COMMONWEALTH of VIRGINIA

Department of Health

Marissa J. Levine, MD, MPH, FAAFP
State Health Commissioner

P O BOX 2448
RICHMOND, VA 23218

TTY 7-1-1 OR
1-800-828-1120

MEMORANDUM

DATE: October 1, 2017

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

FROM: Marissa J. Levine, MD, MPH, FAAFP
State Health Commissioner

SUBJECT: GMP 2017-04: Implementation of the Onsite Sewage Quality Assurance Program

Early in 2006, the Office of Environmental Health Services (OEHS) was directed to work with the health districts to develop a Quality Assurance (QA) Program for the onsite sewage program. A QA Committee was convened to draft an initial QA Procedures Manual for the onsite sewage program.

In 2013, OEHS convened the Safety and Health in Facilitating a Transition (SHIFT) committee to produce a report of recommendations to advise VDH on how to maximize private sector participation in the onsite sewage program while providing adequate oversight to protect public health and the environment. One of the consensus recommendations of the SHIFT process was to revise the QA Procedures Manual to address any changes to existing practices. To identify necessary revisions, OEHS convened a workgroup consisting of both OEHS staff and local health department (LHD) staff.

Enclosed is the revised QA Procedures Manual for the onsite sewage program. The QA Procedures Manual identifies measurable standards for four major processes - bare applications, private sector OSE applications, inspection and approval of installations, and subdivision reviews. The agency needs a common tool for assessing the quality of the basic elements of the onsite program. The QA Procedures Manual identifies best practices to reduce errors and inconsistencies and promote a quality program. In addition, the manual provides 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 revised program immediately. Districts will begin to send reports to OEHS using the revised QA Procedures Manual starting with the fourth calendar quarter of 2017 (October-December) and quarterly thereafter. The sections that follow establish some minimum, baseline expectations

for initiating the program. As data and feedback are collected, OEHS will work with districts to modify elements of the program as needed.

1. Each district's QA review team should include the manager (or a delegated staff member), an environmental health specialist (EHS) 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 review team will review at least 4% (or 5 whichever is less) of the files completed by each EHS working in the district. The files should be proportionate to the types of applications received for the quarter. If 4% of the files completed by an EHS equals less than 1 file, then review of that file type should be postponed for the EHS and those quarterly files combined with the files for the next quarterly review.
3. The district will complete the QA sample measure worksheet for each of the processes in the manual using the QA rubric provided for each process. Health Department Identification Numbers for each file are to be included on the worksheets.
4. The district should identify and note factors which are believed to contribute to significant success or lack of success. Where the opportunity for improvement is indicated, the district shall identify steps that will be taken to improve performance. The district Environmental Health Manager is responsible for developing and implementing process improvement plans with assistance, as needed, from OEHS.
5. The QA sample measure scoring and quarterly summaries are to be sent electronically to the Quality Assurance Coordinator no later than 30 days after the end of each quarter. For example, the first report based on the revised QA Procedures Manual is due to OEHS by January 15, 2018.
6. The introduction to the manual includes language to be inserted in the EWP for each employee with responsibilities in the onsite sewage program.

Districts should begin as soon as possible to brief staff on revisions to this program and to implement the revised program. As noted above, districts are expected to collect the first round of data during the current quarter. OEHS will meet with combined environmental health (EH) staff in different areas of the state to get feedback, to provide technical assistance, and to discuss possible additional changes to this policy. OEHS will develop responses to Frequently Asked Questions and post them on the OEHS intranet website.

Your personal attention to assuring the QA effort is implemented in your district's onsite sewage program is appreciated. If you have questions or suggestions, please send them to the Division's Program Administration Manager and Quality Assurance Coordinator.

Quality Assurance Committee and Revision Workgroup Summaries

The 2006 Quality Assurance Committee was formed to identify measurable standards for internal processes associated with the Virginia Department of Health (VDH) onsite sewage program that would raise the overall quality. Best practices were developed for processes within the onsite 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. Having a detailed process that utilizes best practices is paramount in achieving a quality program. This process allows staff to manage day to day activities to avoid mistakes that can create inefficiencies in work flow, generate customer complaints, and prevent the agency from reaching the goals of protecting public health and the environment.

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, licensed private sector Onsite Soil Evaluator (OSE) applications, inspection and approval of sewage systems, and subdivision reviews and approvals. The processes have individual action steps that are shown utilizing flowcharts. An accompanying narrative describes the process. The narrative includes the responsible party for each step, the purpose and required resources, the customer and requirements, along with standards and measures.

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

One of the consensus recommendations of the 2013 SHIFT process was to revise the QA Procedures Manual to address any changes to existing practices. To identify necessary revisions, OEHS convened a workgroup in 2015 consisting of both OEHS staff and LHD staff. The workgroup was tasked with revising the QA Procedures Manual to capture changes to agency processes since the QA Procedures Manual was first created. The workgroup also identified areas where reporting could be simplified and ways to assure that stakeholders have clear and transparent access to QA reporting information.

House Bill 2477 of the 2017 General Assembly Session requires VDH to enhance quality assurance checks and inspection procedures for the review of evaluations, designs, and installations by private sector service providers and update the QA Procedures Manual to reflect those changes. The bill also requires VDH staff to inspect all onsite sewage systems and private wells designed by private sector service providers. The QA Procedures Manual was updated to reflect the inspection procedures for inspecting onsite sewage systems design by private sector service providers outlined in GMP 2017-01. GMP 2017-01 was developed with input from LHD staff, private sector designers, installers, and well drillers.

The goal of the QA Procedures Manual is to outline consistent review processes for all application types, to the extent possible. This is accomplished by updating the narrative and graphical outline of each process, and creating a comprehensive tool to evaluate effectiveness in meeting goals within each process. Statewide reports will be transparent and available to all stakeholders upon request.

The QA Procedures Manual is a living document that will be revised and updated to include additional processes as needed to ensure future program quality.

2006 Committee Members

Kathy Baird, Office Services Specialist – Chesterfield Health District
Phil Cobb, Consulting Soil Scientist, VPISU
Jay Duell, Environmental Health Manager – Western Tidewater Health District
Diane Helentjaris, M.D., M.P.H., District Director – Lord Fairfax Health District
Marissa 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

2006 Facilitators

Jim Bowles, Environmental Health Coordinator, Office of Environmental Health Services
Dave Tiller, Environmental Health Coordinator, Office of Environmental Health Services

2015 Workgroup Members

David Fridley, Environmental Health Manager – Three Rivers Health District
Olivia McCormick, Environmental Technical Consultant – Three Rivers Health District
Scott Fincham, Environmental Health Manager – Lord Fairfax Health District
Jim Bowles, Environmental Health Coordinator - Office of Environmental Health Services
Dave Tiller, Environmental Health Coordinator - Office of Environmental Health Services

2015 Facilitator

Lance Gregory, Environmental Health Coordinator – Office of Environmental Health Services

Virginia Department of Health
Onsite Quality Assurance Manual

Table of Contents

Introduction: Establishing a Quality Assurance Program

Establishing a 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 and workgroup 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.

Data analysis should lead to identification and sharing of best practices for program improvement among districts.

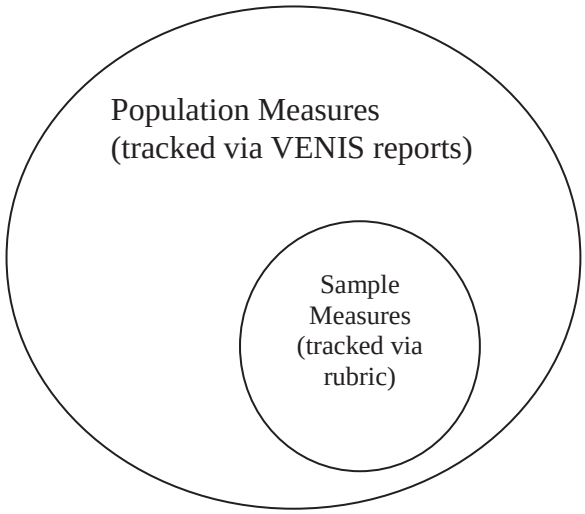
As stated above, this document includes suggested measures. The frequency of taking measurements is, to some extent, dependent on which standard is being measured. Measurements need to be made often enough that corrections can be made before too many instances of poor quality ensue. On the other hand, too little data may not show whether or not a problem exists. The number of 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 VDH OSE 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.[1]

On the other hand, because QA is a team, or group process, it is important that Employee Work Profiles (EWPs) 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 a VDH OSE 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.

In addition to this manual, OEHS has provided excel 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 LHD performance in reaching the goals for each measure.

Measures are separated into two groups; population measures and sample measures.



Population measures cover all facilities for which a given process has occurred. These measures are captured in Virginia Environmental Information System (VENIS) reports for the given process and do not require an individual analysis of a subset of files. Values for these measures simply need to be taken from VENIS reports and included in the quarterly QA summary.

[1] When individual performance problems are encountered, these must be handled appropriately under VDH policies for employee performance management.

Sample measures are tracked by reviewing a subset of files during each quarterly QA review cycle and filling out the sample measure scoring spreadsheet using the QA rubric for the given process. Please note, sample measures have a greater potential to be affected by anomalous data, especially where goals are at or close to 100%. To account for outliers within a quarterly data set, measures will also be aggregated to provide annual totals.

Roles and Responsibilities

OEHS

- Collect and aggregate reports and data from the districts.
- Monitor quality of the process across the districts.
- Suggest changes to state policies and procedures to help achieve and maintain process standards.
- Assist district EH Managers in developing and implementing process improvement plans.

District Director

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

EH Manager

- QA program.
- Monitor processes to determine compliance with standards.
- Consult with district director to determine and institute necessary changes to meet statewide policies and procedures.
- Develop and implement process improvement plans.
- Report monitoring results to stakeholders.

EH 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.

EHS/VDH OSE

- Ensure that completed work meets quality standards.
- Report to supervisor any identified barriers to quality.
- Implement process improvements as directed.

Office Support Staff (OSS)

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

Suggested Language for Employee Work Profiles

The following statement 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.

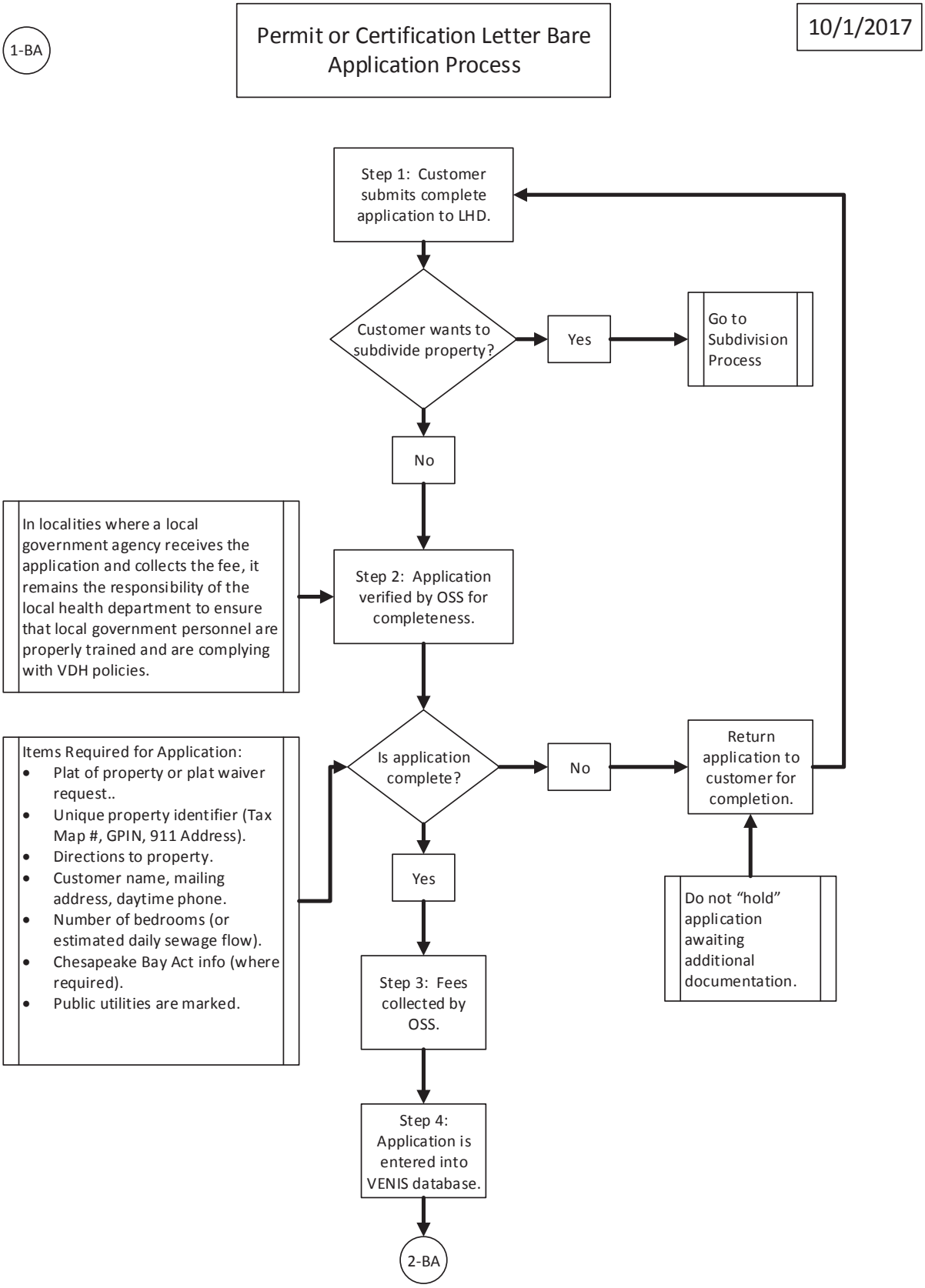
> "Implements and promotes district quality assurance plans by complying with applicable agency standards established by regulation and policy. Identifies barriers to quality, and suggests and implements methods to improve accuracy, completeness, consistency, timeliness, and customer (both internal and 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."

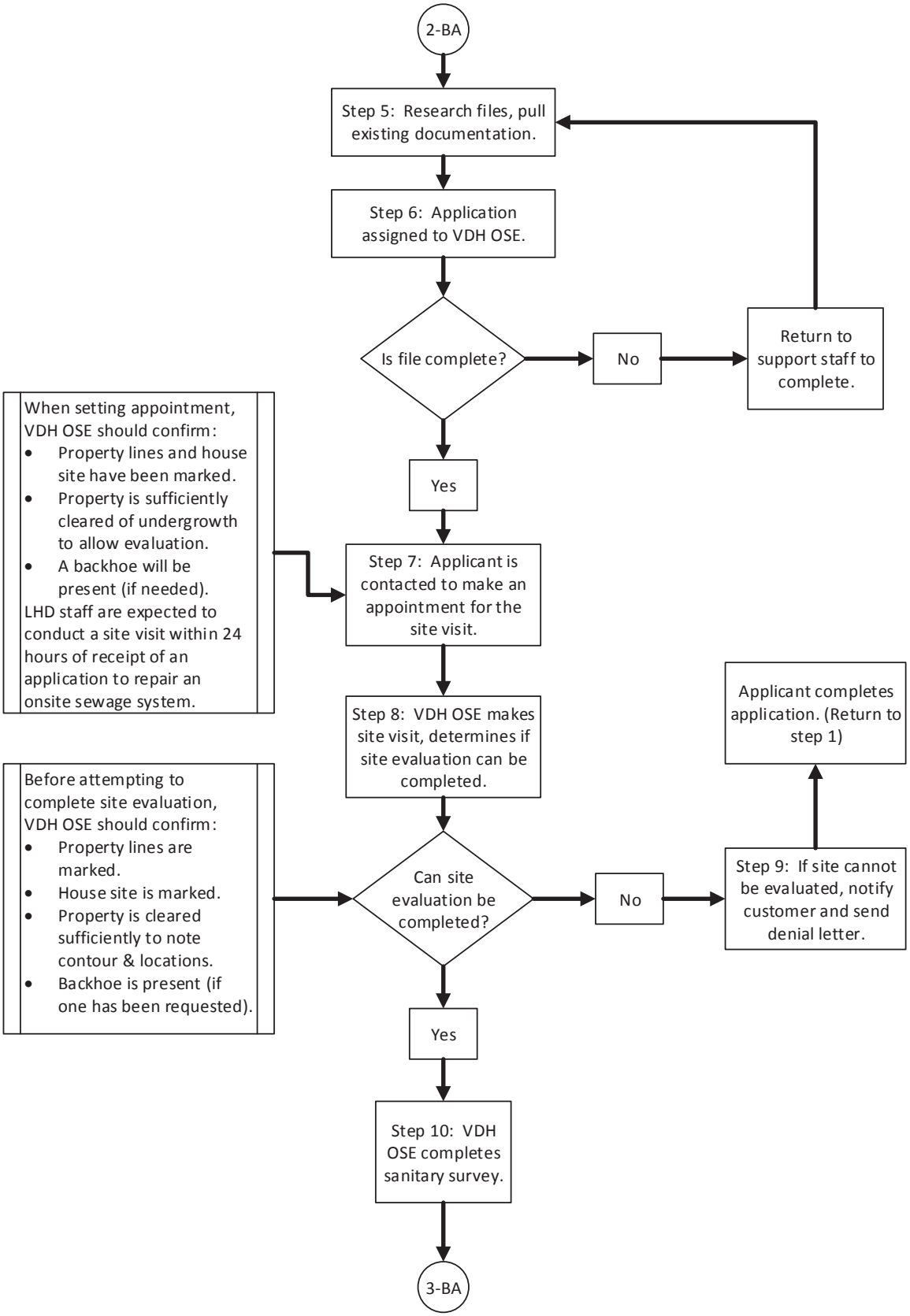
The statements below are suggested for inclusion in the "Performance Measures" section of each employee's EWP. No performance measures for the Technical Specialist position are included, because some districts do not have such a position, and because districts vary in how tasks are assigned among EHS,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

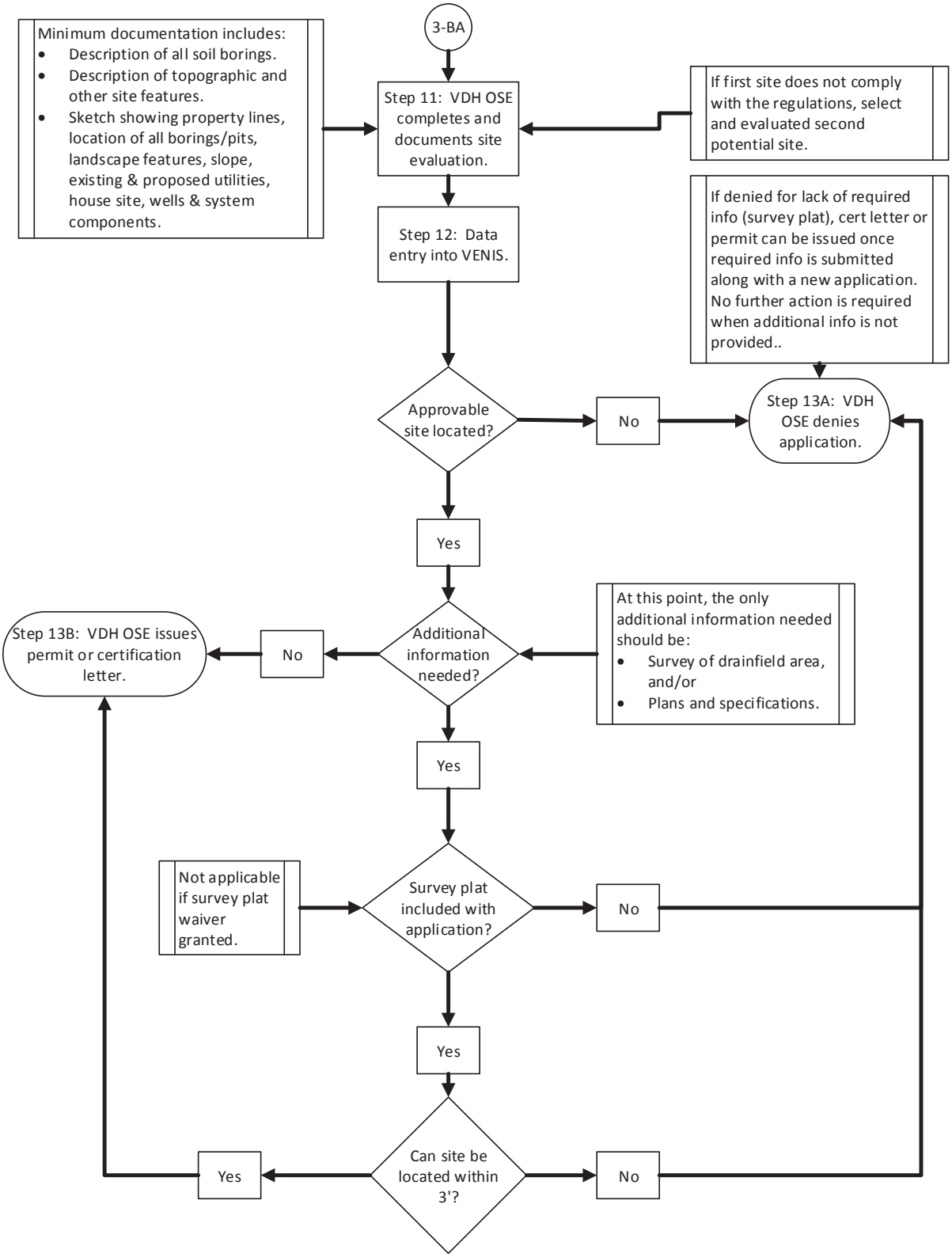
> OSS
> Assigned tasks are completed within established time-frames. Takes appropriate steps to eliminate barriers to customer satisfaction. Utilize effective verbal and written communication. Creates/maintains complete, accurate, and effective files and filing system. Data entry is complete and accurate.
>
> 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 regulations, policies and program standards. Evaluates individual and system performance, identifies problems, develops and implements plans

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 plan.


1-BA
Permit or Certification Letter Bare Application Process
10/1/2017
Step 1: Customer submits complete application to LHD.
Customer wants to subdivide property?
Yes
Go to Subdivision Process
No
In localities where a local government agency receives the application and collects the fee, it remains the responsibility of the local health department to ensure that local government personnel are properly trained and are complying with VDH policies.
Step 2: Application verified by OSS for completeness.
Items Required for Application:
Plat of property or plat waiver request..
Unique property identifier (Tax Map #, GPIN, 911 Address).
Directions to property.
Customer name, mailing address, daytime phone.
Number of bedrooms (or estimated daily sewage flow).
Chesapeake Bay Act info (where required).
Public utilities are marked.
Is application complete?
No
Return application to customer for completion.
Do not "hold" application awaiting additional documentation.
Yes
Step 3: Fees collected by OSS.
Step 4: Application is entered into VENIS database.
2-BA


2-BA
Step 5: Research files, pull existing documentation.
Step 6: Application assigned to VDH OSE.
Is file complete?
No
Return to support staff to complete.
Yes
When setting appointment, VDH OSE 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).
LHD staff are expected to conduct a site visit within 24 hours of receipt of an application to repair an onsite sewage system.
Step 7: Applicant is contacted to make an appointment for the site visit.
Step 8: VDH OSE makes site visit, determines if site evaluation can be completed.
Applicant completes application. (Return to step 1)
Before attempting to complete site evaluation, VDH OSE 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).
Can site evaluation be completed?
No
Step 9: If site cannot be evaluated, notify customer and send denial letter.
Yes
Step 10: VDH OSE completes sanitary survey.
3-BA


3-BA
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.
Step 11: VDH OSE completes and documents site evaluation.
If first site does not comply with the regulations, select and evaluated second potential site.
Step 12: Data entry into VENIS.
If denied for lack of required info (survey plat), cert letter or permit can be issued once required info is submitted along with a new application. No further action is required when additional info is not provided..
Approvable site located?
No
Step 13A: VDH OSE denies application.
Yes
Additional information needed?
At this point, the only additional information needed should be:
• Survey of drainfield area, and/or
• Plans and specifications.
No
Step 13B: VDH OSE issues permit or certification letter.
Yes
Not applicable if survey plat waiver granted.
Survey plat included with application?
No
Yes
Can site be located within 3'?
Yes
No

Permit or Certification Letter Bare Application Process

Step 1: Customer submits complete application to LHD.

Responsible Party: Applicant.

Purpose: Provide the LHD with sufficient information to process an application and issue a case decision, permit or letter approval 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: VDH OSE.

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. See Appendix 2 for suggested information for applicants.

Sample Measure: All applications are complete and accurate. All subset files reviewed receive a score of 3 or higher when evaluated in accordance with the QA rubric.

Step 2: Application verified by OSS for completeness.

Responsible party: OSS.

Purpose: Determine if application documents meet requirements.

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

Customer: Applicant, VDH OSE.

Requirements: Timely review of documentation before application is accepted by LHD.

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

- Unique property identifier;
- Plat showing all property dimensions or a plat waiver request;
- Location and dimensions of improvements;
- Name, address, daytime phone number of applicant/agent;
- Directions to property;
- Number of bedrooms;
- Any other supporting information as required by local ordinance or Chesapeake Bay Preservation Act (CBPA) designation.

100 percent of applications are reviewed before being accepted by LHD and all applications are reviewed by the end of the day upon which they are received. See Appendix 3 for OSS Checklist.

Population Measure: Fewer than 20 percent of initial site evaluation visits result in denial due to inaccurate application or preparation of the property. The measure is obtained in a full data set of all denials relative to all applications, subtracting those

denied only for needing private sector plans for alternative or otherwise engineered systems and certification letter applications denied for survey-location requirements.

Step 3: Fees collected by OSS.

Responsible party: Designated OSS.
Purpose: Appropriate fees are collected and properly documented.
Resources needed: Knowledge and understanding of fee regulations and policies, access to VENIS billing and receipts.
Customer: Applicant, VDH.
Requirements: Appropriate fees are collected and properly documented.
Standard: Customer is charged appropriate fee for application and provided proper documentation for use in refund (when applicable). Charges are accurately documented and assigned proper billing code. Where appropriate, documentation for waiver of fee is complete and accurate.
Sample Measure: All charges/waivers meet regulations and are properly documented. All subset files reviewed receive a score of 3 or higher when evaluated in accordance with the QA rubric.

Step 4: Application is entered into VENIS database.

Responsible party: OSS.
Purpose: Create a searchable electronic record of application.
Customer: VDH OSE, EH Manager, OEHS.
Resources needed: Access to computer and VENIS software, knowledge and understanding of data entry into the system.
Requirements: Complete and accurate documentation of current proposal.
Standard: Applications are entered in an accurate and timely manner.
Population Measure: 100 percent of applications are entered into VENIS within two business days.
Sample Measure: Fewer than five percent of records contain data entry errors. 95 percent of subset files reviewed receive a score of 3 or higher when evaluated in accordance with the QA rubric.

Step 5: Research files, pull existing documentation.

Responsible Party: VDH OSE, OSS (the VDH OSE is ultimately responsible for making sure they have a complete file, even when this task is delegated to the 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: VDH OSE.
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 OSS attaches files for all properties within 200 feet of the subject property. File includes all previous work done on the lot before assignment.

Sample Measure: 95 percent of files contain available documentation for properties within 200 feet of the property line. 95 percent of subset files reviewed receive a score of 3 or higher when evaluated in accordance with the QA rubric.

Step 6: **Application assigned to VDH OSE.**

Responsible Party: EH 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: VDH OSE.
Requirements: An application should be complete when it is handed to a VDH OSE 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 a VDH OSE assumes the answers to questions on an application, this may cause complications should the resulting permit be denied and appealed or become an indemnity case.
Standard: Complete files are assigned to appropriate VDH OSE in timely manner.
Sample Measure: 100 percent of applications have been assigned to appropriate VDH OSE within two business days after application is accepted. EH Supervisor reviews VENIS routinely to determine timeliness and appropriateness. All subset files reviewed receive a score of 3 or higher when evaluated in accordance with the QA rubric.

Step 7: **Applicant is contacted to make an appointment for the site visit.**

Responsible Party: VDH OSE (in some areas OSS).
Purpose: Ensure efficient site evaluation by verifying that property is ready for evaluation, backhoe is available if required, and that applicant or agent will be available to answer questions or witness evaluation if desired.
Resources Needed: Understanding of the expectation of a site being ready for evaluation, a complete application with applicant/agent contact information, customer service and communication skills.
Customer: Applicant.
Requirements: The applicant should be reminded of the health department requirements for site preparation, in order to prevent denials. The applicant expects the VDH OSE to be reasonably flexible in setting appointment times.
Standard: All appointments are made such that a case decision (e.g. issue a permit or denial) can be made within 15 working days of the permit or letter application date. LHD staff are expected to conduct a site visit within 24 hours of receipt of an application to repair an onsite sewage system.
Sample Measure: VDH OSE initiates contact with applicant 98 percent of the time within two business days after file is assigned. 98 percent of subset files reviewed receive a score of 3 or higher when evaluated in accordance with the QA rubric.

Step 8: VDH OSE makes site visit, determines if site evaluation can be completed.

Responsible Party: VDH OSE.

Purpose: Determine whether property is properly marked and located before attempting to complete site evaluation.
Resources Needed: Application and site plan/plat.
Customer: Applicant.
Requirements: VDH OSE should not attempt to complete a site evaluation in conditions that may lead to inaccurate evaluation and interpretation of site.
Standard: VDH OSE attempts to evaluate only those sites that are adequately prepared. Site visits are made in a timely manner.
Population 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 denial letter.

Responsible Party: VDH OSE.
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: Denial form letter.
Customer: Applicant.
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: Denial letter is mailed in a timely manner following initial site visit and includes all reasons for denial. (VDH OSE is encouraged to telephone the applicant, in addition to sending the letter.)
Sample 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. 98 percent of subset files reviewed receive a score of 3 or higher when evaluated in accordance with the QA rubric.

Step 10: VDH OSE completes sanitary survey (a portion of this step is done before leaving the office by searching LHD records for surrounding properties).

Responsible Party: VDH OSE.
Purpose: To determine onsite and offsite features that may affect suitability of property for an onsite sewage disposal system and/or well.
Resources needed: Complete file from OSS, access to LHD records, a full and complete filing system, proper marking of lot property lines, site evaluation tools, property lines and house site marked.
Customer: Applicant.
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 and wells.
Standard: 100 percent of applications have a sanitary survey conducted. All onsite and offsite features evaluated within 200 feet are correctly identified.
Sample Measure: 100 percent of applications identify all features within 200 feet of proposed well and/or sewage disposal system site and are correctly identified by the

VDH OSE. All subset files reviewed receive a score of 3 or higher when evaluated in accordance with the QA rubric.

Step 11: VDH OSE completes and documents site evaluation.

Responsible Party: VDH OSE.
Purpose: To select a site for a potential absorption area and accurately record information gathered during the site evaluation.
Resources Needed: Results of sanitary survey, soil evaluation tools (augur and/or backhoe), Munsell color book, plat of property, engineering scale, tape measure, locke-level or laser transit.
Customer: Applicant.
Requirements: A complete and legible record of findings from site work is included to support the decision to issue or deny a permit or letter. When a permit or letter is issued the system design and location 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 and corresponding documentation are complete and accurate as described by regulations and policies. All documentation is readily interpreted upon review.
Sample Measure: District staff completes, and documents, at least one Level II review per quarter per VDH OSE. Every review indicates substantial compliance with regulations and policies. All subset files reviewed receive a score of 3 or higher when evaluated in accordance with the QA rubric.

Step 12: Data entry into VENIS.

Responsible Party: VDH OSE.
Purpose: Create a searchable electronic record of site evaluation findings, and, where applicable, proposed system designs.
Resources needed: Access to a computer and the VENIS database, understanding of data entry into the system, complete and accurate documentation from site evaluation.
Customer: Future applicants, VDH, private OSEs.
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.
Sample Measure: All documentation is correctly entered into VENIS. All subset files reviewed receive a score of 3 or higher when evaluated in accordance with the QA rubric.

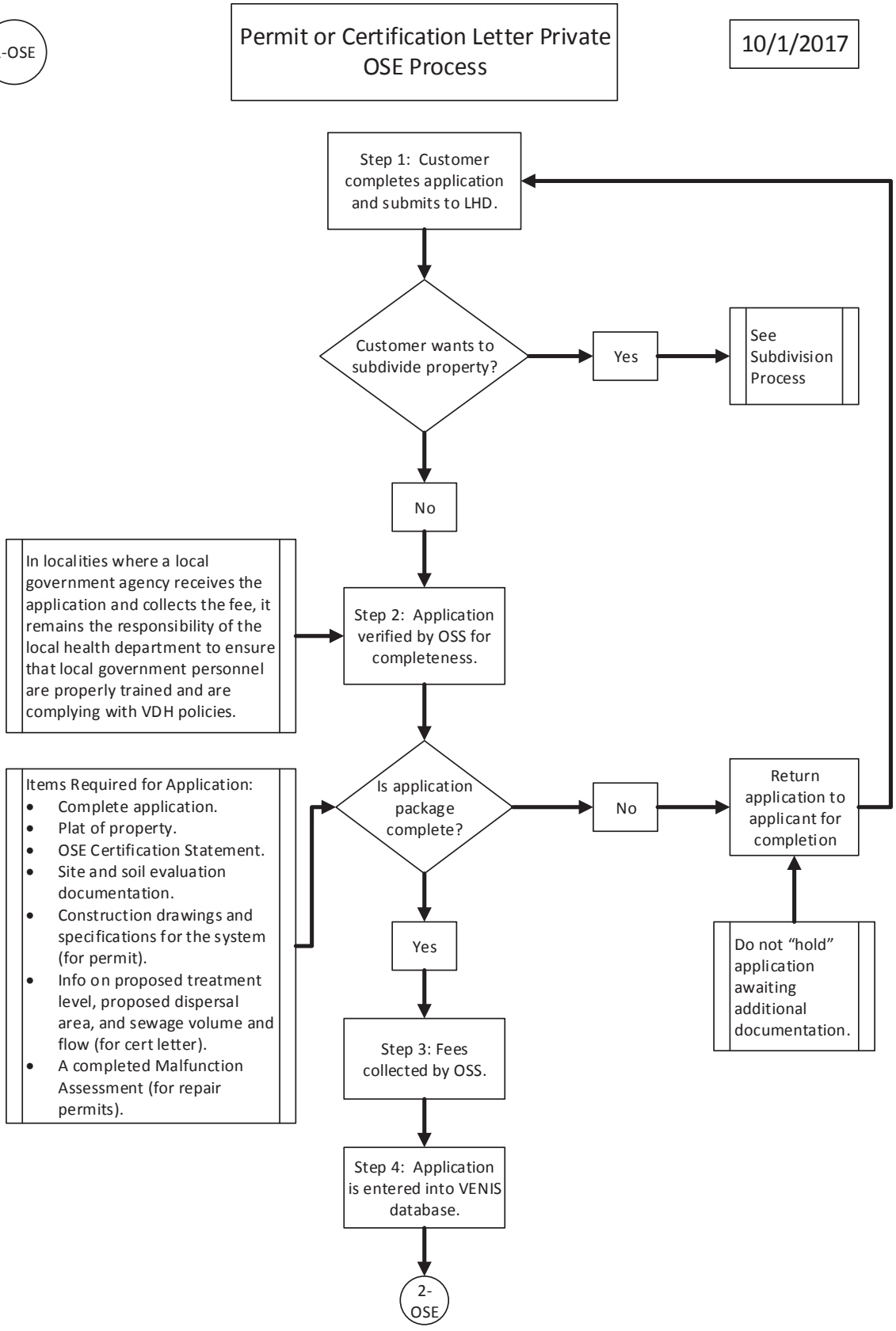
Step 13A: VDH OSE denies application.

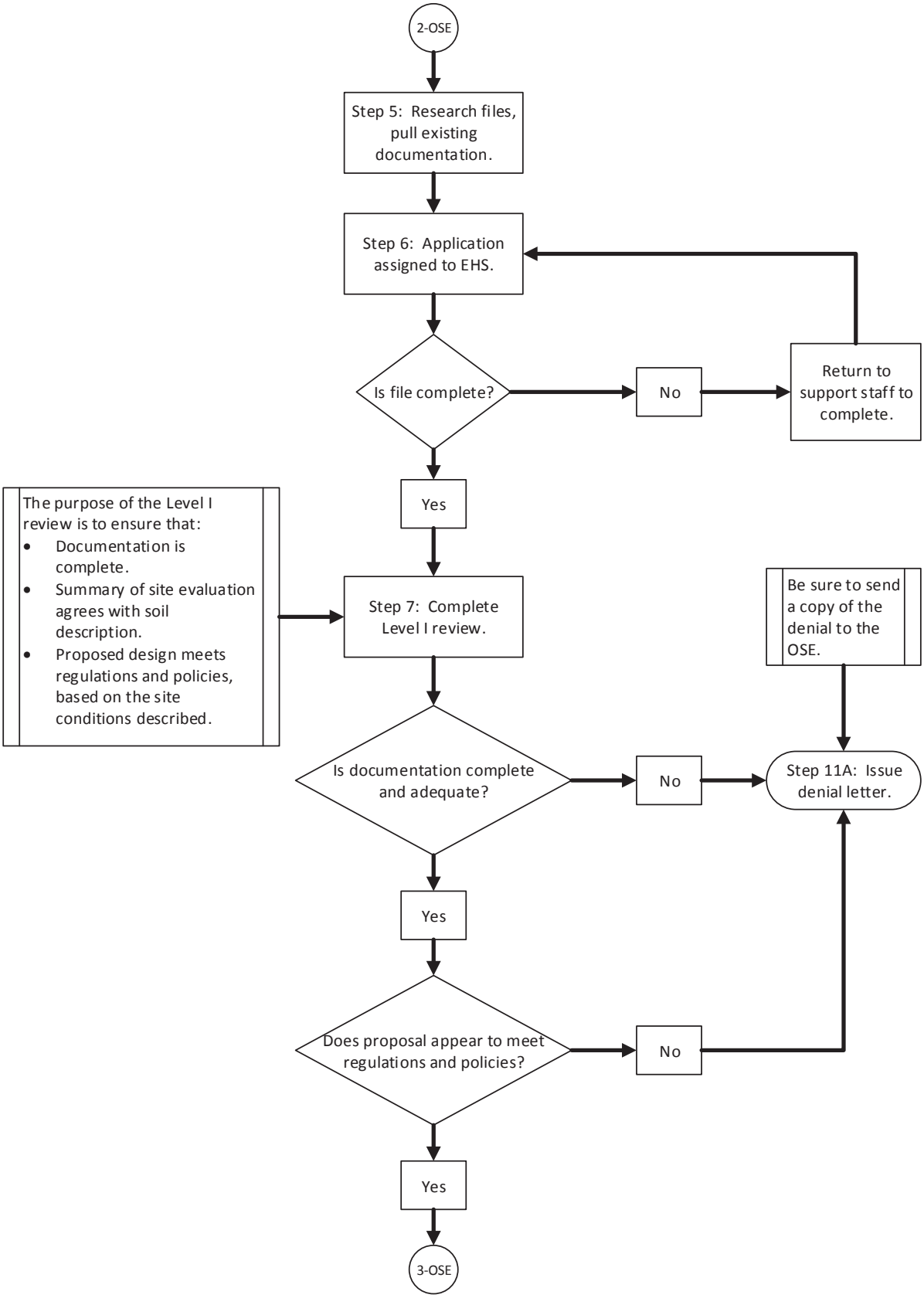
Responsible party: VDH OSE.
Purpose: To complete the bare application process by issuing a denial that notifies the applicant the LHD cannot issue a permit or letter and to inform the applicant of right to appeal.
Resources needed: Application, complete documentation of field work, computer.
Customer: Applicant.

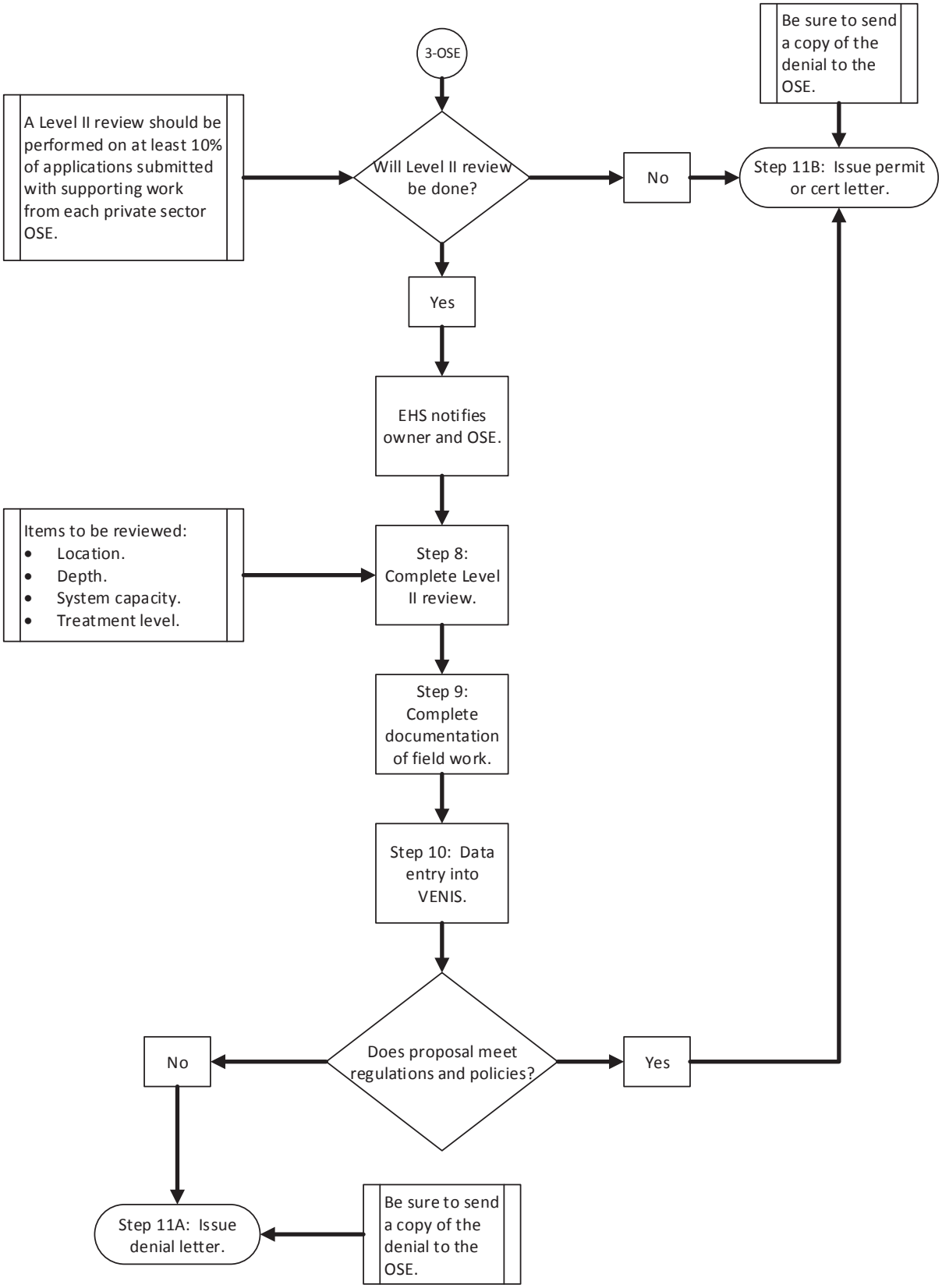
Requirements: Applicant needs an understanding of why the application is being denied and of any other options available, including appeals.
Standard: Findings of site and soil evaluation are correctly interpreted and support the conclusion that the application should be denied. Notification of applicant provides reasons for denial and options for further action on the part of the applicant. Notification is made in a timely manner.
Population Measure: All denial letters are sent within two days following completion of review and within 15 days of receipt of the application.
Sample Measure: All denials are supported by the findings of the site evaluation and the regulations. All subset files reviewed receive a score of 3 or higher when evaluated in accordance with the QA rubric.

Step 13B: VDH OSE issues permit or certification letter.

Responsible party: VDH OSE.
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 and VENIS database access, and knowledge of regulations and policies.
Customer: Applicant, installer.
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, and that permit design is appropriate. Permit provides sufficiently clear documentation of design that the system can be installed in accordance with the design, regulations, and policies. All certification letter areas are properly located on a survey plat. Case decision is made in a timely manner.
Population Measure: All permits and letters are sent within two days following completion of review and within 15 days of receipt of the application.
Sample Measure: All permits and letters are supported by the findings of the site evaluation findings, regulations, and policies. All subset files reviewed receive a score of 3 or higher when evaluated in accordance with the QA rubric.


1-OSE
Permit or Certification Letter Private OSE Process
10/1/2017
Step 1: Customer completes application and submits to LHD.
Customer wants to subdivide property?
Yes
See Subdivision Process
No
In localities where a local government agency receives the application and collects the fee, it remains the responsibility of the local health department to ensure that local government personnel are properly trained and are complying with VDH policies.
Step 2: Application verified by OSS for completeness.
Items Required for Application:
• Complete application.
• Plat of property.
• OSE Certification Statement.
• Site and soil evaluation documentation.
• Construction drawings and specifications for the system (for permit).
• Info on proposed treatment level, proposed dispersal area, and sewage volume and flow (for cert letter).
• A completed Malfunction Assessment (for repair permits).
Is application package complete?
No
Return application to applicant for completion
Do not "hold" application awaiting additional documentation.
Yes
Step 3: Fees collected by OSS.
Step 4: Application is entered into VENIS database.
2-OSE


2-OSE
Step 5: Research files, pull existing documentation.
Step 6: Application assigned to EHS.
Is file complete?
No
Return to support staff to complete.
Yes
The purpose of the Level I review is to ensure that:
• Documentation is complete.
• Summary of site evaluation agrees with soil description.
• Proposed design meets regulations and policies, based on the site conditions described.
Step 7: Complete Level I review.
Be sure to send a copy of the denial to the OSE.
Is documentation complete and adequate?
No
Step 11A: Issue denial letter.
Yes
Does proposal appear to meet regulations and policies?
No
Yes
3-OSE


3-OSE
A Level II review should be performed on at least 10% of applications submitted with supporting work from each private sector OSE.
Will Level II review be done?
No
Be sure to send a copy of the denial to the OSE.
Step 11B: Issue permit or cert letter.
Yes
EHS notifies owner and OSE.
Items to be reviewed:
Location.
Depth.
System capacity.
Treatment level.
Step 8: Complete Level II review.
Step 9: Complete documentation of field work.
Step 10: Data entry into VENIS.
Does proposal meet regulations and policies?
No
Yes
Step 11A: Issue denial letter.
Be sure to send a copy of the denial to the OSE.

Permit or Certification Letter Private OSE Process

Step 1: Customer completes application and submits to LHD.

Responsible Party: Applicant.
Purpose: Provide the LHD with sufficient information to process application and issue a 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; accompanying work from a private OSE.
Customer: EHS.
Requirements: Complete and accurate documentation of current and proposed site conditions (including proposed design), 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 requirements prior to submitting application to health department.
Sample Measure: All applications are complete and accurate. All subset files reviewed receive a score of 3 or higher when evaluated in accordance with the QA rubric.

Step 2: Application verified by OSS for completeness.

Responsible party: OSS.
Purpose: Determine if step 1 meets standards.
Resources needed: Completed application, understanding of customer requirements for step 1.
Customer: Applicant, EHS.
Requirements: Timely review of documentation before application is accepted by LHD.
Standard: OSS are not in a position to determine accuracy of documentation or proper marking of site. However, OSS 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;
- OSE certification statement;
- Site and soil evaluation;
- Construction drawings and specifications for the system (for permits);
- Information on proposed treatment level, proposed dispersal area, and sewage volume and flow (for certification letter); and
- Malfunction assessment (for repair permits).

100 percent of applications are reviewed before being accepted by LHD and all applications are reviewed by the end of the day upon which they are received
Population Measure: Fewer than 20 percent of accepted applications are denied due to lack of proper documentation.

Step 3: Fees collected by OSS.

Responsible party: Designated OSS.
Purpose: Appropriate fees are collected and properly documented.
Resources needed: Knowledge and understanding of fee regulations and policies, receipts.
Customer: Applicant, VDH.
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.
Sample Measure: 100 percent of charges/waivers meet regulations and are properly documented. All subset files reviewed receive a score of 3 or higher when evaluated in accordance with the QA rubric.

Step 4: Application is entered into VENIS database.

Responsible party: OSS.
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.
Requirements: Complete and accurate documentation of current proposal.
Standard: Applications are entered in an accurate and timely manner.
Population Measure: 100 percent of applications are entered into VENIS within two business days.
Sample Measure: Fewer than five percent of individual records reviewed contain data entry errors. 95 percent of subset files reviewed receive a score of 3 or higher when evaluated in accordance with the QA rubric.

Step 5: Research files, pull existing documentation.

Responsible Party: EHS, OSS (the EHS is ultimately responsible for making sure they have a complete file, even when this task is delegated to the 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.
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 OSS attaches files for all properties within 200 feet of the subject property. File includes all previous work done on the lot before assignment.
Sample Measure: 95 percent of files contain available documentation for properties within 200 feet of the property line. 95 percent of subset files reviewed receive a score of 3 or higher when evaluated in accordance with the QA rubric.

Step 6: **Application assigned to EHS.**

Responsible Party: EH 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.
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 complications should the resulting permit be denied and appealed or become an indemnity case.
Standard: Complete files are assigned to appropriate EHS in timely manner.
Sample 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. All subset files reviewed receive a score of 3 or higher when evaluated in accordance with the QA rubric.

Step 7: **Complete Level I review.**

Responsible Party: EHS.
Purpose: Ensure that submitted documentation is complete and that the proposal meets the regulations for the site conditions described by the OSE.
Resources Needed: Knowledge and understanding of regulations and policies associated with review of OSE submittals.
Customer: Applicant, OSE.
Requirements: Reasonable, timely and consistent review of proposal.
Standard: This quality assurance review of the OSE 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.
Sample Measure: All reviews are complete, accurate, well-documented, and reach the correct conclusion. All subset files reviewed receive a score of 3 or higher when evaluated in accordance with the QA rubric.
Sample Measure: 95 percent of Level I reviews are completed within five days of accepting application. 95 percent of subset files reviewed receive a score of 3 or higher when evaluated in accordance with the QA rubric.
Sample Measure: All OSE designs receive a Level 1 review. All subset files reviewed receive a score of 3 or higher when evaluated in accordance with the QA rubric.

Step 8: Complete Level II review (when applicable).

Responsible Party: EHS.
Purpose: Ensure that public health and the environment are protected and to assess the performance of OSE and designer.
Resources Needed: OSE package, information on adjoining properties.
Customer: Applicant, OSE.

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 Level II soil boring/pit.
Sample Measure: All reviews are complete, accurate, well-documented, and reach the correct conclusion. All subset files reviewed receive a score of 3 or higher when evaluated in accordance with the QA rubric.
Sample Measure: 90 percent of Level II reviews are completed within ten days of receipt of application. 90 percent of subset files reviewed receive a score of 3 or higher when evaluated in accordance with the QA rubric.

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, OSE, VDH.
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.
Sample Measure: 98 percent of documents are complete, accurate and legible upon review. 98 percent of subset files reviewed receive a score of 3 or higher when evaluated in accordance with the QA rubric.

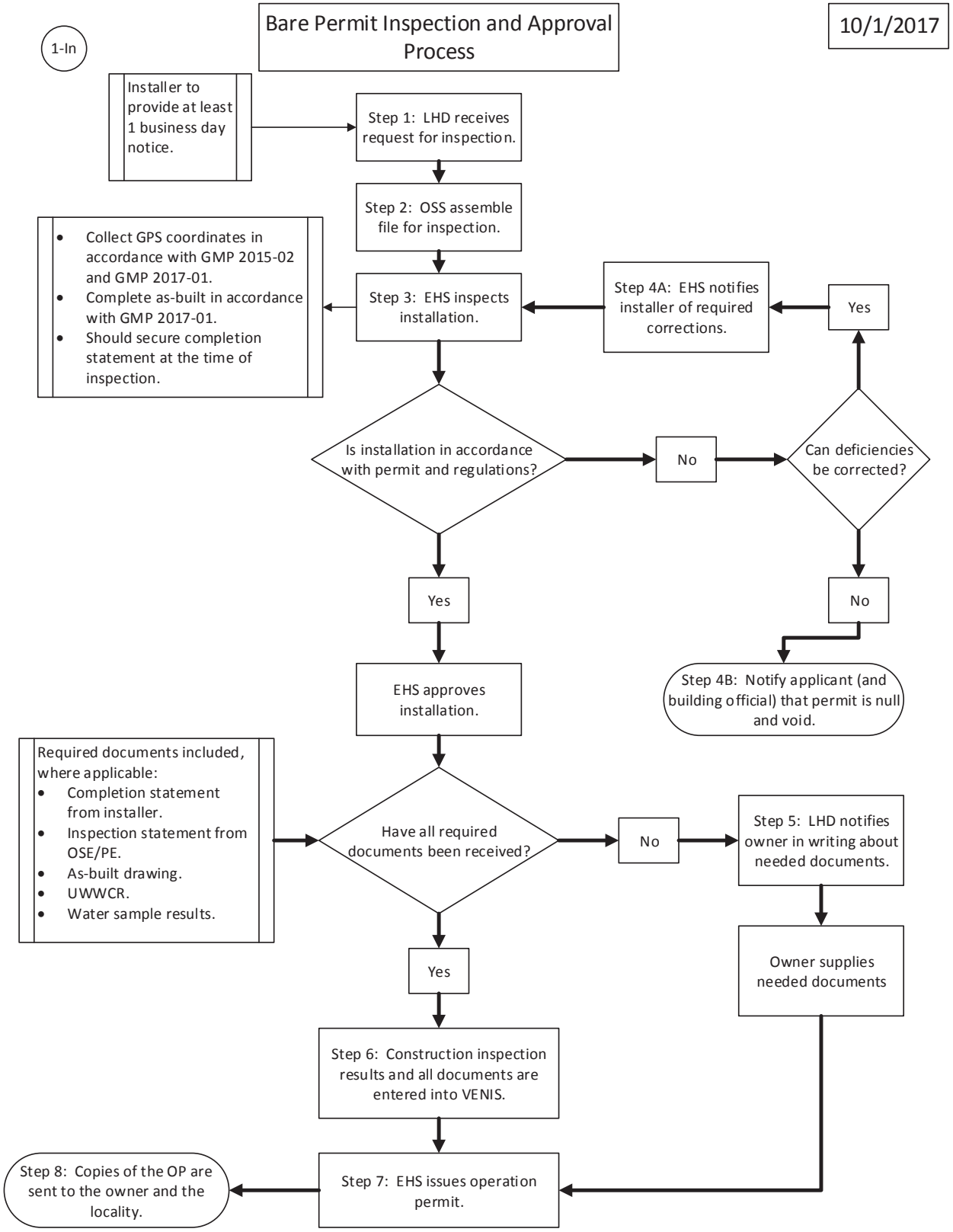
Step 10: Data entry into VENIS.
Responsible Party: EHS.
Purpose: Create a searchable electronic record of site evaluation findings, and, where applicable, proposed system designs.
Resources needed: Access to a computer and the VENIS database, understanding of data entry into the system, complete and accurate documentation from site evaluation.
Customer: Future applicants, VDH, OSEs.
Requirements: Readily accessed, complete and accurate information regarding the application, site evaluation, and outcome.
Standard: All relevant information is correctly entered into VENIS prior to issuance of a denial or permit letter.
Sample Measure: All documentation is correctly entered into VENIS. All subset files reviewed receive a score of 3 or higher when evaluated in accordance with the QA rubric.

Step 11A: Issue denial letter.
Responsible party: EHS.
Purpose: Notify the applicant (and OSE) 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, OSE.

Requirements: Applicant and OSE 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.
Population Measure: All denial letters are sent within the processing timeframes specified by §32.1-163.5 of the Code of Virginia.
Sample 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. All subset files reviewed receive a score of 3 or higher when evaluated in accordance with the QA rubric.

Step 11B: 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, OSE, contractor.
Requirements: Permit that meets the regulatory requirements and has sufficient information to be properly installed.
Standard: Level I and/or Level II review indicates that the OSE has correctly documented and interpreted the site and soil conditions, has proposed a design that meets VDH requirements, and has provided sufficiently clear documentation of design that the system can be installed in accordance with regulations and policies. Permit is issued in a timely manner.
Population Measure: All approval letters are sent within the processing timeframes specified by §32.1-163.5 of the Code of Virginia.
Sample Measure: All permits and letters are issued within two days of completion of review. All subset files reviewed receive a score of 3 or higher when evaluated in accordance with the QA rubric.


1-In
Bare Permit Inspection and Approval Process
10/1/2017
Installer to provide at least 1 business day notice.
Step 1: LHD receives request for inspection.
Step 2: OSS assemble file for inspection.
Collect GPS coordinates in accordance with GMP 2015-02 and GMP 2017-01.
Complete as-built in accordance with GMP 2017-01.
Should secure completion statement at the time of inspection.
Step 3: EHS inspects installation.
Step 4A: EHS notifies installer of required corrections.
Yes
Is installation in accordance with permit and regulations?
No
Can deficiencies be corrected?
Yes
No
EHS approves installation.
Step 4B: Notify applicant (and building official) that permit is null and void.
Required documents included, where applicable:
Completion statement from installer.
Inspection statement from OSE/PE.
As-built drawing.
UWWCR.
Water sample results.
Have all required documents been received?
No
Step 5: LHD notifies owner in writing about needed documents.
Owner supplies needed documents
Yes
Step 6: Construction inspection results and all documents are entered into VENIS.
Step 7: EHS issues operation permit.
Step 8: Copies of the OP are sent to the owner and the locality.

Bare Permit Inspection and Approval Process

Step 1: LHD 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, and LHD contact number.
Customer: EHS.
Requirements: Advanced notice of the date, time and location of the requested inspection.
Standard: LHD has in place a standard contact number along with an advanced notice requirement disseminated to all area installers so a high level of customer service can be provided.
Sample Measure: The LHD receives 24 hour notice on required inspections. All subset files reviewed receive a score of 3 or higher when evaluated in accordance with the QA rubric.

Step 2: OSS assembles file for inspection.

Responsible Party: OSS.
Purpose: To ensure the file is complete with a copy of the application, site evaluation, permit, and other supporting documentation, if applicable.
Resources Needed: A satisfactory tracking and filing system.
Customer: EHS.
Requirements: A complete file.
Standard: The LHD maintains a satisfactory tracking and filing system.
Sample Measure: EHS is provided a complete file including a copy of the application, site evaluation, permit, and other supporting documentation within one hour from time of request. All subset files reviewed receive a score of 3 or higher when evaluated in accordance with the QA rubric.

Step 3: EHS inspects installation and approves where appropriate.

Responsible Party: EHS.
Purpose: To ensure and confirm that the sewage system installation complies with the requirements of the regulations and with the construction permit.
Resources Needed: Complete file, measuring tapes, Locke level or tripod level and site rod, tile probe, timer (e.g. watch with second hand), complete and satisfactory inspection results, knowledge of agency regulations and policies.
Customer: Owner.
Requirements: A correctly installed sewage system that complies with the requirements of the construction permit, agency regulations and policies.
Standard: System components are to be inspected, deficiencies corrected if possible. Sewage systems are approved only when in substantial compliance with the permit, agency regulations, and agency policies.
Sample 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. All subset files reviewed receive a score of 3 or higher when evaluated in accordance with the QA rubric.

Step 4A: 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 agency regulations and policies, along with good communication skills.
Customer: Installer.
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.
Sample Measure: The installer is informed of all sewage system deficiencies. All deficiencies are documented and all corrections are made to ensure installations are in substantial compliance prior to approval. All subset files reviewed receive a score of 3 or higher when evaluated in accordance with the QA rubric.

Step 4B: Notify applicant (and building official) that permit is null and void (when applicable).

Responsible Party: EHS.
Purpose: To notify all stakeholders that the deficiencies in the installation of the sewage system cannot be corrected and the system will not be approved and that a valid permit no longer exists.
Resources Needed: Knowledge of agency regulations and policies, good communication skills.
Customer: Applicant, building official.
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.
Sample Measure: When applicable, 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. All subset files reviewed receive a score of 3 or higher when evaluated in accordance with the QA rubric.

Step 5: LHD notifies owner in writing about needed documents.

Responsible Party: EHS.
Purpose: To inform the owner in a timely fashion what the LHD requires to be submitted prior to the issuance of the operation permit.
Resources Needed: The file, good communication skills, knowledge of agency regulations and policies.
Customer: Owner.
Requirements: Complete and timely information.
Standard: Owner is notified verbally and in writing of all needed documents in a

timely manner.

Sample Measure: Owner is notified of all documents needed by the LHD in writing within two days of final inspection (along with copy of inspection results). All subset files reviewed receive a score of 3 or higher when evaluated in accordance with the QA rubric.

Step 6: Construction inspection results and all documents are entered into VENIS.

Responsible Party: EHS.
Purpose: To insure proper tracking of construction activities and permit status.
Resources Needed: The file, complete and satisfactory inspection results, a completion statement from the contractor, any other documents required for that particular system design, and knowledge of agency regulations and policies.
Requirements: Complete and accurate entry of all applicable data.
Standard: Construction inspection information and information regarding documents received are entered into VENIS within 24 hours.
Sample Measure: All construction information and information regarding documents are entered by LHD staff into VENIS within 24 hours of the inspection. All subset files reviewed receive a score of 3 or higher when evaluated in accordance with the QA rubric.

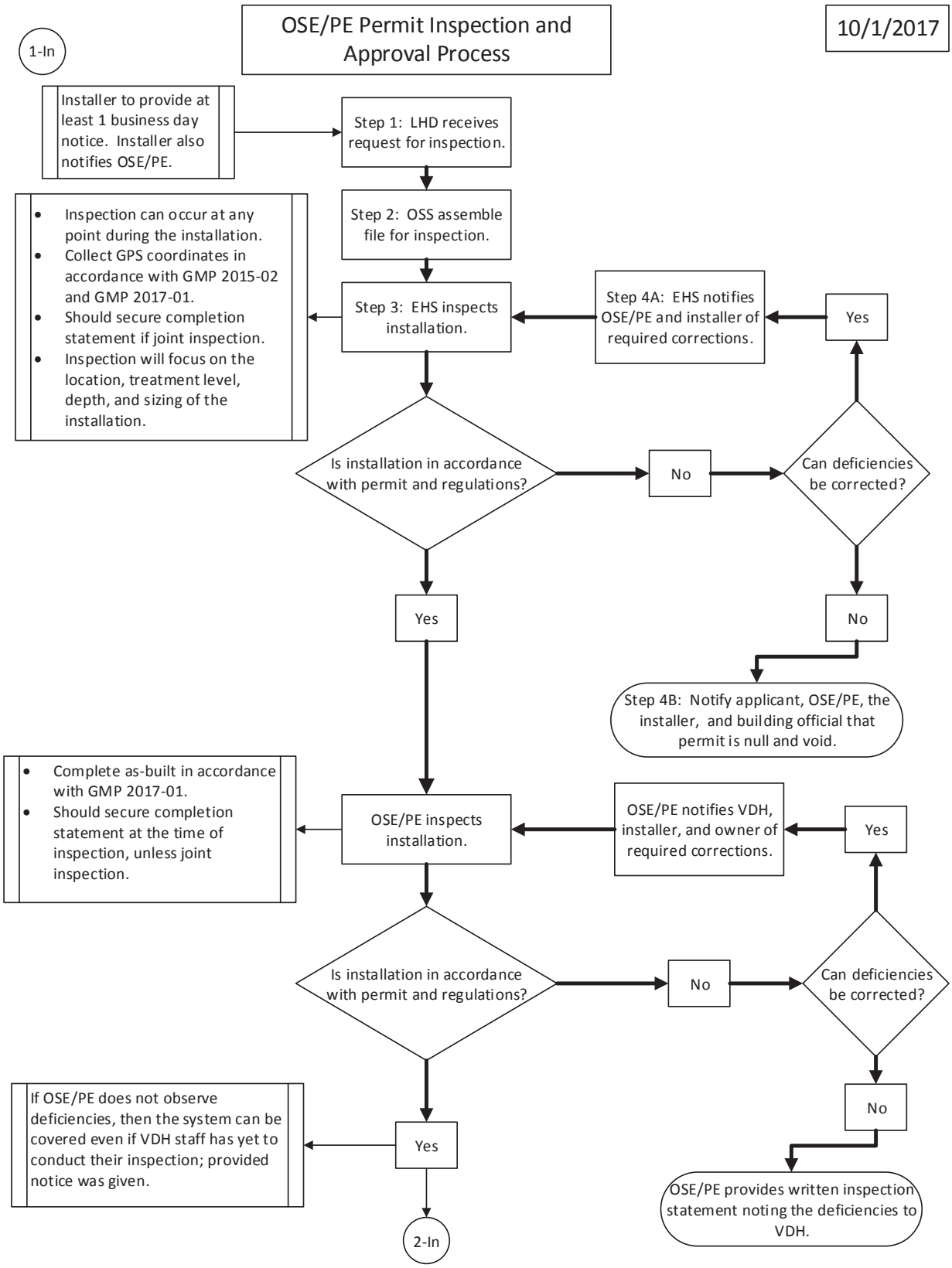
Step 7: EHS issues operation permit.

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, knowledge of agency regulations and policies.
Customer: Owner.
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 any other applicable documents.
Sample Measure: All operation permits are issued following agency regulations and policies. All operation permits are issued only after the appropriate documents have been received and are complete and correct. All subset files reviewed receive a score of 3 or higher when evaluated in accordance with the QA rubric.

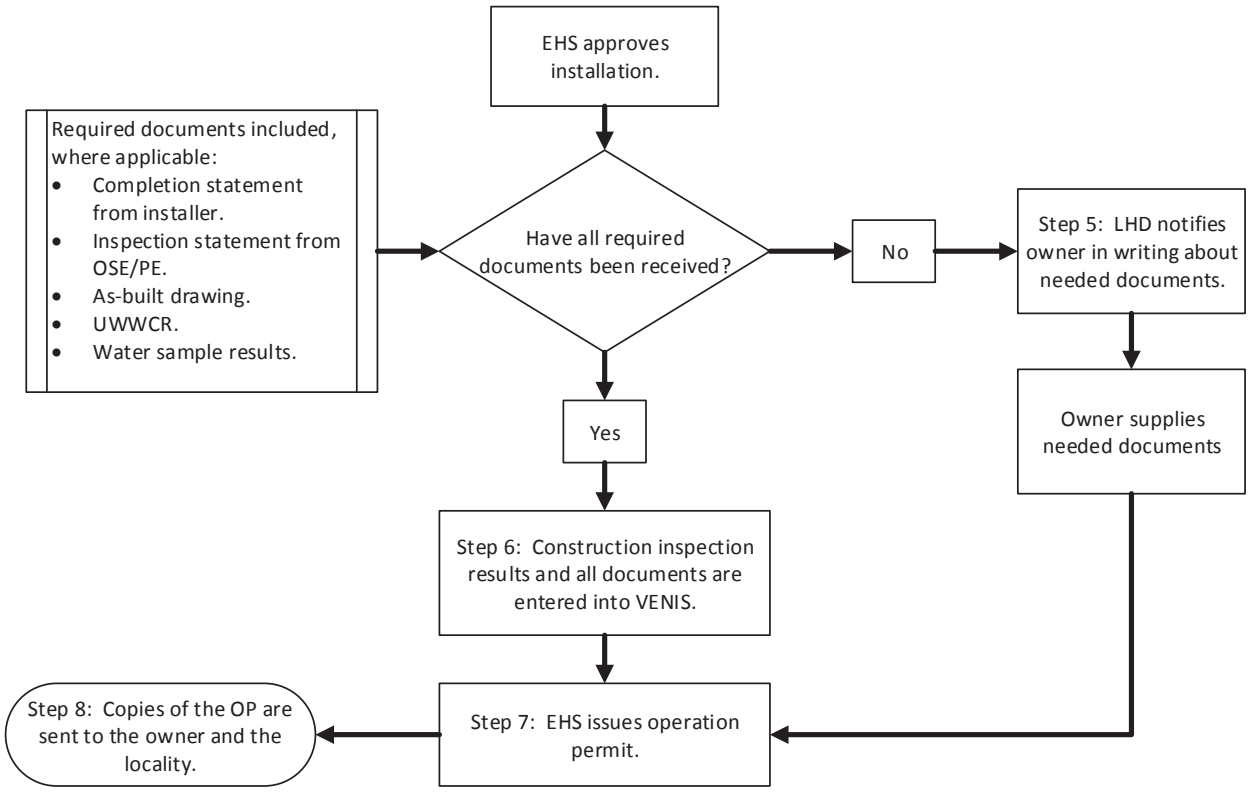
Step 8: Copies of the operation permit are sent to the owner and the locality.

Responsible Party: OSS.
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, building official.
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.

Sample Measure: Copies of operation permits are sent to the owner and building official within five days of issuance. A copy of any conditions is attached to the operation permit. All subset files reviewed receive a score of 3 or higher when evaluated in accordance with the QA rubric.


OSE/PE Permit Inspection and Approval Process
10/1/2017
1-In
Installer to provide at least 1 business day notice. Installer also notifies OSE/PE.
Step 1: LHD receives request for inspection.
Step 2: OSS assemble file for inspection.
Inspection can occur at any point during the installation.
Collect GPS coordinates in accordance with GMP 2015-02 and GMP 2017-01.
Should secure completion statement if joint inspection.
Inspection will focus on the location, treatment level, depth, and sizing of the installation.
Step 3: EHS inspects installation.
Step 4A: EHS notifies OSE/PE and installer of required corrections.
Yes
Is installation in accordance with permit and regulations?
No
Can deficiencies be corrected?
Yes
No
Step 4B: Notify applicant, OSE/PE, the installer, and building official that permit is null and void.
Complete as-built in accordance with GMP 2017-01.
Should secure completion statement at the time of inspection, unless joint inspection.
OSE/PE inspects installation.
OSE/PE notifies VDH, installer, and owner of required corrections.
Yes
Is installation in accordance with permit and regulations?
No
Can deficiencies be corrected?
No
If OSE/PE does not observe deficiencies, then the system can be covered even if VDH staff has yet to conduct their inspection; provided notice was given.
Yes
OSE/PE provides written inspection statement noting the deficiencies to VDH.
2-In

2-In


EHS approves installation.
Required documents included, where applicable:
Completion statement from installer.
Inspection statement from OSE/PE.
As-built drawing.
UWWCR.
Water sample results.
Have all required documents been received?
No
Step 5: LHD notifies owner in writing about needed documents.
Owner supplies needed documents
Yes
Step 6: Construction inspection results and all documents are entered into VENIS.
Step 7: EHS issues operation permit.
Step 8: Copies of the OP are sent to the owner and the locality.

OSE/PE Permit Inspection and Approval Process

Step 1: LHD 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, and LHD contact number.
Customer: EHS.
Requirements: Advanced notice of the date, time and location of the requested inspection.
Standard: LHD has in place a standard contact number along with an advanced notice requirement disseminated to all area installers so a high level of customer service can be provided.
Sample Measure: The LHD receives 24 hour notice on required inspections. All subset files reviewed receive a score of 3 or higher when evaluated in accordance with the QA rubric.

Step 2: OSS assembles file for inspection.

Responsible Party: OSS.
Purpose: To ensure the file is complete with a copy of the application, site evaluation, permit, and other supporting documentation, if applicable.
Resources Needed: A satisfactory tracking and filing system.
Customer: EHS.
Requirements: A complete file.
Standard: The LHD maintains a satisfactory tracking and filing system.
Sample Measure: EHS is provided a complete file including a copy of the application, site evaluation, permit, and other supporting documentation within one hour from time of request. All subset files reviewed receive a score of 3 or higher when evaluated in accordance with the QA rubric.

Step 3: EHS inspects installation.

Responsible Party: EHS.
Purpose: To provide added value and oversight to the inspection process while avoiding duplication of effort regarding the private sector inspection. The EHS inspection will ensure and confirm that the location, treatment level, depth, and sizing of the installation complies with the requirements of the regulations and with the construction permit.
Resources Needed: Complete file, measuring tapes, tile probe, timer, complete and satisfactory inspection results, knowledge of agency regulations and policies.
Customer: Owner, installer, and private sector designer.
Requirements: A sewage system that is installed in the correct area, using the correct level of treatment, at the permitted installation depth, with the permitted system sizing.
Standard: System location, treatment level, depth, and sizing are to be inspected, deficiencies corrected if possible. The inspection can occur at any point during the installation.

Sample Measure: All observations and measurements are recorded to document that system is installed in the correct area, using the correct level of treatment, at the permitted installation depth, with the permitted system sizing. Any deviations from permit are documented. All subset files reviewed receive a score of 3 or higher when evaluated in accordance with the QA rubric.

Step 4A: EHS notifies private sector designer and installer of required corrections.

Responsible Party: EHS.
Purpose: By notifying the private sector designer and installer of all deficiencies of the sewage system, the installer can make corrections prior to the sewage system and the private sector designer is made aware of necessary correction prior to submitting a written inspection statement approving the installation.
Resources Needed: Knowledge of agency regulations and policies, along with good communication skills.
Customer: Private sector designer and installer.
Requirements: Am assessment of sewage system deficiencies regarding the location, treatment level, depth, and sizing of the installation.
Standard: All sewage system deficiencies are explained to the private sector designer and installer. All corrections are made resulting in substantial compliance.
Sample Measure: The private sector designer and installer are informed of all sewage system deficiencies. All deficiencies are documented and all corrections are made to ensure installations are in substantial compliance prior to approval. All subset files reviewed receive a score of 3 or higher when evaluated in accordance with the QA rubric.

Step 4B: Notify applicant (and building official) that permit is null and void (when applicable).

Responsible Party: EHS.
Purpose: To notify all stakeholders that the deficiencies in the installation of the sewage system cannot be corrected and the system will not be approved and that a valid permit no longer exists.
Resources Needed: Knowledge of agency regulations and policies, good communication skills.
Customer: Applicant, building official, private sector designer, installer.
Requirements: A timely and thorough explanation of facts and findings regarding the installation, the appropriate regulation and policy.
Standard: Applicant, building official, private sector designer, and installer are notified verbally and in writing regarding the permit being null and void in a timely fashion.
Sample Measure: When applicable, 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. All subset files reviewed receive a score of 3 or higher when evaluated in accordance with the QA rubric.

Step 5: LHD notifies owner in writing about needed documents.

Responsible Party: EHS.
Purpose: To inform the owner in a timely fashion what the LHD requires to be

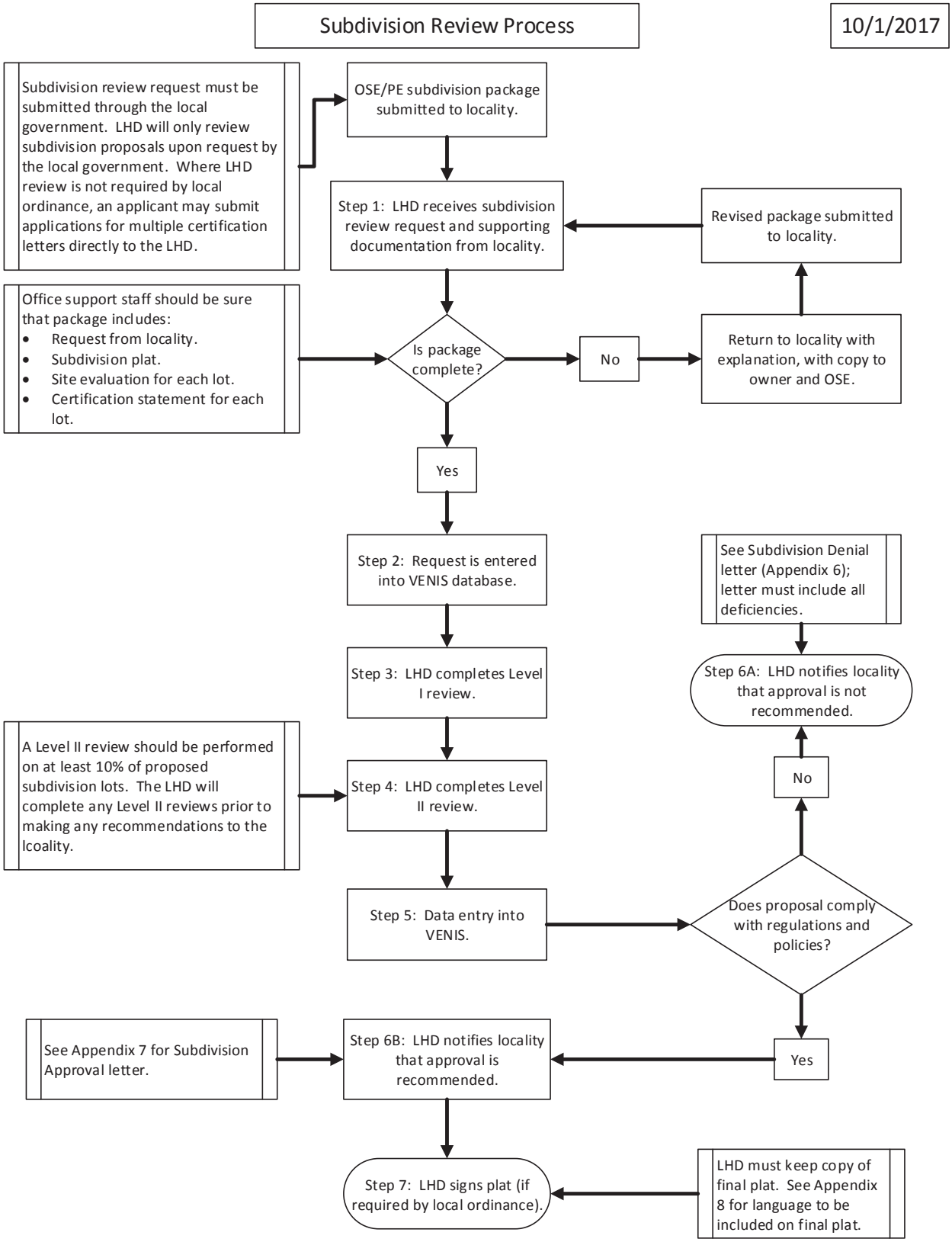
submitted prior to the issuance of the operation permit.
Resources Needed: The file, good communication skills, knowledge of agency regulations and policies.
Customer: Owner.
Requirements: Complete and timely information.
Standard: Owner is notified verbally and in writing of all needed documents in a timely manner.
Sample Measure: Owner is notified of all documents needed by the LHD in writing within two days of final inspection (along with copy of inspection results). All subset files reviewed receive a score of 3 or higher when evaluated in accordance with the QA rubric.

Step 6: Construction inspection results and all documents are entered into VENIS.
Responsible Party: EHS.
Purpose: To insure proper tracking of construction activities and permit status.
Resources Needed: The file, complete and satisfactory inspection results from the EHS, a completion statement from the contractor, an inspection statement from the private sector designer, any other documents required for that particular system design, and knowledge of agency regulations and policies.
Requirements: Complete and accurate entry of all applicable data.
Standard: Construction inspection information and information regarding documents received are entered into VENIS within 24 hours.
Sample Measure: All construction information and information regarding documents are entered by LHD staff into VENIS within 24 hours of the inspection. All subset files reviewed receive a score of 3 or higher when evaluated in accordance with the QA rubric.

Step 7: 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, an inspection statement from the private sector designer, knowledge of agency regulations and policies.
Customer: Owner.
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 from the private sector designer, a completion statement from the contractor, and any other applicable documents.
Sample Measure: All operation permits are issued following agency regulations and policies. All operation permits are issued only after the appropriate documents have been received and are complete and correct. All subset files reviewed receive a score of 3 or higher when evaluated in accordance with the QA rubric.

Step 8: Copies of the operation permit are sent to the owner and the locality.
Responsible Party: OSS.

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, building official.
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.
Sample Measure: Copies of operation permits are sent to the owner and building official within five days of issuance. A copy of any conditions is attached to the operation permit. All subset files reviewed receive a score of 3 or higher when evaluated in accordance with the QA rubric.


Subdivision Review Process
10/1/2017
Subdivision review request 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.
OSE/PE subdivision package submitted to locality.
Step 1: LHD receives subdivision review request and supporting documentation from locality.
Revised package submitted to locality.
Office support staff should be sure that package includes:
Request from locality.
Subdivision plat.
Site evaluation for each lot.
Certification statement for each lot.
Is package complete?
No
Return to locality with explanation, with copy to owner and OSE.
Yes
Step 2: Request is entered into VENIS database.
See Subdivision Denial letter (Appendix 6); letter must include all deficiencies.
Step 3: LHD completes Level I review.
Step 6A: LHD notifies locality that approval is not recommended.
A Level II review should be performed on at least 10% of proposed subdivision lots. The LHD will complete any Level II reviews prior to making any recommendations to the lcoality.
Step 4: LHD completes Level II review.
No
Step 5: Data entry into VENIS.
Does proposal comply with regulations and policies?
See Appendix 7 for Subdivision Approval letter.
Step 6B: LHD notifies locality that approval is recommended.
Yes
Step 7: LHD signs plat (if required by local ordinance).
LHD must keep copy of final plat. See Appendix 8 for language to be included on final plat.

Subdivision Review Process

All subdivision review requests must be submitted by the applicant through the local government. The LHD 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: OSS.
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.
Requirements: Adequate documentation to complete review.
Standard: All subdivision review requests are reviewed for completeness in a timely manner.
Sample Measure: All subdivision packages are complete and accurate. All subset files reviewed receive a score of 3 or higher when evaluated in accordance with the QA rubric.

Step 2: Request is entered into VENIS database.

Responsible party: OSS.
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.
Requirements: Complete and accurate documentation of current proposal.
Standard: Requests are entered in an accurate and timely manner.
Population Measure: 100 percent of requests are entered into VENIS within two business days.
Sample Measure: Fewer than five percent of individual records reviewed contain data entry errors. 95 percent of subset files reviewed receive a score of 3 or higher when evaluated in accordance with the QA rubric.

Step 3: 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.

Sample Measure: All Level I reviews are initiated within ten working days of receipt of request from local government and completed within 30 days of receipt. All subset files reviewed receive a score of 3 or higher when evaluated in accordance with the QA rubric.

Step 4: LHD completes Level II review.

Responsible party: EHS.
Purpose: Provide QA review of OSE/PE fieldwork.
Resources needed: Complete OSE/PE package, information on neighboring properties, site evaluation tools.
Customer: Local government.
Standard: Subdivision proposals receive an accurate, thorough and timely review, with complete documentation.
Sample Measure: All Level II reviews are initiated within 20 working days of receipt of request and completed within 45 working days of receipt. All subset files reviewed receive a score of 3 or higher when evaluated in accordance with the QA rubric.

Step 5: Data entry into VENIS.

Responsible Party: EHS.
Purpose: Create a searchable electronic record of subdivision proposal review findings.
Resources needed: Access to a computer and the VENIS database, understanding of data entry into the system, complete and accurate documentation.
Customer: Future applicants, VDH, OSE/PEs, locality.
Requirements: Readily accessed, complete and accurate information regarding the request and outcome.
Standard: All relevant information is correctly entered into VENIS in a timely manner.
Sample Measure: All documentation is correctly entered into VENIS within two business days following completed review. All subset files reviewed receive a score of 3 or higher when evaluated in accordance with the QA rubric.

Step 6A: LHD notifies locality that approval is not recommended.

Responsibility: EHS.
Purpose: Notify the locality, applicant, and OSE/PE 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 provided, as proposed, for the subdivision.
Sample Measure: LHD notifies locality in writing, with copies to applicant and OSE, of recommendations within three days of completing review. All subset files reviewed receive a score of 3 or higher when evaluated in accordance with the QA rubric.

Step 6B: LHD notifies locality that approval is recommended.

Responsibility: EHS.

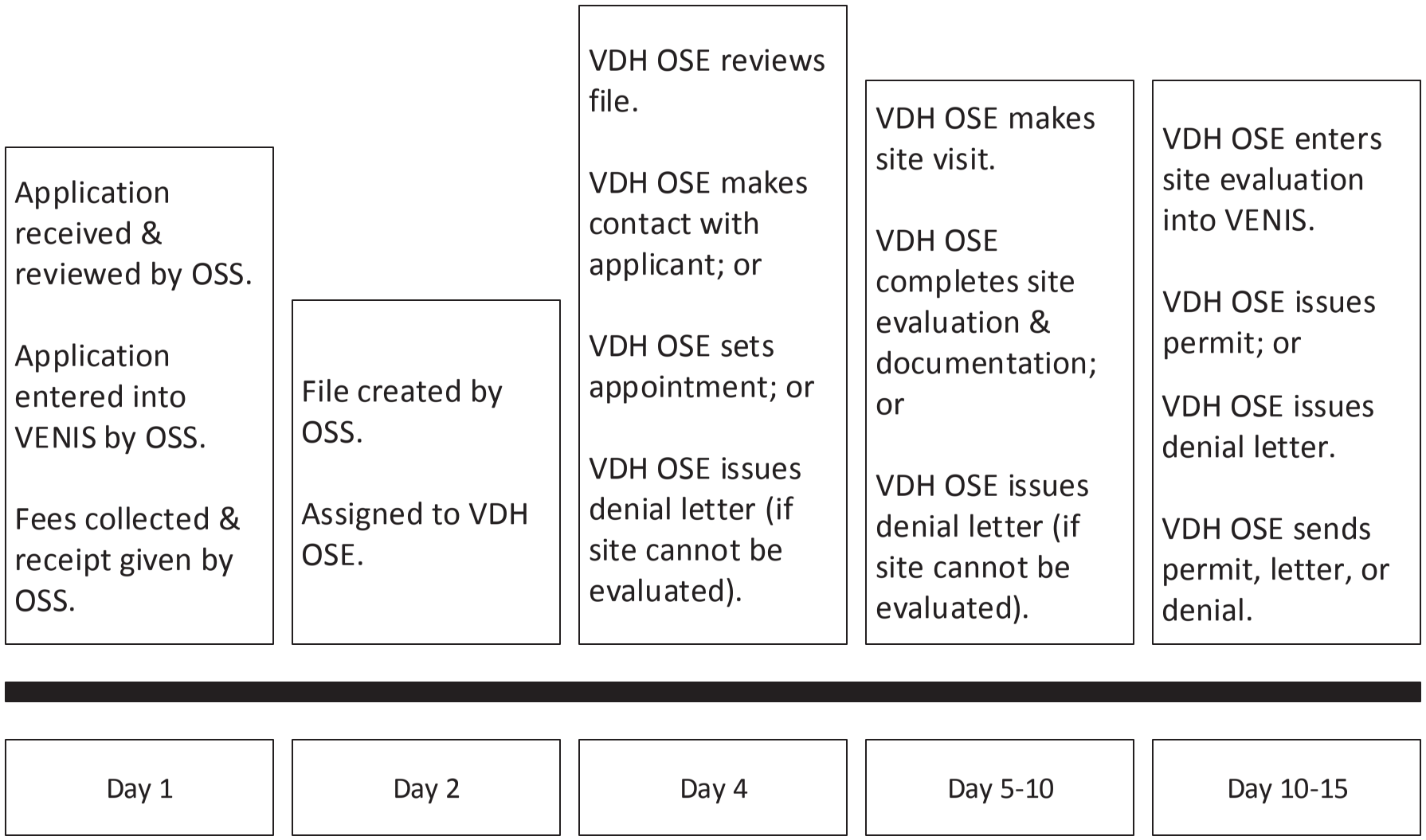
Purpose: Notify the locality, applicant and OSE/PE that LHD review indicates that proposal does comply with state and local requirements.
Resources needed: Complete and accurate documentation of level I and level II reviews. Thorough understanding of state and local regulations and policies.
Standard: 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.
Sample Measure: LHD notifies locality in writing, with copies to applicant and OSE, of recommendations within three days of completing review. All subset files reviewed receive a score of 3 or higher when evaluated in accordance with the QA rubric.

Step 7: 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.
Sample Measure: 100 percent of well and sewage disposal sites meet regulations and match the areas shown on the OSE/PEs site evaluations. All subset files reviewed receive a score of 3 or higher when evaluated in accordance with the QA rubric.
Sample Measure: All subdivision files contain copy of final plat and supporting documentation. All subset files reviewed receive a score of 3 or higher when evaluated in accordance with the QA rubric.

Appendices

Appendix 1:
Bare Application Processing Timeline



Appendix 2:
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), and accurate directions to the property. Property lines and house site must be clearly and accurately marked on the property.** We cannot accept an incomplete application.

The following MUST be attached to your application:

1. Surveyed plat of your property (or survey waiver request).
2. Tax Map Number or GPIN.
3. Zoning/Chesapeake Bay approval, if required by your locality.
4. Proper fee. 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 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 locations 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 of planned accessory items (sheds, pools, etc.)?
_____ Have you indicated 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 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 will 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 properly 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:

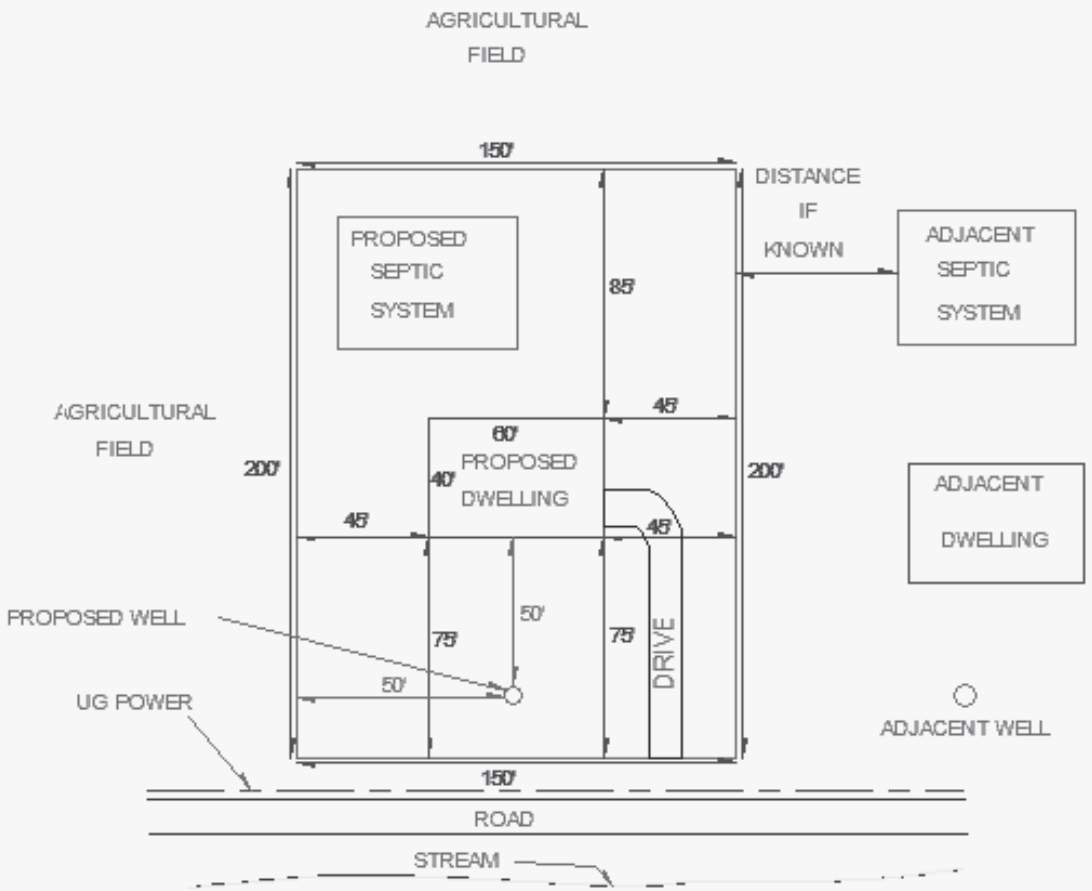
1. A roll of flagging tape (available at most hardware stores)
2. Eight or more wooden stakes, preferably at least three feet long.
3. A hammer to drive the stakes
4. A permanent ink marker to label the flags
5. A measuring tape at least 50 feet long (longer is better)
6. An assistant to help measure.

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



Appendix 3:
Checklist for Office Support Review of Applications

Note: This checklist is intended for use to determine whether an application is complete before the 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 Number (daytime/cell)

Site Address

GPIN Number/Tax Map Number

Subdivision Name

Directions to property are clear?

Site plan, plate or sketch attached?

Signature of Owner or Agent

Date of application correct?

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, Voluntary Upgrade).

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 APP)

Are the property lines marked?

Is house site marked?

OSE/PE PACKET

Certification Statement included?

Appendix 4

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.

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 closet 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-placed 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 effect 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 rational 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 are a number of distinctive characteristics observed that lead 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 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 soil or site feature such as chroma 3 and 4 redox features, presence of manganese oxides, soil density and compaction, or location 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 require a more detailed field analysis, 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 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

Soil Science of America. 1997. Glossary of Soil Science Terms. Soil Science Society of America, Madison, WI. 134p.

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.

Appendix Five

Checklist for Level I and Level II Reviews

Tax Map/GPIN #:_____ HDID#:_____

Date:_____ Reviewer:_____

Level I Review

Item	IN[1]	OUT[2]	N.O.[3]	N.A.°	Comments
Location					
Site features affecting well & septic system location identified					
Landscape position indicated					
Absorption area					
House site located					
Other:					
Separation distances adequate					
Adequate triangulation/scale					
Depth					
Limiting factors (or lack of) noted					
Depth adequate for slope					
Depth adequate for limiting factors					
Timed-Dosing specified (if required)					
Capacity					
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)					
Treatment					
Treatment level specified					
Treatment level adequate for specified absorption area depth					
Treatment capacity adequate for design flow					

Level II Review

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

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.

Appendix 6

Subdivision Approval Not Recommended

[date]

County Planning/Zoning Official **CERTIFIED MAIL**
[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]. This letter is to inform you that the _____ County Health Department cannot recommend approval of the referred subdivision for the following reasons:

- [List reasons why approval is not recommended based on regulatory requirements.]

If you have any questions, please feel free to contact me at [phone number] or by email at [email address].

Sincerely,

[name]
[position]
_____ County Health Department

Cc: Division of Onsite Sewage and Water Services
[OSE/PE]
[Applicant]
[Local building official]

Appendix 7

Subdivision Approval Recommended

[date]

County Planning/Zoning Official **CERTIFIED MAIL**
[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 letter is to inform you that the above referenced subdivision plat is approved for individual onsite wastewater systems in accordance with the provisions of the Code of Virginia, the Sewage Handling and Disposal Regulations (12VAC5-610-20 et. seq., the Regulations), and [cite ordinance section].

This request for subdivision review was submitted pursuant to the provisions of §32.163.5 of the Code of Virginia which requires the Virginia Department of Health to accept private soil evaluations and designs from a licensed Onsite Soil Evaluator (OSE) or a Professional Engineer working in consultation with an OSE for residential development. This subdivision was certified as being in compliance with the Board of Health's regulations by: [OSE/PE name, 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.

If you have any questions, please feel free to contact me at [phone number] or by email at [email address].

Sincerely,

[name]
[position]
_____ County Health Department

Cc: Division of Onsite Sewage and Water Services
[OSE/PE]
[Applicant]
[Local building official]

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 8

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, the Sewage Handling and Disposal Regulations (12VAC5-610-20-et. seq., the Regulations), and [cite local ordinance].
>
> This subdivision was submitted to the _____ Health Department for review pursuant to §32.1-163.5 of the Code of Virginia which requires the Virginia Department of Health to accept private soil evaluations and designs from a licensed Onsite Soil Evaluator (OSE) or a Professional Engineer working in consultation with an OSE for residential development. The Virginia Department of Health is not required to perform a field check on such evaluations. This subdivision was certified as being in compliance with the Board of Health's regulations by: [OSE/PE name, 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.

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.*