State of Idaho
Department Of Environmental Quality
Technical Guidance Committee

Technical Guidance Committee Meeting

Agenda*

Wednesday July 22, 2015

8:30 a.m. – 4:30 p.m.

Department of Environmental Quality
Conference Room C
1410 North Hilton
Boise, Idaho

8:30 AM Call to Order/Roll Call
- Sign in sheet for attendees who wish to comment or present to the committee members
- Introduction of committee members, guests, and attendees

8:35 AM Open to Public Comment – ½ hour reserved for public to provide comments to the TGC on subjects not on the agenda, if no public comment is presented at start of comment period the agenda will move forward

9:05 AM May 21, 2015 Draft TGC Meeting Minutes: Review, Amend, or Approve (**Appendix A**)

9:15 AM 1.4.2.3 Gravelless System Product Approvals (**Appendix B**)**
- Summary of NSF/ANSI Standard 240 in Relation to Policy
- Review for final approval

9:25 AM 2.2.5 Method of 72 to Determine Effective Soil Depth to Permeable Layers and Ground Water (**Appendix C**)
- Review for final approval

9:35 AM 4.1 General Requirements (**Appendix D**)
- Review for final approval

9:40 AM 4.2 At-Grade Soil Absorption System (**Appendix E**)
- Review for final approval

10:00 AM Break – Ten Minutes

10:10 AM 4.3 Capping Fill System (**Appendix F**)
- Review for final approval

10:30 AM 4.21 In-Trench Sand Filter (**Appendix G**)
- Review for final approval

11:00 AM 1.8 Easement (**Appendix H**)
- Review for preliminary approval

11:30 AM 1.4.2.4 Packed Bed Filter Proprietary Product Approval Policy (**Appendix I**)
- Review for preliminary approval

12:00 to 1:00 P.M. Lunch

1:00 PM 8.6 Total Nitrogen Reduction Policy (**Appendix J**)
- Review recirculating gravel filter total nitrogen reduction literature review data summary
- Review proposal by Allen Worst for Orenco AdvanTex products
- Review proposal by Ryan Spiers for BioMicrobics BioBarrier MBR products
- Review for preliminary approval

2:00 PM Presentation of the Presby Envrionmenatl, Inc. Advanced Enviro-Septic Treatment System
- Discussion on how/where to classify this system so the manufacturer can proceed with a product approval submittal

2:30 PM Break

2:45 PM Service Provider Operation, Maintenance, Monitoring, and Reporting Model for Extended Treatment Package Systems (**Appendix K**)
- Information/Discussion on recommendation for pursuit process of model
- Information/Discussion on recommendation to pursue rulemaking
- Review of letter from Bio-Microbics, Inc. regarding the future service model
- Discussion on TGC proposed model and opportunity for further input from the committee

4:00 PM Discussion on Recirculating Gravel Filter Splitter Methods and Filter Drying

4:30 PM Adjourn
- Meeting may adjourn early dependent upon discussion, interest, and participation for each agenda item
- If needed meeting will run until 4:45 PM to resolve any lingering discussions or issues on the agenda items

*Begin and end time will be observed. Agenda items and their allotted times my vary dependent upon the amount of interest and participation for each item.

** Agenda appendices starting at Appendix B are color coded to track changes. Blue text indicates changes that were made in previous Technical Guidance Committee (TGC) meetings. Red text indicates changes that are newly proposed for this TGC meeting. All green text indicates text that was moved from one area of a section to the new area. ~~All text with strikeout markings regardless of color is either proposed to be deleted from the guidance or moved to another location within that section.~~

The call in number is (208) 373-0101 Bridge # 1

To Join a Conference Call

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As participants are added to a conference call, an audible chime is heard by participants already connected to the call. If the conference is in progress when the chime is sounded, it is advisable to acknowledge the new participant and ask who has joined the call. This will ensure that the new caller has gained access to the proper call.

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1) Visit the Website Below

- https://www.myroom.hp.com/attend/MEPV9QIDUU7
- Enter your first and last name in the area provided
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Appendix A

Technical Guidance Committee Meeting

Draft Minutes

Thursday, May 21, 2015

Idaho Correctional Industries – Conference Room
1301 N. Orchard, Suite 110
Boise, Idaho

TGC ATTENDEES:

Tyler Fortunati, REHS, On-Site Wastewater Coordinator, DEQ
Joe Canning, PE, B&A Engineers
Bob Erickson, REHS, Senior Environmental Health Specialist, SCPHD
Dale Peck, PE, Environmental & Health Protection Division Administrator, PHD
Michael Reno, REHS, Environmental Health Supervisor, CDHD
Jason Holm, J.T. Holm Construction, LLC

GUESTS:

Chas Ariss, P.E., Wastewater Engineering Manager, DEQ
Tammarra Golightly, Administrative Assistant, DEQ
Larry Waters, P.E., Lead Wastewater Engineer, DEQ
Ryan Spiers, Alternative Wastewater Systems, LLC
PaRee Godsill, Everlasting Extended Treatment, LLC
Sheryl Ervin, Bio-Microbics, Inc. (via telephone)
Jim Bell, Bio-Microbics, Inc. (via telephone)
Allen Worst, R.C. Worst & Company, Inc.
Jim Worst, R.C. Worst & Company, Inc.
Kirsten Ruebush, Effluent Technologies, Inc.
Shane Ruebush, Effluent Technologies, Inc.
Matt Gibbs, Infiltrator Systems, Inc.

CALL TO ORDER/ROLL CALL:

Meeting called to order at 8:32 a.m.
Committee members and guests introduced themselves.

OPEN PUBLIC COMMENT PERIOD:

This section of the meeting is open to the public to present information to the TGC that is not on the agenda. The TGC is not taking action on the information presented.

Kirsten Ruebush, Effluent Technologies, Inc.

Kirsten Ruebush of Effluent Technologies, Inc. introduced herself as the chairwoman of the O&M entity provider. Mrs. Ruebush explained that their O&M entity had been managed by the entity's service provider for four of the last six years. Mrs. Ruebush explained that she is in favor of abandoning the O&M entity led extended treatment package system (ETPS) maintenance and testing program but she is not in favor of transferring the responsibility from the ETPS O&M entity to a service provider. Mrs. Ruebush is in favor of transferring the responsibility for system operation and maintenance to the property owner. Mrs. Ruebush feels that the enforcement activities should fall solely onto DEQ and the health districts and that the manufacturer or O&M entity shouldn't have to be involved in mailing certified letters to their membership that are not in compliance.

Mrs. Ruebush would also like to see a requirement that new property owners are provided the historical operation, maintenance, and testing records for their system upon purchase of a property. The responsibility for provision of historical records for the property should be with the seller at the time of sale. Mrs. Ruebush also feels that the buyer of a property should have the ability to rely on the law to redress non-disclosure of the ETPS system and the historical operation, maintenance, and monitoring records by the seller. Mrs. Ruebush also believes that it should be the responsibility of a property buyer to contact the health district at the time of sale of any property with an ETPS installed on it. Mrs. Ruebush would like there to be an agreement between each property owner and the health district for each ETPS unit owned by an individual. Upon sale or transfer of property Mrs. Ruebush believes that it should be the buyer's responsibility to sign a new agreement with the health district for the ETPS. Mrs. Ruebush reiterated that the ultimate responsibility should be placed on the property owner.

Mrs. Ruebush would also like to see a more comprehensive education program for these system types. Mrs. Ruebush would like DEQ to maintain a clean and accurate website related to the ETPS program. There should also be information on system sizing issues related to ETPS.

Mrs. Ruebush would also like to have access to an independent service provider for ETPS operation, maintenance, and monitoring. The property owners should have the capability to sue service providers for redress if necessary without impacting themselves or their neighbors. Mrs. Ruebush stated that more service providers are necessary. Mrs. Ruebush stated that a single provider leads to the feeling of service provider entitlement. There should be open competition for service providers. Mrs. Ruebush also stated that if the state is going to require manufacturer certified service providers then the state needs to take the responsibility to ensure that certification is available to all those who desire to seek it.

Mrs. Ruebush also stated that the current easement for service providers through the O&M entity has been abused. Mrs. Ruebush stated that there is no knowledge of the provider coming and going, no record of service provided, etc. With a new system Mrs. Ruebush believes that there is no reason for an easement to be in place.

Mrs. Ruebush also would like the property owner to have the ability to submit their annual report or allow the service provider to submit the report for them. Mrs. Ruebush also believes that any

cost of enforcement should be borne by the non-compliant property owner and not other property owners in the ETPS program. Compensation should be provided to the enforcement authority through fining property owners for non-reporting.

Mrs. Ruebush also believes that all ETPS units with NSF testing should be allowed to be sold and used within the state. Mrs. Ruebush stated that she has had issues with the manufacturer of her unit supporting grab sampling. The manufacturer of her unit will not support grab sampling. Mrs. Ruebush believes that it is a waste of property owner's money to have to go through multiple grab samples. Mrs. Ruebush is also concerned that providers are skewing results that are tied to their livelihoods. Mrs. Ruebush stated that through her inquiries she found that other states are only requiring maintenance of ETPS and not additional testing of $CBOD_5$ or TSS. Mrs. Ruebush concluded that she is in favor of requiring maintenance but does not support ETPS testing.

Allen Worst, R.C. Worst & Company, Inc.

Mr. Worst stated that it appears the state is headed towards a service provider model for ETPS operation, maintenance, and monitoring. Mr. Worst stated that under the current proposal it appears the installers would be providing the operation, maintenance, and monitoring. Mr. Worst feels that under the current requirements that installers are lacking in training requirements. Mr. Worst would like to see wastewater operators licenses required to an individual to provide service to ETPS.

Mr. Worst also stated that he disagrees with the previous commenter's statement that grab samples are not effective. Mr. Worst also disagrees that the state should rely solely on NSF testing data for system approval and installation allowances.

MEETING MINUTES:

March 20, 2015 Draft TGC Meeting Minutes: Review, Amend, or Approve

No public comment was received on the draft minutes. The minutes were reviewed by the committee and no suggestions for amendments were made.

Motion: Dale Peck moved to approve the minutes.

Second: Mike Reno.

Voice Vote: Motion carried unanimously.

Minutes will post as final. See DEQ website and **Appendix A**

OLD BUSINESS/ FINAL REVIEW:

Table 4-17 and Table 4-19 Secondary Biological Treatment System Hydraulic Application Rates

This TGM Section was posted for public comment. There were no public comments received on this section.

Motion: Bob Erickson moved that the TGC recommend final approval to DEQ for Table 4-17 and Table 4-19 Secondary Biological Treatment System Hydraulic Application Rates as presented.

Second: Dale Peck.

Voice Vote: Motion carried unanimously.

Section will post to TGM as final. See DEQ website and **Appendix B.**

3.2.8.1.4 Pit Run

This TGM Section was posted for public comment. There were no public comments received on this section.

Motion: Mike Reno moved that the TGC recommend final approval to DEQ for Section 3.2.8.1.4 Pit Run as presented.

Second: Bob Erickson.

Voice Vote: Motion carried unanimously.

Section will post to TGM as final. See DEQ website and **Appendix C.**

4.10 Floating Vault Toilets and Boat or Vessel Sewage Disposal

This TGM Section was posted for public comment. There were no public comments received on this section.

Motion: Dale Peck moved that the TGC recommend final approval to DEQ for Section 4.10 Floating Vault Toilets and Boat or Vessel Sewage Disposal as presented.

Second: Joe Canning.

Voice Vote: Motion carried unanimously.

Section will post to TGM as final. See DEQ website and **Appendix D.**

4.1.3 Combination of Multiple Alternative Systems in One System Design

This TGM Section was posted for public comment. There were no public comments received on this section.

Motion: Bob Erickson moved that the TGC recommend final approval to DEQ for Section 4.1.3 Combination of Multiple Alternative Systems in One System Design as presented.

Second: Mike Reno.

Voice Vote: Motion carried unanimously.

Section will post to TGM as final. See DEQ website and **Appendix E.**

NEW BUSINESS/DRAFT REVIEW

4.1 General Requirements

Bob Erickson requested that a change be made to require that the designer of alternative private systems be either a PE or an environmental health specialist.

Motion: Bob Erickson moved that the TGC recommend preliminary approval to DEQ for Section 4.1 General Requirements as amended.

Second: Dale Peck.

Voice Vote: Motion carried unanimously.

See **Appendix F** and provide public comment to Tyler Fortunati at 208-373-0140 or by email at tyler.fortunati@deq.idaho.gov**.**

4.21 In-Trench Sand Filter

Dale Peck requested that a change be made to the enveloped in-trench sand filter designs for the application rate related to clay loam being less than the application rate for the clay loam instead of more than the application rate.

The committee held a discussion on the system equivalencies in relation to the system design. Tyler Fortunati stated that the standard in-trench sand filter depicted in figure 4-31 was consistent with the method of 72 and related standard system designs, the enveloped in-trench sand filter depicted in figure 4-32 was consistent with the method of 72 and related standard system designs, the enveloped in-trench sand filter depicted in figure 4-33 was consistent with separation distances for alternative pretreatment designs like the recirculating gravel filter, intermittent sand filter, etc. due to the requirement of pre-treatment preceding this drainfield design, and that the enveloped and pressurized in-trench sand filter shown in figure 4-34 was consistent with other pressurized filter designs like the intermittent sand filter and sand mound.

Motion: Dale Peck moved that the TGC recommend preliminary approval to DEQ for Section 4.21 In-Trench Sand Filter as amended.

Second: Joe Canning.

Voice Vote: Motion carried unanimously.

See **Appendix G** and provide public comment to Tyler Fortunati at 208-373-0140 or by email at tyler.fortunati@deq.idaho.gov**.**

2.2.5 Method of 72 to Determine Effective Soil Depth to Permeable Layers and Ground Water

Bob Erickson requested that the statement in example 2 related to medium sand installation depth be moved up into the main guidance body in section 2.2.5.2.

Motion: Mike Reno moved that the TGC recommend preliminary approval to DEQ for Section 2.2.5 Method of 72 to Determine Effective Soil Depth to Permeable Layers and Ground Water as amended.

Second: Joe Canning.

Voice Vote: Motion carried unanimously.

See **Appendix H** and provide public comment to Tyler Fortunati at 208-373-0140 or by email at tyler.fortunati@deq.idaho.gov**.**

4.3 Capping Fill System

The committee recommended a couple changes to the guidance body to align the terminology of the two capping fill system types.

Mike Reno requested that a change be made to the construction requirements for the above-grade capping fill system that the soil cap must be constructed prior to system excavation when constructing with pipe and aggregate.

Motion: Bob Erickson moved that the TGC recommend preliminary approval to DEQ for Section 4.3 Capping Fill System as amended.

Second: Mike Reno.

Voice Vote: Motion carried unanimously.

See **Appendix I** and provide public comment to Tyler Fortunati at 208-373-0140 or by email at tyler.fortunati@deq.idaho.gov**.**

9:45 a.m. Break

10:00 a.m. Meeting Resumed

Introduction of Committee and Wastewater Staff Members

Upon resuming the meeting after the break Tyler Fortunati introduced Larry Waters, P.E. and Jason Holm. Larry Waters was hired to replace A.J. Maupin as the Lead Wastewater Engineer for DEQ's Wastewater Program working in the state office. Larry provided a brief introduction to the committee. Jason Holm of J.T. Holm Construction was selected

to fill the vacant complex installer seat on the Technical Guidance Committee. Jason provided a brief introduction to the committee.

4.2 At-Grade Soil Absorption System

Tyler Fortunati explained to the committee that this system design was requested to be drafted as an alternative system type by a prior committee member and the guidance was finally ready for review. Tyler Fortunati also explained that it is likely a limited design that might only be used in select situations to allow the installation of an alternative without pretreatment.

The committee had questions related to linear loading rates. Tyler Fortunati stated that as long as the design engineer is within the allowable range for the most restrictive soil type in the effective soil depth below the system that the loading rate should be acceptable to the health districts in design review. Tyler Fortunati stated that due to the complexity of assigning linear loading rates that he felt it was best to leave up to the design engineer for the selection of the specific rate used in their system design, again as long as it falls within an acceptable range that was developed from the linear loading rate literature.

The committee made a few changes to the example calculations to be consistent with the safety factor for the system design.

There was discussion regarding the orifice spacing requirements. Tyler Fortunati stated that in flat site designs it is up to the engineer to determine the spacing that equates to a disposal area of 6 ft^2 per orifice and that this should maximize the infiltrative surface of the system utilized and help protect the system from failure due to point loading of the cap. Tyler Fortunati stated for sloped sites that there is only one pressurized lateral installed on the upper side of the aggregate cell and that using a square footage wasn't possible. The goal of 12 inch spacing is again to maximize distribution and infiltrative surface of the system to protect the system from point loading failure.

Motion: Joe Canning moved that the TGC recommend preliminary approval to DEQ for Section 4.2 At-Grade Soil Absorption System as amended.

Second: Bob Erickson.

Voice Vote: Motion carried unanimously.

See **Appendix J** and provide public comment to Tyler Fortunati at 208-373-0140 or by email at tyler.fortunati@deq.idaho.gov.

Gravelless System Product Approvals

Tyler Fortunati discussed the answers provided by DEQ's Water Quality Division Administrator related to gravelless system product approvals. The committee had posed several questions to DEQ related to their approval of gravelless system products. The

questions posed by the committee and answers provided by DEQ's Water Quality Division Administrator are included below:

- Does the reduced side wall height (3.3-3.77 inches compared to the standard 6 inches) and reduced storage capacity (in comparison to standard chambers) warrant a sizing reduction change from the standard 25% reduction afforded to these products?
    - The WQ Division Administrator states that a reduced sidewall height does warrant a sizing reduction change from the standard 25%, but existing product approvals will not be altered. The sidewall is not part of the sizing equation for a drainfield but is built in as a factor of safety. There is no formula for the factor of safety and sizing allowances. The WQ program engineer that oversaw many of the gravelless system approvals believes that the allowed reduction should be altered to maintain an equivalent factor of safety to the standard trench.
- What is DEQ's lowest limit on the inlet invert height in gravelless chamber products?
    - The WQ Division Administrator states that there is no lower limit on the inlet invert height. All comparisons should be made to a standard drainfield. Again, the WQ program engineer states that if the invert height is reduced then the trench length should be increased accordingly to recoup the safety factor of lost elevation.
- Does DEQ only consider the bottom area of a trench and discount the sidewall area?
    - The WQ Division Administrator states that DEQ does only consider the bottom area of a trench for disposal area but the sidewall is the margin of safety and not credited in permitting (except for extra-drainrock trenches).
- The WQ Division Administrator is of the opinion that it should be considered to require Infiltrator to put the products through the NSF 240 testing protocol.

1.4.2.3 Gravelless System Product Approvals

Tyler Fortunati introduced a new product approval policy related to gravelless system components that incorporates recommendations from DEQ's Water Quality Division Administrator.

Action Item: Provide the committee with a summary of the information in NSF Standard 240.

Motion: Dale Peck moved that the TGC recommend preliminary approval of Section 1.4.2.3 Gravelless System Product Approvals as presented.

Second: Mike Reno.

Voice Vote: Motion carried unanimously.

See **Appendix K** and provide public comment to Tyler Fortunati at 208-373-0140 or by email at tyler.fortunati@deq.idaho.gov.

Extended Treatment Package Systems – Service Provider Model

At the March 20, 2015 TGC meeting the committee heard public testimony regarding the ETPS program, received a proposal for alteration of operation, maintenance, and monitoring requirements for the Orenco AdvanTex ETPS units, and developed a recommendation on the direction of the ETSP operation, maintenance, and monitoring program. There were several program questions that the committee requested answers to from DEQ's Water Quality Division Administrator.

The first issue heard by DEQ's Water Quality Division Administrator revolved around potential conflicts of interest for individuals permitted as pumpers and performing service provider services for ETPS units as well. This also extended to individuals who may also be permitted as an installer. The Water Quality Division Administrator stated that DEQ will not restrict individuals from having associated businesses (e.g., installer, pumper, service provider). Additionally, DEQ cannot dictate the language used by ETPS service providers when they are recommending pumpouts of septic tanks and ETPS units. The committee had no further inquiries or comments related to this issue.

The second issue heard by DEQ's Water Quality Division Administrator was related to the proposal made by Allen Worst of R.C. Worst & Company, Inc. and the Orenco AdcanTex ETPS units. Mr. Worst requested that the committee consider the following three options for the Orenco AdvanTex ETPS units:

- Move the Orenco AdvanTex products into the RGF category and require the same maintenance requirements.
- Move the ISF and RGF into the ETPS program and require the same ongoing maintenance.
- Classify the Orenco AdvanTex, RGF, and ISF technologies as packed bed filters and alter the maintenance requirement for these technologies under the ETPS program to yearly O&M for first two years and then once every 2-3 years thereafter if track record of reliability is demonstrated.

Tyler Fortunati presented that DEQ's Water Quality Division Administrator is ok with shifting the Orenco AdvanTex products into the recirculating gravel filter category and not requiring additional operation and maintenance pending the committee's recommendations.

The committee held a discussion regarding the total nitrogen reduction approvals of the different system types. Tyler Fortunati stated that the recirculating gravel filter is currently approved with a reduction level down to 27 mg/L total nitrogen and is under a property owner maintenance model (no O&M entity or service provider required). The Orenco AdvanTex currently has an approved reduction level down to 16 mg/L total nitrogen and is under the O&M entity maintenance model. Mike Reno expressed concerns regarding the Orenco systems that may have been installed due to the results of a nutrient-pathogen evaluation and are required to achieve specific nitrogen reduction levels. Mr. Reno stated that this wastewater constituent is the one that they have had the most trouble with in the testing program historically and is not as easy for the units to achieve. Mr. Reno stated that he isn't opposed to moving the Orenco AdvanTex units into a property owner maintenance model but

would not support doing so for the units that are required to achieve a specific nitrogen reduction limit as part of their septic permit.
The committee continued to discuss operation, maintenance, and monitoring of extended treatment package systems in general. Dale Peck stated that he would like to continue to discuss the transition of the ETPS program as a whole prior to making a recommendation on Mr. Worst's proposal.

Tyler Fortunati continued to address the items that the committee had requested feedback from DEQ's Water Quality Division Administrator on. The final item that the committee had passed on to the Administrator was the recommendation that DEQ pursue a service provider based model to carry out the required operation, maintenance, and monitoring of ETPSs. DEQ's Water Quality Division Administrator is ok with pursuing the service provider approach to required operation, maintenance, and monitoring for ETPSs. Tyler Fortunati clarified that DEQ would not accept requiring service provider based operation, maintenance, and monitoring for all alternative systems with pumps or moving sand mounds, intermittent sand filters, or recirculating gravel filters into a service provider based operation, maintenance, and monitoring system at this time. Tyler Fortunati stated that there may be consideration on DEQ's part of requiring service provider based operation, maintenance, and monitoring of enhanced variations of the recirculating gravel filter that achieves higher nitrogen reduction levels but that discussion would have to be had when there was approved guidance for the construction of these types of systems.

Tyler Fortunati also presented additional information on considerations of Existing ETPS permits that the committee needs to take into account with a transition to a service provider model. Tyler Fortunati explained that the existing installed ETPS units are under permits that were issued with the requirement that the maintenance be performed by an O&M entity. This is documented through the recorded member agreements that were submitted to the permitting health district as part of the permit application. Tyler Fortunati stated that the Attorney General's office has provided input that the only way an existing septic permit can be amended is if the property owner agrees to do so. If a property owner agrees to amend their septic permit then a new permit could be issued with the service provider model requirements. If a property owner does not agree to amend their permit then the committee would have to weigh a couple options for a recommendation. The committee should consider that DEQ and the health districts could stop enforcing the operation, maintenance, and monitoring requirements for the existing systems until a new repair, replacement, or expansion permit is issued for them. At that time they would be issued the new permit with the service provider requirements. Dale Peck stated that they could also have the new service provider O&M model and the old O&M entity model in place at the same time but that this certainly wouldn't be preferred. Tyler Fortunati stated that they must also take into consideration how the existing recorded member agreements can be removed from the permitted properties with existing ETPS units.

Dale Peck inquired as to what DEQ's vision was for the program. Tyler Fortunati stated that the current vision is in the service provider model and the proposed draft rule that the committee would review shortly. Tyler Fortunati stated that he would like to have the basic program structure (who provides service, how they are authorized to provide it, and the associated responsibilities) in place prior to making other amendments to ETPS guidance etc. After the initial program structure direction and draft content is determined then the

committee could move forward with amending guidance and determine exactly what they will do with the existing systems. The committee held some discussion on this direction. Tyler Fortunati stated it would be best to break and come back to complete the discussion on the draft rules and which direction the program would head including Mr. Worst's proposal.

The meeting was adjourned for Lunch.
Lunch 12:10 p.m. – 1:20 p.m.

Extended Treatment Package Systems – Service Provider Model (continued)

Upon returning from the lunch break Dale Peck stated that he saw several areas that need to be addressed for the program moving forward. Mr. Peck also felt they should be addressed in a specific order. The items he felt that needed to be addressed are:

1. Product disapproval for all of the currently approved systems that have not shown that they function through installation and testing data (suspended systems not working towards compliance and those listed in section 5.4 of the TGM that are not installed in the state).
2. Review/revision of the TGC's product approval policy.
3. Rule change to support the service provider system.
4. TGM guidance changes for the ETPS program to align the guidance with the service provider model.
5. Leave the roughly 900 existing ETPS systems that are suspended in their current state until a new permit is issued for them and require the remaining roughly 1,000 existing ETPS system to comply with the service provider program.

Jim Bell requested to address the committee and provided the recommendation that DEQ have all of the manufacturers with existing approvals to voluntarily seek renewal of their existing approvals. The committee liked this recommendation. Discussion was held by the committee on having the ETPS manufacturers with existing installations and data that are under a suspended status to submit renewals with testing data to support their approved reductions. Other manufacturers would have to submit the necessary data consistent with the existing product approval policy to receive specific nitrogen reductions.

Tyler Fortunati stated that any product disapprovals or renewals would have to be approved by DEQ's Water Quality Division Administrator and be done in conformance with IDAPA 58.01.03 and associated Idaho Code. Tyler Fortunati stated that there is a process that must be followed to achieve this but that providing notice and moving forward over the next year on this process would likely be a suitable timeframe. Dale Peck clarified that the disapprovals/renewal process should begin soon and move forward while the other items on the list he provided are worked on. Tyler Fortunati stated that he would bring this information to DEQ's Water Quality Division Administrator for consideration as part of the program revision process. The committee accepted this approach and expressed concern that upon transition to a service provider based model that the O&M entity suspensions would no longer be in place for ETPS products that may not be capable of achieving their specific reductions allowing them to be installed again with no recourse.

Tyler Fortunati also stated that there wasn't support at DEQ to provide a selective enforcement strategy to the existing permitted ETPS installations. The thought is that there is either a requirement to have all of the systems follow the new system protocol upon implementation or allow them all to voluntarily follow the protocol and those that don't would be left to provide their own maintenance until a repair, replacement, or expansion septic permit was issued for the system. Tyler Fortunati reiterated that DEQ is still seeking final input from the Attorney General's office on what legal authority they have over changing existing septic permits before deciding how to proceed on this process. Tyler Fortunati stated that either way DEQ would be informing the property owners with existing ETPS units on what their options would be moving forward once DEQ had legal clarification and specific program direction.

Recommendation from the TGC to DEQ for the process of pursuing the service provider model for the extended treatment package system program:

1. Notify manufacturers and initiate a voluntary product approval renewal process for all currently approved ETPS units (initiate immediately and allow deadline that is consistent with the projected service provider rule implementation date).
    a. All units operating under a currently functional O&M entity could reapprove and maintain their existing nitrogen reduction approvals.
    b. All units operating under a currently suspended O&M entity may renew but must submit the necessary testing data consistent with the current ETPS product approval policy to obtain nitrogen reduction approval.
    c. All units approved and listed in section 5.4 of the TGM may renew approvals but must submit the necessary testing data consistent with the current ETPS product approval policy to obtain nitrogen reduction approval.
2. The TGC will review, and revise if necessary, the existing ETPS product approval policy (review at the July 22, 2015 TGC meeting)
3. DEQ pursues the proposed rule revision to IDAPA 58.01.03.006 to develop and support the service provider based O&M model (initiate immediately and prepare the rule revision by the DEQ deadline for the calendar year 2016 legislative session).
4. The TGC will develop TGM guidance changes related to the ETPS operation, maintenance, and monitoring program that are consistent with the draft service provider rule (begin revision review upon the final negotiated rule revision to IDAPA 58.01.03.006 that will be presented to the calendar year 2016 legislature).
5. Implement new operation, maintenance, and monitoring requirements for existing ETPS permit holders within legal DEQ's legal authority or release existing ETPS permit holders from the operation, maintenance, and monitoring requirements until they are issued a repair, replacement, or expansion permit (provide notification to property owners upon final authority interpretation with a deadline that is consistent with the projected service provider rule and guidance implementation date).

Motion: Dale Peck moved that the TGC recommend the above outlined process for pursuing the service provider model for the extended treatment package system program.

Second: Bob Erickson.

Voice Vote: Recommendation carried unanimously.

Tyler Fortunati stated that DEQ would consider the committee's recommendation.

Upon passing the recommendation on the process that DEQ should follow for pursuing the service provider based model for the ETPS program the committee reviewed the proposed draft revision to IDAPA 58.01.03.006 to create a service provider endorsement. The committee expressed concern about altering the required bond amounts for the installer's registration permit. Tyler Fortunati stated the proposed change was to ensure the bonds covered the costs of today's system installations for basic and complex systems. Tyler Fortunati asked the three parties present that hold installer's registration permits if this would be an issue to them. All of the present registered installers stated that they had no issue with raising the bond to the amounts proposed and that they felt it would be an adequate amount for most circumstances. The committee made a few minor changes to the draft rule related to formatting and grammar. No content changes were made to the proposed rule revision.

Motion: Jason Holm moved that the TGC recommend the DEQ administration pursue negotiated rulemaking on the amended draft of IDAPA 58.01.03.006 for legislative review during the calendar year 2016 legislative session.

Second: Mike Reno.

Voice Vote: Recommendation carried unanimously.

See **Appendix L** and provide public comment to Tyler Fortunati at 208-373-0140 or by email at tyler.fortunati@deq.idaho.gov.

The committee revisited the proposal that Allen Worst made in regards to the Orenco AdvanTex products. Tyler Fortunati inquired as to whether Orenco was aware of the proposed product classification changes that Mr. Worst was making for their AdvanTex products. Mr. Worst stated that they were generally aware of what product classification he was seeking for the AdvanTex products. Tyler Fortunati stated that he would get in contact with Orenco's regulatory director regarding the proposal.

Action Item: Tyler Fortunati will contact Orenco and seek documentation that they support the proposed product classification changes proposed by Allen Worst.

The committee again voiced concern regarding nitrogen reduction approvals and no requirements of operation, maintenance, and monitoring for those systems. Tyler Fortunati presented Table 8-1 from the TGM and stated that any classification changes would have to happen on this table. The committee discussed creating a packed bed filter category to the table and moving the intermittent sand filter, recirculating gravel filter,

and Orenco AdvanTex to this portion of the table. Under this revision the AdvanTex products under the property owner maintenance model would not be granted total nitrogen reduction less than 27 mg/L. The AdvanTex unit would also be left under the Recirculating ETPS product listing but be required to follow the O&M entity or service provider maintenance model to obtain total nitrogen reduction levels between 16 mg/L-27 mg/L.

Action Items:

1. Perform literature review and report to the committee to verify how the recirculating gravel filter was provided a total nitrogen reduction level of 27 mg/L.
2. Develop a packed bed filter section for Table 8-1 of the TGM and move the intermittent sand filter, recirculating gravel filter, and Orenco AdvanTex system to this classification.
3. Develop a packed bed filter approval process for the TGM.

Motion: Mike Reno moved that the TGC table Allen Worst's proposal for the Orenco AdvanTex products until the action items related to this product are completed.

Second: Joe Canning.

Voice Vote: Recommendation carried unanimously.

Allen Worst's proposal for the Orenco AdvanTex product listings will be taken back up at the next meeting in conjunction with the information obtained through completion of the action items related to the product and product proposal.

NEXT MEETING:

The next committee meeting is scheduled to be on July 22, 2015 at the Idaho Department of Environmental Quality's state office.

Motion: Bob Erickson moved to adjourn the meeting.

Second: Joe Canning.

Voice Vote: Motion carried unanimously.

The meeting adjourned at 3:00 p.m.

Appendix B

1.4.2.3 Gravelless System Product Approvals

Manufacturers seeking approval of a gravelless system product (e.g., chamber or synthetic media) as an alternative to drainfield aggregate shall submit product information to the DEQ on-site wastewater coordinator for review by DEQ and the Technical Guidance Committee. In addition to product information described in section 1.4 manufacturers must submit NSF/ANSI Standard 240 approvals, reports, and associated data. Any additional third-party standards evaluated for the gravelless system product must also be submitted including approvals, disapprovals, reports, and associated data.

DEQ will issue gravelless system product approval with associated sizing reduction allowances. Sizing reductions will be determined through analysis of open trench bottom area, associated sidewall area, and storage capacity in comparison to a standard trench. Each component will be analyzed independently of one another in comparison to a standard trench and taken into account with the NSF/ANSI Standard 240 data. Approval of products that have not undergone NSF/ANSI Standard 240 will not be considered for sizing reductions. Reductions provided may be allowed up to a maximum of 25%.

Appendix C

2.2.5 Method of 72 to Determine Effective Soil Depths ~~to Porous Layers and Ground Water~~

Often, effective soil depths, as required by IDAPA 58.01.03.008.02.c, are not achievable due to various site conditions. In response to this issue, section 2.2.2 provides guidance for reducing separation distances to limiting layers based upon soil design subgroups. In some situations, this guidance does not go far enough to address these site limitations, nor does it provide guidance on how to approach separation distances to limiting layers when the soil profile is variable and does not meet the minimum effective soil depths as described in IDAPA 58.01.03.008.02 or Table 2-5, or when the in-trench sand filter system design is used. To address these situations, use the method of 72.

The method of 72 assigns treatment units to soil design subgroups. Treatment units assigned to soil design subgroups are extrapolated from the effective soil depths required by IDAPA 58.01.03.008.02.c. Based on this rule, it can be determined that 72 treatment units are necessary from the drainfield-soil interface to the porous layer/ground water to ensure adequate treatment of effluent by the soil. Table 2-8 provides the treatment units assigned to each soil design subgroup.

Table 2-8. Treatment units assigned to each soil design subgroup per foot and per inch.

Soil Design Subgroup	A-1/ Medium Sand	A-2	B-1	B-2	C-1	C-2
Treatment units per 12 inches of soil	12	14.4	18	24	24	28.8
Treatment units per inch of soil	1	1.2	1.5	2	2	2.4

2.2.5.1 Native Soil Profiles and the Method of 72

When the soil profile contains multiple suitable layers, but no layer is thick enough to meet the separation guidance provided in IDAPA 58.01.03.008.02.c or Table 2-5, use the method of 72 to determine the suitable separation distance for the proposed drainfield site. The following example is based on the soil profile identified in Figure 2-3.

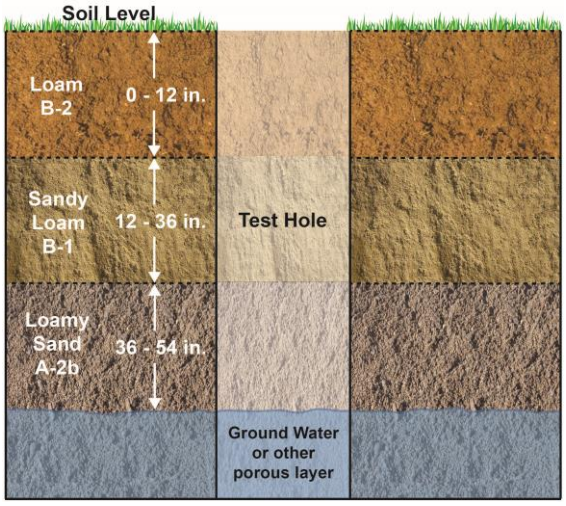

Figure 2-3. Test hole profile used in example 1.

Example 1:

Based upon the soil profile in Figure 2-3 and treatment units from Table 2-8, the following treatment unit equivalent would be ascribed:

Treatment units = 24 + 36 + 21.6 = 81.6

Since this is the treatment unit equivalent from grade to the porous layer or normal high ground water level, the installation depth must still be determined. In this example, the soil profile has 9.6 treatment units more than the minimum necessary to be considered suitable for a standard alternative drainfield. To determine installation depth, use the upper layer of the soil profile where the system will be installed and determine the treatment units per inch of soil. Once the treatment units per inch are known, the depth of allowable installation can be determined.

- 24 treatment units /12 inches of B-2 soil = 2 treatment units per inch
- Installation depth = 9.6 excess treatment units /2 treatment units per inch
- Installation depth = 4.8 inches

In this example, a standard basic alternative system can be permitted. The system design would be a capping fill trench with a maximum installation depth of 4.5 inches below grade.

2.2.5.2 In-Trench Sand Filters and the Method of 72

The method of 72 may also be used in determining the necessary depth of medium sand required for installation between a drainfield and the native soils overlying a ~~porous limiting layer or normal high ground water~~limiting layer. Installation of medium sand may be necessary to access suitable soils below an unsuitable layer. Medium sand may be installed to any depth necessary to reach suitable soils as long as the excavation and installation of the medium sand meet the requirements in section 4.21. For porous limiting layers or normal high ground water the drainfield installation depth must meet a depth sufficient to meet the method of 72. For impermeable limiting layers (e.g., bedrock) the drainfield installation depth must meet a depth sufficient to meet the minimum separation distance to impermeable layers required by IDAPA 58.01.03.008.02.c, or Table 2-6 if the approval conditions can be met. Separation distances to

impermeable layers cannot be reduced to less than the requirements above through the method of 72. The following example is based on the soil profile identified in Figure 2-4.

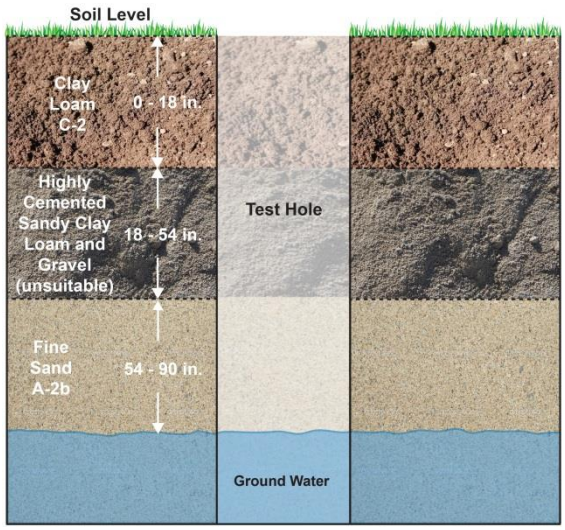

Figure 2-4. Test hole profile used in example 2.

Example 2*:*

In this example, the site soils must be excavated down to 54 inches to access suitable soils. This leaves 36 inches of A-2b soils, providing 43.2 treatment units. The amount of medium sand required to be backfilled prior to system installation would be determined as follows:

- Remaining treatment units = 72 – 43.2 = 28.8
- Depth of medium sand required = 28.8 treatment units remaining/1 treatment unit per inch
- Depth of medium sand required = 29 inches

Thus the medium sand would be backfilled to a depth of 25 inches below grade. The drainfield would then be installed on top of the leveled medium sand.

Note: Regardless of the soil profile and treatment units needed, drainfields must be installed no deeper than 48 inches below grade per IDAPA 58.01.03.008.04. Drainfield depth restrictions only apply to the aggregate as defined in IDAPA 58.01.03.008.08 or the gravelless trench components approved in section 5.7.

Appendix D

4.1 General Requirements

Revision: ~~September 18, 2014~~July 22, 2015

All rules pertaining to standard subsurface sewage disposal systems shall be applicable, except as modified in this section for each alternative.

All alternative systems shall be approved for specific site use by the health districts in a manner consistent with the guidance provided within this manual for each alternative system.

Requirements for each site-specific alternative shall be contained in the permit.

The designer of all ~~alternative~~ *public* systems, both standard and complex, must be a PE licensed in Idaho (Idaho Code §54-1218). Additionally, the public system's construction must also be reviewed by a PE licensed in Idaho (Idaho Code §54-1218). The PE designing and overseeing the construction of any public system should be ~~and~~ experienced in the ~~alternative~~ system's design. Public systems include any system owned by the state, a county, city, school district, irrigation district, drainage district, highway district, or other subdivision of the state having power to levy taxes or assessments against property situated therein (Idaho Code §54-1218). The requirement for a PE to design and oversee construction of a public system shall not apply to public systems if (Idaho Code §54-1218):

- The construction, reconstruction, maintenance and repair work is insignificant (less than $10,000 in total cost), and
- Performed by employees of the public agency in accordance with standards for such work (including, but not limited to, the Idaho standards for public works construction and any supplements thereto) that have been certified by a PE and duly adopted by the public agency's governing body, and
- A PE determines that such public construction, reconstruction, maintenance and repair work does not represent a material risk to public health or safety.

The designer of alternative *private* systems, other than those listed below, ~~may be~~ is required to be either a PE or an environmental health specialist. The PE must be licensed in Idaho and the environmental health specialist must be registered with the National Environmental Health Association, and both should be experienced in the alternative system's design. The designer of the following complex alternative *private* systems must be a PE licensed in Idaho unless otherwise allowed within the specific system's guidance:

- Drip Distribution System
- Evapotranspiration and Evapotranspiration/Infiltrative System
- Experimental System
- Grey Water System (if pressurized)
- Individual Lagoon
- Pressure Distribution System
- Recirculating Gravel Filter
- Intermittent Sand Filter
- Sand Mound

Appendix E

*Section 4.2 will be added to the systems requiring design by a PE in section 4.1 upon final approval.

4.2 At-Grade Soil Absorption System

Revision: July 22, 2015

4.2.1 Description

An at-grade soil absorption system is a system installed with the distribution aggregate placed at the original soil surface. Wastewater is distributed through the aggregate through a pressurized small-diameter pipe distribution system to ensure equal distribution across the infiltrative surface. Aggregate is covered with geotextile fabric and capped with at least 12 inches of soil cover. Figure 4-1 provides a diagram of an at-grade soil absorption system.

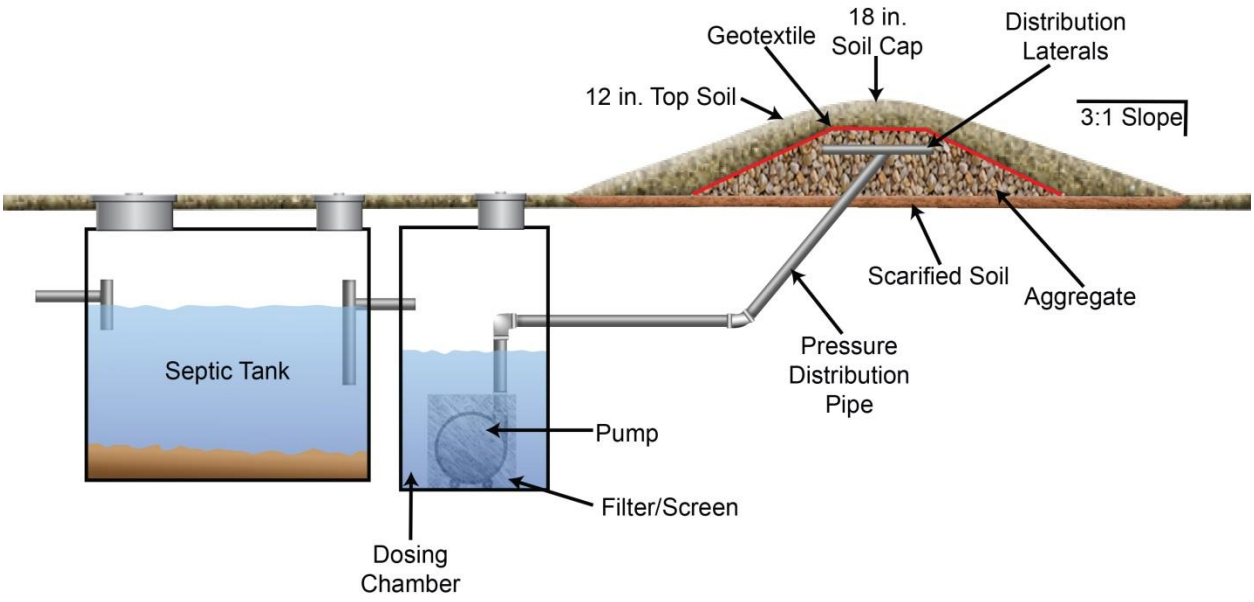

Figure 4-1. Cross-sectional view of an at-grade soil absorption system.

4.2.2 Approval Conditions

1. The system must be designed by a PE licensed in Idaho.
2. Effective soil depth to limiting layers shall meet the requirements of IDAPA 58.01.03.008.02.c. If a secondary treatment system is incorporated into the system design prior to discharge to the at-grade soil absorption system the effective soil depth to any limiting layer shall not be reduced to less than 36 inches.
3. The soil application rate used in the at-grade soil absorption system design is based on the most restrictive soil layer within the soil profile's effective soil depth as determined by approval condition 2 except that the application rate shall not be increased for the incorporation of secondary effluent treatment prior to discharge to the at-grade soil absorption system.

4. Table 4-1 shows the maximum slope of natural ground, listed by soil design group.
5. Drainfield media shall consist of aggregate meeting the specifications of section 3.2.8.1.1.
   a. Gravelless trench components shall not be substituted for drainfield aggregate in the system design.
   b. No reduction is granted for installation of extra drainrock below the distribution pipe.
6. At-grade soil absorption system must not be installed in flood ways, areas with large trees and boulders, in concave slopes, at slope bases, or in depressions.
7. Design flow must be 1.5 times the wastewater flow.
8. The maximum daily wastewater flow to any at-grade soil absorption system must be equal to or less than 500 GPD, not including the required safety factor adjustment.
9. Nondomestic wastewater must be pretreated to residential strength before discharge to the at-grade soil absorption system.
10. Pressure distribution system and associated component design shall conform to section 4.17 of this manual unless otherwise provided within this section.

Table 4-1. Maximum slope of natural ground.

Design Group	A	B	C-1	C-2
Slope (%)	20	20	12	6

4.2.3 Design

Minimum design requirements for the at-grade soil absorption system are provided below.

4.2.3.1 Effective Absorption Area Design

The effective absorption area dimensions are determined through the daily design flow plus safety factor, assigned soil application rate, and the contour loading rate of the site. Effective absorption areas should be designed as long and narrow as possible to reduce the contour loading rate, increase the effective absorption area, and protect the at-grade soil absorption system from failure.

1. Determine the daily design flow and multiply it by the safety factor of 1.5.

   Example: Three bedroom home (250 gpd). Design flow (250 gpd x 1.5) = 375 gpd.
2. Determine the minimum necessary soil absorption area based on the daily design flow with the safety factor and the effective soil profile's most restrictive soil application rate.

   Example: Three bedroom home (375 gpd) on a site with B-2 soils(0.45 gpd/ft^2). Soil absorption area: (375 gpd/0.45 gpd/ft^2) = 834 ft^2.
3. Assign a contour loading rate. Contour loading rates are the responsibility of the system's design engineer to assign and should take into account soil texture, soil structure, and limiting layers existing in the soil profile.

a. Contour loading rates shall not be less than two-gallons per foot or more than 12 gallons per foot for a site and should fall between the values provided in Table 4-2 for each at-grade soil absorption cell.

b. If more than one at-grade soil absorption cell is required for a single system each cell shall have the same contour loading rate based on the most restrictive rate for the site.

c. Contour loading rates are additive along a site's slope for each at-grade soil absorption cell as shown in Figure 4-2.

d. See the following resources for more information on designation of contour loading rates:

i. *Linear Loading Rates for On-Site Systems* by James C. Converse (1998)

ii. *Designing with Soil: Development and Use of a Wastewater Hydraulic Linear and Infiltration Loading Rate Table* by E. Jerry Tyler and Laura Kramer Kuns (Date unknown)

iii. *Hydraulic Wastewater Loading Rates to Soil* by E. Jerry Tyler (Date unknown)

Table 4-2. Linear loading rate ranges based on soil design subgroups.

Design Subgroup	A-1	A-2a	A-2b	B-1	B-2	C-1	C-2
Contour Loading Rate Range (gpd/ft)	2-8	2-8	2-7	2-6	2-5	2-4	2-3

4. The effective absorption cell width is calculated by dividing the contour loading rate selected for the site by the soil application rate. Effective absorption cell width shall not exceed 15 feet.

   Example: Site with B-2 soils (0.45 gal/ft^2) and a selected contour loading rate of 4 gpd/ft. Absorption cell width: (4 gpd/ft/0.45 gal/ft^2) = 8.9 feet, use 9 feet. Round up to nearest half-foot for design purposes.

5. The absorption cell length is calculated by dividing the daily design flow by the contour loading rate.

   Example: Three bedroom home (375 gpd) and a selected contour loading rate of 4gpd/ft. Absorption cell length (375 gpd/4 gpd/ft) = 93.75 feet round to 94 feet for design purposes.

6. Ensure the at-grade absorption cell dimensions length and absorption area width meet or exceed the minimum soil absorption area calculated in step 2. If the absorption cell dimensions do not exceed the minimum absorption area required decrease the selected contour loading rate selected in step 3 to achieve the minimum required absorption area.

   Example 4 : Required absorption area = 696 ft^2. Design area: (79 feet x 9 feet) = 711 ft^2.

7. Effective absorption area within an aggregate cell shall be credited based on the following requirements:

   a. Flat sites: the absorption area is credited for the full width of the aggregate cell.

   b. Sloped sites: the absorption area is credited from the downhill side of the pressurized distribution lateral to the downhill edge of the aggregate cell.

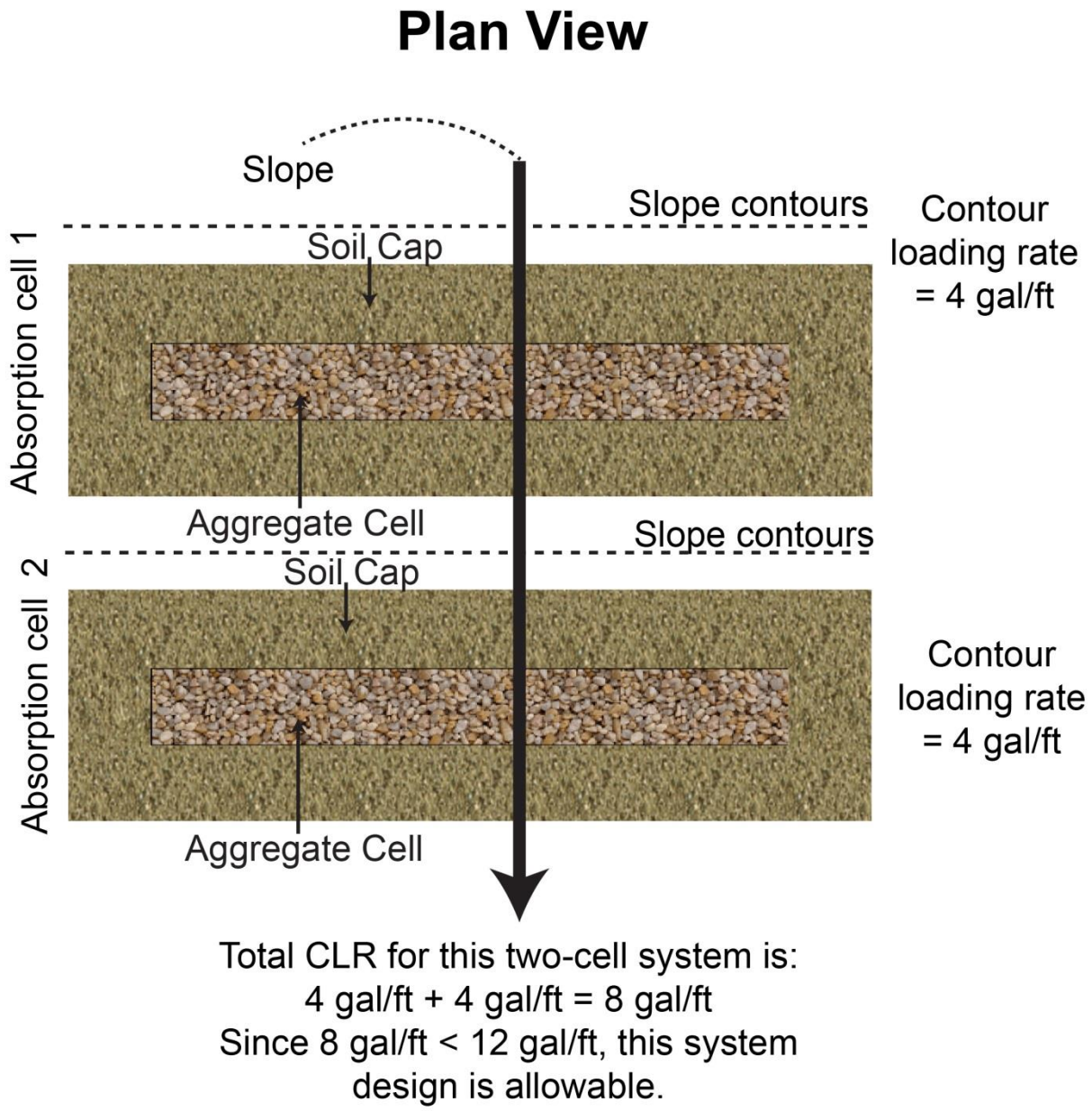

Figure 4-2. Additive contour loading rate example.

4.2.3.2 Pressure Distribution Design

The design of the low-pressure distribution system shall meet the requirements of section 4.17 with the exception of the requirements contained within this section.

1. Pressurized distribution lateral placement and spacing within the aggregate cell shall meet the following requirements:
    a. Flat sites: the lateral placement shall meet the requirements for beds and spacing shall meet the requirements for distribution laterals in section 4.17.3.1.

b. Sloped sites: only one pressurized distribution lateral is required and it shall be placed on the upslope edge of the aggregate.

2. The maximum orifice spacing shall meet the following requirements:

   a. Flat sites: the orifice spacing shall result in a maximum disposal area of 6 ft^2 per orifice.

   b. Sloped sites: the orifice spacing shall not be greater than 12 inches.

3. Dosing is recommended to be timed, but may be demand.

4. Each dose delivered to the infiltrative surface of the at-grade absorption system should not exceed 15% of the daily wastewater flow prior to the addition of a safety factor.

   Example: Three bedroom home (250 gpd prior to the addition of a safety factor). Each dose delivered to the infiltrative surface would not exceed 37.5 gallons total.

4.2.3.3 Aggregate Cell Design

At-grade absorption cells must be filled with aggregate meeting the requirements of section 3.2.8.1.1. The aggregate cell must account for the effective absorption area and meet the additional design requirements below.

1. Aggregate must be placed along the slope contour on the uphill side of the at-grade soil absorption system for sloped sites.

2. Aggregate placement must be at least 6 inches deep below and at least 2 inches above the pressurized distribution pipe. (Figure 4-3)

3. Aggregate must be placed in a consistent depth meeting the minimum requirements described in aggregate cell design requirement 2 throughout the entire effective absorption area after which the aggregate shall be tapered to meet native grade at a maximum slope of 3:1.

4. An additional 3 feet of aggregate must be placed as described in design requirement 2 on either end of the aggregate cell that extends past the terminal ends of the pressurized distribution pipe.

   a. This additional aggregate shall not be credited as part of the effective absorption area.

   b. After the additional aggregate placement is met the aggregate may taper to native grade at a maximum slope of 3:1

5. On sloped sites the aggregate upslope of the pressurized distribution pipe shall be tapered to native grade at a maximum slope of 3:1, but shall not be shorter than two feet.

6. Three observation ports should be installed at the toe edge of the aggregate cell extending from the drainrock/native soil interface through the soil cap at approximately the one-sixth, one-half, and five-sixth points along the aggregate cell.

   a. The observation ports should contain perforations in the side of the pipe extending up 4 inches from the bottom of the port.

b. Observation ports must be accessible from grade, have a removable cap, and be stabilized to prevent their removal.

c. On flat sites the observation ports should be located on both sides of the aggregate cell. On sloped sites the observation ports should be located on the downhill side of the aggregate cell.

7. The entire aggregate cell shall be covered by geotextile fabric. Geotextile fabric shall only extend to the edge of the aggregate.

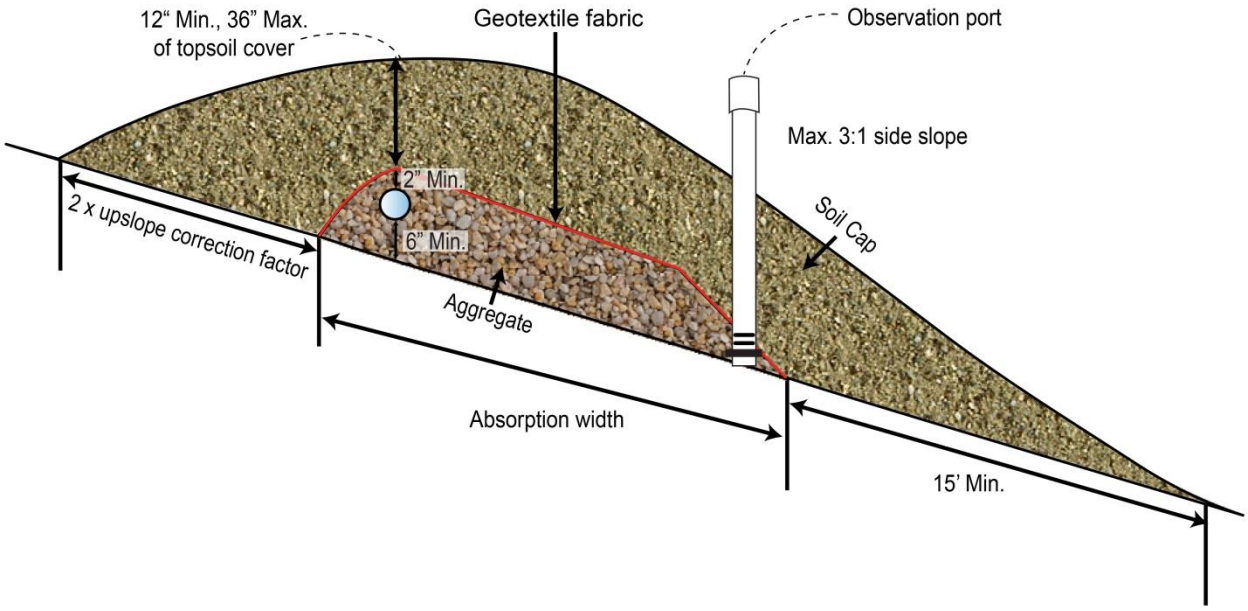

Figure 4-3. Cross section of an at-grade soil absorption system on a slope.

4.2.3.4 Soil Cap Design

The at-grade aggregate cell must have a soil cover meeting the following minimum requirements:

1. A minimum soil cap depth of 12 inches shall be placed over the entire aggregate cell (Figure 4-3). On flat sites the soil cap at the center of the cell shall be crowned to 18 inches to promote runoff.

   a. Depth of the soil cap shall not exceed 36 inches over any portion of the system.

   b. It is recommended to maintain the soil cap depth near the minimum depth requirements to promote evaporation during warmer months where practical.

2. For flat sites the soil cap width is determined by adding 5 feet to half of the aggregate cell width from the ends of the aggregate cell on all sides, or a minimum of 10 feet, whichever value if greater. The soil cap must maintain a maximum slope of 3:1 or less.

   Example: The aggregate cell has a design width of 9 feet. The soil cap width would be 5 feet + 4.5 feet, or 9.5 feet. Use the minimum width of 10 feet. The soil cap would extend 10 feet from the edge of the aggregate cell in all directions.

3. For sloped sites the slope correction factors as provided in Table 4-3 should be used to determine the downslope and upslope width of the soil cap.

   a. The downslope soil cap width is calculated by multiplying the height of the at-grade soil absorption system by the correction factor, adding 5 feet to the total width of the absorption cell, or a minimum of 15 feet. Whichever value is greater is used as the downslope cap width.

      Example: The height of the at-grade soil absorption system (aggregate plus cap) is 1.75 feet (9 inches of aggregate plus 12 inches of soil cover). The downslope soil cap width on a 10% slope would be 1.75 x 6.67, or 11.7 feet. Use the minimum width of 15 feet. The soil cap would extend 15 feet from the downslope edge of the aggregate cell.

   b. The upslope soil cap width is calculated by multiplying the height of the at-grade absorption system by the correction factor.

      Example: The height of the at-grade soil absorption system (aggregate plus cap) is 1.75 feet (9 inches of aggregate plus 12 inches of soil cover). The upslope soil cap width on a 10% slope would be 1.75 x 2.86, or 5 feet. The soil cap would extend 5 feet from the upslope edge of the aggregate cell.

   c. The soil cap extending from the ends of the aggregate cell shall be determined by adding 5 feet to half of the absorption cell width or a minimum of 10 feet, whichever value is greater.

      Example: The aggregate cell has a design width of 9 feet. The soil cap width would be 5 feet + 4.5 feet, or 9.5 feet. Use the minimum width of 10 feet. The soil cap would extend 10 feet from the ends of the aggregate cell.

   d. All sides of the soil cap must maintain a maximum slope of 3:1 or less.

Table 4-3. Downslope and upslope correction factors for soil cap width.

Slope (%)	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Downslope Correction Factor	4.17	4.35	4.54	4.76	5.00	5.26	5.56	5.88	6.25	6.67	7.14	7.69	8.26	8.92	9.57	10.24	10.94	11.67	12.42	13.2
Upslope Correction Factor	3.85	3.7	3.57	3.45	3.33	3.23	3.12	3.03	2.94	2.86	2.78	2.7	2.62	2.55	2.48	2.41	2.35	2.29	2.23	2.18

4. The texture of the fill material used for the soil cap shall be the same as or one soil design subgroup finer than that of the upper layer of the natural site soil, except that no fill material finer than clay loam may be used.

5. The soil cap material shall be free of debris, stones, frozen clods, or ice.

6. Soil cap should be protected to prevent damage caused by vehicular, livestock, or excessive pedestrian traffic. The toe of the soil cap must be protected from compaction.

7. At-grade soil absorption systems on slopes should have design considerations taking surface runoff diversion into account.

4.2.4 Construction

1. Lay out the system with the length following the slope contour.

2. Grass and shrubs must be cut close to the ground surface and removed from the at-grade soil absorption system site.
    a. If extremely heavy vegetation or organic mat exists, these materials should be removed before scarification and replaced with medium sand meeting the specification requirements in section 3.2.8.1.2.
    b. Larger than 2-inch caliper trees and shrubs and large boulders are not to be removed. Trees should be cut as close to ground level as possible and the stumps left in place. If stumps or boulders occupy a significant area in the at-grade soil absorption system placement area, additional area should be calculated into the total basal area of the at-grade soil absorption system to compensate for the lost infiltrative area.
2. When the soil is dry and site vegetation has been cut or removed, the ground in the basal placement area of the at-grade soil absorption system and soil cap should be scarified using a chisel plow or backhoe teeth to a depth of 6–8 inches.
3. Pressure transport line from the dosing chamber should be installed first.
    a. The pressure transport line should slope down to the pump so that the pressure line will drain between discharges.
    b. If a downward slope from the at-grade soil absorption system to the pump chamber is not practical due to the length of run, then the pressure transport line should be laid level below the anticipated frost line for that region.
    c. On a sloped site, the pressure transport line should enter the aggregate cell from the end of the aggregate cell or upslope side of the at-grade soil absorption system; do not enter the aggregate cell from the downslope side of the system.
4. Six inches of clean aggregate will then be placed and shaped before it freezes or rains. No vehicles with pneumatic tires should be permitted on the scarified area to prevent the soils from being compacted. For sloped sites, all work should be done from the upslope side or ends of the at-grade soil absorption system placement area if possible.
5. After shaping the first six inches of aggregate, the low-pressure distribution system manifold, laterals, and monitoring ports will be installed. The system should be tested for uniformity of distribution. After uniformity is verified an additional lift of clean aggregate shall be placed, shaped, and leveled to ensure the aggregate extends at least 2 inches above the low-pressure distribution system.
6. Geotextile fabric must be placed over the aggregate cell and backfilled with the soil cap.
7. Typical lawn grasses or other appropriate low-profile vegetation should be established on the soil cap as soon as possible, preferably before the system is put into operation. Do not plant trees or shrubs on the soil cap, or within the mature rooting radius of the tree or shrub from the soil cap. Trees with roots that aggressively seek water should be planted at least 50 feet from the at-grade soil absorption system and soil cap (e.g., poplar, willow, cottonwood, maple, and elm).
8. At-grade soil absorption systems placed upslope and downslope from each other should maintain a soil cap-toe to soil cap-toe separation distance of 35 feet (Figure 4-4).

a. The first 15 feet below the upslope at-grade soil absorption system should remain free of vehicular traffic and other activities resulting in soil compaction.

b. The 20 feet above the downslope at-grade soil absorption system should be maintained for construction of the downslope mound.

9. A separation distance of 15 feet should be maintained from the soil cap-toe of each at-grade soil absorption system when multiple at-grade soil absorption systems are constructed on the same elevation contour.

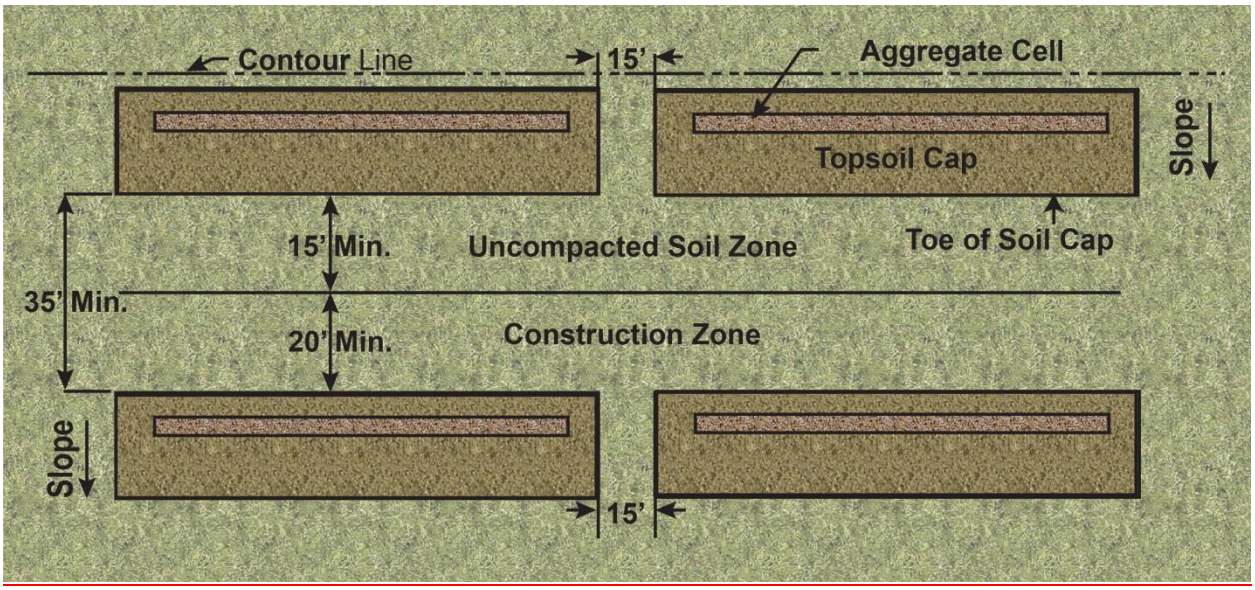

Figure 4-4. At-grade soil absorption systems placed upslope and downslope of one another.

4.2.5 Inspections

1. Site inspections shall be conducted by the health district at the following minimum intervals (IDAPA 58.01.03.011.01):

   a. Preconstruction conference that should be conducted with the health district, responsible charge engineer, complex installer, and property owner (if available) present.

   b. During construction as needed, including scarification, pressure line installation, absorption cell construction, pressure distribution piping construction, and soil cap placement.

   c. Final construction inspection including a pump drawdown/alarm check, pressure test of the distribution network, and soil cap material and placement.

2. The responsible charge engineer shall provide the health district with a written statement that the system was constructed and functions in compliance with the approved plans and specifications. Additionally, the responsible charge engineer shall provide as-built plans to the health district if any construction deviations occur from the permitted construction plans. (IDAPA 58.01.03.005.15).

4.2.6 Operation and Maintenance

An O&M manual shall be developed by the system's design engineer that contains the following minimum requirements and shall be submitted as part of the permit application (IDAPA 58.01.03.005.14):

1. Operation and maintenance is the responsibility of the system owner.
2. Sludge depth in the septic tank should be checked annually and the tank should be pumped when the sludge exceeds 40% of the liquid depth.
3. All pump and pump chamber alarm floats and controls should be inspected on a regular schedule to ensure proper function.
4. Pump screens and effluent filters should be inspected regularly and cleaned. All material created by cleaning the screen should be discharged to the septic tank.
5. Monitoring port caps should be removed and the monitoring ports observed for ponding. Corrective action should be taken, if excessive ponding is present, as specified by the system design engineer.
6. Observation ports for testing of residual head should be inspected regularly to ensure the residual head meets the system design minimum residual head.
7. Lateral flushing should occur annually to ensure any biomat buildup is removed from the distribution lateral. Lateral flushing procedures should be described and include a method to prevent wastewater and sludge from creating a public health hazard (e.g., routing flushed water and sludge back to the inlet of the septic tank via a dedicated hose).
8. Any other operation and maintenance as recommended by system component manufacturers and the system design engineer.

Appendix F

4.~~2~~3 Capping Fill System

Revision: ~~June 5, 2014~~July 22, 2015

4.~~2~~3.1 Description

A capping fill trench is a drainfield constructed so that its bottom is at least 3 inches into the natural soil but less than 2 feet deep in the natural soil. A selected fill material caps the trench to provide cover. The two subcategories of a capping fill system are (1) ~~standard~~below-grade capping fill system and (2) ~~extreme~~above-grade capping fill system. Capping fill systems may be installed by any installer with a basic installer's permit unless a complex component is used in conjunction with the capping fill system design.

4.~~2~~3.2 ~~Standard~~Below-Grade Capping Fill System

A ~~standard~~below-grade capping fill system is constructed so the bottom of the drainfield is less than 24 inches deep in the natural soil but deep enough in the natural soil to keep the ~~invert of the drainfield pipe~~entire drainfield below the natural soil. The installation depth is between 12-24 inches below the natural soil~~deeper than 6 inches for a standard drainrock and perforated pipe drainfield~~. The bottom depth of the drainfield necessary to keep the ~~invert of the~~ drainfield ~~pipe~~ below the natural soil may be deeper for gravelless system products or combination extra drainrock and standard capping fill systems. See Figure 4-1.

~~Standard~~Below-Grade Capping Fill System Approval Conditions

1. Effective soil depths below the drainfield bottom must be met as required by IDAPA 58.01.03 or as allowed in section 2.2 of this manual following the separation distance hierarchy.

~~2. Site may not exceed 12% slope if the drainfield extends above natural soil.~~

~~3~~2. ~~If the drainfield is at or below natural soil, the s~~Site may not exceed 20% slope.

~~4~~3. The soil cap may be constructed prior to system excavation but after natural soil scarification if the ~~drainfield extends above the natural soil~~cap must extend above the natural soil to achieve the minimum cover requirement of 12 inches.

4. The fill material (section 4.3.4), construction (section 4.3.5), and inspection (section 4.3.6) requirements must be met.

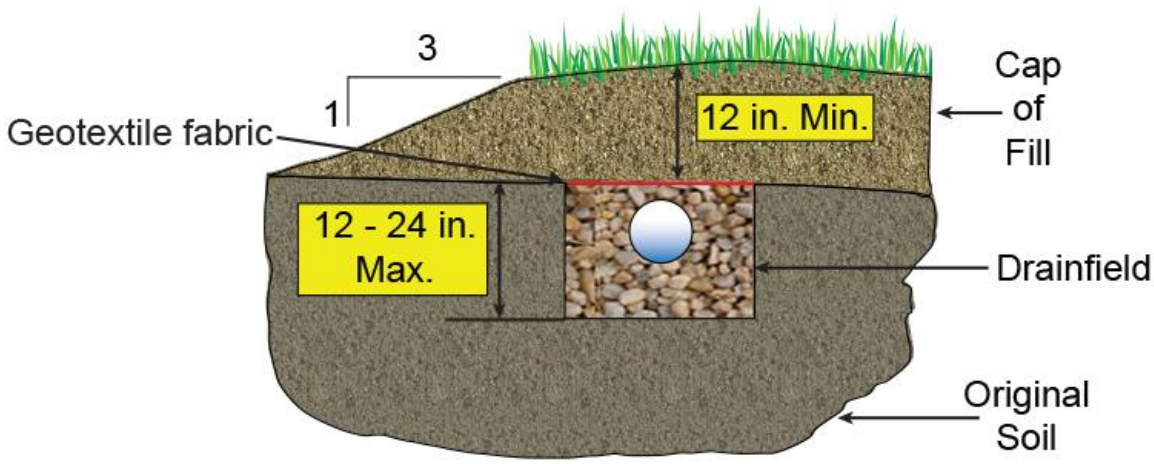

Figure 4-1. Cross-sectional view of a below-grade capping fill trench.

4.~~2~~3.3 ~~Extreme~~Above-Grade Capping Fill System

An ~~extreme~~above-grade capping fill system is constructed so that the ~~invert of the~~ upper portion of the drainfield ~~pipe~~ is above the natural soil. The~~is~~ drainfield installation depth is typically ~~6~~less than 12 inches deep ~~or less~~ for a standard drainrock and perforated pipe drainfield. The bottom depth of the drainfield that results in the ~~invert of the~~ upper portion of the drainfield ~~pipe~~ being above the natural soil may be deeper for gravelless system products or combination extra drainrock and capping fill systems. See Figure 4-2.

~~Extreme~~Above-Grade Capping Fill System Approval Conditions

1. Effective soil depth below the drainfield bottom must be met as required by IDAPA 58.01.03 or as allowed in section 2.2 of this manual following the separation distance hierarchy.
2. Site may not exceed 12% slope.
3. The soil cap ~~may~~must be constructed prior to system excavation but after natural soil scarification when constructing with pipe and aggregate.
4. The soil cap shall ~~be compacted to 90% of the existing soils, which shall be verified by a soil compaction test after cap construction~~extend at least 10 feet beyond the nearest trench sidewall in all directions.
5. The invert of the perforated distribution pipe in a combination extra drainrock and ~~extreme~~above-grade capping fill system shall not extend more than 3 inches above the natural soil.
6. The bottom of the drainfield shall be installed no shallower than 3 inches below the natural soil.
7. The minimum cover over the drainfield shall be 18 inches.
8. The fill material (section 4.3.4), construction (section 4.3.5), and inspection (section 4.3.6) requirements must be met.

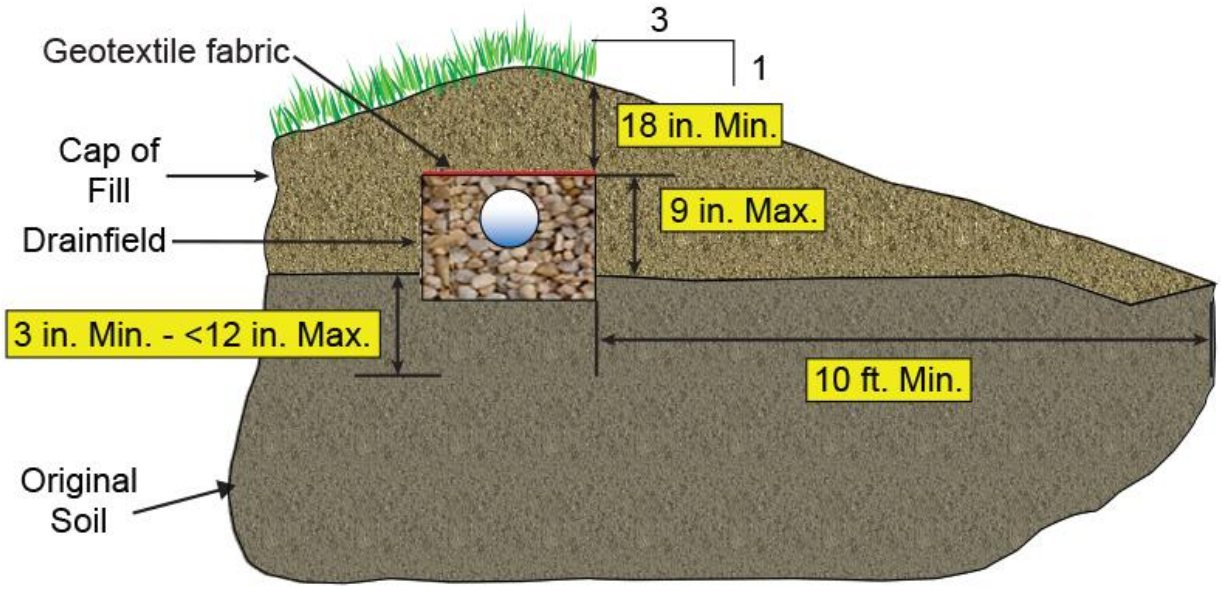

Figure 4-2. Cross-sectional view of an above-grade capping fill trench.

4.~~2~~3.4 Fill Material

The capping fill drainfield must meet the minimum ~~(12 inches)~~cover requirements described in section 4.3.2 and 4.3.3 and the maximum (36 inches) cover requirements of IDAPA 58.01.03.008.04. Fill material must be imported or removed from a location greater than 6 feet away from the edge of the drainfield cap to meet the texture requirements of the cap. The material requirements for the cap are as follows:

1. The upper layer of the natural site soil must be one of the approved effective soil design subgroups as described in Table 2-4.
2. The texture of the fill material used for the soil cap shall be the same as or one soil design subgroup finer than that of the upper layer of the natural site soil, except that no fill material finer than clay loam may be used.
3. Fill material shall be free of debris, stones, frozen clods, or ice.

4.~~2~~3.5 Construction

1. When the fill cap must extend above the natural ground ~~T~~the entire cap area is scarified to a depth of 6–8 inches using a chisel plow or backhoe teeth to disrupt the vegetative mat. Smearing of the soil during scarification shall be avoided.
2. Site soil should not be removed during the scarification process unless heavy vegetation (e.g., bushes) or heavy vegetative mat is present. Any site soil that is removed should be replaced with medium sand prior to system construction.
3. Construction-related requirements in sections 4.~~2~~3.2 and 4.~~2~~3.3 shall be followed.
4. Systems shall be installed to a depth below the natural soil surface according to the specifications outlined on the permit.

~~5. Edges of the finished cap fill should be at least 10 feet beyond the nearest trench sidewall.~~

~~6~~5. Finished side slopes of the fill are to be evenly graded from the outer edges of the trenches to the natural soil surface with a maximum slope of 3:1 or less (three horizontal to one vertical).

~~7~~6. Compaction of the scarified area must be prevented. Use of equipment with pneumatic tires is prohibited on the scarified area and fill or cover.

~~8~~7. At least 12 inches of fill must be applied to cover the trenches in a below-grade capping fill system and 18 inches of fill must be applied to cover the trenches in an above-grade capping fill system.

4.~~2~~3.6 Inspections

1. Site soil texture, fill soil texture, and the scarification or vegetative mat disruption process will be inspected by the Director.
2. Installed trenches will be inspected by the Director prior to cover.
3. Final inspection after covering may be conducted by the Director to ensure proper cap placement and slope.

~~Figure 4-1 shows a cross section of a capping fill trench.~~

Appendix G

4.21 In-Trench Sand Filter

Revision: ~~December 10, 2014~~July 22, 2015

4.21.1 Description

An in-trench sand filter is a standard trench or bed system receiving effluent by either gravity or low-pressure flow, under which is placed a filter of medium sand meeting the definitions provided in section 3.2.8.1.2. There are two classifications of an in-trench sand filter:

- Standard in-trench sand filter
- Enveloped in-trench sand filter

The standard design is typically used to excavate through impermeable or unsuitable soil layers down to suitable permeable soils. The standard design may also have clean pit run sand and gravel placed between the medium sand and the suitable permeable soils or ground water as long as minimum medium sand depths are used.

A modified design to the standard in-trench sand filter is known as the enveloped in-trench sand filter. Enveloped in-trench sand filters consist of a disposal trench with medium sand placed below and to the sides of the drainfield and are used for sites with native soils consisting of coarse ~~or~~to very coarse sand or gravel. The enveloped in-trench sand filter has three subcategories based on effluent distribution and treatment.

The term drainfield only applies to the aggregate as defined in IDAPA 58.01.03.008.08 or the gravelless trench components approved in section 5.7 of this manual. Medium sand and pit run may be installed deeper than 48 inches below grade as long as the drainfield maintains a maximum installation depth of 48 inches below grade in compliance with IDAPA 58.01.03.008.04. Minimum installation depths must meet the capping fill trench requirements as outlined in section 4.2.

4.21.2 Approval Conditions

1. Except as specified herein, the system must meet the dimensional and construction requirements of a standard trench, bed, or pressure distribution system.
2. ~~The~~Any subclassification of an in-trench sand filter ~~or any of its modifications~~ may be used over very porous strata, coarse sand and gravel, or ground water.
3. A basic permitted installer may install standard or standard enveloped gravity flow in-trench sand filters that are not preceeded by any complex alternative system components.
4. A permitted complex installer is required to install a pre-treated enveloped in-trench sand filter, pressurized enveloped in-trench sand filter or any other in-trench sand filters that are preceded by, or contain, a complex system component.
5. Medium sand used in filter construction must conform to the gradation requirements as described in section 3.2.8.1.2.
6. Pit run backfill material, if used, must conform to the gradation requirements as described in section 3.2.8.1.4.

4.21.3 Design and Construction

Each classification of the in-trench sand filter has its own unique minimum design and construction criteria that must be followed. The following subsections describe the minimum design and construction requirements for each classification of the in-trench sand filter.

4.21.3.1 Standard In-Trench Sand Filter Design and Construction

1. Minimum medium sand depths are dependent upon site-specific soil profiles.
2. There is no minimum medium sand depth if seasonal ground water or a porous limiting layer is not present (see example 2 in section 2.2.5.2).
3. If seasonal ground water or a porous limiting layer is present the minimum medium sand and pit run depths are dependent upon meeting the method of 72 as outlined in section 2.2.5.2 (Figure 4-31).
4. Pit run material may only be installed at depths of 8 feet below grade or more; medium sand must be used from the bottom of the drainfield to a depth of 8 feet below grade regardless of the drainfield installation depth.
5. The standard in-trench sand filter system shall be sized based on the most restrictive native receiving soil~~s at~~ below the medium sand, or pit run, and native soil interface to a depth capable of meeting the method of 72 as described in section 2.2.5.2.
6. Standard in-trench sand filters must maintain a 12 inch minimum depth of suitable native soil below the filter above a porous or nonporous limiting layer (Figure 4-31).
7. Standard in-trench sand filters must maintain a minimum separation distance of 12 inches from the bottom of the drainfield to the seasonal high ground water level.
8. Standard in-trench sand filters must maintain a separation distance from the bottom of the drainfield and any limiting layer ~~the normal high ground water level~~ that is capable of meeting the method of 72 as described in section 2.2.5.2.
   a. ~~Approval~~Design and construction condition 8~~6~~ may be waived if the standard in-trench sand filter is preceded by an alternative pretreatment system (e.g., ETPS, intermittent sand filter, or recirculating gravel filter) as long as the bottom of the drainfield still meets the minimum separation distances of the applicable alternative pretreatment system ~~(Figure 4-32).~~

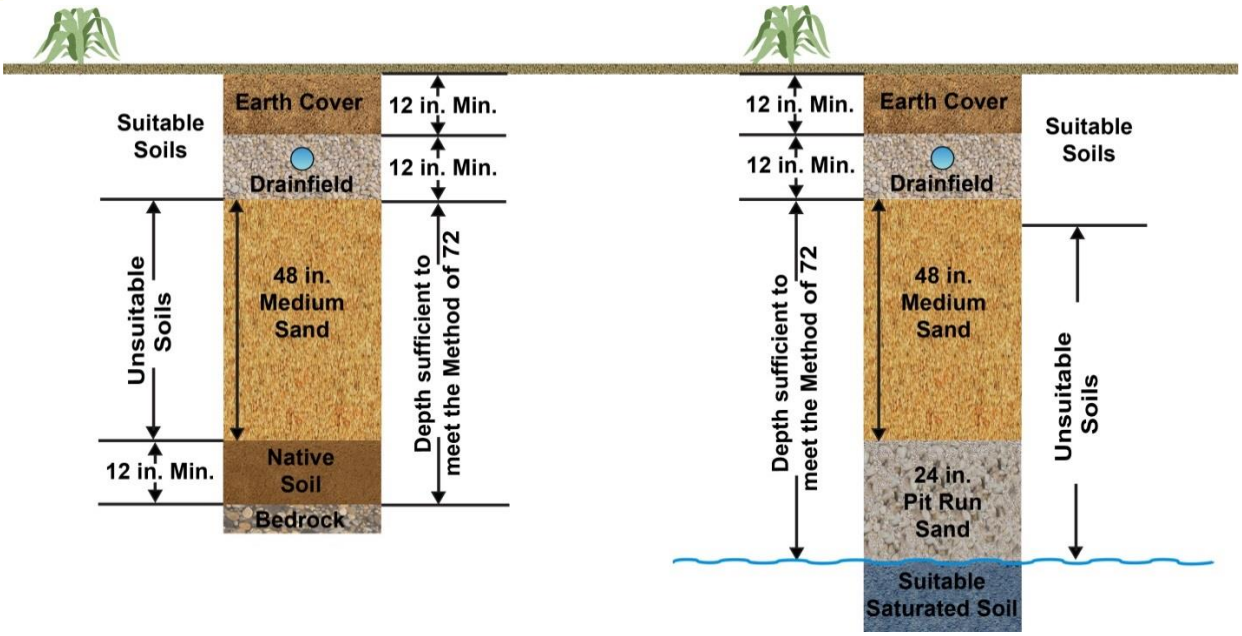

Figure 4-31. In-trench sand filter accessing suitable soils through an unsuitable soil layer.

4.21.3.2 Enveloped In-Trench Sand Filter Design and Construction

There are three subcategories of the enveloped in-trench sand filter. The subcategories include in-trench sand filters that receive:

- Standard domestic strength effluent
- Pre-treated effluent
- Pressure distributed effluent

All the subcategories of enveloped in-trench sand filters have the following same design and construction requirements:

1) The filter sand shall envelop the drainfield so that at least 12 inches of medium sand is between the sides and ends of the drainfield and the native soils.
2) Effective disposal area for the installation of an enveloped in-trench sand filter shall only be credited for the width and length of the drainfield installed. Medium sand width enveloping the drainfield is not credited as disposal area.
3) Enveloped in-trench sand filters may not be used in large soil absorption system designs.

Additionally, each subcategory also has design and construction criteria that are independent of the other subcategories. The following subsections describe the minimum independent design and construction requirements for each subcategory of the enveloped in-trench sand filter.

4.21.3.2.1 Standard Enveloped In-Trench Sand Filter Design and Construction

1) The native site soils consist of unsuitable coarse to very coarse sand or gravel meeting the equivalent diameters described in Table 2-1.
2) Unsuitable soils that have application rates less than clay loam as described in Table 2-9 are not suitable for installation of an enveloped in-trench sand filter.
3) The minimum depth of filter sand below the drainfield shall be 6 feet Figure 4-32.
4) The enveloped in-trench sand filter must maintain a minimum of 12 inches above any limiting layer from the bottom of the filter sand.
5) The drainfield shall be sized at 1.2 GPD/ft^2.

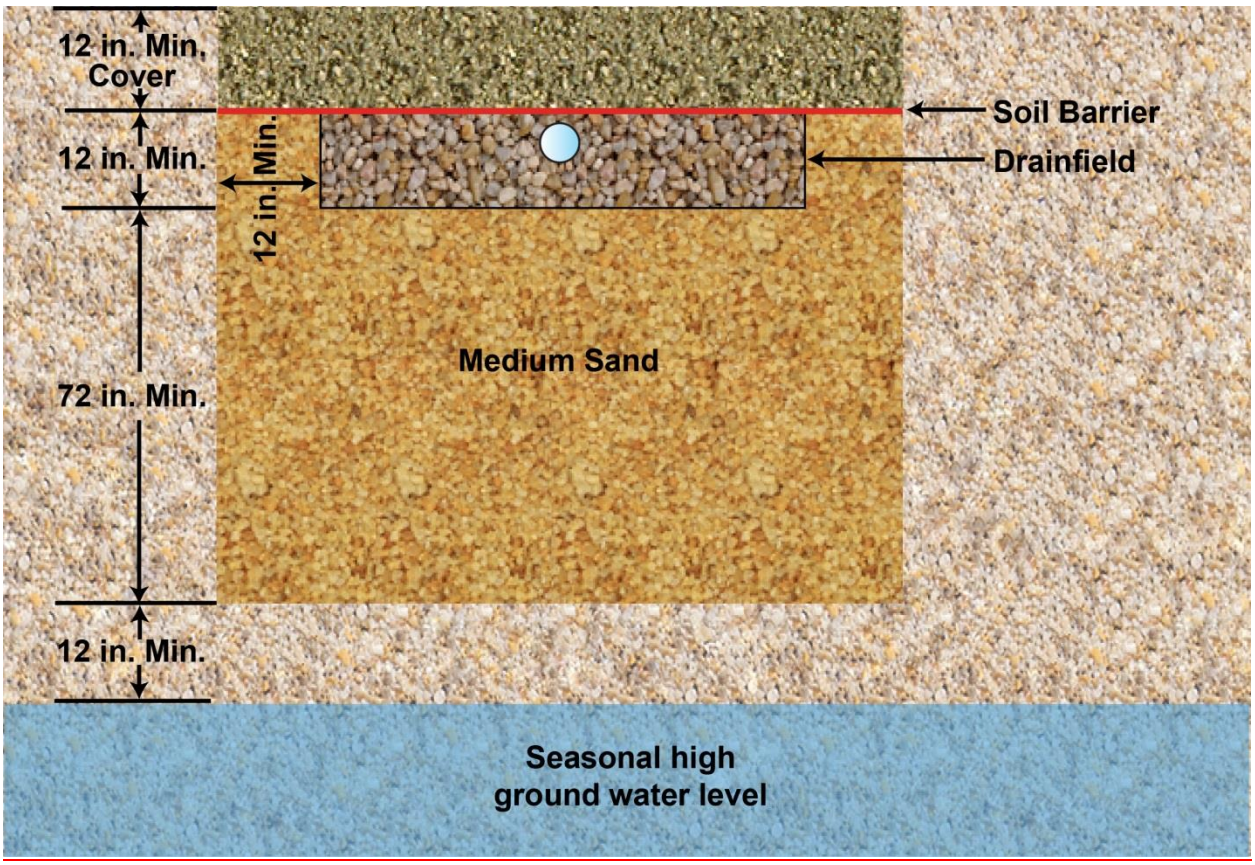

Figure 4-32. Standard enveloped in-trench sand filter for installation in coarse native soils (i.e., coarse or very coarse sand or gravel).

4.21.3.2.2 Pre-Treated Enveloped In-Trench Sand Filter Design and Construction

1) The effluent shall be pretreated with an extended treatment package system (section 4.7), recirculating gravel filter (section 4.19), or an intermittent sand filter (section 4.20).
2) The native site soils shall consist of unsuitable coarse to very coarse sand or gravel meeting the equivalent diameters described in Table 2-1.
3) Unsuitable soils that have application rates less than clay loam as described in Table 2-9 are not suitable for installation of an enveloped in-trench sand filter.
4) The minimum depth of filter sand below the drainfield shall be 12 inches Figure 4-33.

5) The enveloped in-trench sand filter must maintain a minimum of 12 inches above seasonal or normal ground water levels and any other porous limiting layer from the bottom of the filter sand.
6) The enveloped in-trench sand filter must maintain a minimum of 12 inches above any non-porous limiting layer from the bottom of the filter sand.
7) The drainfield shall be sized at 1.7 GPD/ft^2.

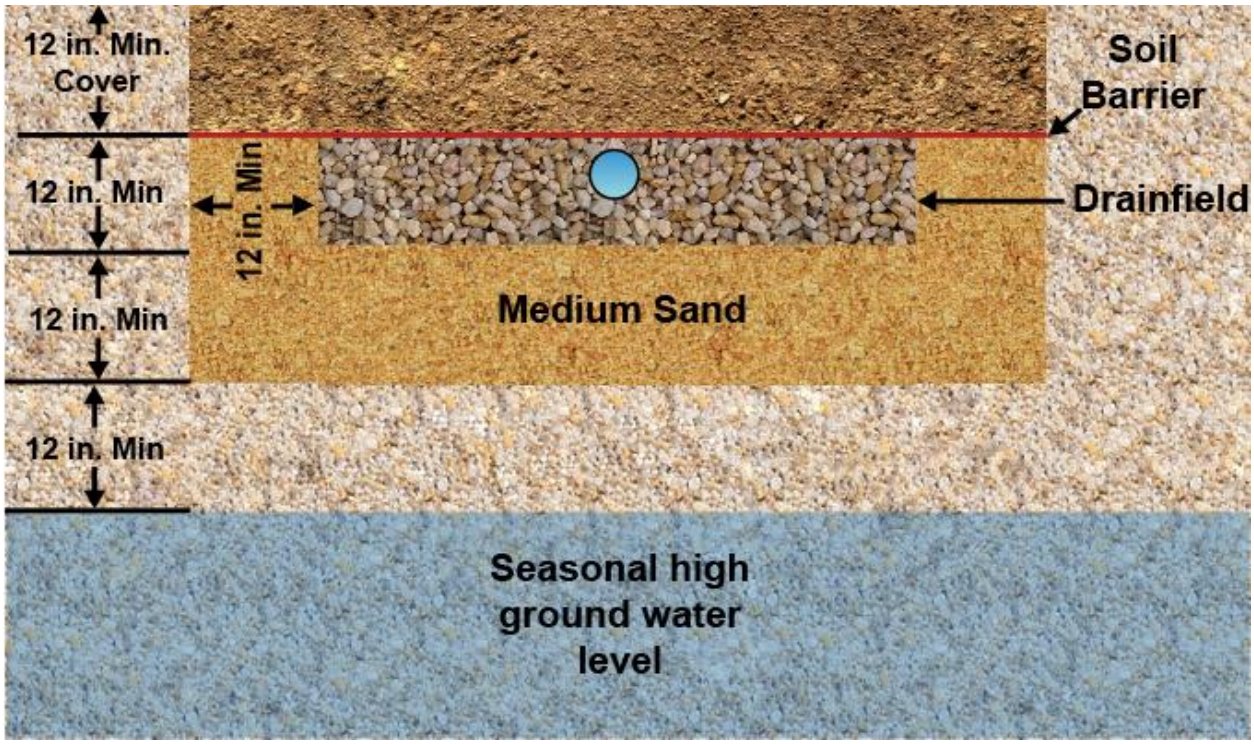

Figure 4-~~32~~33. Enveloped in-trench sand filter with alternative pretreatment for installation in coarse native soils (i.e., coarse or very coarse sand or gravel).

4.21.3.2.3 Pressurized Enveloped In-Trench Sand Filter Design and Construction

1) The native site soils shall consist of suitable soils no coarser than medium sand or finer than clay loam as described in Table 2-9.
2) The drainfield shall be pressurized and designed in accordance with section 4.17 by a professional engineer licensed in the State of Idaho.
3) The filter sand shall maintain a minimum depth of (Figure 4-34):
   a) 2 feet below the drainfield in design group C soils.
   b) 3 feet below the drainfield in design ground A and B soils.
4) A minimum of 12 inches of suitable soils must be maintained between the sand filter and the normal high ground water level or a porous limiting layer.
5) The pressurized enveloped in-trench sand filter system shall be sized based on the most restrictive native receiving soil between the bottom of the medium sand filter and the normal high ground water level or a porous limiting layer.
6) Reduced separation distances to nonporous limiting layers may not be approved through use of this design.

7) Pressurized enveloped in-trench sand filters installed in suitable soils to obtain a reduced separation distance to ground water or a porous limiting layer must maintain a minimum of 12 inches above the seasonal and normal high ground water levels from the bottom of the filter sand.

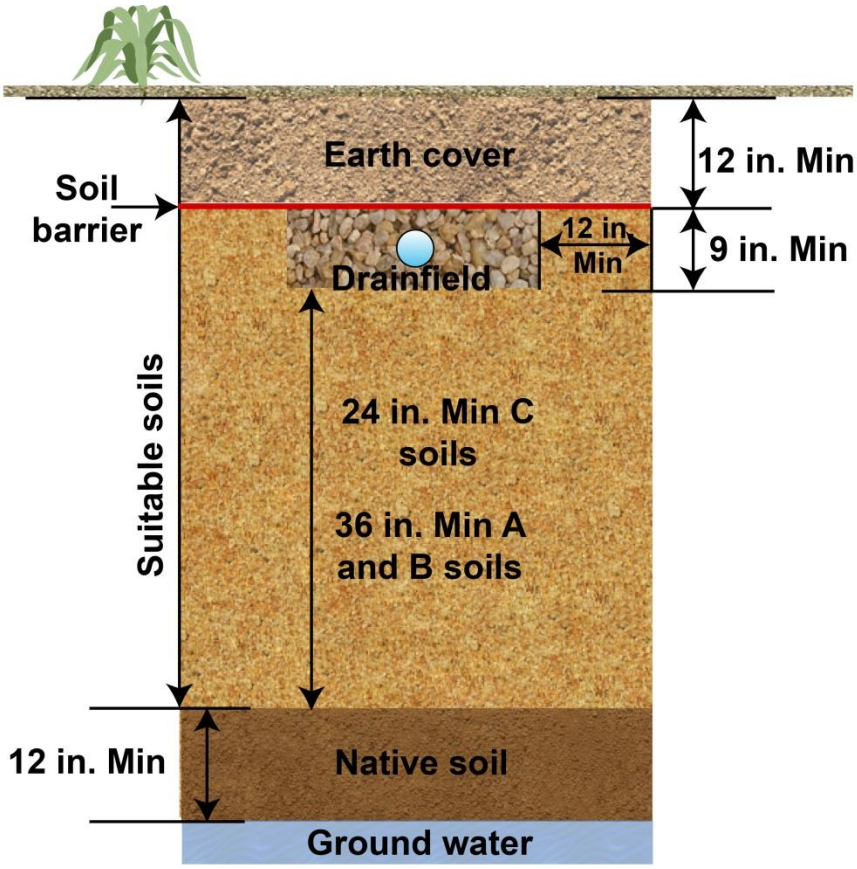

Figure 4-~~33~~34. Enveloped pressurized in-trench sand filter for installation in suitable soils for a reduction in separation distance to ground water or a porous limiting layer.

Appendix H

1.8 Easement

Revision: ~~March 20~~July 22, 2015

The "Individual/Subsurface Sewage Disposal Rules" (IDAPA 58.01.03) provide that every owner of real property is responsible for storing, treating, and disposing of wastewater generated on that property. This responsibility includes obtaining necessary permits and approvals for installing an individual or subsurface sewage disposal system. Therefore, a property owner wishing to install an individual or subsurface sewage disposal system must obtain a permit under IDAPA 58.01.03 and any other necessary approval for installing the system, including any authorization needed to install the system on another property that does not contain the wastewater-generating structure. This property may be owned by the same individual who owns the parcel with the wastewater-generating structure or another individual. Consistent with this requirement, IDAPA 58.01.03.005.04.l requires a permit applicant to include in the application copies of legal documents relating to access to the system. This section provides guidance regarding the circumstances under which the health district should permit a system to be located on another property that does not contain the wastewater-generating structure and the legal documents that must be included in or with an application for such a system.

1. The health district will consider allowing the installation of a subsurface sewage disposal system on another property (e.g., lot or parcel). However, this option should be considered a last resort for use only when other practical solutions for subsurface sewage disposal are not available on the applicant's property. In addition, the entire site (i.e., the area for both the primary and replacement drainfield) on the other property must be reviewed by the health district, and the site must meet all requirements of IDAPA 58.01.03.
2. The placement of an individual subsurface sewage disposal system on another property requires that an easement be in place before subsurface sewage disposal permit issuance. Easements are required anytime a subsurface sewage disposal system is proposed on another property regardless of property ownership. Easements must be obtained for each property, other than the wastewater-generating parcel that the application is submitted for, that any portion of the subsurface sewage disposal system is proposed to be installed upon. It is the applicant's responsibility to include an easement that is prepared by an attorney and:
    a. Contains a sufficient description of the easement area and of the property to be benefited by the easement (the property of the applicant).
    b. Contains language ensuring that the other property can be used for the system, and that the applicant or a subsequent purchaser of the applicant's property has access to make repairs or perform routine maintenance until the system is abandoned. The language must ensure such use and access even when the applicant's property or the other property is sold or otherwise transferred.
    c. Contains language that restricts the use of the easement area in a manner that may have an adverse effect on the system functioning properly.

d. Is surveyed, including monumenting the corners of the entire easement area, to supply an accurate legal description of the easement area for both the primary and replacement drainfield areas and enable the health district to properly evaluate the site. The survey and monumenting of the easement area must be performed by an Idaho licensed professional land surveyor.

3. The applicant is responsible for ensuring that a legally sufficient document is prepared to establish the necessary easement for the subsurface sewage disposal system located on another property. This document must be submitted to the health district with the permit application. ~~The health district must ensure that an easement document is included in the application.~~ However, the health district does not have the expertise, nor is it the duty of the health district, to determine the legal adequacy of the easement document, and the issuance of a permit does not in any way represent or warrant that an easement has been properly created. To issue a permit that includes a system on another property, the health district ~~must ensure that~~evaluates whether the easement document included with the application:

   a. Has been prepared by an attorney.

   b. Includes a survey that was prepared and monumented by an Idaho licensed professional land surveyor.

   ~~b~~c. Has been recorded in the county with jurisdiction. Evidence that the document has been recorded must be provided to the health district.

   If the easement document meets the ~~two~~ criteria described in 3.a-3.c ~~above~~, the health district may issue a permit. It is not the health district's responsibility to ensure the easement document meets the requirements in item 2 above. The applicant and the applicant's attorney are responsible for ensuring that the easement is legally sufficient and will meet the requirements in item 2 above.

Easement Restrictions

1. If easements for drainfields under separate ownership result in more than 2,500 GPD of effluent being disposed of on the same property, the drainfields must be designed as a large soil absorption system and undergo a nutrient-pathogen (NP) evaluation.
2. Easement boundaries that are not adjacent to the permit applicant's/grantee's property line must meet the separation distance of 5 feet between the drainfield and/or septic tank and the easement boundary.

Appendix I

1.4.2.4 Packed Bed Filter Proprietary Product Approval Policy

Packed bed filters (PBF) are septic tank effluent treatment devices that are located after a septic tank but prior to a drainfield. PBFs are typically classified as a single-pass filter or a recirculating filter that is contained within a watertight container. In traditional designs the filter is filled with naturally occurring treatment media such as medium sand and pea gravel. This manual contains public domain design guidance for a single-pass PBF (intermittent sand filter, Section 4.21) and a recirculating PBF (recirculating gravel filter, Section 4.20).

PBFs may also be produced by a manufacturer and the filter media may consist of medium sand, pea gravel, alternative naturally occurring media (e.g., expanded clays, peat, etc.), or engineered textile (e.g., foam, styrene, plastic products, etc.). Manufactured PBFs must obtain an approval from DEQ. To obtain approval the manufacturer must submit the required information listed in section 1.4 of this manual to DEQ's On-Site Wastewater Coordinator. In addition the manufacturer must also submit the final evaluation report from NSF International on the product's evaluation under the provisions of NSF/ANSI Standard 40. The NSF/ANSI Standard 40 report is required to obtain the same drainfield sizing reduction and separation distance reduction to limiting layers for the product as the intermittent sand filter or recirculating gravel filter. If the manufacturer would also like to obtain approval for total nitrogen (TN) reduction then they must also submit the final evaluation report from NSF International on the product's evaluation under the provisions of NSF/ANSI Standard 245. The NSF/ANSI Standard 245 report is required to obtain the same TN reduction as the recirculating gravel filter.

PBFs also require periodic operation and maintenance. The operation and maintenance provider for a PBF shall be the property owner when the system is permitted and installed following the same drainfield sizing reductions and separation distance to limiting layer reductions as the intermittent sand filter or recirculating gravel filter. The operation and maintenance provider for a PBF shall also be the property owner when the system is permitted with nitrogen reduction limits that do not exceed that of the recirculating gravel filter. If a PBF is approved, permitted, and installed with a nitrogen reduction limit that exceeds the nitrogen reduction limit of a recirculating gravel filter, then the operation and maintenance provider for the PBF shall be a nonprofit operation and maintenance entity corporation and the system shall follow the same operation, maintenance, monitoring, and reporting requirements as an extended treatment package system. Nitrogen reduction limits for all PBFs are listed in section 1.9.

Appendix J

1.9~~8.6~~ Total Nitrogen Reduction Policy

Revision: ~~August 30~~July 22, 201~~2~~5

On-site wastewater systems that qualify as best practical methods for the targeted nitrogen reduction amount appear in Table ~~8~~1-1. Areas of concern, such as nitrate priority areas, areas with shallow soils over bedrock, or a shallow depth to ground water, may be required to use one of these best practical methods to reduce the development's or home's environmental impact. Values listed in the TN column should not be exceeded to ensure that the required TN reduction percentage is attained. These TN values may be used in NP evaluations to evaluate the impact on ground water resources.

Table ~~8~~1-1. Best practical methods for on-site wastewater systems.

Best Practical Method	Total Nitrogen Reduction[a] (%)	Total Nitrogen[a] (mg/L)	Minimum Source Water Alkalinity[b] (mg/L)	Operations and Maintenance Provider
Packed Bed Filters[g]				
BioMicrobics-BioBarrier MBR	40	27	269	Property owner
Intermittent Sand Filters (ISF)	15[c]	38	108	Property owner
Orenco –AdvanTex	40	27	269	Property owner
Recirculating Gravel Filters (RGF)	40[c]	27	189	Property owner
Extended Treatment Package Systems				
BioMicrobics–BioBarrier MBR & MicroFAST	65[f]	16	269	Nonprofit O&M corp.
Busse Innovative Systeme GmbH–MF-B-400	30	32	156	Nonprofit O&M corp.
Delta–Ecopod	30	32	156	Nonprofit O&M corp.
Delta–Whitewater	30	32	156	Nonprofit O&M corp.
Nayadic	30	32	156	Nonprofit O&M corp.
Norweco–Singulair & Singulair TNT	30	32	156	Nonprofit O&M corp.
~~Norweco–Singulair TNT~~	~~30~~	~~32~~	~~156~~	~~Nonprofit O&M corp.~~
Southern Manufacturing	30	32	156	Nonprofit O&M corp.
Jet Inc.	32[d]	31	163	Nonprofit O&M corp.
Recirculating Extended Treatment Package System				
SeptiTech	55[e,f]	20	180 ~~mg/L~~	Nonprofit O&M corp.
Orenco–AdvanTex	65[e,f]	16	269 ~~mg/L~~	Nonprofit O&M corp.
~~BioMicrobics~~	~~65[f]~~	~~16~~	~~269 mg/L~~	~~Nonprofit O&M corp.~~

a. Quantifiable values (milligram per liter [mg/L]) will indicate compliance with the qualitative TN reduction limit expressed as a percentage (%) reduction.
b. Minimum recommended source water alkalinity to support nitrification in the denitrification process. Use of water softeners is not recommended due to potentially detrimental effects on the biological processes.
c. Literature value
d. Idaho testing
e. Third party (Environmental Technology Verification Program)
f. National Science Foundation data
g. Proprietary manufactured system designs may be considered for approval as a packed bed filter following the proprietary product approval policy in section 1.4.2.4

Appendix K

Recommendation from TGC to DEQ for the process of pursuing the service provider model for the extended treatment package system program:

1. Notify manufacturers and initiate a voluntary product approval renewal process for all currently approved ETPS manufacturers (initiate immediately and allow deadline that is consistent with the projected service provider rule implementation date).
   a. All ETPS manufacturers operating under a currently functional O&M entity could reapprove and maintain their existing nitrogen reduction approvals.
   b. All ETPS manufacturers operating under a currently suspended O&M entity may renew but must submit the necessary testing data consistent with the current ETPS product approval policy to obtain nitrogen reduction approval.
   c. All ETPS manufacturers approved and listed in section 5.4 of the TGM may renew approvals but must submit the necessary testing data consistent with the current ETPS product approval policy to obtain nitrogen reduction approval.
2. The TGC will review, and revise if necessary, the existing ETPS product approval policy (review at the July 22, 2015 TGC meeting)
3. DEQ pursues the proposed rule revision to IDAPA 58.01.03.006 to develop and support the service provider based O&M model (initiate immediately and prepare the rule revision by the DEQ).
4. The TGC will develop TGM guidance changes related to the ETPS operation, maintenance, and monitoring program that are consistent with the draft service provider rule (begin revision review upon the final negotiated rule revision to IDAPA 58.01.03.006).
5. Implement new operation, maintenance, and monitoring requirements for existing ETPS permit holders within DEQ's legal authority or release existing ETPS permit holders from the operation, maintenance, and monitoring requirements until they are issued a repair, replacement, or expansion permit (provide notification to property owners upon final authority interpretation with a deadline that is consistent with the projected service provider rule and guidance implementation date).

DEQ Direction for ETPS Program for Interim Timeframe Before the Service Provider Model is Implemented

1. Abandon the O&M model.
2. Encourage existing ETPS owners to continue to have operation and maintenance of their ETPS systems serviced by existing service providers until the new service provider system is in place. Once service provider system is in place a property owner may voluntarily opt into the program and have their permit renewed for their property, or upon the repair, replacement, or expansion of the existing system the property owner will be required to maintain their system under the service provider system.
3. New ETPS permits issued between now and the implementation of a service provider system will contain a conditional requirement that upon the implementation of the service

provider system the property owner will be required to maintain their system under the service provider system (working on this statement with the AGs office).

4. Revise the O&M entity and ETPS guidance in the TGM to reflect the change and current status. Included would be the permanent removal of testing for TSS and $CBOD_5$. Guidance would be revised further upon implementation of the service provider model.
5. Utilize the 2015 O&M entity reports for consideration of lifting permitting restrictions on currently installed technology based on maintenance rates.
6. All currently approved technologies listed in section 5.4 of the TGM would be able to be installed in the interim period, but not for TN reduction. Systems that must meet TN reduction requirements would need to be listed for reduction in section 8.6 of the TGM.

006. INSTALLER'S REGISTRATION PERMIT AND SERVICE PROVIDER ENDORSEMENT.

01. Permit Required. Every installer or service provider shall secure from the Director, an installer's registration permit. Service providers must also obtain a service provider's endorsement in addition to a complex installer's registration permit. Two (2) types of installer permits and one type of service provider endorsement are available. (~~5-7-93~~5-21-15)

a. A standard and basic alternative system installer's registration permit is required to install all individual systems not listed under Subsection 006.01.b. (5-7-93)

b. A complex alternative system installer's registration permit is required to install evapotransipration systems, extended treatment systems, lagoon systems, large soil absorption systems, pressure distribution systems, intermittent sand filter~~, in-trench sand filter~~, sand mounds or other systems as may be specified by the Director (5-7-93)

c. A service provider endorsement is required to perform operation, maintenance, and monitoring of complex alternative systems. The Director shall specify the systems that must undergo professionally managed operation, maintenance, service, and effluent testing as allowed in Subsection 009.03. (5-21-15)

02. Examination. The initial issuance of the installer's permit and service provider endorsement shall be based on the completion of an examination, with a passing score of seventy (70) or more, of the applicant's knowledge of the principles set forth in this chapter and the applicable sections of the Technical Guidance Manual. The examination will be prepared, administered and graded by the Director. (~~5-7-93~~5-21-15)

03. Permits Required Annually. Registration permits expire annually on the first (1st) day of January and all permits issued thereafter will be issued for the balance of the calendar year. Additionally, at least one (1) refresher course approved by the state of Idaho, Department of Environmental Quality, be attended every three (3) years. Installer and service provider courses shall not be substituted for one-another. (~~5-7-93~~5-21-15)

04. Contents of Application. Applications for installer permits and service provider endorsements shall be in writing, shall be signed by the applicant or by an officer or authorized agent of a corporation, shall contain the name and address of the applicant, shall indicate whether the permit is to be for installation of standard and basic alternative systems ~~or~~, for installation of standard, basic and complex alternative systems, or for installation of standard, basic and complex alternative systems and endorsement as a service provider, and shall contain the expiration date of the bond required by Subsection 006.05. Additionally, for applications seeking endorsement as a service provider the application shall also contain a copy of the service provider's property owner contract required by Subsection 006.06.a. (~~5-7-93~~5-21-15)

05. Bond Required. At the time of application, all applicants shall deliver to the Director a bond in a form approved by the Director in sum of ~~five~~fifteen thousand dollars ($15,000) for a standard and basic alternative system installer's registration permit, or in the sum of ~~fifteen~~thirty thousand dollars ($~~15~~30,000) for standard, basic and complex alternative system installer's registration permit

including those with a service provider endorsement. The bond will be executed by a surety company duly authorized to do business in the state of Idaho and must run concurrent with the installer's registration permit to be approved by the Director guaranteeing the faithful performance of all work undertaken under the provisions of the installer's registration permit. Any person who suffers damage as the result of the negligent or wrongful acts of the registrant or by ~~his~~ their failure to competently perform any of the work agreed to be done under the terms of the registration permit shall, in addition to other legal remedies, have a right of action in ~~his~~ their own name on the bond for all damages not exceeding ~~five~~ fifteen thousand dollars ($15,000) for standard and basic alternative systems or ~~fifteen~~ thirty thousand dollars ($~~15~~30,000) for complex alternative systems or required operation, maintenance, and monitoring performed by endorsed service providers. The maximum liability of the surety and/or sureties on the bond, regardless of the number of claims filed against the bond, shall not exceed the sum of ~~five~~ fifteen thousand dollars ($15,000) for standard and basic alternative systems or ~~fifteen~~ thirty thousand dollars ($~~15~~30,000) for complex alternative systems or required operation, maintenance, and monitoring performed by endorsed service providers. (~~5-7-93~~5-21-14)

06. Service Provider Responsibilities. All endorsed service providers who provide operation, maintenance, and monitoring for any system is jointly and individually responsible for compliance with each of these rules that are relevant to those services. Additionally, each service provider shall: (5-21-15)

a. Develop a service contract outlining the operation, maintenance, and monitoring services that will be provided to individual property owners to fulfill the property owner's operation, maintenance, and monitoring responsibilities required through the property owner's subsurface sewage disposal installation permit as allowed in Subsection 005.14. Contracts shall be severable by either party upon proper notification outlined in the contract not to be less than thirty (30) days. (5-21-15)

b. Maintain a comprehensive list of property owners that are contracted with the service provider that includes the current property owner name, service property address, property owner contact address, and subsurface sewage disposal permit number. This list shall be provided to the Director upon submission of annual operation, maintenance, and monitoring reports for individual property owners. (5-21-15)

c. Submit all operation, maintenance, and monitoring records in the form of an annual report for each individual property owner that the service provider contracts with to fulfill the property owner's operation, maintenance, and monitoring responsibilities required through the property owner's subsurface sewage disposal installation permit as allowed in Subsection 005.14. The annual reports shall be provided to the Director by the timeframe specified in the Technical Guidance Manual for the specific complex alternative system that operation, maintenance, and monitoring is required for. (5-21-15)

~~06~~07. Exemption. An installer's permit shall not be required for: (5-7-93)

a. Any person, corporation, or firm constructing a central or municipal subsurface sewage disposal system if that person, corporation, or firm is a licensed public works contractor as provided in

Title 54, Chapter 19, Idaho Code, is experienced in the type of system to be installed and is under the direction of a professional engineer licensed in the state of Idaho; or (5-7-93)

b. An owner installing his own standard or basic alternative system. (5-7-93)

~~07~~08. **Application Fee.** All applications shall be accompanied by payment of the fee specified in IDAPA 58.01.14, Section 120, "Rules Governing Fees for Environmental Operating Permits, Licenses, and Inspection Services". (5-7-93)

~~08~~9. **Grounds for Revocation.** Failure to comply with these rules shall be grounds for revocation of the permit. (5-7-93)