COMMONWEALTH of VIRGINIA

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MEMORANDUM

DATE: January 9, 2009

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

GMP #17.A

FROM: Robert W. Hicks, Director
Office of Environmental Health Services

Robert W. Hicks

SUBJECT: Onsite Sewage Disposal System Plan Review Policy

Over the last several years, it has become clear that the Office of Environmental Health Services (OEHS) and the Health Districts need to implement a clear procedure for review of plans submitted by private sector designers for onsite sewage disposal and single-family home discharge systems. Earlier policies addressing review of plans focused primarily on large sewage disposal systems and were written when the number of such plans was much smaller. The attached "Plan Review Procedures" document is a culmination of an effort to clarify and up-date previous procedures. The first draft of the document was written by staff from local health districts and OEHS. It has been reviewed by the Sewage Handling and Disposal Regulations Advisory Committee, as well as the Division of Onsite Sewage and Water Services.

The procedures in the attachment outline the roles and responsibilities of various staff within the Virginia Department of Health (VDH). The local health department has the primary responsibility for receiving applications; reviewing plans for smaller systems or coordinating the review of plans for larger systems (those with a design flow of greater than 1,000 gpd); and determining whether to approve or deny the application. The role of the OEHS engineers is to provide advice to the local health department on technical design issues related to proposals. For smaller systems, in particular, local health department staff should refrain from automatically forwarding plans to the OEHS engineers for review. Rather, an experienced EHS should complete the review and solicit assistance from the engineer assigned to that locality as necessary.

For larger projects, the policy emphasizes the need to follow a logical, well-documented process that begins in the planning stages. For complex projects, many problems and much wasted effort can be avoided by holding a Preliminary Engineering Conference (PEC) at the planning stage, before formal plans are submitted for review. Although the policy makes allowances for processing an application for a large system without a PEC, this should be done as an exception not as a rule, and only with agreement among the applicant, the local health department and the responsible OEHS engineer that a PEC is not warranted.

In order to facilitate coordination between districts and OEHS engineers, each engineer has been assigned to provide assistance to particular districts. The list of current assignments is attached to this memorandum. Each engineer will complete any project in which he is already involved, but new submittals should be directed to the engineer assigned to the locality.

Full implementation of the attached policy will begin immediately. There are certain to be questions and suggestions for improvements from the district staff. However, that should not delay implementation of the policy. We will be scheduling one or more videoconferences soon to further discuss this policy and to answer questions. In the meantime, questions and concerns may be directed to Jim Bowles, Environmental Health Coordinator at jim.bowles@vdh.virginia.gov.

I would like to thank the following VDH staff who contributed to the development of this policy:

Allen Gutshall, EH Manager, Central Shenandoah Health District
Becky Wood, EHS, Sr., Central Shenandoah Health District
Dan Richardson, EH Manager, Pittsylvania-Danville Health District
Beth Manghi, EHS, Sr., Chickahominy Health District
Bill Craun, EHS, Sr., Thomas Jefferson Health District
Karl Rudolph, EH Technical Consultant, Rappahannock Health District
Tina Thompson, EH Supervisor, New River Health District
John Schofield, PE, Office of Environmental Health Services
John Aulbach, PE, Division of Onsite Sewage and Water Services
Dave Tiller, EH Coordinator, Office of Environmental Health Services
Jim Bowles, EH Coordinator, Office of Environmental Health Services

Attachments:
1. Plan Review Policy
2. PE Assignments

Plan Review Policy

Purpose

This policy addresses onsite sewage disposal systems that are not gravity distribution systems serving residential dwellings. The policy provides guidance on administrative procedures to be followed for processing applications for those systems. The intent of this policy is to streamline and update the existing plan review policy while improving consistency among local health departments. This document does not offer technical advice or guidance.

Background

The goal of the Virginia Department of Health (VDH) in implementing the *Sewage Handling and Disposal Regulations* (12 VAC 5-610-10 et seq.) and *Alternative Discharging Sewage Treatment Regulations* (12 VAC 5-640-10 et seq.) is to protect public health and the environment. This policy attempts to balance the authority and responsibility of the private sector for the design of onsite sewage treatment and dispersal systems with the authority and responsibility of VDH to ensure that designs are safe, adequate and proper.

One of the principles underlying this policy is that VDH resources are best utilized by applying quality assurance principles to the review of private sector designs. VDH personnel will focus on ensuring that designs comply with agency regulations and policies, and will not become *de facto* designers (or "re-designers") of systems proposed by Authorized Onsite Soil Evaluators/Professional Engineers (AOSEs/PEs).

Good communication is essential for any process involving multiple parties to work well. It is important that all parties involved in the process—including the applicant, the designer, the local health department and the Technical Services Engineer—be kept informed of all recommendations and actions taken by other parties. All commitments and recommendations are to be made in writing, and all written communications are to be sent to all parties involved.

Roles and Responsibilities

In the past, VDH was the primary provider of onsite sewage treatment and dispersal system evaluation and design. Today, the private sector plays an increasingly important and lead role. This is particularly true in regard to selection and design of alternative systems, commercial systems and large systems. Understanding the roles of the various players in onsite sewage system design is important to successful implementation of this policy.

Private Sector

For the systems addressed in this policy, private sector engineers and onsite soil evaluators are the primary providers of service to property owners. From the VDH perspective, the responsibilities of private sector practitioners include:

- Evaluate the needs of the client
- Evaluate site conditions
- Assist the client in selecting a suitable solution to the client's needs
- Propose a solution that complies with VDH regulations and policies
- Submit, for VDH review, a design that will both meet the needs of the client and comply with regulations and policies

Local Health Department

The local health department has the primary responsibility for processing applications for all onsite sewage treatment and dispersal systems. The local health department is the primary point of contact for private sector service providers. Local health department responsibilities include:

- Receiving applications
- Performing Quality Assurance (QA) reviews of proposals for systems serving residences and with an estimated daily flow of 1,000 gallons or less
- Establishing QA programs for VDH staff to ensure that policies, regulations and administrative procedures are correctly and consistently applied
- Coordinating the review of all other systems, including arranging preliminary engineering conferences, receiving plans from designers, and issuing the permit
- Making a final determination that proposals meet or do not meet all regulatory requirements (including whether to grant an exception recommended by a Technical Services Engineer)
- Issuing construction and operation permits

Technical Services Engineers

The Technical Services Engineers are an integral part of the plan review process. Although they are staff members of the Division of Onsite Sewage and Water Services (DOSWS), their role needs to be discussed separately. They are responsible for providing technical assistance, as needed, to local health departments who are reviewing plans for one or two family homes of 1,000 gallons per day or less flow. For more complex, commercial and large onsite sewage treatment and dispersal systems, the Technical Services Engineers are responsible for advising the local health departments on whether the proposed systems meet the requirements of the regulations and acceptable engineering practices. The responsibilities of the Technical Services Engineers include:

- Providing technical review of large, complex and commercial onsite sewage treatment and dispersal system proposals
- Advising local health department staff and the private sector about whether proposals are technically sound and meet the requirements of VDH regulations and policies

- Recommending to LHD staff that exceptions to the regulations be granted when they believe that a proposal meets the intent of the regulations but not the letter of the regulations
- Providing training to local health departments on technical aspects of onsite sewage treatment and dispersal system design and plan review
- Promoting consistency among VDH personnel by providing advice that complies with current regulations and policies, and informing appropriate VDH staff of situations in which exceptions to the regulations are recommended
- Advising the director of DOSWS of recommended changes to design requirements in order to ensure that VDH regulations and policies reflect current engineering best practices for the design and operation of onsite wastewater systems
- Ensure that all procedures are complied with and that they do not receive initial submittals directly from the applicant or their agents

Contract Interpretive Soil Scientists

The primary role of the interpretive soil scientists in the plan review process is to provide technical advice and interpretation of site and soil conditions that affect the design of onsite sewage treatment and dispersal systems. For large onsite systems, especially, the interpretive soil scientists may be invaluable to the local health department personnel, and private sector soil evaluators, in assessing whether site and soil evaluations adequately determine the factors that must be considered in design. The soil scientists' role includes training VDH staff on site evaluation and interpretation.

Division of Onsite Sewage and Water Services

DOSWS's responsibilities include proposing regulations for the design and use of onsite sewage treatment and dispersal systems that will protect public health and the environment and establishing policies to guide the application of those regulations. Specific responsibilities include:

- Establishing policies and guidelines for the design and review of onsite sewage systems
- Assisting Local Health Departments in interpreting the requirements of regulations and policies
- Reviewing technical requirements to ensure that policies allow flexibility in designing systems while still protecting public health and the environment
- Promoting technical skill and consistency among VDH staff by providing training
- Determining the adequacy of variance proposals and making recommendations to the Commissioner regarding requests for variances to design parameters for onsite sewage treatment and dispersal systems
- Assigning a Technical Services Engineer to work with a project from the time the application is approved by the LHD to the engineer's final recommendation of approval. DOSWS will assign to a specific engineer, the responsibility for workload management and project allocation. This engineer will be the primary point of contact for scheduling of PECs and project submissions.

Procedures

There are two different paths for VDH plan review, depending on the complexity of the proposal. For convenience, as well as for practical reasons, this policy separates plans for residential systems with 1,000 gallons per day or less flow from plans for commercial entities and mass sewage treatment and dispersal systems.

NOTE: It is important for consistency that all plans approved by VDH fully comply with the regulations unless an exception is granted by the local health department or a variance is granted by the Commissioner. An *exception* is a one-time approval, granted by the local health department for a minor deviation from the regulations. The deviation must clearly meet the intent of the regulation. The exception must be documented in writing. A *variance* is a conditional waiver of a specific regulation, granted to a specific owner. Variances may only be granted by the Commissioner, must be requested by the applicant prior in writing, and must be granted prior to approval of the plans and specifications.

<u>Residential Systems of 1,000 GPD or Less</u>

Proposals in this category may include systems where a pump or siphon is used to overcome gravity, to enhance flow, or for low-pressure distribution. Other proposals in this category include systems that utilize secondary treatment. Typically, these treatment systems are "pre-engineered" and the system components are approved in one or more GMPs. Some systems that fall within this category must be designed by a licensed professional engineer.

The local health department has the primary responsibility for review and approval of plans for systems that treat and dispose of sewage flows for residential systems of 1,000 gallons per day or less, regardless of whether the system is "pre-engineered" or not. The Technical Services Engineers will provide assistance with technical issues upon request by the local health department.

Review of these systems will focus on ensuring that the plans meet the minimum requirements of VDH regulations and policies. For the majority of applications, LHD personnel will not complete a detailed review of design calculations. Rather, the LHD will focus on determining if the proposed location, capacity, installation depth, and treatment level meet the requirements of the regulations. This policy distinguishes between two levels of review for small residential systems: "abbreviated" review and "in-depth" review. This review scheme is based on the presumption that the AOSE/PE is responsible for ensuring that the system design meets regulatory requirements and will function properly, while VDH's responsibility is to ensure that the proposal meets regulatory requirements. The LHD review should therefore focus on regulatory requirements, not technical design issues.

Every design should receive at least an abbreviated review by the LHD. In addition to the items typically reviewed for a Level I review, as outlined in the AOSE Regulations and policy, the abbreviated review will determine whether:

1. the location of all parts of the proposed system meet separation distance requirements;
2. the specified installation depth of the dispersal area meets the vertical separation from limiting factors listed in the site evaluation summary;

3. the proposed treatment level meets the minimum requirement for the specified installation depth; and,
4. the specified capacity of the treatment unit and dispersal area agrees with the estimated flow listed on the application.

The "Abbreviated Information" block on the Residential Plan Review Checklist (Appendix B) should be used to guide the abbreviated review. No detailed review of hydraulics or treatment scheme is required for an abbreviated review.

Similar to the expectation that ten percent of AOSE applications receive a Level II review, this policy expects that ten percent of engineered or pre-engineered systems receive an "in-depth" review. The in-depth review is not intended to check every technical aspect of the design. However, in-depth reviews may indicate on-going errors in design assumptions that should be corrected by the designer. The specific items that may/should be reviewed will vary, depending on the treatment and dispersal methods specified. Appendix B is a suggested plan review checklist for in-depth reviews.

Most of the systems in this category with the exception of pre-engineered systems are subject to "deemed approval" if the LHD does not act upon the application within 15 days of receipt. Although pre-engineered systems are not subject to deemed approval, local health departments should make every effort to either approve or deny every application within 15 days of receipt.

Non-residential Systems and Systems of More than 1,000 GPD

These systems require PE design, and tend to be more complicated to review. Local health department consultation with a DOSWS Technical Services Engineer is required. However, the local health department is the primary point of contact for the applicant and the applicant's site evaluator and designer.

The review process for these systems will follow four main steps: application, preliminary engineering conference, preliminary engineering report, and final plan submittal.
These steps are explained in greater detail below.

1. Application

   The first step in the process is the receipt of an application from the owner. The application defines the project intent and is the starting point for official VDH consideration of the project proposal. Final plans and specifications may be submitted with the application but are not required. The minimum information required is a completed Sewage Disposal System Construction Permit application that includes the estimated flow; a plat of the property showing the proposed development, location of proposed treatment systems, and the location of proposed dispersal area; and preliminary soil work indicating that the site is suitable for onsite sewage dispersal.

2. Preliminary Engineering Conference (PEC)

   The PEC provides a forum for all of the involved parties to address major concerns and conceptual design criteria. The owner and/or his designer will present the scope of the intended development and the general proposal for the onsite sewage treatment and dispersal system,

including any limitations or constraints that may lead to requests for policy deviations or variances. VDH should ensure that the owner and designer are aware of applicable regulations, policies, required supporting documentation, and procedures for obtaining a construction permit. An outline of key topics for discussion at the PEC is attached [Appendix C].

Consideration should be given to the water supply early in the planning/plan review process when the project will not be served by an existing public water supply. If the planned water supply will be a Community or Non-community water supply, the appropriate Office of Drinking Water (ODW) should be notified and invited to participate in the plan review process. Involving ODW early is likely to prevent conflicts later. The owner/applicant should also be made aware that even if a private water supply is appropriate for the current use, changes in use in the future may require that the water supply meet the requirements of the *Water Works Regulations* (12 VAC 5-590-10 et seq.). The applicant should consider meeting the requirements of those regulations now in order to prevent conflicts and save money later.

The local health department will arrange for the PEC after receiving the application. Although the PEC is typically an "in person" meeting, the PEC may be conducted by telephone conference or by videoconference. It is essential that all participants are provided ahead of time with any documents to be discussed during the PEC.

In some instances, a developer or engineer may request to meet with VDH staff prior to submitting an application. Holding a meeting to discuss general design parameters prior to receiving the application may be helpful in some circumstances, particularly for larger and more complex proposals. Nothing in this policy is intended to prevent holding a meeting prior to receiving an application. However, all parties should understand that VDH cannot commit to final approval of design schemes prior to submittal of data and calculations that support the design.

Attendance at the PEC **must** include the owner's engineer, an OEHS Technical Services Engineer and local health department personnel. It is strongly recommended that the applicant's soil evaluator and the owner or his representative attend, especially for PECs related to very large or very complex developments. For large mass drainfield proposals the local health department should consider including one of the interpretive soil scientists to provide advice on conducting and interpreting the site evaluation.

LHD staff is responsible for taking minutes of the discussion at the PEC. A verbatim transcript is not expected, but careful documentation of each point of discussion is important. Before the meeting adjourns, the person who is taking minutes will review those notes with the group to ensure that the minutes accurately reflect the proceedings. The notes shall include a list of those in attendance, along with the contact information for each person. A suggested form for attendance is attached [Appendix D]. The LHD will prepare a letter for the record, emphasizing the major points of discussion. A copy of the letter will be provided to each person in attendance within five business days following the PEC.

3. Preliminary Engineering Report (PER)

The PER is intended to provide VDH with the minimal information necessary to determine whether the proposed design appears to meet regulatory and policy requirements and to identify any need for additional supporting information before the final design is submitted. Once completed, the PER shall be submitted following the preliminary engineering conference. The PER should address all issues raised during the PEC. Unless specifically waived, the PER shall contain the information listed in GMP 101.

The PER will be submitted to the local health department. The local health department will review the PER for completeness before forwarding a copy to the assigned Technical Services Engineer for review and comment. If the local health department finds that the PER is incomplete, the applicant and the designer will be notified of the deficiencies by mail.

The local health department will review the PER for completeness and accuracy of soil data and the proposed size and layout of the dispersal field. The Technical Services Engineer will review the treatment system, water-mounding calculations and nitrate dilution calculations for compliance with regulations and policies.

4. Final Plans and Specifications Submittal

Four sets of final plans and specifications shall be submitted to the local health department. Plans and specifications are not to be submitted directly to the DOSWS Technical Services Engineers. Plans marked “for review only”, “not for construction” or with any other language that implies that further revisions will be made will not be accepted for review. If an Operations and Maintenance (O&M) manual is required, a copy of that manual should be submitted along with the construction plans and specifications. If the O&M manual is not submitted with the final plans and specifications, it shall become a condition of the construction permit that the O&M manual be submitted and approved by the LHD and the DOSWS Technical Services Engineer prior to issuance of the operation permit for the system.

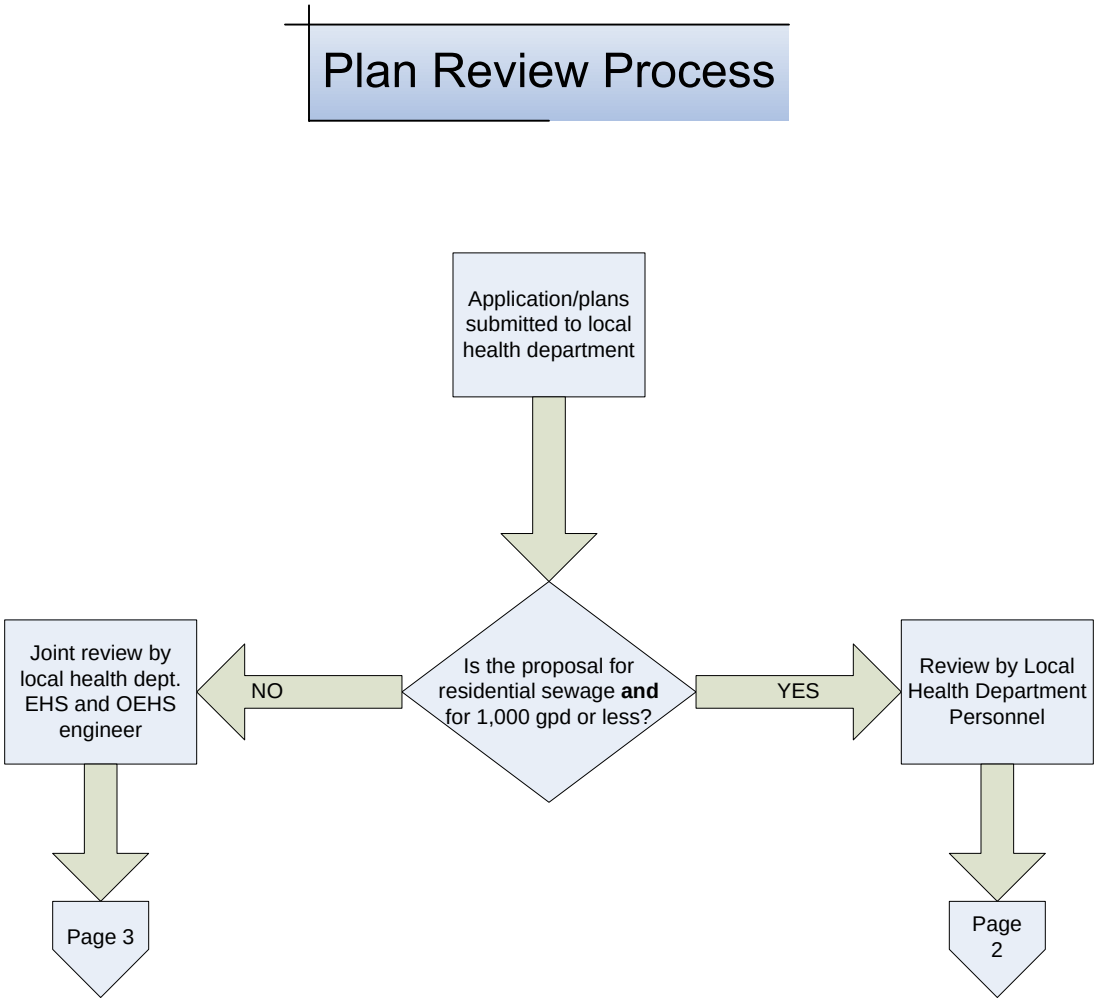
The local health department will complete a preliminary review of the final plans and specifications to ensure that the package is complete and addresses all concerns and required revisions from the PEC and PER. See Appendix D, “Scope and Detail Checklist.” If the plans and specifications are found to be incomplete, the plans will be returned to the designer with a cover letter detailing all deficiencies (i.e., an administrative denial letter). Copies of the cover letter will be sent to the applicant and to the assigned Technical Services Engineer. If the local health department finds the plans and specifications to be complete, the local health department will forward one set of plans and specifications to the assigned Technical Services Engineer for his/her review and recommendation. The designer and the applicant will be notified that the plans and specifications have been forwarded for review.

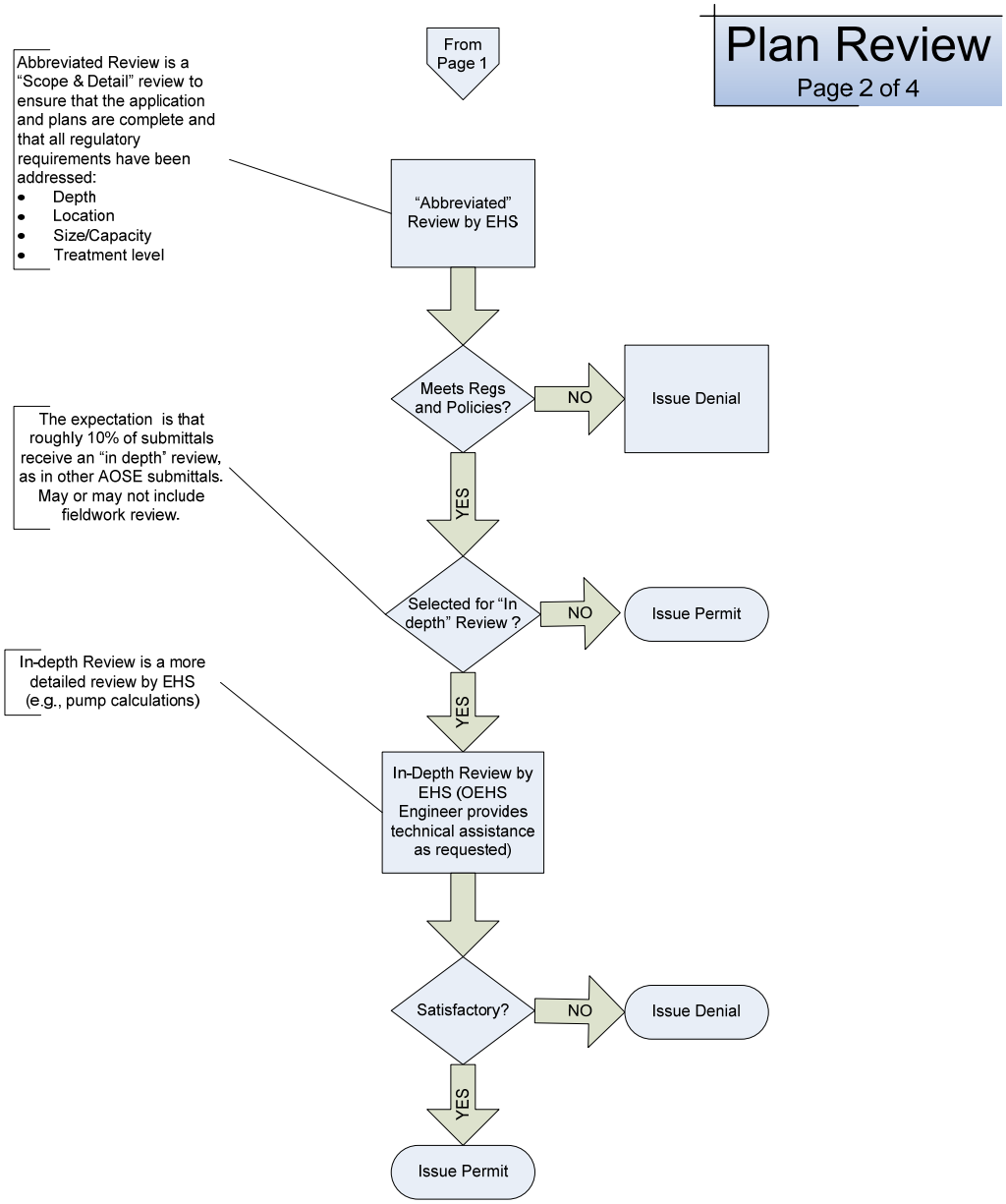
The Technical Services Engineer will review the final plans and specifications for compliance with the technical design requirements of VDH regulations and policies. If, upon review, the Technical Services Engineer finds that the plans and specifications are incomplete or otherwise deficient, he/she will notify the local health department in writing of all deficiencies. The local health department will send a letter to the designer that lists the required corrections and

requests that corrected plans and specifications be submitted to the local health department. If revisions to plans are required, four new sets of plans must be submitted. VDH will not be responsible for accepting individual correction sheets and inserting them properly into sets of plans and specifications. The VDH reviewer may retain one copy of the plans; if requested the other copies of the original submittal will be returned to the designer, in order to facilitate the required updates.

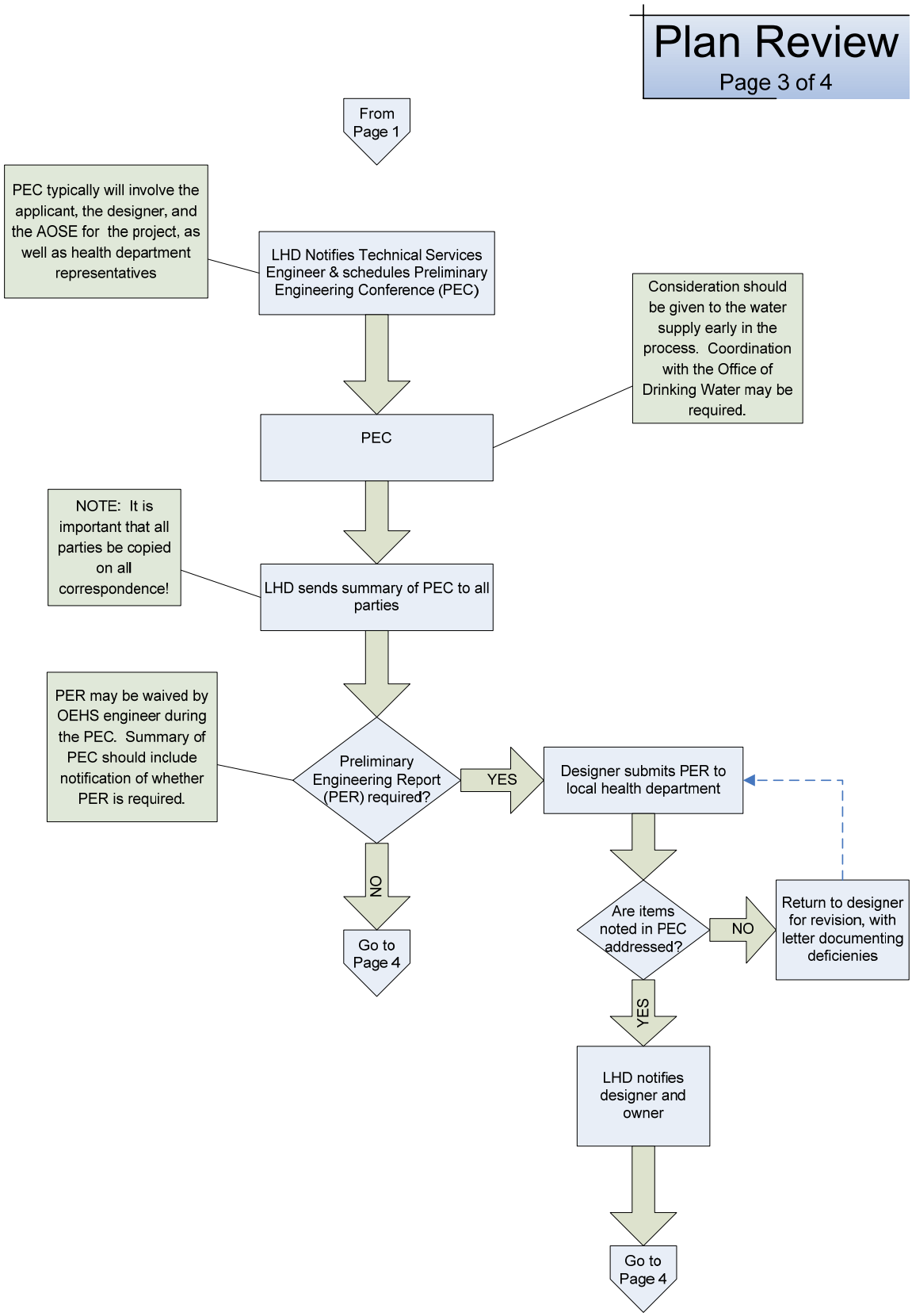
If the Technical Services Engineer recommends approval of the plans and specifications, he/she will provide written notification to the local health department. The local health department will stamp the cover page of the plans and specifications "Approved by VDH" and will issue a permit to construct the system by attaching a cover letter to each copy of the plans and specifications. One copy of the approved plans and specifications will be retained in the local health department files, one copy will be provided to the local building official (if required) and at least one set will be provided to the applicant.

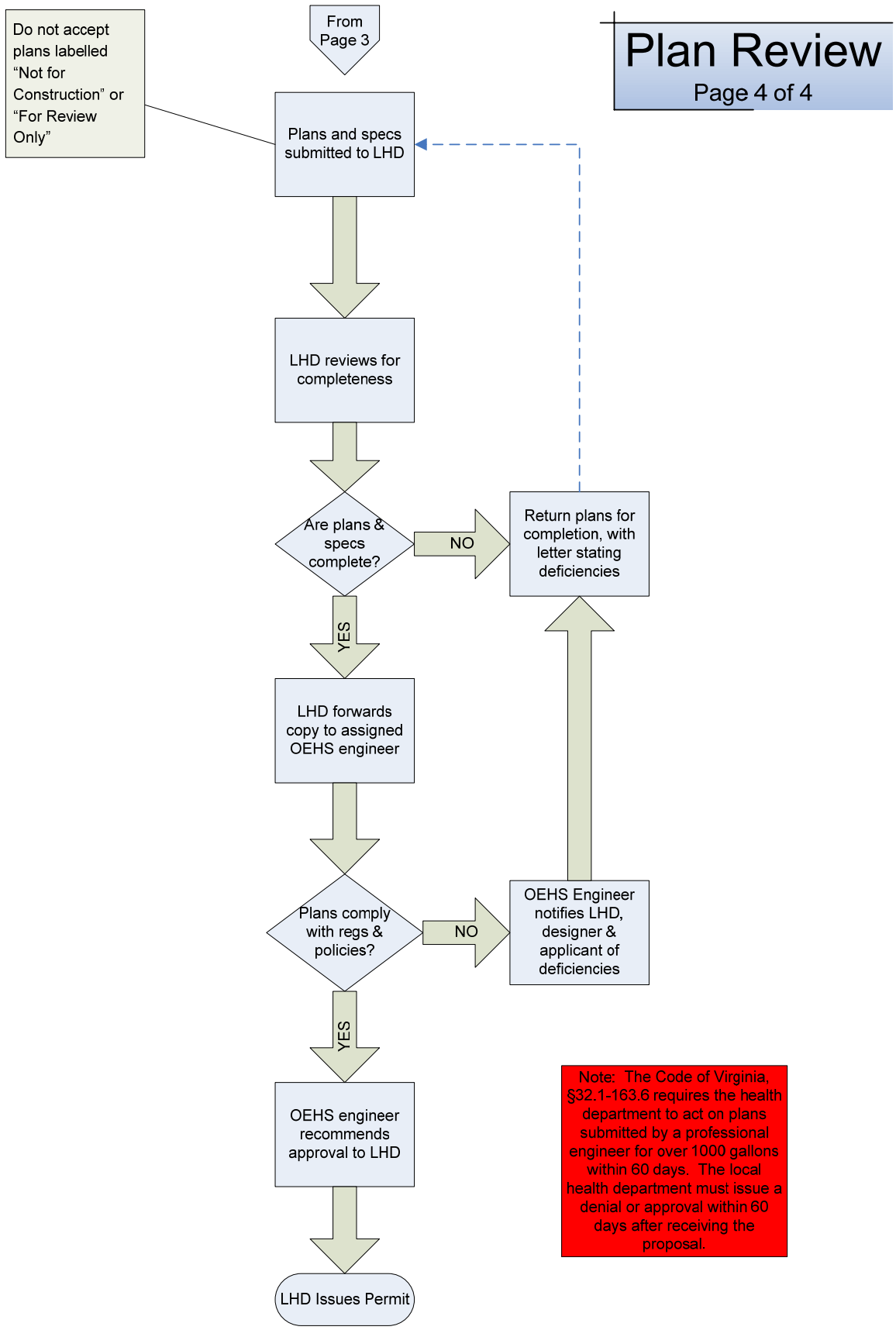
Appendix A: Flowchart of Plan Review Process





Note: The *Code of Virginia*, §32.1-163.6, requires the Health Department to act on proposals for 1000 gallons or less submitted by professional engineers within 21 days. The local health department must issue a letter of denial or an approval within 21 days after receiving the submittal.


Plan Review
Page 3 of 4
From Page 1
PEC typically will involve the applicant, the designer, and the AOSE for the project, as well as health department representatives
LHD Notifies Technical Services Engineer & schedules Preliminary Engineering Conference (PEC)
Consideration should be given to the water supply early in the process. Coordination with the Office of Drinking Water may be required.
PEC
NOTE: It is important that all parties be copied on all correspondence!
LHD sends summary of PEC to all parties
PER may be waived by OEHS engineer during the PEC. Summary of PEC should include notification of whether PER is required.
Preliminary Engineering Report (PER) required?
YES
Designer submits PER to local health department
NO
Go to Page 4
Are items noted in PEC addressed?
NO
Return to designer for revision, with letter documenting deficienies
YES
LHD notifies designer and owner
Go to Page 4


Plan Review
Page 4 of 4
From Page 3
Do not accept plans labelled "Not for Construction" or "For Review Only"
Plans and specs submitted to LHD
LHD reviews for completeness
Are plans & specs complete?
NO
Return plans for completion, with letter stating deficiencies
YES
LHD forwards copy to assigned OEHS engineer
Plans comply with regs & policies?
NO
OEHS Engineer notifies LHD, designer & applicant of deficiencies
YES
OEHS engineer recommends approval to LHD
LHD Issues Permit
Note: The Code of Virginia, §32.1-163.6 requires the health department to act on plans submitted by a professional engineer for over 1000 gallons within 60 days. The local health department must issue a denial or approval within 60 days after receiving the proposal.

Appendix B: Residential Plan Review Checklist

Health Identification _____ Reviewer _____

Date Received _____ Tax Map/GPIN _____

Date Reviewed _____ Project Name _____

County _____ Owner _____

Engineer/AOSE

Abbreviated Information	**Y**	**N**	**N/A**
Estimated design flow correct?			
Dispersal area in proper location?			
Level of treatment appropriate for site conditions?			
Estimated perc rate Indicated?			
Slope indicated?			
Elevations indicated?			
Water supply, circle one:	**Y**	**N**	**N/A**
Private well Public water system			
Class of water well and location indicated			
Septic Tank	**Y**	**N**	**N/A**
Septic tank volume correct?			
Tees shown in septic tank correct?			
Sealed watertight?			
Treatment Unit (If applicable), circle one:	**Y**	**N**	**N/A**
Puraflo Advantex Ecoflo ATU			
Sand Filter Mound Other --			
Is treatment unit sized correctly?			
Pump/Pump Chamber	**Y**	**N**	**N/A**
Dosing Method -- circle one:			
Demand dose Time dose Enhanced Flow			
Dosing volumes correct?			
Pump chamber size correct?			
Plans for pump include:			
arranged to allow pump removal			
dosing volume & drawdown indicated			
1/4 day storage provided above alarm			
pump curve included with plans			
pump brand & model number specified			
pump level controls specified			
pump and alarm on separate circuits			
audio-visual alarm specified			
Pressure type PVC pipe primed and glued			
Sealed watertight?			

Absorption Trenches	**Y**	**N**	**N/A**
Minimum horizontal & vertical sep. distances met?			
Minimum square footage requirement met?			
Number, length, and width indicated?			
Installation depth indicated?			
Gravel size correct?			
Minimum 12 inches of cover over gravel specified			
Substituted system used?			
Reduction taken? (See Note 3, 4)			
Pad	**Y**	**N**	**N/A**
Minimum square footage requirement met?			
Minimum horizontal & vertical sep. distances met?			
Gravel size correct?			
Minimum 12" of cover over gravel specified			
Drip (See Notes 1, 2)	**Y**	**N**	**N/A**
Minimum dispersal area required met?			
Minimum horizontal & vertical sep. distances met?			
Flushing method provided?			
Minimum 6 hours of storage above alarm provided?			
Adequate drip line length indicated?			
Drip installation details provided on plans?			
Time dosing provided?			
Slope correction accounted for?			
Filtration method provided?			
LPD	**Y**	**N**	**N/A**
Minimum dispersal area required met?			
Minimum horizontal & vertical sep. distances met?			
Hole diameter/spacing indicated?			
Variation of distal end head pressure addressed? (10%)			
Mound	**Y**	**N**	**N/A**
Linear loading rate correct?			
Basal area correct?			
Minimum horizontal & vertical sep. distances met?			
Depth to restriction from original grade indicated?			
Sand specifications provided and correct?			
Reserve Area (if applicable)	**Y**	**N**	**N/A**
Reserve Area indicated/correctly sized?			

Comments/Observations/Revisions Received:

Notes:
1. Drip is an allowable method to be used with Puraflo, Advantex and Ecoflo.
2. Drip area and linear length are calculated in accordance with the formulas contained in GMP 107.
3. Reduction in sq. footage must comply with requirements of GMP 116. Original footprint must be preserved and indicated.
4. For 25% reduction in design, see GMP 135.
5. See GMP 74 for spray irrigation design specifications.

Appendix C

Preliminary Engineering Conference

Outline of Key Topics

1. Presentation by the consultants of the project scope, summary, and any issues. This should include not only the problem identification but the suggested solutions.

2. Discussion of design flow issues, actual or estimated vs. design flows from the *Sewage Handling and Disposal Regulations*. Use of peak flow values for sizing dispersal areas.
    - Deviations from the design flows listed in the applicable regulations requires a variance (See Item 6).
    - Are values selected from regulations realistic?

3. Discussion of any proposed treatment beyond septic tank effluent. This should be encouraged to be at least secondary treatment for large projects.
    - Dispersal area reduction for using Advantex, Ecoflo, or Puraflo requires variance (See Item 6).

4. Discussion of conditions of approvals and operation permits to include: effluent testing limits and frequencies, operation and maintenance manual, sludge/septage management plan, ground water monitoring plan, and system operator requirements related to class of operator and attendance.
    - Pumping schedule and septage disposal plan, Responsible Management Entity

5. Detailed discussions of applicable regulation sections and GMPs. Provide all parties with web site addresses where these may be obtained if they are not already aware.

6. Identification of any potential variance requests for the project. Typical situations requiring variances are:
    - Request for dispersal area reduction based on use of advanced secondary treatment units (Advantex, Ecoflo, Puraflo) or chamber system.
    - Request for design flows other than those in regulations.
    - Request to use actual flow data per GMP 35 (Require one year minimum of data from same or comparable facility)

7. Identification of the dispersal method, area, and specific design.
    - Designing from Ksat .
    - Design must be based on most restrictive horizon within four feet below installation depth.

8. Review of the requirements in the regulations regarding what is specifically required for Type III plan submittals.

9. Delineation of mass dispersal areas and the implementing criteria for their determination.
    - Have dispersal areas and reserve areas been staked in field?
    - Have test pits been constructed to proper depth for soils evaluation?
    - Has the Regional Soil Scientist been consulted, and is he in agreement with the extent of the soils investigation and with the soils data?

10. Review the procedures and expectations for nitrate dilution area and water mounding calculations.
    - Dilution area must be delineated – must be an area that can realistically be expected to affect nitrate plume - include note on plans saying no development permitted in dilution area for life of drainfield.

11. Review of requirements related to PERs and the process for proceeding after the PEC.

12. Discussions related to wastewater characterizations.
    - In questionable cases, require PE characterization of initial wastewater strength and calculations indicating anticipated strength of effluent at each stage of treatment process and upon dispersal to drainfield.

13. Provide attendees with copies of applicable review and processing checklists.

14. Identification of any project time constraints or expectations regarding schedules that are important to the owner and consultant.

15. Identification of any local ordinances that would impact the project.
    - 100% reserve areas in Chesapeake Bay watershed.

16. Encourage open communication between all parties as the project proceeds. Identify that all issues or topics are first addressed at the local health department and that it is their responsibility to raise these through their office to OEHS as needed.

17. Reliability classification considerations.

18. Discussion and presentation of any “history” related to the site such as past attempts, repairs, failures, previous soils work, etc.

Appendix D

Preliminary Engineering Conference Attendance/Contact Information

Project: _____

Conference Location: _____

Conference Date: _____

Name & Company	Mailing Address	Telephone/FAX	E-mail

Appendix E

Scope And Detail Review List

County/City: _____

Date Received: _____

Project Name: _____

Applicant: _____

Design Engineer/Consultant: _____

LHD Reviewer: _____

Items Required to Initiate Plan Review

If a "NO" response is given for any required item(s), return the plans and specifications to the consultant.

	YES	NO	N/A
I. PRELIMINARIES			
A. Application for onsite system complete?	____	____	required
B. General Discharge Permit issued?	____	____	____
C. Preliminary technical design conference held?	____	____	____
II. GENERAL			
A. Original PE seal/signature/date (type III systems) on first sheet of plans?	____	____	required
B. Facsimile PE seal/signature/date (type III systems) on additional sheets?	____	____	required
C. Original PE seal/signature/date (type III systems) on specifications?	____	____	required
D. Four sets of plans and specifications provided?	____	____	required
E. Plans and specifications legible and of an adequate size/scale?	____	____	required
III. PLANS			
A. Location of project shown?	____	____	____
B. Site plan with topography provided?	____	____	required
IV. DESIGN CRITERIA AND CALCULATIONS			
A. Acceptable design criteria provided?	____	____	required
B. Acceptable design calculations provided?	____	____	required
C. Soils reviewed and are adequate for treatment/dispersal?	____	____	____

V. Comments

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List of PE Assignments for Plan Review*

District	Locality	Engineer
Alleghany-Roanoke	Alleghany	Aulbach
Alleghany-Roanoke	Craig	Aulbach
Alleghany-Roanoke	Roanoke	Aulbach
Alleghany-Roanoke	Salem	Aulbach
Arlington	Arlington	Aulbach
Central Shenandoah	Bath	Aulbach
Central Shenandoah	Highland	Aulbach
Central Shenandoah	Rockingham	Aulbach
Central Shenandoah	Buena Vista	Aulbach
Central Shenandoah	Harrisonburg	Aulbach
Central Shenandoah	Lexington	Aulbach
Central Shenandoah	Staunton	Aulbach
Central Virginia	Amherst	Aulbach
Central Virginia	Bedford City	Aulbach
Chesapeake	Chesapeake	Aulbach
Chesterfield	Chesterfield	Aulbach
Chesterfield	Colonial Heights	Aulbach
Chickahominy	Charles City	Aulbach
Chickahominy	Goochland	Aulbach
Crater	Dinwiddie	Aulbach
Crater	Surry	Aulbach
Crater	Petersburg	Aulbach
Cumberland Plateau	Tazewell	Aulbach
Eastern Shore	Accomack	Aulbach
Eastern Shore	Northampton	Aulbach
Fairfax	Fairfax	Aulbach
Fairfax	Fairfax City	Aulbach
Henrico	Henrico	Aulbach
Lenowisco	Scott	Aulbach
Lenowisco	Wise	Aulbach
Lord Fairfax	Page	Aulbach
Loudoun	Loudoun	Aulbach
Mt. Rogers	Bland	Aulbach
Mt. Rogers	Washington	Aulbach
Mt. Rogers	Galax	Aulbach
Mt. Rogers	Smyth	Aulbach
New River	Floyd	Aulbach
New River	Giles	Aulbach
Norfolk	Norfolk	Aulbach
Peninsula	James City	Aulbach
Peninsula	York	Aulbach
Peninsula	Williamsburg	Aulbach
Piedmont	Buckingham	Aulbach
Piedmont	Cumberland	Aulbach
Piedmont	Lunenburg	Aulbach
Piedmont	Nottoway	Aulbach

Piedmont	Prince Edward	Aulbach
Pittsylvania-Danville	Pittsylvania	Aulbach
Pittsylvania-Danville	Danville	Aulbach
Portsmouth	Portsmouth	Aulbach
Prince William	Prince William	Aulbach
Prince William	Manassas	Aulbach
Rappahannock	Caroline	Aulbach
Rappahannock	King George	Aulbach
Rappahannock	Spotsylvania	Aulbach
Rappahannock-Rapidan	Rappahannock	Aulbach
Richmond	Richmond City	Aulbach
Southside	Brunswick	Aulbach
Southside	Halifax	Aulbach
Thomas Jefferson	Greene	Aulbach
Thomas Jefferson	Nelson	Aulbach
Three Rivers	Lancaster	Aulbach
Three Rivers	Mathews	Aulbach
Three Rivers	Middlesex	Aulbach
Virginia Beach	Virginia Beach	Aulbach
West Piedmont	Franklin	Aulbach
West PIedmont	Martinsville	Aulbach
Western Tidewater	Franklin City	Aulbach
Alexandria	Alexandria	Schofield
Alleghany-Roanoke	Botetourt	Schofield
Alleghany-Roanoke	Clifton Forge	Schofield
Alleghany-Roanoke	Covington	Schofield
Alleghany-Roanoke	Roanoke City	Schofield
Central Shenandoah	Augusta	Schofield
Central Shenandoah	Rockbridge	Schofield
Central Shenandoah	Waynesboro	Schofield
Central Virginia	Appomattox	Schofield
Central Virginia	Bedford	Schofield
Central Virginia	Campbell	Schofield
Central Virginia	Lynchburg	Schofield
Chickahominy	Hanover	Schofield
Chickahominy	New Kent	Schofield
Crater	Greensville	Schofield
Crater	Prince George	Schofield
Crater	Sussex	Schofield
Crater	Emporia	Schofield
Crater	Hopewell	Schofield
Cumberland Plateau	Buchanan	Schofield
Cumberland Plateau	Dickenson	Schofield
Cumberland Plateau	Russell	Schofield
Fairfax	Falls Church	Schofield
Hampton	Hampton	Schofield
Lenowisco	Lee	Schofield
Lenowisco	Norton	Schofield
Lord Fairfax	Clarke	Schofield

Lord Fairfax	Frederick	Schofield
Lord Fairfax	Shenandoah	Schofield
Lord Fairfax	Warren	Schofield
Lord Fairfax	Winchester	Schofield
Mt. Rogers	Carroll	Schofield
Mt. Rogers	Grayson	Schofield
Mt. Rogers	Wythe	Schofield
Mt. Rogers	Bristol	Schofield
New River	Montgomery	Schofield
New River	Radford	Schofield
New River	Pulaski	Schofield
Peninsula	Newport News	Schofield
Peninsula	Poquoson	Schofield
Piedmont	Amelia	Schofield
Piedmont	Charlotte	Schofield
Southside	Mecklenburg	Schofield
Piedmont	Powhatan	Schofield
Prince William	Manassas Park	Schofield
Rappahannock	Stafford	Schofield
Rappahannock	Fredericksburg	Schofield
Rappahannock-Rapidan	Culpeper	Schofield
Rappahannock-Rapidan	Fauquier	Schofield
Rappahannock-Rapidan	Madison	Schofield
Rappahannock-Rapidan	Orange	Schofield
Southside	South Boston	Schofield
Thomas Jefferson	Albemarle	Schofield
Thomas Jefferson	Fluvanna	Schofield
Thomas Jefferson	Louisa	Schofield
Thomas Jefferson	Charlottesville	Schofield
Three Rivers	Essex	Schofield
Three Rivers	Gloucester	Schofield
Three Rivers	King and Queen	Schofield
Three Rivers	King William	Schofield
Three Rivers	Northumberland	Schofield
Three Rivers	Richmond	Schofield
Three Rivers	Westmoreland	Schofield
West PIedmont	Henry	Schofield
West PIedmont	Patrick	Schofield
Western Tidewater	Suffolk	Schofield
Western Tidewater	Isle of Wight	Schofield
Western Tidewater	Southampton	Schofield

*****Assigned by city or county