house site.
6. Clear enough undergrowth and brush from the site so the EHS can clearly see the house corners, the property corners and the slope of the property while standing in the proposed drainfield and/or well site. Do not disturb the soil on the property. Doing so may make the site unusable for an onsite sewage disposal system.

SAMPLE SITE SKETCH SHOWING REQUIRED DETAIL

YOUR SITE SKETCH MUST REPRESENT YOUR PROPERTY

AGRICULTURAL  
FIELD



## **Appendix Three**

### **Checklist for Office Support Review of Applications**

**Note: This checklist is intended for use to determine whether application is complete before application is accepted by the local health department.**

## CHECK LIST FOR SEPTIC OR SEPTIC AND WELL APPLICATIONS

\*\*used to ensure the application is complete at the time of submission\*\*

### GENERAL INFORMATION:

- Applicant name
- Agent's name (if applicable)
- Current mailing address
- Phone numbers (daytime/cell)
- Site Address
- GPIN Number/Tax Map number
- Subdivision Name
- Directions to property are clear
- Site plan, plat or sketch attached?
- Signature of Owner or Agent
- Current Date when applied for Application
- Fees paid and receipt given and recorded
- Application marked date received
- Health Department ID number recorded

### SYSTEM INFORMATION

- Type of approval (Certification Letter,  
Construction, Repair, Expansion Permit, etc.)
- Proposed usage (Single Family, Multi-Family  
Dwelling, Non Residential/Commercial)

- Number of Bedrooms
- Basement? (Yes or No)
- Water supply (Private or Public)

### REMIND APPLICANT (IF BARE APPLICATION)

- Are the property lines marked?
- Is house site marked?

### AOSE PACKET

- Must submit three copies
- All pages of packet numbered & included
- Certification Statement included

## **Appendix Four**

### **Guidance and Best Management Practices For Soil and Site Evaluations**

## Guidance and Best Management Practices for Soil and Site Evaluations in the VDH Onsite Wastewater Program—Version 2.0

Submitted to OEHS Quality Assurance Committee—August 1, 2006  
Phillip Cobb—Jay Duell—Beth Manghi

The information below provides guidance and best management practices for evaluating the features and properties of soils and sites proposed for onsite wastewater treatment and disposal. It is not inclusive of all soil/site evaluation aspects, but deals with some of the main ones. Many of the topics addressed in this guidance document are taken from the VDH Soil Evaluation Form (C.H.S. 201A – Revised 4/87). This guidance document is Version 2.0 and is intended to be amended and added to on a regular basis by the Office of Environmental Health Services.

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### Landforms and Landscapes

The Virginia Sewage and Handling and Disposal Regulations (2000) require that any onsite wastewater system be installed in a suitable landscape position. The Yes or No determination relies upon the evaluator to make a decision on whether any onsite system will be negatively impacted by placing the system in or on a landform that is considered unsuitable. According to the Regulations, unsuitable landforms may include: Marshes and Swamps, Steep Slopes, Drainage Ways, Fill Material, Sink Holes, Flood Plains, and Alluvial and Colluvial deposits.

Guidance and Best Management Practices provide the following terms, definitions, and concepts that can be used in describing and documenting the physical earth setting that an onsite wastewater system will be placed on or in.

**Alluvial Fan**—a low, outspread mass of loose materials and/or rock material; commonly with gentle slopes, shaped like an open fan, deposited by a stream at the place where it issues from a narrow mountain or upland valley. It is steepest near its apex which points upstream and slopes gently and convexly outward with a gradual decrease in gradient.

**Backslope**—the hillslope profile position that forms the steepest and generally linear, middle portion of the slope. In profile, backslopes are commonly bounded by a convex shoulder above and a concave footslope below. Backslopes are commonly erosional surfaces. (NSSH).

**Backswamp**—a floodplain landform that consists of extensive, marshy or swampy depressed areas of flood plains between natural levees and valley sides or terraces. (NSSH).

**Channel**—the hollow bed where a natural body of surface water flows or may flow. (NSSH).

**Drainageway**—a depressional, roughly linear course or channel along which water moves on the surface and/or the subsurface in draining an area. The drainageway may be very shallow and lack a defined channel or may be incised with a defined channel.

**Floodplain**—the nearly level plain that borders a stream or river and is subject to inundation under floodstage conditions. It is usually a constructional landform built of sediment deposited during overflow and lateral migration of the streams. (NSSH)

**Footslope**—the hillslope profile position that forms the concave surface at the base of a hillslope. It is a transition zone between upslope sites of erosion and downslope sites of deposition. (NSSH)

**Geomorphic Component**—a fundamental, three dimensional piece or area of a geomorphic setting (i.e. hills, mountains, terraces, flat plains, etc) that has unique and prevailing kinetic energy dynamics and sediment transport conditions which result in their characteristic form, patterns of sedimentation and soil development. (NSSH).

**Gully**—a small channel with steep sides caused by erosion and concentrated but intermittent flow of water usually during heavy rains. Gullies are common in the Virginia Piedmont and mostly caused by past farming activities.

**Head Slope**—a geomorphic component of hills consisting of a laterally concave area of a hillside, especially at the head of a drainageway, resulting in converging overland flow; head slopes are dominated by colluvium and slope wash sediments; contour lines form concave curves. (NSSH).

**Hill**—a generic term for an elevated area of land surface, rising at least 30m (100 feet) to as much as 300 meters (approx. 1000 feet) above surrounding lowlands, usually with a nominal summit area relative to bounding slopes, a well-defined rounded outline and slopes that generally exceed 15 percent.

**Hillslope Profile**—the sequential, sloping components of an elevated or topographic high, from the highest point to lowest point. The components may include the ridgetop, shoulder, backslope, footslope, and toeslope, though all may not be present.

**Intermittent Stream**—a stream or reach of a stream, that does not flow year-around and whose channel is generally below the local water table; it flows only when it receives significant rainfall or snow melt, or during periods of prolonged wetness.

**Knickpoint**—any interruption or break in slope. (NSSH).

**Knoll**—a small, low, rounded hill rising above adjacent landforms. (NSSH).

**Landform**—any physical, recognizable form or feature on the earth's surface, having a characteristic shape and range in composition, and produced by natural causes. Landforms provide an empirical description of similar portions of the earth's surface. (NSSH).

**Landscape**—an assemblage, group, or family of spatially related, natural landforms over a relatively large area; the land surface which the eye can comprehend in a single view. (NSSH).

**Marine Terrace**—a constructional coastal strip, sloping gently seaward, veneered by marine deposits. (NSSH).

**Mountain**—a generic term for an elevated area of the land surface, rising more than 300 meters above surrounding lowlands, usually with nominal summit area relative to bounding slopes and generally with steep sides (greater than 25 percent slope). (NSSH).

**Natural Levee**—a long, narrow low ridge or embankment of sand and coarse silt, built by a stream on its flood plain and along its channel, especially in time of flood when water overflowing the normal banks is forced to deposit the coarsest part of its stream load. It has a gentle slope away from the river and toward the surrounding floodplain, and its highest elevation is closest to the river bank. (NSSH).

**Noseslope**—a geomorphic component of hills consisting of the projecting end (laterally convex area) of a hillside, resulting in predominantly divergent overland water flow; contour lines generally form convex curves. (NSSH)

**Physiographic Province**—a region of which all parts are similar in geologic structure and climate and which has consequently had a unified geomorphic history. (NSSH).

**Relief**—the relative difference in elevation between the upland summits and the lowlands or valleys of a given region. (NSSH).

**Rise**—a slightly elevated area with very gentle slopes and very low relief. Elevation differences range from a few inches to 3 feet. Common in the Virginia Coastal Plain and often in broad, upland drainageways that have a delta-like landform.

**Ridgetop**—a long, narrow elevation of the land surface that is bounded by gentle to steep slopes. A ridgetop has the highest, relative topographic position, and the relief may be slight to pronounced.

**Saddle**—a low, dipping point on a ridge or summit; on opposite sides of the saddle are upland drainageways that drain in opposite directions.

**Salt Marsh**—a flat, poorly drained area that is commonly subject to daily flooding by tidal brackish to saline water. Salt marshes support only salt tolerant vegetation.

**Shoulder**—the hillslope profile position that forms the convex, erosional surface near the top of a hillslope. If present, it comprises the transition zone from summit to backslope. (NSSH).

**Side Slope**—a geomorphic component of hills consisting of a laterally planar area of a hillside, resulting in predominantly parallel overland water flow; contour lines generally form straight lines. (NSSH).

**Sinkhole**—a closed, circular or elliptical depression, commonly funnel-shaped, characterized by subsurface drainage and formed either by dissolution of the surface of underlying limestone bedrock, or by collapse of underlying caves within bedrock. Complexes of sinkholes in carbonate-rock terrain are the main components of karst topography. (NSSH).

**Stream Terrace**—one or a series of platforms in a stream valley, flanking and more or less parallel to the stream channel, originally formed near the level of the stream, and representing the remnants of an abandoned flood plain, stream bed, or valley floor produced during a former state of fluvial erosion or deposition. (NSSH)

**Summit**—the topographically highest position of a hillslope profile with a nearly level or gently sloping (planar or only slightly convex) surface. (NSSH).

**Swale**—a shallow, open depression which lacks a defined channel but can funnel overland or subsurface flow into a drainageway. Soils in swales tend to be moister and have thicker surface horizons compared to the nearby upland landforms. (NSSH).

**Swamp**—an area of low, saturated ground intermittently or permanently covered with water, and predominantly vegetated by shrubs and trees. (NSSH)

**Toeslope**—the hillslope position that forms the gently inclined surface at the base of a hillslope. Toeslopes in profile are commonly gentle and linear, and are constructional surfaces forming the lower part of a hill-slope continuum that grades to a drainageway or floodplain. (NSSH)

**Terrace**—a step-like surface, bordering a valley floor or shoreline, that represents the former position of a floodplain, or lake or sea shore. (NSSH)

**Upland**—the land and landforms at a higher elevation than the drainageway, flood plain or low stream terrace.

Best management practice for evaluating a site for a drainfield is to walk the entire property or lot; then draw a rough site sketch; delineate the drainageways first; then delineate the major landforms; then conduct the soil evaluations.

### **Soil Slope**

**Slope**—(also called slope gradient or gradient) is the inclination of the land surface from the horizontal. Percent slope is the vertical distance divided by the horizontal distance, and then multiplied by 100. (NSSH). The main components of slope are gradient, complexity, length, and aspect.

Soil slope has an important influence on the amount and rate of surface water runoff as well as the rate and direction of subsurface water movement in the soil. Wastewater is always presumed to move vertically and horizontally on sloping landforms, unless there are confining layers in the soil that limit or prevent such movement. Slope gradient is a primary factor in determining drainfield trench bottom depth in the Regulations. Simply stated, the steeper the slope the deeper the drainfield. Best management practice in the field is to measure the slope gradient before any soil evaluations are conducted and then determine what the minimum drainfield trench bottom depth should be.

Slope is measured in the field using a hand level, clinometer, or engineering transit. The general procedure is to measure “rise over run” and then divide by 100 to get percent slope. For example, if the elevation difference on a sloping landform is 8 feet (Rise) over the horizontal distance of 75 feet (Run), then the slope in percent would be: 8 divided by 75 x 100 equals 10.6% slope.

Slope complexity refers to the variable land surface shape and steepness over a short distance. This usually means the land surface has two or more sloping segments within a short distance. For example, a drainfield site that is 100 feet long by 75 feet wide may include a gently sloping shoulder (2 to 7% gradients) and a strongly sloping backslope (7 to 15% gradients). Best management practice in the field requires that each slope or landform segment be measured separately and drainfield trench depth adjusted accordingly.

To determine minimum trench bottom depth for an in-ground system on slopes greater than 9%, the following formula can be used: Minimum depth (x) =  $\{(slope - 8)/2\} + 18$  inches. To determine minimum trench bottom depth for a shallow place system on slopes greater than 9%, the following formula can be used: Minimum depth (x) =  $\{(slope - 8)/2\} + 12$  inches.

Slope length exerts control over surface water runoff and potential accelerated water erosion and accompanying sediment deposition. The rate and direction of wastewater movement will also be affected by slope length, though the most overt role slope length will play in the onsite wastewater program is to affect the configuration and dimension of a drainfield.

Slope aspect is the direction toward which the surface of the soil faces. Direction is expressed as an angle between 0 degrees and 360 degrees. Slope aspect has an important affect on soil development and soil temperature, but essentially plays no role in ultimate drainfield site suitability.

### **Bedrock, Soil Restrictions, and Impervious Horizons**

In the Virginia Sewage Handling and Disposal Regulations (2000) the following definitions are stated.

**Rock or Bedrock**—means continuous, coherent, lithologic material that has relative hardness depending on the degree of weathering. Bedrock has characteristics such as strike, dip, jointing, and Lithological compositions. Structure and water movement are rock controlled. Bedrock grinds with an auger, and mechanical penetration is more difficult or prevented as the material gets harder.

**Soil Restriction**—is a feature in the soil that impedes the percolation of water. Restrictions generally consist of a layer of soil horizon within a soil that is firmly compacted or is very rich in clay. Soils containing restrictions may require verification of the percolation rate by percolation tests. (Soil restrictions in themselves may form the basis for the outright rejection of the site. 12VAC 5-610-593.)

**Impervious Strata**—means soil or soil materials with an estimated or measured percolation rate in excess of 120 minutes per inch.

All the definitions and concepts stated above provide guidance for determining whether a layer, horizon, or soil and rock materials in the soil will preclude the siting of a drainfield or help determine the appropriate standoff distance. The Regulations require that there be an 18-inch or 12-inch separation distance from drainfield trench bottom to a known bedrock or impervious layer. A soil restriction is somewhat more subjective and allows for some interpretation in the field on the degree or severity of a soil restriction.

Bedrock instead of “rock” is the preferred term and it infers that the material is totally dominated by high rock content and the properties of rock. Bedrock can be hard (R horizons) or weathered and relatively soft (Cr horizons). Bedrock can have two opposing effects on wastewater. First, if the bedrock is very coherent and solid with few fractures and joints, then wastewater can be prevented or severely limited from entering the soil, resulting in ponding of the wastewater. Or, if the bedrock is highly fractured and jointed, wastewater can rapidly move through the rock materials, resulting in minimal retention and treatment of the wastewater. Bedrock may contain a very small amount of soil materials in fractures and joints; however, soil content is insignificant and does not affect the features and properties of bedrock.

Best management practices for documenting bedrock in the field are to identify the lithology of the bedrock (i.e. granite, limestone, etc); note whether the bedrock is tilted from the horizontal plane by estimating the incline in degrees, (i.e. tilted at 45 degrees); note the presence and relative abundance of bedrock fractures and joints; note whether the bedrock appears to be readily pervious to groundwater and wastewater based on abundance of fractures and joints, lack of soil materials “clogging” the fractures and joints, and lack or absence of redoximorphic features at the soil and bedrock interface.

Conversely, impervious or relatively impervious bedrock may be identified because it has no or minimal fractures and joints; the bedrock materials are “clogged” with soil materials that have redoximorphic features, especially chroma 2 or less iron depletions and red or yellowish red iron accumulations; there is a clay enriched build-up at the soil-bedrock interface that is caused by the stoppage of downward illuviation of clay materials suspended in percolating groundwater; or there is groundwater in a pit or auger hole that penetrates into a bedrock layer.

Restrictive horizons or soil materials impede or slow the movement of groundwater, especially downward. This impedance or slowing may be because the soil materials are dense, compact, firm in place, somewhat cemented together, clay enriched, compacted by man related activities such as plowing and using heavy machinery, or have poor structure such as platy, prismatic, or massive. Noting these characteristics in the field provides a rationale for calling soil horizons or soil materials restrictive. It must also be noted that all impervious horizons are restrictive, but not all restrictive horizons are impervious.

Some restrictive horizons may be used for a drainfield, but this depends on how severe the restriction is. In some cases, a percolation or Ksat test may be needed to determine if a restrictive horizon will absorb and transmit water and ultimately wastewater.

Most impervious horizons and soil materials will have field characteristics similar to restrictive horizons and soil materials. Quite often in the field there is a large body of negative characteristics that are observed that leads one to conclude the horizon is overwhelmingly impervious. For example, the horizon has a heavy clay texture, there are many gray mottles, and the structure is massive or prismatic. As with a restrictive horizon, an impervious horizon may require a percolation or Ksat test, assuming the only soil evaluation question left is whether the soil will take water at a suitable rate.

### **Water Table, Redoximorphic Features, and Free Water**

The Regulations state: {Minimum depth to seasonal water table. As used herein, “seasonal water table” means that portion of the soil profile where a color change has occurred in the soil as a result of saturated soil conditions or where soil concretions have formed. Typical colors are gray mottlings, solid gray or black. The depth in the soil at which these conditions first occur is termed “seasonal water table.”}

Best management practice nationwide and generally worldwide now uses the term “**redoximorphic features**” instead of water table to refer to soil wetness. Redoximorphic features are defined as “soil properties associated with wetness that result from the reduction and oxidation of iron and manganese compounds in the soil after saturation with water and desaturation, respectively.” (Glossary of Soil Science Terms, SSSA, 1996). Redoximorphic features represent conditions in the soil of continuous saturation or periodic saturation and reduction. The net effect of using redoximorphic features is that there are a wider range of terms and conditions that better describe soil wetness.

Determining if a soil is wet is one of the most important standards in the onsite wastewater program. Soil wetness will have a profound effect on the ability of the soil to treat and dispose of wastewater in a safe and acceptable manner. And because most drainfields that are approved and installed receive minimal to no attention unless they malfunction hydraulically, it is vital to accurately document soil wetness in the initial soil/site evaluation process to insure long term performance of the system.

Best management practices for redoximorphic features in the soil include observing and documenting the following:

**Redox Depletions**—typically small, splotchy, lighter-colored zones where iron and/or manganese oxides and sometimes clay have been stripped out (the typical gray mottles or matrix colors historically used to determine a water table or soil wetness). Depletions can include iron/manganese depletions, clay depletions, and an overall reduced soil matrix color. In the field, iron depletions commonly will be lighter in color or grayer than the adjacent soil mass and generally will be located on a ped face, in a ped, in a root channel, or lining a micropore or macropore. Soil chroma typically will be 1, 2, 3 or 4.

**Redox Concentrations**—typically small, splotchy zones of enrichment or accumulation of iron and/or manganese oxides (the typical red and yellow mottles historically used to determine a water table or soil wetness). Concentrations and accumulations can include nodules and concretions, masses, and pore linings. Nodules and concretions are typically small, irregularly shaped, three dimensional bodies that can be removed from the soil. In the field, iron and/or manganese concentrations occurring as masses or pore linings are typically red, yellowish red, strong brown, yellowish brown, or black.

**Chroma 3 and 4 Depletions**—typically small, splotchy zones of lighter colored zones where iron/manganese oxides have been stripped out. It is a given that chroma 3 and 4 redox features represent soil wetness. Long term research has proven that chroma 2 or less redox features are indicative of soil conditions where there has been intensive saturation and reduction of iron and manganese. The presence of chroma 2 or less redox features strongly implies that all factors that go into the reduction-oxidation process have been highly functional and optimal. By the same token, chroma 3 and 4 redox features may represent soil conditions that are as wet as chroma 2 or less features; however, some of the factors that go into the redox process may be lacking or less than optimal. For example, the soil temperature may be too cold for effective microbial activity; soluble organic matter may be lacking or too low to fuel the reducing microbes; the soil is saturated but reducing conditions are thwarted or minimized by oxygenated groundwater; or the soil just isn't saturated long enough to form chroma 1 and 2 redox features. In any event, note the hue, value, and chroma of the chroma 3-4 features; note the relative abundance (few-less than 2% of surface area covered, common 2 to 20% surface area covered, and many-greater than 20% surface area covered).

**Free Water in the Soil**—is water that is at zero or positive pressure, not held or bound by soil tension, and is free to move with gradient and gravity. This is the groundwater that seeps into a freshly dug backhoe pit or auger hole. The Regulations state that “The presence of free standing water (in a pit or auger hole) may be grounds for rejection of the site.” Free water in a pit or auger hole is one of the most difficult factors to interpret when all the other soil features meet the Regulations. Best management practices would include recording the level where free water is first encountered when boring a new hole; recording the final free water level upon conclusion of the site evaluation; and trying to tie free water level to some observable feature in the soil such as chroma 3 and 4 redox features, presence of manganese oxides, soil density and compaction, or the soil is located on a marginal landform such as a toeslope. One of the best field practices is to document the free water level in an auger hole today (informal water table study), and then return at least weekly for 3 to 4 weeks to document the level. The original holes can be used if they stay open, but if not, new holes can be dug each week and the free water level documented after a reasonable time has been spent at the site.

**Oxyaquic Conditions**—is a soil wetness term that best describes soils that are periodically saturated for relative long duration, but do not develop or have significant redox features, especially chroma 2 or less iron depletions. Best management practice would include monitoring these soils with an informal water table study (described above) for at least 3 to 4 weeks duration.

**Inherited Soil Colors**—some soils have dominant matrix colors that are inherited from the parent rock or material from which the soil develops. Examples are the reddish brown colors inherited from the Triassic red beds and the black-gray colors inherited from graphite schist. The reddish brown colors do not necessarily represent a soil that is highly well drained and oxidized; the black-gray colors do represent a soil that is wet and poorly drained. Best management practices are to inspect the soils carefully to look for any other redox features, such as iron segregation (bright) mottles in the graphite material and pinkish gray colors in the red bed materials. In addition, because redox features may be masked in soils that inherit their colors from the parent rock, it is a must to locate any drainfield on a suitable upland landform. Footslope and toeslope landforms may be wetter than soil conditions would imply.

**Parent Material Mottles**—are spots of color that are derived from parent materials. The mottles usually are saprolitic or highly weathered pieces of rock, or any other type of parent material. Best management practice is to always note that these are parent material mottles and not redox features.

**Relict Soil Features**—are soil features that formed under long ago wetness regimes of saturation and reduction, but are not wet under present day circumstances. Relict features commonly formed on landscapes that were at one time relatively flat. During geologic and geomorphic dissection and down cutting of the flat landscapes, the water table was permanently lowered and the gray mottles and colors are left “high and dry.” Some relict soil features may be suitable for a drainfield if it can be determined they truly are a product of past times. This may include a more field detailed analysis, or conducting a two year water table study, and/or conducting Ksat tests if there is any question that the relict features may have formed because of restrictive or slow permeability.

### Soil Color

Soil Color is the most easily observed and determined soil characteristic. Soil color can be used to determine or infer other soil features and properties, such as the relative permeability, drainage, and organic matter content. Soil color is measured using the Munsell Soil Color Charts. The Munsell Charts consist of nine pages that are systematically arranged. To determine color, a soil sample is compared to the appropriate chart. The Munsell notation is recorded using hue, value, and chroma, in that order. Hue is a measure of the chromatic composition (its relation to Red, Yellow, Green, Blue, and Purple) of light that reaches the eye. Value indicates the degree of lightness or darkness of a color in relation to a neutral scale. Chroma is the relative purity or strength of the spectral color.

“Under field conditions, measurements of color are reproducible by different individuals within 2.5 units of hue (one card) and 1 unity of value and chroma. Rarely will the color of the soil sample be perfectly matched by any chip in the color book. The probability of a perfect match is less than one in one hundred. However, it should be evident which chips the sample color lies between and which chip is the closest match.” (Chapter 3, Soil Survey Manual).

The Regulations state that “Color is a key indication of the suitability of a soil; (1) Red and yellow mottlings may indicate slow internal drainage and may indicate a seasonal water table; (2) Gray and/or gray mottlings indicate seasonal water tables for a least three weeks duration; (3) Black appearance may be due to organic matter which has accumulated due to poor soil drainage.”

Red and yellow as well as yellowish red, strong brown and yellowish brown iron accumulations commonly indicate a soil has slow or restrictive permeability and is typically associated with a fluctuating water table. Virginia Coastal Plain soils commonly have yellowish red or strong brown redox concentrations in the subsoil that indicate slow or restrictive permeability caused by poor soil structure and/or density and compaction of the soil materials. Best management practice for soils with red to yellowish brown iron concentrations is to determine whether poor soil structure and/or density, compaction, or “tightness” of the soil may be causing the iron concentrations. It may be necessary to have a Ksat or percolation test run, assuming that is the only soils question to be determined. Also, the site evaluator may want to increase the estimated design percolation rate to take into account any slow or restricted permeability associated with red to yellow iron concentrations.

Gray matrix and/or gray redox depletions indicate that all conditions were right for grays to form, including saturation of the soil. The abundance of gray redox features appears to indicate how long a soil is reduced, and not so much to how long the soil is saturated. (Vepraskas, 1992). Though the Regulations state that gray redox features indicate a seasonal water table for at least three weeks duration, current research implies the duration of a water table is best measured directly by a water table study.

Black colors in the soil commonly are commonly associated with organic matter. Organic matter is typically broken down and oxidized relatively quickly in most upland Virginia soils (think about hardwood mulch applied around your house that rapidly breaks down in a year or two). Consequently organic

content in most of the Virginia soils on upland landforms will range from 1 to 5 percent. When a soil is encountered with high organic matter content it is usually located in a drainageway or concave landform. In this type landform, higher organic matter content is present because of higher vegetative growth, slower rate of decomposition, and increased accumulation.

Best management practice when encountering soils with high organic matter content and/or overly thickened A horizons is to slow down the soil/site evaluation process and determine what kind of landform is present. Also, since blackish organic matter content can mask soil wetness features, examine the soils for other wetness clues such as yellowish brown iron concentrations in the A horizon that are commonly around fine and very fine root channels/pores; look for very small Fe/Mn concretions; examine a nearby soil on an upland position and compare it to the high organic matter soil; if there is doubt about the wetness of a soil relatively high in organic matter content, make sure the drainfield does not encroach into one of the marginal landforms such as a footslope, toeslope, or upper reaches of a drainageway.

## **References**

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Soil Survey Staff. 2005. Natural Resources Conservation Service, National Soil Survey Handbook, Glossary of Landform and Geologic Terms, Part 629, title 430-VI.

Soil Survey Division Staff. 1993. Chapter 3 Soil Survey Manual. Soil Conservation Service. U.S. Department of Agriculture Handbook 18.

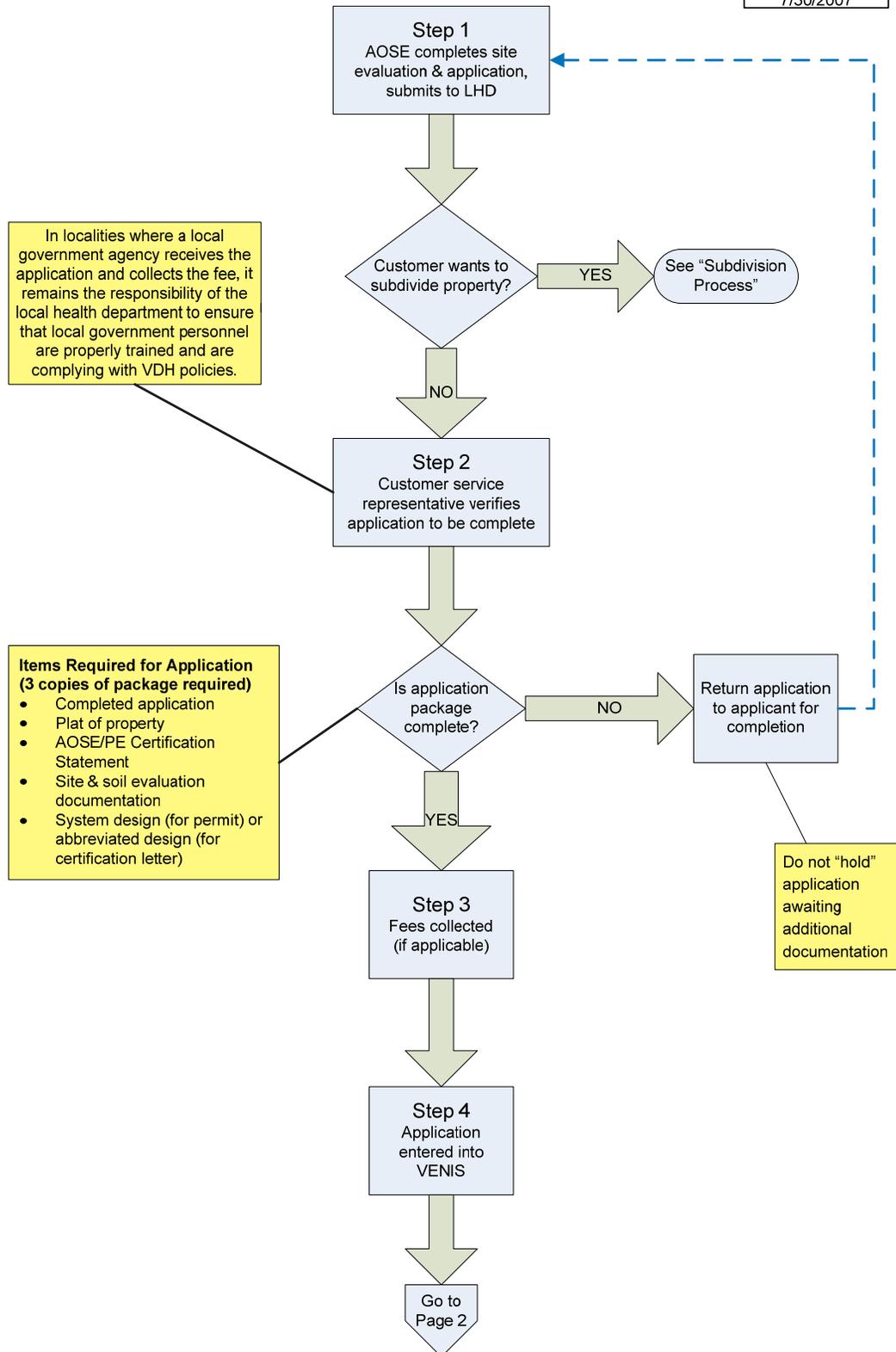
State Board of Health. 2000. Sewage Handling and Disposal Regulations. Virginia Department of Health. Richmond, Virginia.

Vepraskas, M.J. 1992. Redoximorphic Features for Identifying Aquic Conditions. Technical Bulletin 301. North Carolina Agricultural Research Service, North Carolina State University, Raleigh, North Carolina.

# Septic & Well AOSE Application Process

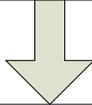
Page One of Three

DATE  
7/30/2007

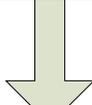


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7/30/2007

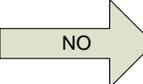
**Step 5**  
Support staff creates file,  
including existing information  
on subject property and  
surrounding properties



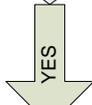
**Step 6**  
Application  
assigned to EHS



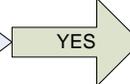
Is file  
complete?



Return to support  
staff to complete



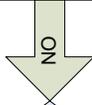
Has site been  
previously denied  
for equivalent  
proposal?



Send denial letter to  
applicant, copy to AOSE



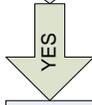
**Step 7**  
EHS completes  
Level I Review



Is documentation  
complete and  
adequate?



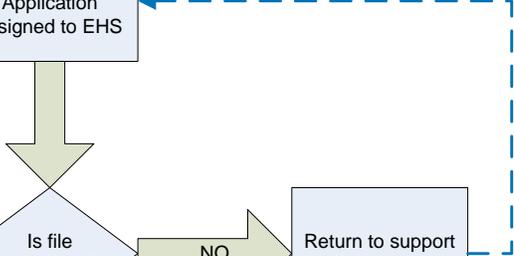
Send administrative  
denial letter to applicant,  
copy to AOSE



Go to  
page 3

The purpose of the Level I review is to ensure that:

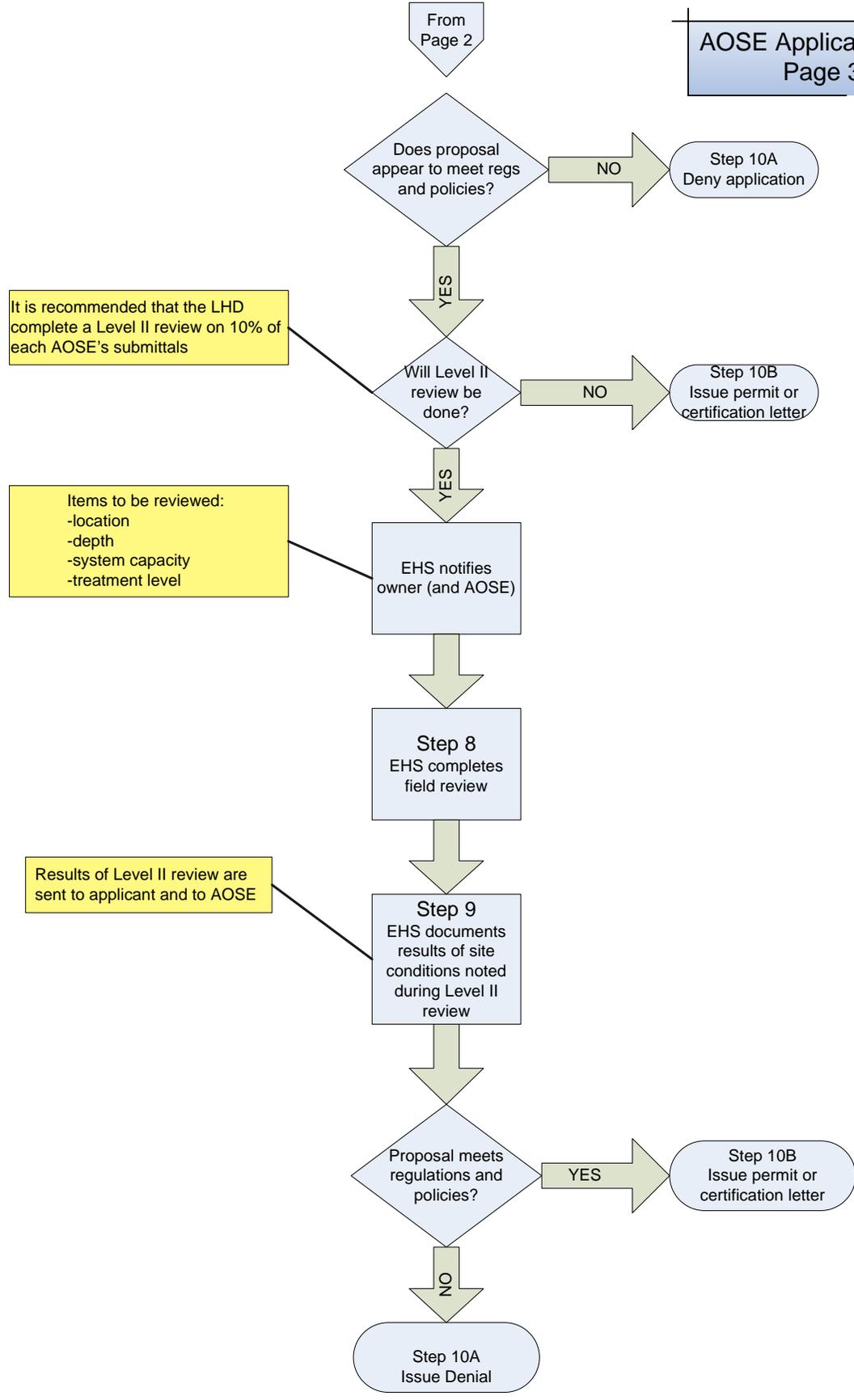
- Documentation is complete
- Summary of site evaluation agrees with soil descriptions
- Proposed design meets regulations and policies, based on the site conditions described



From Page 2

# AOSE Application Process Page 3 of 3

DATE  
7/30/2007



## Page One of AOSE Flowchart

### Step 1: Customer completes application and submits to LHD.

**Responsible Party:** Applicant

**Purpose:** Provide the LHD with sufficient information to process application and issue permit or denial in an accurate and timely manner.

**Resources needed:** Plat of property; zoning information; tax map number, GPIN, or 911 address; building plans; application; information about LHD application requirements.

**Customer:** LHD Environmental Health Specialist

**Customer requirements:** Complete and accurate documentation of current and proposed site conditions (including proposed design or abbreviated design), directions to property, clearly marked property lines and building site, sufficient clearing of brush and undergrowth to allow site evaluation.

**Standard:** Fewer than five percent of initial application reviews result in administrative denial due to incomplete or inaccurate application. (Greater than five percent require corrective action, such as training or consultation with AOSE's).

### Step 2: Application verified by LHD support staff for completeness.

**Responsible party:** Support person

**Purpose:** Determine if step 1 meets standards.

**Resources needed:** Completed application, understanding of customer requirements for Step One.

**Customer:** Applicant, EHS.

**Customer requirements:** Timely review of documentation before application is accepted by LHD.

**Standard:** Support staff are not in a position to determine accuracy of documentation or proper marking of site. However, support staff should verify that the application contains the following items:

- Unique property identifier
- Plat showing all property dimensions
- Location and dimensions of improvements
- Name, address, daytime phone number of applicant/agent
- CBPA info, where appropriate
- Proposed design (or abbreviated design for certification letter)
- AOSE certification statement

**Measure:** 100 percent of applications are reviewed before being accepted by LHD. Fewer than ten percent of accepted applications are administratively denied due to lack of proper documentation.

### Step 3: Fees collected by support staff.

**Responsible party:** Designated support staff

**Purpose:** Appropriate fees are collected and properly documented.

**Resources needed:** Knowledge and understanding of fee regulations and policies, receipts.

**Customer:** Applicant, VDH.

**Customer requirements:** Accurate charges and correct documentation.

**Standard:** Customer is charged appropriate fee for application and provided proper documentation for use in refund. Charges are accurately documented and assigned proper billing code. Where appropriate, documentation for waiver of fee is complete and accurate.

**Measure:** 100 percent of charges/waivers meet regulations and are properly documented.

**Step 4: Application is entered into VENIS database.**

**Responsible party:** LHD support staff.

**Purpose:** Create electronic record of application.

**Customer:** EHS, EH Manager, OEHS.

**Resources needed:** Access to computer and VENIS software, knowledge and understanding of data entry into the system.

**Customer requirements:** Complete and accurate documentation of current proposal.

**Standard:** Applications are entered in an accurate and timely manner.

**Measure:** 90 percent of applications are entered into VENIS within one business day and 100 percent entered within two business days. Fewer than five percent of records contain data entry errors.

## Page Two of AOSE Flowchart

### Step 5: Research files, pull existing documentation

**Responsible Party:** EHS, OSS

**Purpose:** Determine onsite and offsite features that may affect the sewage disposal system site evaluation.

**Resources needed:** Effective filing system, good Tax Parcel Maps and Records from local government entity

**Customer:** EHS

**Customer requirements:** Accurate and complete information on previous work on file in the health department for the lot applied for and for surrounding lots.

**Standard:** The file should contain documentation of previous work on the parcel applied for and within 200 feet of the property line of that lot.

**Measure:** 95 percent of files contain available documentation of all items within 200 feet of the property line.

### Step 6: Application assigned to EHS.

**Responsible Party:** EHS Supervisor (OSS).

**Purpose:** Ensure that processing of application continues in a timely manner.

**Resources Needed:** Knowledge of current workloads and district/local policy for assignment.

**Customer:** EHS

**Customer Requirements:** An application should be complete when it is handed to an EHS for processing. An incomplete application, if returned to the applicant at this point, leads to frustrating delays and causes unnecessary tension. If an incomplete application is processed without required corrections/additions and an EHS takes it upon himself/herself to assume the answers to questions on an application, this may cause implication should the resulting permit be denied and appealed or become an indemnity case.

**Standard:** Complete files are assigned to appropriate EHS in timely manner.

**Measure:** 100 percent of applications have been assigned to appropriate EHS within two business days after application is accepted. EH Supervisor reviews VENIS routinely to determine.

### Step 7: Complete Level I review.

**Responsible Party:** EHS (in some areas support staff)

**Purpose:** Ensure that submitted documentation is complete and that proposal meets the regulations for the site conditions described by the AOSE.

**Resources Needed:** Knowledge and understanding of regulations and policies associated with review of AOSE submittals.

**Customer:** Applicant, ASOE

**Customer Requirements:** Reasonable, timely and consistent review of proposal.

**Standard:** This *quality assurance* review of the AOSE submittal should identify any errors or omissions in the paperwork (location, depth, capacity, treatment level) that would result in a system being installed that does not meet VDH regulations and policies.

**Measure:** All reviews are complete, accurate, well-documented, and reach the correct conclusion. 95 percent of Level I reviews are completed within five days of accepting application.

## Page Three of AOSE Flowchart

### Step 8: Complete Level II review (where needed)

**Responsible Party:** EHS

**Purpose:** Ensure that public health and the environment are protected and to assess the performance of AOSE and designer.

**Resources Needed:** AOSE package, information on adjoining properties.

**Customer:** Applicant, AOSE, designer

**Customer Requirements:** Timely and professional QA review of site conditions to ensure that private sector site evaluation and design do not result in the installation of a system that does not meet the requirements of the regulations and policies.

**Standard:** EHS completes soil and site evaluation in order to determine that proposal meets regulatory requirements. EHS should not deny proposal based on a single soil boring/pit.

**Measure:** All reviews are complete, accurate, well-documented, and reach the correct conclusion. 90 percent of Level II reviews are completed within ten days of receipt of application.

### Step 9: Complete Documentation of Field Work

**Responsible Party:** EHS

**Purpose:** To accurately record information gathered during Level II review.

**Resources needed:** Field notes and field sketch, plat of property, engineering scale.

**Customer:** Applicant, AOSE, VDH

**Customer requirements:** Complete and legible record of findings from site work.

**Standard:** Documentation meets the standards set by policy for completeness and accuracy, and can be readily interpreted upon review.

**Measure:** 98 percent of documents are complete, accurate and legible upon review.

### Step 10A: Deny Application

**Responsible party:** EHS

**Purpose:** Notify the applicant (and AOSE) that the proposal does not meet the requirements of the regulations and any applicable policies.

**Resources needed:** Application, complete documentation of field work, computer.

**Customer:** Applicant (and AOSE).

**Customer requirements:** Applicant and AOSE need clearly explained and well documented reasons that the proposal cannot be approved by VDH.

**Standard:** Findings of Level I and/or Level II are correctly interpreted and support the conclusion that the application should be denied. Letter to applicant provides reasons for denial and notification of the right to appeal. Notification is made in a timely manner.

**Measure:** All denial letters are sent within two days following completion of review, contain all reasons for denial, and meet Administrative Process Act (APA) requirements for notification of rights.

### Step 10B: Issue permit or certification letter.

**Responsible party:** EHS

**Purpose:** To complete application process by issuing a certification letter or a sewage disposal construction permit.

**Resources needed:** Application, complete documentation of field work, computer.

**Customer:** Applicant, AOSE, contractor

**Customer requirements:** Permit that meets the regulatory requirements and has sufficient information to be properly installed.

**Standard:** Level I and/or Level II review indicate that the AOSE/PE have correctly interpreted documented and interpreted the site and soil conditions, have proposed a design that meets VDH requirements, and provides sufficiently clear documentation of design that the system can be installed in accordance with regulations and policies. Permit is issued in a timely manner.

**Measure:** Was permit properly issued according to regulations and policies. All permits are issued within two days of completing level II review.

## QA Worksheet for AOSE Applications

Step	Standard	Measure	Local Goal	Local Performance
1	Applicants aware of site preparation requirements	% of administrative denials due to inadequate site prep		
2	Support staff verify completeness of application and do not accept incomplete applications	% of accepted applications denied to incompleteness		
3	Fees charged/waivers granted are correct and properly documented	% of fees correct and properly documented		
4	Applications entered into VENIS accurately and in a timely manner	% of VENIS application records with data entry errors		
4A	Applications entered into VENIS in a timely manner	% of applications entered into VENIS in one business day		
5	Support assemble complete file on property, including past records and current application	% of files that are missing appropriate information		
6	District/LHD maintains accurate filing system	Is accurate filing system in place and in use?		
6A	Applications are assigned to EHS in timely manner	% of applications assigned to EHS within 2 business days after application is received		
7	Level I reviews are accurate and support decision to issue or deny application.	% of reviewed files correct decision supported by complete and accurate documentation		
	Level I reviews are completed in a timely manner	% Level I reviews completed within 5 days of assignment.		
8	Level II reviews are complete and accurate	% of reviewed files where EHS field work is complete and accurate		
8A	Level II reviews are completed in a timely manner	% of Level II reviews completed within 10 days of receipt		
9	Documentation of Level II review fieldwork is complete and accurate	% of reviewed files with complete and accurate documentation		
10	Notification to applicant is made in a timely manner	% of AOSE applications completed within 2 days following review		
10A	Letters and permits meet the requirements of regulations and policies	% of letters and permits that meet requirements of regulations and policies		

## **Appendix One**

### **Checklist for Level I and Level II Reviews**

Tax Map/GPIN #: \_\_\_\_\_

HDID#: \_\_\_\_\_

Date: \_\_\_\_\_

Reviewer: \_\_\_\_\_

**Level I Review**

Item	IN <sup>1</sup>	OUT <sup>2</sup>	N.O. <sup>3</sup>	N.A. <sup>o</sup>	Comments
<b>Location</b>					
Site features affecting well & septic system location identified					
Landscape position indicated					
Absorption area					
House site located					
Other:					
Separation distances adequate					
Adequate triangulation/scale					
<b>Depth</b>					
Limiting factors (or lack of) noted					
Depth adequate for slope					
Depth adequate for limiting factors					
Timed-Dosing specified (if required)					
<b>Capacity</b>					
Absorption area adequately evaluated (number and location of borings/pits)					
Design flow adequate for intended use					
Adequate trench area, based on flow & estimate/measured perc rate					
Adequate footprint area (including reserve area, if required)					
<b>Treatment</b>					
Treatment level specified					
Treatment level adequate for specified absorption area depth					
Treatment capacity adequate for design flow					

**Level II Review**

Item	IN <sup>1</sup>	OUT <sup>2</sup>	N.O. <sup>3</sup>	N.A. <sup>o</sup>	Comments
<b>Location</b>					
Site features affecting location adequately identified					
Separation distances adequate					
Landscape position identified & adequate					
Slope adequately identified					
<b>Depth</b>					
Depth to limiting factors adequate (A)					
<b>Capacity</b>					
Estimated perc rate adequate (A)					
<b>Treatment</b>					

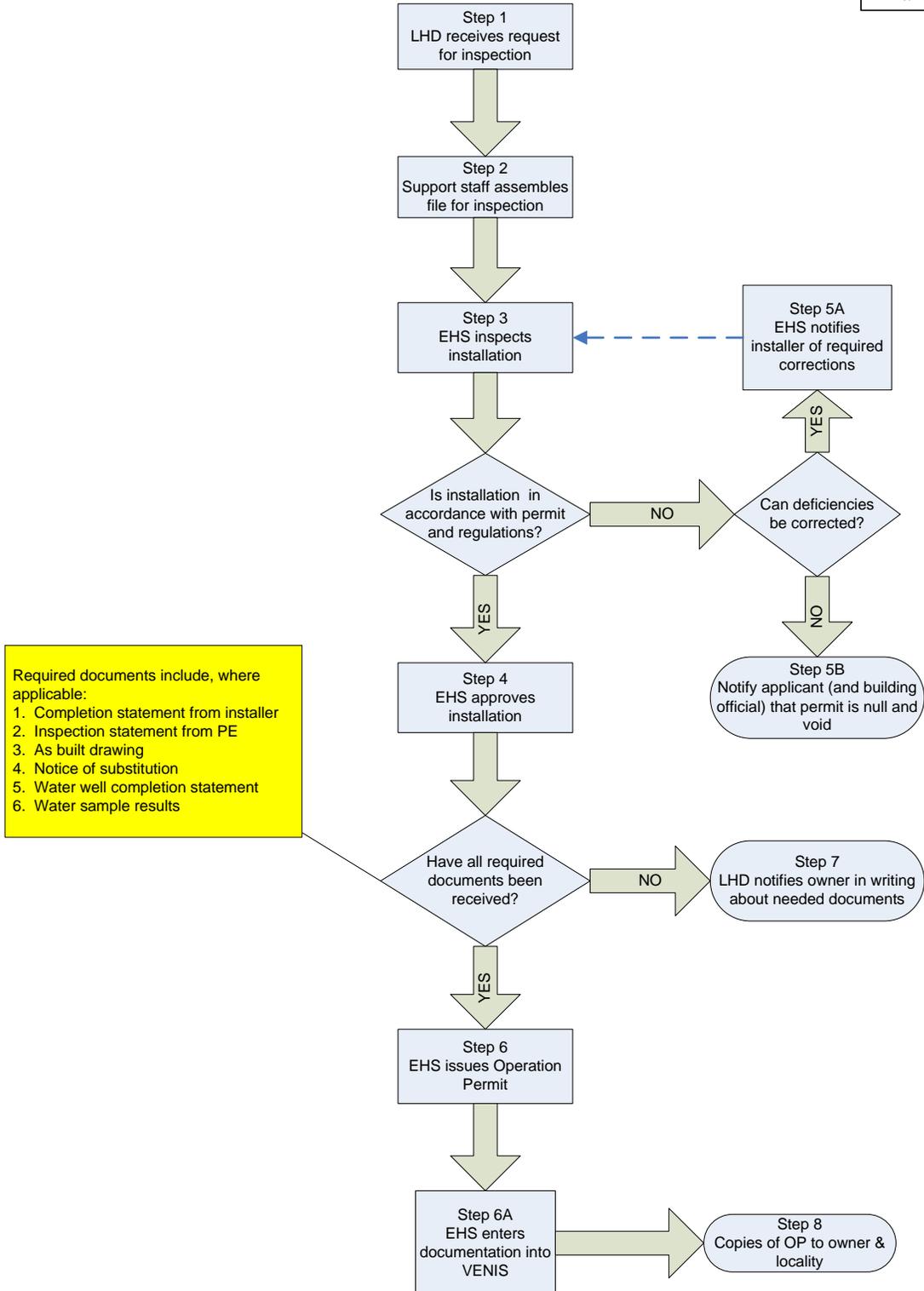
1. In substantial agreement    2. Not in substantial agreement    3. Not observed    0. Not applicable

(A) If one boring indicates disagreement, reviewer should complete a second boring before concluding that there is overall disagreement.

Use back of this page for additional comments, if any.

# Inspection & Approval, VDH Permit

DATE  
9/12/2007



## Inspection and Approval Flowchart

### Step 1: Local Health Department receives request for inspection.

**Responsible Party:** Installer.

**Purpose:** To notify EHS of installation so a scheduled inspection can be conducted.

**Resources Needed:** Health Department permit identification number, address, tax map number, owner information, contractor information, Health Department contact number.

**Customer:** EHS

**Customer Requirements:** Advanced notice of the date, time and location of the requested inspection.

**Standard:** Local Health Department has in place a standard contact number along with an advanced notice requirement disseminated to all area contractors so a high level of customer service can be provided.

**Measure:** The Local Health Department receives 24 hour notice on 80 percent of required inspections.

### Step 2: Support staff assembles file for inspection.

**Responsible Party:** Office support staff.

**Purpose:** To ensure the file is complete including a Completion Statement, Operations Permit and Record of Inspection for the well if applicable.

**Resources Needed:** A satisfactory tracking and filing system.

**Customer:** EHS

**Customer Requirements:** A complete file.

**Standard:** The Local Health Department maintains a satisfactory tracking and filing system.

**Measure:** EHS is provided a complete file including Completion Statement, Operations Permit and Record of Inspection for the well if applicable within one hour from time of request.

### Step 3: EHS inspects installation.

**Responsible Party:** EHS

**Purpose:** To ensure that the sewage system installation complies with the requirements of the construction permit.

**Resources Needed:** Complete file, measuring tapes, lock level or tripod level and site rod, gravel auger, watch with second hand.

**Customer:** Owner

**Customer Requirements:** A correctly installed sewage system that complies with the requirements of the construction permit, the Sewage Handling and Disposal Regulations and policies.

**Standard:** System components are to be inspected, deficiencies corrected if possible.

**Measure:** All observations and measurements, including “as-built” drawing, are recorded to document that system is in substantial compliance. Any deviations from permit are documented.

#### **Step 4: EHS Approves Installation**

**Responsible Party:** EHS

**Purpose:** To officially confirm that the installation meets the requirements of the construction permit, the Sewage Handling and Disposal Regulations and policies.

**Resources Needed:** Complete and satisfactory inspection results, completion statement from contractor, completion statement from AOSE/PE if applicable, knowledge of the Sewage Handling and Disposal Regulations and policies.

**Customer:** Owner

**Customer Requirements:** An officially approved sewage system installed in accordance with the permit, the Sewage Handling and Disposal Regulations and policies.

**Standard:** Sewage systems are approved only when in substantial compliance with the permit, the Sewage Handling and Disposal Regulations and policies.

**Measure:** All systems approved substantially comply with regulations and documentation supports approval.

#### **Step 5A: EHS Notifies Installer of Required Corrections.**

**Responsible Party:** EHS

**Purpose:** By notifying the installer of all deficiencies of the sewage system, the installer can make corrections prior to the sewage system being approved.

**Resources Needed:** Knowledge of the Sewage Handling and Disposal Regulations and policies, along with good communication skills.

**Customer:** Installer

**Customer Requirements:** a complete assessment of all sewage system deficiencies.

**Standard:** All sewage system deficiencies are explained to the installer. All corrections are made resulting in substantial compliance.

**Measure:** All deficiencies are documented and all corrections are made to ensure installations are in substantial compliance prior to approval. Was the installer informed of all sewage system deficiencies? Yes/No

#### **Step 5B: Notify Applicant (and Building Official) that Permit is Null and Void.**

**Responsible Party:** EHS

**Purpose:** To notify all stakeholders that the deficiencies in the installation of the sewage system can not be corrected and the system will not be approved and that a valid permit no longer exists.

**Resources Needed:** Knowledge of the Sewage Handling and Disposal Regulations and policies, good communication skills.

**Customer:** Applicant and Building Official

**Customer Requirements:** A timely and thorough explanation of facts and findings regarding the installation, the appropriate regulation and policy.

**Standard:** Applicant and Building Official are notified verbally and in writing regarding the permit being null and void in a timely fashion.

**Measure:** All stakeholders are notified that the permit is null and void verbally within one day and in writing within two days. Written notification includes all reasons for decision and owner's right to appeal.

**Step 6: EHS Issues Operation Permit**

**Responsible Party:** EHS

**Purpose:** The issuance of an operation permit gives the owner authority to operate the sewage system.

**Resources Needed:** Complete and satisfactory inspection results, a completion statement from the contractor, a completion statement from an AOSE/PE if applicable, knowledge of the Sewage Handling and Disposal Regulations and policies.

**Customer:** Owner

**Customer requirements:** Owner requires authority to operate the sewage system.

**Standard:** Operation permits will only be issued after the EHS has received complete and satisfactory inspection results, a completion statement from the contractor, and a completion statement from an AOSE/PE if applicable.

**Measure:** Operation permits are issued following the Sewage Handling and Disposal Regulations and policies. Yes/No

**Step 6A: EHS enters all documentation into VENIS.**

**Responsible Party:** EHS

**Purpose:** Create accurate electronic record of actions taken.

**Resources Needed:** Accurate field notes and understanding of data entry for VENIS.

**Customer:** VDH.

**Customer Requirements:** Complete, accurate and timely information.

**Standard:** VENIS record is updated in a timely manner.

**Measure:** VENIS file is updated within one business day of approving installation.

**Step 7: Local Health Department Notifies Owner In Writing About Needed Documents.**

**Responsible Party:** EHS

**Purpose:** To inform the owner in a timely fashion what the Local Health Department requires to be submitted prior to the issuance of the operation permit.

**Resources Needed:** The file, good communication skills, knowledge of the Sewage Handling and Disposal Regulations and policies.

**Customer:** Owner

**Customer Requirements:** Complete and timely information.

**Standard:** Owner is notified verbally and in writing of all needed documents in a timely manner.

**Measure:** Owner is notified of all documents needed by the Local Health Department verbally within one day and in writing within two days.

**Step 8: Copies of the Operation Permit are sent to the Owner and the Locality.**

**Responsible Party:** Office support staff.

**Purpose:** For the owner to have a copy for their files and to notify the locality that the owner has the authority to operate the sewage system.

**Resources Needed:** The file, facsimile machine or mail service.

**Customer:** Owner and Building Official

**Customer Requirements:** A timely receipt of the operation permit.

**Standard:** All operation permits are copied and sent to the owner and the Building Official in a timely manner.

**Measure:** Copies of operation permits are sent to the Owner and Building Official within one day of issuance. A copy of any conditions is attached to the operation permit.

### QA Work Sheet for Inspection & Approval

Step	Standard	Measure	Local Goal	Local Performance
1	LHD has a standard procedure for notification and response to requests for inspections.	% of inspections for which LHD receives 24 hour notice		
2	LHD maintains a satisfactory tracking and filing system	% of requests for which EHS is provided with complete file including Completion Statement, OP, and Record of Inspection in a timely manner prior to making inspection		
3	System components are inspected and deficiencies are corrected.	% of reviewed files for which all observations and measurements, including "as built" drawing are recorded to show that system is in substantial compliance and any deviations from permit are documented.		
4	Systems are approved only when in substantial compliance with the permit, regulations and policies	All systems approved substantially comply with regulations and documentation supports approval		
5A	Deficiencies in installation are explained to contractor and corrections are made to obtain substantial compliance	% of systems for which deficiencies are documented and contractor is informed.		
5B	Applicant and Building Official are notified that permit is null and void in writing and in a timely manner	% of non-compliant inspections for which written notification is made to owner and Building Official within two days of inspection		
6	OP issued only after all required documentation is on file	% of files for which OP has been issued with complete documentation		
7	Owner is notified in writing and verbally of documents needed to complete file and receive OP	% of files with missing information for which owner has been notified in writing		
8	OP's are sent to owner and building official in a timely manner	% of OP's, including any conditions, that are sent to owner and building official within 1 day of issuance		

# Subdivision Review Process

DATE  
7/30/2007

Subdivision review requests must be submitted through the local government. LHD will only review subdivision proposals upon request by the local government. Where LHD review is not required by local ordinance, an applicant may submit applications for multiple certification letters directly to the LHD.

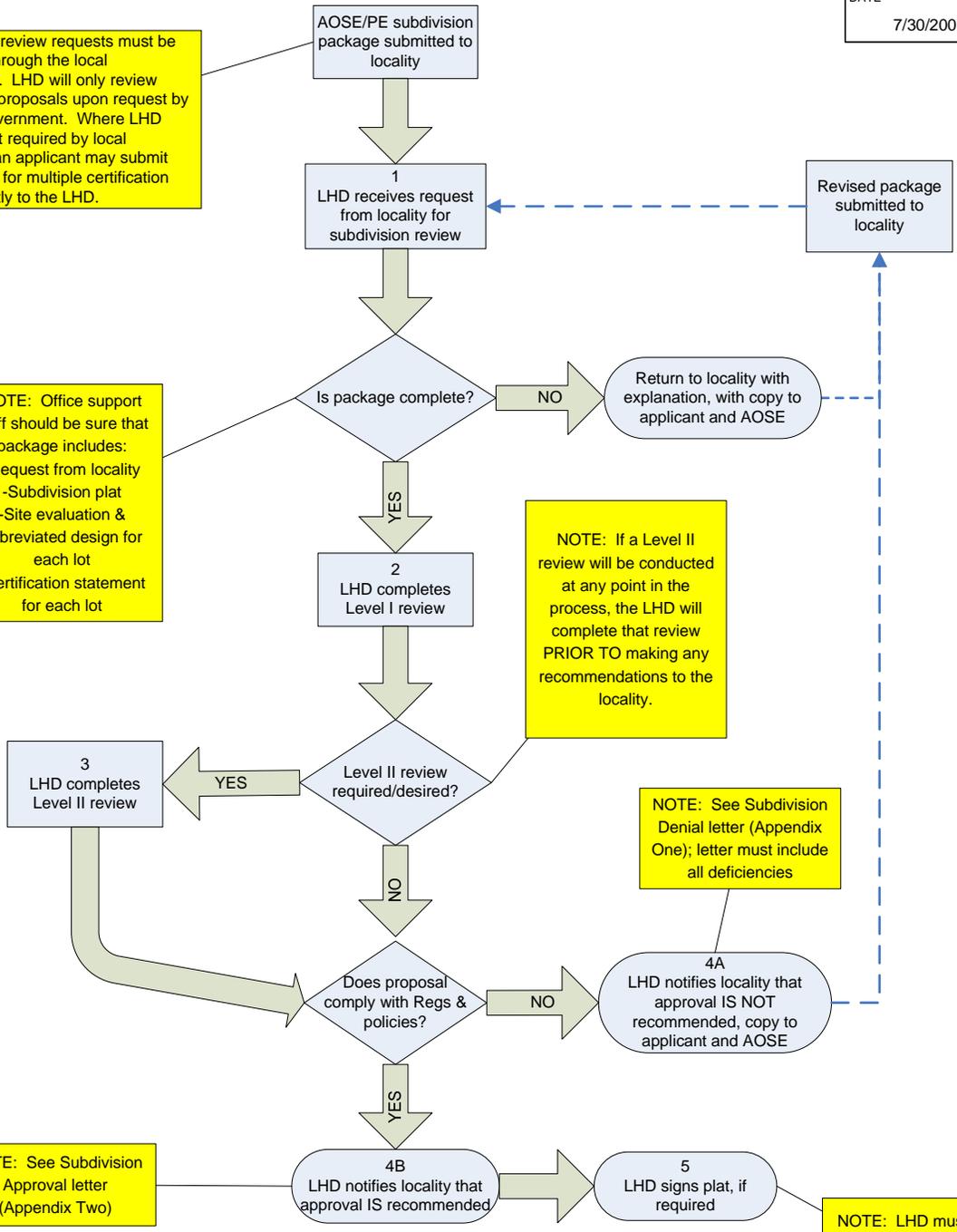
NOTE: Office support staff should be sure that package includes:  
-Request from locality  
-Subdivision plat  
-Site evaluation & abbreviated design for each lot  
-Certification statement for each lot

NOTE: If a Level II review will be conducted at any point in the process, the LHD will complete that review PRIOR TO making any recommendations to the locality.

NOTE: See Subdivision Denial letter (Appendix One); letter must include all deficiencies

NOTE: See Subdivision Approval letter (Appendix Two)

NOTE: LHD must keep copy of final plat. See Appendix Three for language to be included on final plat.



**All subdivision review requests must be submitted by the applicant through the local government. The local health department will only review subdivision proposals received with a request from the local government. Where no local ordinance requires LHD subdivision review, an applicant may submit applications for multiple certification letters directly to the LHD as a method for reviewing proposed subdivisions.**

**Step 1: LHD receives subdivision review request and supporting documentation from locality.**

**Responsible Party:** Office support staff.

**Purpose:** Ensure that package is complete and is documented in records.

**Resources needed:** Understanding of review process and documentation required for review; date stamp; access to VENIS.

**Customer:** EHS

**Customer Requirements:** Adequate documentation to complete review.

**Standard:** All subdivision review requests are reviewed for completeness, date-stamped and logged into VENIS accurately and in a timely manner.

**Measure:** Subdivision packages are reviewed and entered into VENIS within two days of receipt.

**Step 2: LHD completes Level I review.**

**Responsible party:** EHS

**Purpose:** Ensure that subdivision proposals have adequate and proper provisions for onsite sewage disposal and private water supplies and that plans for onsite sewage and private water supplies are adequately documented.

**Resources needed:** Complete and adequate subdivision proposal. Understanding of state and local regulatory requirements and policies.

**Customer:** Local government.

**Standard:** Subdivision proposals receive an accurate, thorough and timely review, with complete documentation.

**Measure:** Level I review is initiated within ten working days of receipt of request from local government and completed within 30 days of receipt.

**Step 3: LHD completes Level II review.**

**Responsible party:** EHS

**Purpose:** Provide QA review of AOSE/PE fieldwork.

**Resources needed:** Complete AOSE package, information on neighboring properties, site evaluation tools.

**Customer:** Local government.

**Standard:** Subdivision proposals receive an accurate, thorough and timely review, with complete documentation.

**Measure:** Level II review is initiated within 20 working days of receipt of request and completed within 45 working days of receipt.

**Step 4A: LHD notifies locality that approval is not recommended.**

**Responsibility:** EHS

**Purpose:** Notify the locality, applicant and AOSE that LHD review indicates that proposal does not comply with state and local requirements, and the reasons the LHD does not recommend approval.

**Resources needed:** Complete and accurate documentation of Level I and Level II reviews. Thorough understanding of state and local regulations and policies.

**Standard:** The locality will receive timely notice of LHD recommendations that adequate and proper sewage disposal and/or private water supplies are not recommended, as proposed, for the subdivision.

**Measure:** LHD notifies locality in writing, with copies to applicant and AOSE, of recommendations within three days of completing review.

**Step 4B: LHD notifies locality that approval is recommended.**

**Responsibility:** EHS

**Purpose:** Notify the locality, applicant and AOSE that LHD review indicates that proposal does comply with state and local requirements.

**Resources needed:** Complete and accurate documentation of level I and level II reviews. Thorough understanding of state and local regulations and policies.

**Standard:** The locality will receive timely notice of LHD recommendations that proposed sewage disposal and/or private water supplies appear to comply with state and local requirements.

**Measure:** LHD notifies locality in writing, with copies to applicant and AOSE, of recommendations within three days of completing review.

**Step 5: LHD signs plat (if required by local ordinance)**

**Responsibility:** EHS

**Purpose:** Provide legal verification that LHD has approved the use of private wells and/or onsite sewage disposal systems for the subdivision.

**Resources needed:** Complete and accurate final plat, copies of individual site evaluations, knowledge of applicable state and local regulations.

**Standard:** EHS signs plat after verifying that proposed sewage disposal and well sites agree with site evaluations and that plat contains the information required by state and local regulations.

**Measure:** 100 percent of well and sewage disposal sites meet regulations and match the areas shown on the AOSE's site evaluations. All subdivision files contain copy of final plat and supporting documentation.

### QA Worksheet for Subdivision Reviews

<b>Step</b>	<b>Standard</b>	<b>Measure</b>	<b>Local Goal</b>	<b>Local Performance</b>
1	Subdivision review requests are reviewed for completeness, date-stamped and logged into VENIS in a timely manner	% of requests logged into VENIS within 2 days of receipt		
2	Level I reviews are accurate, thorough and timely.	% of requests initiated within 10 days of receipt		
		% of requests completed within 30 days		
3	Level II reviews are accurate, thorough and timely with complete documentation	% Level II reviews initiated within 20 days		
3		% Level II reviews completed within 45 days		
3		% Level II reviews with complete & accurate documentation		
4	Locality receives timely notice of LHD recommendation	% of notices to locality within 3 days of completing review		
5	EHS signs plat after verifying that proposed sewage disposal and well sites agree with site evaluations and that plat contains the information required by state and local regulations.	% of well and sewage disposal sites meet regulations and match the areas shown on the AOSE's site evaluations.		
5		% of subdivision files that contain copy of final plat and supporting documentation.		

**Appendix 1**

**Subdivision Denial Letter**

[date]

**CERTIFIED MAIL**

County Planning/Zoning Official  
address

Re: Proposed subdivision name, tax parcel number, location, etc.

On [date], the \_\_\_\_\_ County Health Department received a request from you to review the proposed lots in the referred subdivision for onsite wastewater system approvals. This is pursuant to local ordinance [cite ordinance section]. We are hereby denying the review request for the following reasons:

- Individual site and soil evaluation reports not in the required format or do not identify the subdivision or proposed lot/section numbers.
- Preliminary plat does not provide the information as specified in the *Sewage Handling and Disposal Regulations*, 12 VAC 5-610-360 B. (e.g. streets, utilities, storm drainage, water supplies, easements, lot lines, neighboring property lines within 200 feet, existing and proposed water supplies for each lot and within 200 feet of the outermost property line, original topographic contour lines by detail survey, improper scale or contour intervals.)
- Incomplete documentation of system designs. If submitted by an AOSE/PE, it must contain documentation that the soils are capable of supporting the proposed system at the proposed design flow(s).
- Other: \_\_\_\_\_  
\_\_\_\_\_

If you have any questions, please give me a call at [phone number].

Sincerely,

EHS

\_\_\_\_\_ County Health Department

c: Division of Onsite Sewage and Water Services  
AOSE/PE  
Applicant  
Local building official

**Appendix Two: Subdivision Approval Letter**  
[letterhead]

Date: \_\_\_\_\_

Mr./Ms. \_\_\_\_\_ (local government official for subdivisions)

ADDRESS

Dear Mr./Ms. (local govt. official):

RE: Review of Proposed Subdivision Plat for Individual Onsite Sewage Systems  
Subdivision Name, Section, Lot #'s, County/City

On (date) the County/City of \_\_\_\_\_ requested the Virginia Department of Health (via the \_\_\_\_\_ County/City Health Department) review the proposed subdivision plat identified above. This letter is to inform you that the above referenced subdivision plat is approved for individual onsite sewage systems in accordance with the provisions of the *Code of Virginia*, and the *Sewage Handling and Disposal Regulations* (12 VAC 5-610-10 et seq., the "*Regulations*"), (and local ordinances if the locality has authorized the local health department to accept private evaluations for compliance with local ordinances).

This request for subdivision review was submitted pursuant to the provisions of § 32.1-163.5 of the *Code of Virginia* which requires the Health Department to accept private soil evaluations and designs from an Authorized Onsite Soil Evaluator (AOSE) or a Professional Engineer working in consultation with an AOSE for residential development. This subdivision was certified as being in compliance with the Board of Health's regulations by: \_\_\_\_\_ (AOSE/PE name, certification or license #, phone #). This subdivision approval is issued in reliance upon that certification.

Pursuant to § 360 of the *Regulations* this approval is not an assurance that Sewage Disposal System Construction Permits will be issued for any lot in the subdivision identified above *unless* that lot is specifically identified on the above referenced plat as having an approved site for an onsite sewage disposal system, and unless all conditions and circumstances are present at the time of application for a permit as are present at the time of this approval. This subdivision may contain lots that do not have approved sites for onsite sewage systems.

This subdivision approval is issued in reliance upon the certification that approved lots are suitable for "traditional systems," however actual system designs may be different at the time construction permits are issued.

This subdivision approval does/does not pertain to the requirements of local ordinances.

Sincerely,

Environmental Health Specialist  
\_\_\_\_\_ Health Department

c: [Applicant]  
[AOSE]

**Note:** If the approved sewage system sites are not shown on the record plat, they must be shown on a separate plat on file in the local health department. The plat showing the sewage system sites must be reconciled with the record plat. In this case the following sentence should be added to the approval letter:

*The approved onsite sewage system sites are not shown on the above referenced plat. Those sites are shown on a separate plat on file in the \_\_\_\_\_ Health Department.*

## Appendix Three

### Subdivision Approval Statement to Be Shown on Plats

If local subdivision ordinances require VDH personnel to sign a record plat, in addition to sending the Subdivision Approval letter, the following statement must be printed on the plat:

This subdivision is approved for individual onsite sewage systems in accordance with the provisions of the *Code of Virginia*, and the *Sewage Handling and Disposal Regulations* (12 VAC 5-610-10 et seq., the “*Regulations*”), (and local ordinances if the locality has authorized the local health department to accept private evaluations for compliance with local ordinances).

This subdivision was submitted to the Health Department for review pursuant to § 32.1-163.5 of the *Code of Virginia* which requires the Health Department to accept private soil evaluations and designs from an Authorized Onsite Soil Evaluator (AOSE) or a Professional Engineer working in consultation with an AOSE for residential development. The Health Department is not required to perform a field check of such evaluations. This subdivision was certified as being in compliance with the Board of Health’s regulations by: (AOSE/PE name, certification or license #, phone #). This subdivision approval is issued in reliance upon that certification.

Pursuant to § 360 of the *Regulations* this approval is not an assurance that Sewage Disposal System Construction Permits will be issued for any lot in the subdivision *unless* that lot is specifically identified as having an approved site for an onsite sewage disposal system, and unless all conditions and circumstances are present at the time of application for a permit as are present at the time of this approval. This subdivision may contain lots that do not have approved sites for onsite sewage systems.

This subdivision approval is issued in reliance upon the certification that approved lots are suitable for “traditional systems”, however actual system designs may be different at the time construction permits are issued.

**Note:** If the approved sewage system sites are not shown on the record plat, they must be shown on a separate plat on file in the local health department. The plat showing the sewage system sites must be reconciled with the record plat. In this case the following sentence should be added to the approval statement on the plat:

The approved onsite sewage system sites are not shown on this plat. Those sites are shown on a separate plat on file in the \_\_\_\_\_ Health Department.