Middle Peninsula Planning District Commission Alternative Onsite Sewage System Installation Project (2023-MPPDC-6S)
Address: 345 Airport Rd, Mattaponi, VA 23110
Permit Number: 149-25-0067

Middle Peninsula Planning District Commission (MPPDC) staff, through the Septic and Well Assistance Program (SWAP), is inviting bids for the installation of a professionally engineered (PE-designed) onsite septic system at 345 Airport Rd, Mattaponi, VA 23110, VA 22454 (SWAP Project Number 2023-MPPDC-6S).

This project is fully funded by a Virginia Department of Health (VDH) grant and administered by MPPDC. The selected contractor will be responsible for the complete installation of the septic system, following the approved PE-designed plans. Tasks include coordinating with a licensed sewer hauler to pump the existing septic tank, excavating and installing system components, and restoring disturbed areas.

The contractor will also ensure all necessary inspections are completed and submit documentation for final approval from the local health department, including obtaining the operations permit after installation. Contractors must hold a valid license from the Virginia Department of Professional and Occupational Regulation (DPOR) and submit proof with their bid.

The project is fully funded by the VDH grant, covering 100% of the costs. Payment will be processed once the installation is complete, and all required documentation is submitted, including the operations permit issued by the health department.

The deadline for completion, submission of invoices, and permit issuance is December 1, 2025. No extensions will be allowed. Bids are due by September 15, 2025.

The bid package includes the PE-approved system design plans, a detailed scope of work, a bid sheet with itemized pricing, and relevant permits and reports. Contractors are encouraged to review all documents carefully.

For more information or to request a site visit, please contact Taylor Ovide, Coastal Resilience Planner, at tovide@mppdc.com.

Alternative Onsite Sewage System Installation Project (2023-MPPDC-6S)
Address: 345 Airport Rd, Mattaponi, VA 23110
Permit Number: 149-25-0067

Scope of Work:
The contractor shall furnish all labor, supervision, equipment, tools, parts, supplies, and materials necessary to perform the services as described herein:
A) Construct an alternative onsite sewage system that meets the location and construction specifications of the Virginia Sewage Handling and Disposal Regulations (12VAC5-610-10 et seq., the Regulations).
B) Construct the above alternative onsite sewage disposal system in compliance with the King and Queen County Health Department Construction Permit 149-25-0067 at 345 Airport Rd, Mattaponi, VA 23110 in the location shown on the permit. The permit may contain additional conditions, notes, and information needed to construct the onsite sewage system.
C) Septic Pump-out Requirements: All bids shall include the cost to pump out the contents of the existing septic tank by a properly licensed sewage hauler. To prevent sewage from backing into the home or erupting on the property surface prior to the completion of the septic work, additional pump-outs of the contents of the existing septic tank by a properly licensed sewage hauler may be required on an as-needed basis. Bids should provide a cost breakdown per additional pump-out. If multiple pump-outs are needed, preauthorization will need to occur to allow for a change order for additional, justifiable pump-outs. If the permit requires work within or under the existing drainfield (as indicated in the Permit), additional monitoring and pumping of the existing septic tank may be required to allow for the drying out of the drainfield. In these cases, for one week prior to the installation or repair of the onsite sewage system, the effluent level of the septic tank must be monitored so that it does not discharge into the pump chamber or dispersal field. The contents of the existing septic tank shall be pumped by a properly licensed sewage hauler to prevent sewage from entering the drainfield for one week prior to installation.
E) Tree Removal and Site Clearing: A pre-bid site visit is recommended to determine what, if any, tree removal or site clearing may need to occur. Per the above referenced Permit, remove any trees and wood debris as described in the permit and haul away wood and debris unless notified otherwise. Costs of tree removal and site clearing should be included in initial bids. Any additional site clearing or tree removal required during installation must be submitted in writing to and approved by VDH in writing, including an additional cost estimate. Some AOSS designs may call for special procedures when doing tree removal or site clearing, as referenced in the permit. Please pay attention to the following permit requirements.
F) Provide or subcontract with a licensed plumber and electrician to provide plumbing and electrical required to convey the wastewater from the house to the onsite sewage system as required by the Regulations and the Virginia Uniform Statewide Building Code. This includes obtaining or assuring that the owner obtains all permits and inspections necessary by the local building authority in compliance with the Virginia Uniform Statewide Building Code.
G) Operation and Maintenance (O&M) Requirements: As the SWAP will fund two years of regulatory O&M for the Alternative Onsite Sewage System (AOSS) installed on this property, please provide or subcontract for two years of O&M unless the cost is included in the purchase price of the treatment unit. The O&M requirements can be found in the Regulations for Alternative Onsite Sewage Systems (12VAC5-613 and 12VAC5-640). The O&M agreement shall include the maintenance visits and any samples as required by the AOSS regulations. This

funding is provided to assist the homeowner in meeting their first two years of O&M requirements per the Owner's Operation and Maintenance Manual and the Regulations for Alternative Onsite Sewage Systems (12VAC5-613-100 et seq.). The first two years of O&M listed in the agreement should be at no cost to the homeowner. The contractor should provide a copy of the O&M agreement to the homeowner and provide a copy to [Middle Peninsula Planning District Commission SWAP Staff].

H) Abandon any unused component of the former onsite sewage system as specified by the King and Queen County Health Department Construction Permit 149-25-0067. Upon completion of the onsite sewage system repair, the existing septic tank shall be pumped by a properly licensed sewage hauler, the tank crushed in place, lime placed over the crushed tank, and the tank hole filled with clean backfill material, restoring the area to its original condition. Abandonment may also include removing unused sewer line and conveyance lines and crushing and filling the distribution box.

I) Follow all regulations and permitting pertaining to erosion and sediment control, including stabilizing, seeding, and grading the site after construction to return to its original state. Control construction runoff with proper practices so as not to become a nuisance to the owner or neighboring properties or cause sediment to be discharged into state waters and drainage ditches. Any construction debris must also be removed from the site and disposed of properly.

J) Bidders shall comply with all requirements of the Department of Professional and Occupational Regulations (DPOR) for contracting and executing the contract with the Virginia Department of Health. Must provide a copy of Class A or B contractor’s licenses from DPOR, with an Alternative Sewage Disposal System Contracting (ADS) specialty from DPOR, a Master Alternative Onsite Sewage System Installer license from DPOR, and proof of insurance. Bidders contacted by [Middle Peninsula Planning District Commission SWAP Staff] to provide any missing required documents must submit the document within 24 business hours or their bid will be considered non-responsive.

K) Obtain a final installation inspection from the private OSE and ensure that the onsite sewage system complies with the Regulations. Receive a completion/inspection report and as-built design from the private OSE.

L) Provide all required documentation to the King and Queen County Health Department following completion of construction and obtain an Operations Permit for the onsite sewage system.

M) Submit invoice and required paperwork once the Local Health Department has issued the Operations Permit. Include a copy of the completion statement and operations permit. The final invoice and paperwork should be submitted to: [Taylor Ovide at tovide@mppdc.com].

Additional Services (If Needed): Bidder must contact [Taylor Ovide at tovide@mppdc.com] listed on the awarded contract for written approval prior to any additional services performed. [Middle Peninsula Planning District Commission SWAP Staff will issue a change order for actual additional services rendered.]

The contractor shall furnish all labor, supervision, equipment, tools, parts, supplies, and materials necessary to perform the services as described herein:

Additional Materials:

• Additional labor and equipment.

Breakdown of Total Cost:
When responding to the solicitation, bidders must attach a document listing the breakdown of total cost for Line Item 1. Bidders must attach a separate breakdown of costs for additional services. Additional costs should not be included in Line Item 1 bid submission.

Optional Site Visit:
To arrange a site visit prior to bidding, please contact: Taylor Ovide at tovide@mppdc.com

PE Alternative Onsite Sewage System Installation Project (2023-MPPDC-06S) Address: 345 Airport Rd, Mattaponi, VA 23110

Cost for Line Item #1 (include total cost for items A-L) These are known factors. Vendors must invoice for actual cost incurred as described in the attached scope of work and permits.

Total	
	Line 1 Total Bid Cost
Line Item # 1; The contractor shall furnish all labor, supervision, equipment, tools, parts, supplies and materials, as necessary, to perform the services as described in the scope of work:	$
Itemized Included in Line 1:	
	Itemized Bid Cost
A&B) Costs to construct and install an alternative onsite sewage system to specification in compliance with the attached Local Health Department Permit:	$
C) Costs of Septic Pump-out, 1 initial pumpout if deemed necessary to prevent sewage backup:	$
E1) Costs of Tree Removal per permit:	$
E2) Costs of Site Clearing per permit:	$
G) Costs to provide or subcontract O&M for 2 Years, unless it is included in the purchase price of the unit:	$
H) Costs of abandoning any unused component of the former onsite sewage system may include removing pipes, abandoning tank including pumping out of tank, demolising of tank, abandoning distribution boxes, as specified by permit:	$
I) Costs of stabilizing, seeding and grading the site after construction to return to the original state in compliance with code:	$
Additional Itemized Costs NOT Included In Line 1:	
C-2) Additional pumpout costs per pumpout if needed, for example to dry drainfield, overflows before completion etc. (not included in line 1 total):	$
Additional costs not included in line item 1:	$

Signature: _____ Date _____
Bid is good for _____days

The following are required. Please initial in agreement to perform the following and that any costs to perform these tasks are included in Line Item 1:	
	Initial on the lines below;
D) Check for and comply with any Special Requirements in the permit. For example have surveyor locate property line, install french drain, have service provider drop electrical wire.	_____
E) Provide, or subcontract with a licensed plumber and electrician to complete project per permits, scope of work, and code:	_____
I) Bidders shall comply with all requirements of DPOR for contracting and executing the contract with the MPPDC. Documentation of appropriate Licenseses provided to the MPPDC.	_____
J) Obtain a final installation inspection from the Local Health Department and assure that the onsite sewage system complies with the Regulations.	_____
K) Provide all required documentation to the Local County Health Department following completion of construction and obtain an Operation Permit for the onsite sewage system:	_____
L) Submit invoice to tovide@mppdc.com once Local Health Department has issued the Operations Permit. Include a copy of the completion statement and operations permit:	_____

VDH VIRGINIA DEPARTMENT OF HEALTH
To protect the health and promote the well-being of all people in Virginia

King & Queen County Health Department
167 Courthouse Landing Road
King & Queen Courthouse, VA 23085
(804) 785-6154

Private Sector Repair Permit 32.1-163.5

September 09, 2025

Onsite Sewage System Repair Permit - Va. Code §32.1-163.5

RE: Gloria P. Chandler c/o MPPDC
345 Airport Road
Mattaponi, VA 23110

Property Address: 345 Airport Road
Mattaponi, VA 23110

Tax Map/GPIN: K&Q 1623-165X-107 / HDID# 149-25-0067
County: KING AND QUEEN/097
Permit ID: 097-STS-113072 Reserve: 0% reserve area provided
System Capacity: Residential, 3 Bedrooms, 300 gallons per day
Occupancy Limit: 4 persons maximum

Dear Gloria p. Chandler,

This letter and the attached drawings, specifications, and calculations (15 pages) 08/22/2025 , constitute your permit to repair your sewage disposal system. Your application for a permit was submitted pursuant to §32.1-163.5 of the Code of Virginia, which requires the Health Department to accept private soil evaluations and designs from an Onsite Soil Evaluator (OSE) or a Professional Engineer (PE). VDH is not required to perform a field check to verify the private evaluations of OSEs or PEs and such a field check may not have been conducted for the issuance of this permit.

The soil absorption area ("site"), sewage system design were certified by Wayne Savage PE as substantially complying with the Board of Health's regulations. This permit is issued in reliance upon that certification. VDH hereby recognizes that the soil and site conditions acknowledged by this permit are suitable for the installation of an onsite sewage system. The attached plat shows the approved area for the sewage disposal system; there are additional records on file with the King & Queen County Health Department pertaining to this permit, including the Site and Soil Evaluation Report. This repair permit is null and void if any substantial physical change in the soil or site conditions occurs where a sewage disposal system is to be located.

If modifications or revisions are necessary, please contact the OSE/PE who performed the evaluation and design on which this permit is based. Should revisions be necessary during construction, your contractor should consult with the OSE/PE that submitted the site evaluation or site evaluation and design. The OSE/PE is authorized to make minor adjustments in the location or design of the system at the time of construction provided adequate documentation is provided to the King & Queen County Health Department. The OSE/PE that submitted the certified design for this permit is required to conduct a final inspection of this sewage system when it is installed and to submit an inspection report and completion statement. As the owner, you are responsible for giving reasonable notice to the OSE/PE of the need for a final inspection. No part of this installation shall be covered until it has been inspected by the OSE/PE as noted herein. The sewage system may not be placed into operation until you have obtained an Operation Permit from the King & Queen County Health Department.

This Repair Permit is null and void if conditions are changed from those shown on your application or if conditions are changed from those shown on the Site and Soil Evaluation Report and the attached construction drawings, specifications, and calculations. VDH may revoke or modify any permit if, at a later date, it finds that the site and soil conditions and/or design do not substantially comply with the Sewage Handling and Disposal Regulations, 12 VAC 5-610-20 et seq., or if the system would threaten public health or the environment.

This permit approval has been issued in accordance with applicable regulations based on the information and materials provided at the time of application. There may be other local, state, or federal laws or regulations that apply to the proposed construction of this onsite sewage system. The owner is responsible at all times for complying with all applicable local, state, and federal laws and regulations. This construction permit is transferrable until expired or deemed null and void. A permit

transfer form may be found on the VDH website at http://www.vdh.virginia.gov/environmental-health/gmp-2015-01-forms/. If you have any questions, please contact me.

This permit expires: 03/09/2027.

Sincerely,

Brandy Colgin

CC: Wayne Savage PE

Well and Sewage Contractors: Please notify Health Department and OSE or PE 48 hours prior to installation to arrange for inspection.

WHAT YOU WILL NEED TO GET YOUR SEPTIC SYSTEM OPERATION PERMIT

Your system must have a satisfactory inspection at the time of installation. This will be done by a private OSE or a PE, depending on the designer of your permitted system. Your OSE or PE must submit a copy of the inspection results, complete with an as-built diagram, to the Health Department.

Please ensure that your contractor turns in a Completion Statement to the local Health Department after installation.

If your permit is for an alternative system, you must sign, have notarized, and record the attached Notice of Recordation in your locality's land records. Please bring proof of this recordation to the local Health Department

If you have a conditional permit then you must sign, have notarized, and record the permit in your locality's land records. Please bring proof of this recordation to the Health Department.

RECEIVED AUG 25 2025 BY:

SOILS INC.

OSE/PE Report For:

☐ Construction Permit ☑ Repair Permit ☐ Voluntary Upgrade Permit ☐ Certification Letter ☐ Minor Modification ☐ Subdivision Approval

Property Location:

911 Address *345 Airport Road* City, State, Zip: *Mattaponi, VA 23110*

Lot: *24-26* Section: *A* Subdivision: *Airville*

GPIN or Tax Map #: *23 165X 107* Health Dept. ID #:

Latitude: 37.5335 Longitude: -76.7646

Owner :

Name: *Gloria P. Chandler c/o MPPDC*

Address: *345 Airport Road* *Mattaponi, VA 23110*

Prepared by:

OSE Name: *Markham D. Smith* License # *1940001392*

Address: *8331 West Main Street, Marshall, VA 20115*

PE Name: *Wayne Savage* License # *402056830*

Address: *8331 West Main Street, Marshall, VA 20115*

Date of Report: *8/21/2025* Date of Revision #1:

OSE/PE Job # *T6305* Date of Revision #2:

Contents/Index of this report:

1. OSE/PE Report & Application	*14. Soil Summary & Profiles*	
2. System Specs & Installation Notes	*15. 200' Sanitary Survey*	
3. Condition Assessment		
4-13. Engineer Design		

This pkg is being submitted under §32.1-163.6 of the Code of Virginia

Certification Statement

I hereby certify that the evaluations and/or designs contain herein were conducted in accordance with the *applicable provisions of the Sewage Handling & Disposal Regulations (12VAC5-610), the Private Well Regulations (12VAC5-630), the Regulations for Alternative Onsite Systems (12VAC5-613)* and all other applicable laws, regulations, and policies implemented by the Virginia Department of Health. I further certify that I currently posses any professional license required by the laws and regulations of the Commonwealth that have been duly issued by the applicable agency charged with licensure to perform the work contained herein. The potential for both conventional and alternative onsite sewage systems has been discussed with the owner/applicant.

☐ The work attached to this cover page has been conducted under an exemption to the practice of engineering, specifically the exemption in Code of Virginia Section 54.1-402.A.11

I recommend that a: ☐ Construction Permit ☐ Subdivision Approval be: ☑ *Issued*

☐ Certification Letter ☑ Repair Permit ☐ Voluntary Upgrade ☐ *Denied*

☐ Minor Modification

OSE/PE Signature: Wayne A. Savage Date: 8/21/2025

COMMONWEALTH OF VIRGINIA

VDH USE ONLY
Health Dept. ID# 149-25-0067
Due Date: Sept. 22, 2025
097-STS-113072

RECEIVED AUG 25 2025 BY:

Application for: ☑ Sewage System ☐ Water Supply

Owner: Gloria P. Chandler c/o MPPDC Phone: (804) 758-8100 x 3005 (Taylor Ovide, MPPDC)

Mailing Address: 345 Airport Road Email: tovide@mppdc.com

Mattaponi, VA 23110 Phone:

Agent: Soils Inc. Phone: 540-364-1122

Mailing Address: 8331 W. Main Street Marshall, VA 20115 Fax:

Site Address: 345 Airport Road Email: submissions@soils-inc.com

Mattaponi, VA 23110

Directions to Property: *From VDH: Take Rt. 14 E for 12.7 miles to a right on Rt. 33 W. Go 2 miles to a left onto Rt 643. Property is on the left in 0.2 miles.*

Subdivision: Airville Section: A Block: Lot: 24-26

Tax Map: 23 165X 107 Other Property Info: Acreage: 0.458± ac.

Sewage System

Type of Approval: Applicants for new construction are advised to apply for a certification letter to determine if the land is suitable for a sewage system and to apply for a construction permit (valid for 18 months) **only when ready to build.**

☐ Certification Letter ☐ Construction Permit ☑ Repair ☐ Voluntary Upgrade ☐ Minor Modification

Proposed Use:

Single Family Home **(Number of Bedrooms)** 3 Multifamily Home **(Total # of Bedrooms)**

Other (Describe): Conditional to 4 occupants

Basement ☐ Yes ☑ No Walk-Out Basement? ☐ Yes ☑ No Fixtures in Basement? ☐ Yes ☑ No

Conditional Permit Desired? ☐ Yes ☑ No If yes, what type of conditions are desired?

☐ Reduced Water Flow ☐ Limited Occupancy ☐ Intermittent or seasonal use ☐ Temporary Use (1 yr. maximum)

Do you wish to apply for a betterment loan eligibility letter? ☐ Yes** ☑ No

**There is a $50 fee for determination of eligibility.

Water Supply

Will the water supply be ☐ Public or ☑ Private Is the water supply ☑ Existing or ☐ Proposed

If proposed, is this a replacement well? ☐ Yes ☑ No If yes, will the old well be abandoned? ☐ Yes ☑ No

Are any adjacent properties used for an agricultural operation? Yes ☐ No ☑

Well Type (e.g. domestic use, agricultural, irrigation, etc.) Domestic Use

All Applicants

Is the property intended to serve as your (the owners') principal place of residence? ☑ Yes ☐ No

All applications must be accompanied by private sector evaluations and designs, unless a petition for VDH services is approved. Is a Petition for Service form attached? ☐ Yes ☑ No

In order for VDH of process your application for a sewage system, you must attach a plat of the property and a site sketch. For water supplies, a plat of the property is recommenced and a site sketch is required. The site sketch should show your property lines, actual and/or proposed buildings, and the desired location of your well and/or sewage system. When the site evaluation is conducted, the property lines, building location and the proposed well and sewage sites must be clearly marked and the property sufficiently visible to see the topography. I give permission to the Virginia Department of Health to enter onto the property described during normal business hours for the purpose of processing this application and to perform quality assurance checks of evaluations and designs certified by a private sector Onsite Soil Evaluator or Professional Engineer as necessary until the sewage disposal system and/or private water supply has been constructed and approved.

Wayne A. Savage 8/21/2025

Signature of Owner/Agent Date

This form contains personal information subject to disclosure under the Freedom of Information Act.

TABLE OF CONTENTS

COMMONWEALTH OF VIRGINIA
Wayne A. Savage
WAYNE A. SAVAGE
Lic. No. 56830
08-22-2025
PROFESSIONAL ENGINEER

SOILS INC.
8331 WEST MAIN ST, MARSHALL, VA 20115
P.844.447.SOIL (7645) F.540.364.2060

PROJECT: 345 AIRPORT ROAD
DATE: 8/22/2025 JOB #T6305
GPIN OR TM #: 23 165X 107
COUNTY/STATE: KING & QUEEN COUNTY, VA

Soils Inc.
T: (540) 364-1122 F: (540) 364-2060

SYSTEM SPECIFICATIONS

VDH USE ONLY
HDIN: _____

Application Information
Name: *Gloria P. Chandler c/o MPPDC* Address: *345 Airport Road*
Phone: *(804) 758-8100 x 3005 (Taylor Ovide, MPPDC* *Mattaponi, VA 23110*

Location Information
Tax Map/GPIN #: *23 165X 107* Property Address: *345 Airport Road*
Subdivision: *Airville* Section: *A* Block: _____ Lot: *24-26*
Directions: *From VDH: Take Rt. 14 E for 12.7 miles to a right on Rt. 33 W. Go 2 miles to a left onto Rt 643. Property is on the left in 0.2 miles.*

General Information
Property Type (e.g. residential): *Residential* Number of Bedrooms: *3*
Daily Flow, gpd: *300* Conditions: *Conditional to 4 occupants*
Notes: _____

Sewer Line
Diameter: *4* inches Material: *SCH40 PVC* Notes: *1/4" per 1' fall minimum*

Pretreatment Unit(s)
Treatment Level: *TL3* Septic Tank Capacity *1,500* gallons
No. of Septic Tanks: *1* Size of Septic Tanks *1,500* gallons
Per the Sewage Handling & Disposal Regulations, check which option(s) have been chosen:
☑ Septic Tank w/Inspection Port ☐ Septic Tank w/Effluent Filter ☐ Reduced maintenance tank
Secondary Treatment Device(s), if applicable: *1500-Gal T/S Conc. Septic Tank w/ Microfast 0.5 Unit*
Notes: *Illumi-jet 952 UV Disinfection Unit; 1000-Gal T/S Conc. Pump Tank*

Conveyance Line
Conveyance Method: *Pumped*
If pumping, include pump specifications sheet.
Material: *SCH40 PVC* Diameter: *1-1/2"*
Notes: _____

Distribution Method & Header Lines
Distribution Method: *Pressure*
# of Boxes: * # of Outlets: *
Surge or splitter box required? ☐ Yes ☑ No
Header Line Material: *N/A*

Percolation Lines/Absorption Area
Dispersal Method (e.g. laterals, pad, mound): *Absorption Pad(s)*
If using pressure dispersal (e.g. drip), include pressure dispersal specifications sheet.
Number laterals/pads: *1* Length of lateral(s)/pad(s): *30'* Width of laterals/pads: *16'*
Center to center spacing: *N/A* Installation Depth: *+6"* Aggregate Depth: *12* "
Type & Size of Aggregate: *VDOT #57* Lateral/Pad Slope: *N/A* in. per *N/A* ft.
Reserve Area Provided: *0%* Notes: *REPAIR. Install during dry conditions only*

Please Note: ***See attached engineered plans for more details****

This form contains personal information subject to disclosure under the Freedom of Information Act.

SOILS INC.
Soil Scientists • Engineers • Waste Water Professionals
Markham D. Smith, A.O.S.E., L.P.S.S., President
8309 West Main Street, Marshall, Virginia 20115 (540) 364-1122
10805 Main Street, Suite 700, Fairfax, Virginia 22030 (703) 865-4565
F (540) 364-2060 soils-inc.com

Sewage System Installation Notes

THIS IS AN AOSE/PE PERMIT. *IF YOU ARE NOT FAMILIAR WITH THIS TYPE OF PERMIT DO NOT CONTINUE. CALL (540) 364-1122 FOR MORE INFORMATION ABOUT THIS PERMIT, INSPECTIONS, AND FEES.*

The AOSE/PE must inspect the drainfield and all components prior to backfilling. There is a fee for each inspection. Make sure you and the owner are aware of these fees. Completion Statements will only be issued after all inspection fees are paid and all paperwork by the installer/PE/O&M provider are received.

- Please notify **Soils Inc.** as soon as possible for an inspection – 72 hours is appreciated.
- The sewage system is to be installed by a DPOR licensed sewage system installer.
- All changes/modifications must be approved by the AOSE/PE prior to the inspection – *failure to follow permit may result in system not being approved or permit revocation.*
- The sewage system installation contractor must maintain a copy of all pages of the permit on site during the system installation.
- OSHA codes & requirements are to be adhered to during installation of the sewage system.
- All systems 18" or shallower shall be hand-cleared & stumps shall be ground.
- **All systems 18" or shallower shall have a passing soil moisture check prior to installation.**
- All sitework shall be done in dry weather and soil conditions. Do not install the sewage system in wet weather conditions.
- Tanks & trenches must be left uncovered until inspection is completed. Trenches may be partially covered as long as both ends and the middle are left open to check grade.
- Polyurethane risers must be installed and brought to grade on tanks that will have more than 30" of backfill over them.
- Water Softener system back flush discharge *SHALL NOT* be connected to the drainfield.
- Roof drains, gutter drains, and foundation drains shall be diverted away from the tanks and the drainfield.
- Gravel-less systems are generally approved at a 1:1 ratio, however, please call to confirm the site is suitable for the components you intend to use.
- The locations of the drainfield(s) herein have been survey located. Distances noted are based on the surveyed drainfield locations.
- No parking or driving over the sewage system.
- Hydrophilic (water loving) trees shall not be located within 10' of the sewage system.
- Utilities must not be located within 10' of the sewage system.
- Post grading shall be provided to prevent surface water concentration over tanks.

8331 W. Main Street, Marshall, VA 20115
Phone: 540-364-1122 ✉ Fax: 540-364-2060
Website: http://www.soils-inc.com/

COMMONWEALTH OF VIRGINIA
Wayne A. Savage
WAYNE A. SAVAGE
Lic. No. 56830
08-22-2025
PROFESSIONAL ENGINEER

SYSTEM SPECIFICATIONS & INSTALLATION NOTES
SHEET 2

SOILS INC.
8331 WEST MAIN ST, MARSHALL, VA 20115
P.844.447.SOIL (7645) F.540.364.2060

PROJECT: 345 AIRPORT ROAD
DATE: 8/22/2025 JOB #T6305
GPIN OR TM #: 23 165X 107
COUNTY/STATE: KING & QUEEN COUNTY, VA

Form 14

Condition Assessment

VDH Use Only
HDIN: _____
VPDES GP: _____

Owner and Application Information ☒ Repair ☐ Voluntary Upgrade
Name: Gloria P. Chandler c/o MPPDC **Phone Number:** (804) 758-8100 x 3005 (Taylor Ovide, MPPDC)
Address: 345 Airport Road, Mattaponi, VA 23110
Email: tovide@mppdc.com

System Location
Address: 345 Airport Road, Mattaponi, VA 23110
Tax Map/GPIN #: 23 165X 107
Subdivision: Airville **Section:** A **Block:** **Lot:** 24-26
Directions: From VDH: Take Rt. 14 E for 12.7 miles to a right on Rt. 33 W. Go 2 miles to a left onto Rt 643. Property is on the left in 0.2 miles

System File Information
Permit Type: ☒ Onsite Disposal ☐ Stream Discharging System
Property Type: Residential
Permitted Design Flow: 300 gpd **Permitted #Bedrooms:** 3, conditional to 4 occupants
System Type: ☒ Conventional ☐ Alternative If Alternative, Treatment Mfg. & Model:
Dispersal Method: ☒ Gravity ☐ Pump to Gravity ☐ LPD ☐ Drip
Dispersal Media: ☒ Gravel ☐ Gravelless Material ☐ Tire Chips ☐ Sand
Gravelless Type: Notes:
☒ Attach a Copy of As-built drawing or drawing of system layout

Existing System Evaluation

Failure Observed or reported by owner: ☒ Yes ☐ No: ☐ Backup into home ☒ Effluent on the ground surface If failure observed or reported by owner, **REPAIR** permit **REQUIRED.**

Number of Occupants: 4 Date System Installed: Permitted 1964
Current Use: Residential Current Number of Bedrooms: 3
Has property been occupied during previous 30 day period? ☒ Yes ☐ No
Garbage Disposal: ☐ Yes ☒ No Water Softener: ☐ Yes ☒ No Jacuzzi/Hot Tub: ☐ Yes ☒ No
Date of Last Septic Tank Pump Out: unknown Date of Last Operator Visit unknown, SAP on 7/24/2025

Component Status (place check under appropriate box)

Component	Present	Inspected	Functional	Non-Functional	Observations/Comments
Sewer Line	X	X	X		
Septic Tank	X	X		X	System flooded and not accepting water. Tank not structurally sound.
Septic Tank Tees					
Treatment Unit					
Pump Chamber					
Pump					

Form 14

Component	Present	Inspected	Functional	Non-Functional	Observations/Comments
Disinfection					
Conveyance Line					
D-Box	X	X	X		
Splitter Manifold					
Header Trench					
Dispersal Pipe	X	X		X	Full of water
Dispersal media	X	X		X	Gravel
Dispersal Field	X	X		X	Completely saturated
Other					
Other					

Additional Analyses

Analysis	Needed	Conducted	Observations/Comments
Flow			
Wastewater Sample			
Dye Test			
Other			

Additional Comments and Observations:

Sketch, if applicable:
See Attached

Form 14

Recommended Action: ☒ Repair

Identify Probable Cause of Component Malfunction (check all that apply):
☐ Unknown ☐ Damaged/Compromised ☒ Deterioration ☒ Hydraulic Overload ☐ Organic Overload
☐ Improper Maintenance ☐ Root Infiltration

Describe temporary corrective recommended action(s) and purpose of action(s):
Reduce water useage until new drainfield is installed

Describe Permanent recommended action(s) and purpose of action(s):
Install LPD pad with TL3 treatment with disinfection

Form Completed By:

Name: Wayne Savage, PE Signature: Wayne A. Savage
Date: 8/21/2025

Professional License Type and Number: 402056830

COMMONWEALTH OF VIRGINIA
Wayne A. Savage
WAYNE A. SAVAGE
Lic. No. 56830
08-22-2025
PROFESSIONAL ENGINEER

CONDITION ASSESSMENT
SHEET 3

SOILS INC.
8331 WEST MAIN ST, MARSHALL, VA 20115
P.844.447.SOIL (7645) F.540.364.2060

PROJECT: 345 AIRPORT ROAD
DATE: 8/22/2025 JOB #T6305
GPIN OR TM #: 23 165X 107
COUNTY/STATE: KING & QUEEN COUNTY, VA

INSPECTION:

A PRE-CONSTRUCTION MEETING IS REQUIRED PRIOR TO INSTALLATION OF ANY OF THE SEPTIC COMPONENTS, UNLESS WAIVED BY OUR OFFICE. SOILS, INC. SHALL BE NOTIFIED AT LEAST 72-HOURS PRIOR TO THE PLANNED INSTALLATION DATE TO SCHEDULE THE PRE-CONSTRUCTION MEETING.

CONTRACTOR TO NOTIFY ENGINEER 24 HOURS AHEAD OF COMPLETION OF DRAINBED BASE PRIOR TO PLACING SAND OR AGGREGATE.

SYSTEM USE:

KEEP DAILY WASTEWATER FLOW WITHIN DESIGN PARAMETERS.

INTRODUCE ONLY NORMAL RESIDENTIAL WASTEWATER INTO THE SYSTEM:

- SOLVENTS, PAINTS, PHARMACEUTICALS, AGGRESSIVE CLEANING PRODUCTS, AND NON-BIODEGRADABLE ITEMS SHOULD NOT BE INTRODUCED INTO THE SYSTEM
- SOLIDS, SUCH AS, BUT NOT LIMITED TO, CIGARETTE BUTTS, DIAPERS, FEMININE HYGIENE PRODUCTS, CAT LITTER, AND PAPER TOWELS SHOULD NOT BE INTRODUCED INTO THE SYSTEM
- MAINTAIN LEAK-FREE DWELLINGHOLD PLUMBING FIXTURES, SUCH AS FAUCETS AND TOILETS
- DO NOT USE A GARBAGE DISPOSAL.
- DO NOT PUT FATS, OILS OR GREASE INTO THE SYSTEM
- FLOOR DRAINS FROM GARAGE AND WORKROOMS SHOULD BE DIVERTED AWAY FROM THE SEPTIC SYSTEM

SURFACE DRAINAGE:

- DIVERT DOWNSPOUTS, ROOF DRAINAGE, DRIVEWAY RUNOFF, AND SUMP PUMP DISCHARGE AWAY FROM THE DRAINFIELD.
- DO NOT INSTALL IRRIGATION SYSTEMS IN VICINITY OF DRAINFIELD OR TANKS.
- DO NOT DIG IN THE DRAINFIELD OR BUILD ANYTHING OVER IT.
- DO NOT DRIVE OVER ANY PORTION OF THE SYSTEM (TANK, PIPING, DRAINFIELD) EXCEPT FOR NORMAL YARD TRAFFIC, I.E., LAWN MOWERS.
- DO NOT PLANT TREES NEAR ANY PORTION OF YOUR SYSTEM.

WATER TREATMENT EQUIPMENT:

BACK FLUSH FROM WATER TREATMENT SYSTEMS, HOT TUBS AND SWIMMING POOLS, ETC. SHOULD NOT BE DISCHARGED INTO THE SEWER SYSTEM LEADING TO THE SEPTIC TANK AND DRAINFIELD. THE DRAINFIELD IS NOT SIZED FOR THIS TYPE OF DISCHARGE.

SANITARY SURVEY STATEMENT:
THERE ARE NO WELLS OR SPRINGS THAT WOULD IMPACT THE LOCATION OF THE PROPOSED DRAINFIELD OR TREATMENT UNITS WITHIN THE DISTANCES REQUIRED BY THE VIRGINIA SEWAGE DISPOSAL & HANDLING REGULATIONS.

MISS UTILITY

BEFORE YOU DIG CALL
811 IN VIRGINIA OR
1-800-552-7001
PROTECT YOURSELF, GIVE THREE
WORKING DAYS NOTICE

Soils Inc. makes no representation as to the existence or non-existence of any utilities at the construction site. Shown on these construction drawings are those utilities which have been identified. It is the responsibility of the landowners or operators and contractors to assure themselves that no hazard exists or damage will occur to utilities.

VICINITY MAP
SCALE: 1"= 2000'

TREATMENT SYSTEM AND ABSORPTION AREA SHOWN HEREON ARE BASED ON PHYSICAL LOCATION SURVEY BY POTTS, MINTER AND ASSOCIATES, P.C. DATED APRIL 18, 2023, REVISED JULY 31, 2025. CONTRACTOR TO CONFIRM LOCATION WITH ENGINEER PRIOR TO COMMENCING CONSTRUCTION.

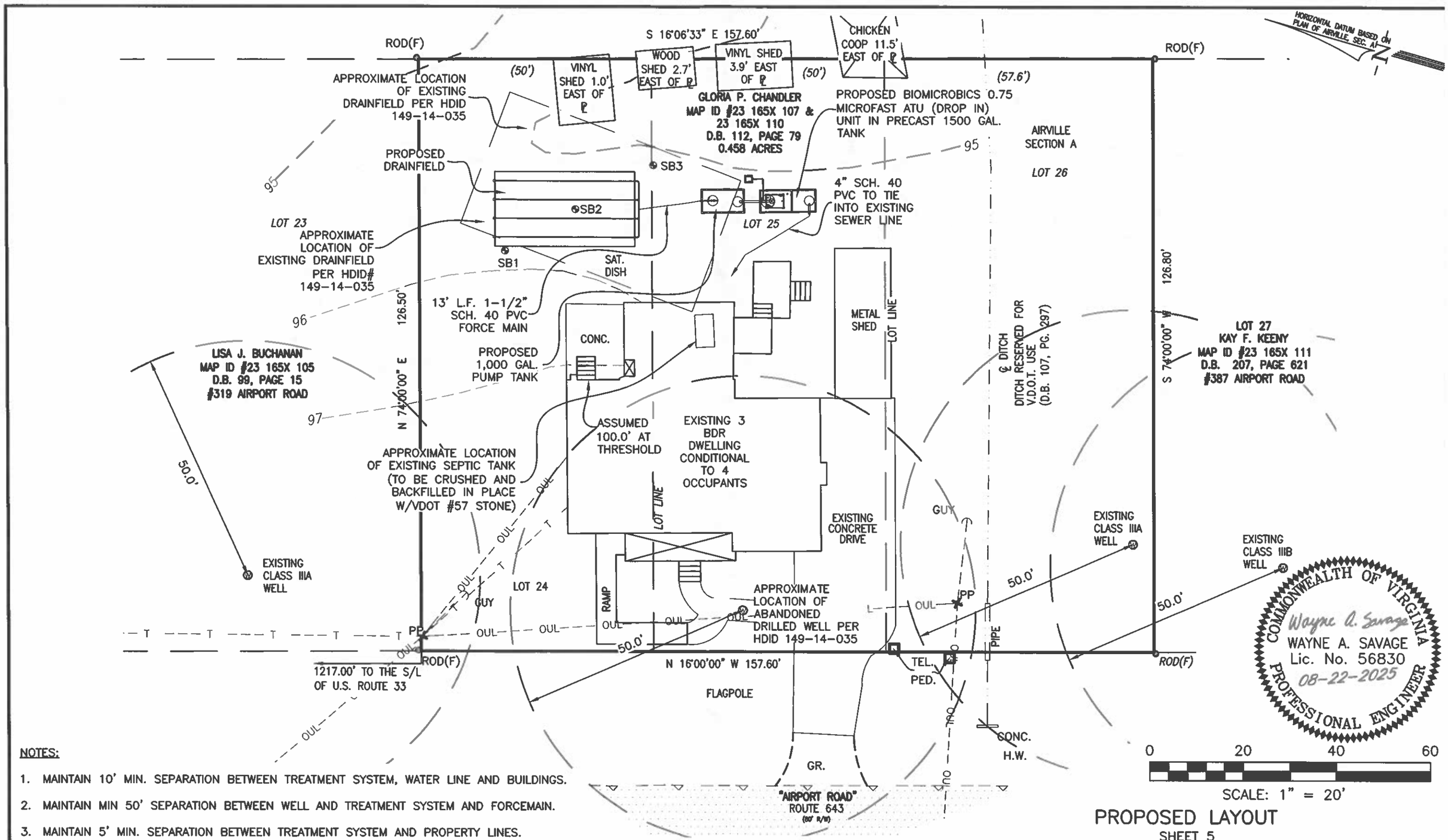
COMMONWEALTH OF VIRGINIA
Wayne A. Savage
WAYNE A. SAVAGE
Lic. No. 56830
08-22-2025
PROFESSIONAL ENGINEER

VICINITY MAP & GENERAL NOTES

SHEET 4

SOILS INC.
8331 WEST MAIN ST, MARSHALL, VA 20115
P.844.447.SOIL (7645) F.540.364.2060

PROJECT: 345 AIRPORT ROAD
DATE: 8/22/2025 JOB #T6305
GPIN OR TM #: 23 165X 107
COUNTY/STATE: KING & QUEEN COUNTY, VA



NOTES:

1. MAINTAIN 10' MIN. SEPARATION BETWEEN TREATMENT SYSTEM, WATER LINE AND BUILDINGS.
2. MAINTAIN MIN 50' SEPARATION BETWEEN WELL AND TREATMENT SYSTEM AND FORCEMAIN.
3. MAINTAIN 5' MIN. SEPARATION BETWEEN TREATMENT SYSTEM AND PROPERTY LINES.
4. INSTALL DURING DRY WEATHER CONDITIONS.
5. THE LOCATION OF ALL EXISTING UTILITIES MAY OR MAY NOT BE SHOWN; ALL LOCATIONS ARE APPROXIMATE ONLY. THE CONTRACTOR SHALL FIELD VERIFY THE LOCATION OF ALL EXISTING UTILITIES TO HIS SATISFACTION PRIOR TO EXCAVATION. THE CONTRACTOR SHALL PROVIDE PROPER NOTIFICATION TO "MISS UTILITY" (800-552-7001) PRIOR TO COMMENCEMENT OF CONSTRUCTION.

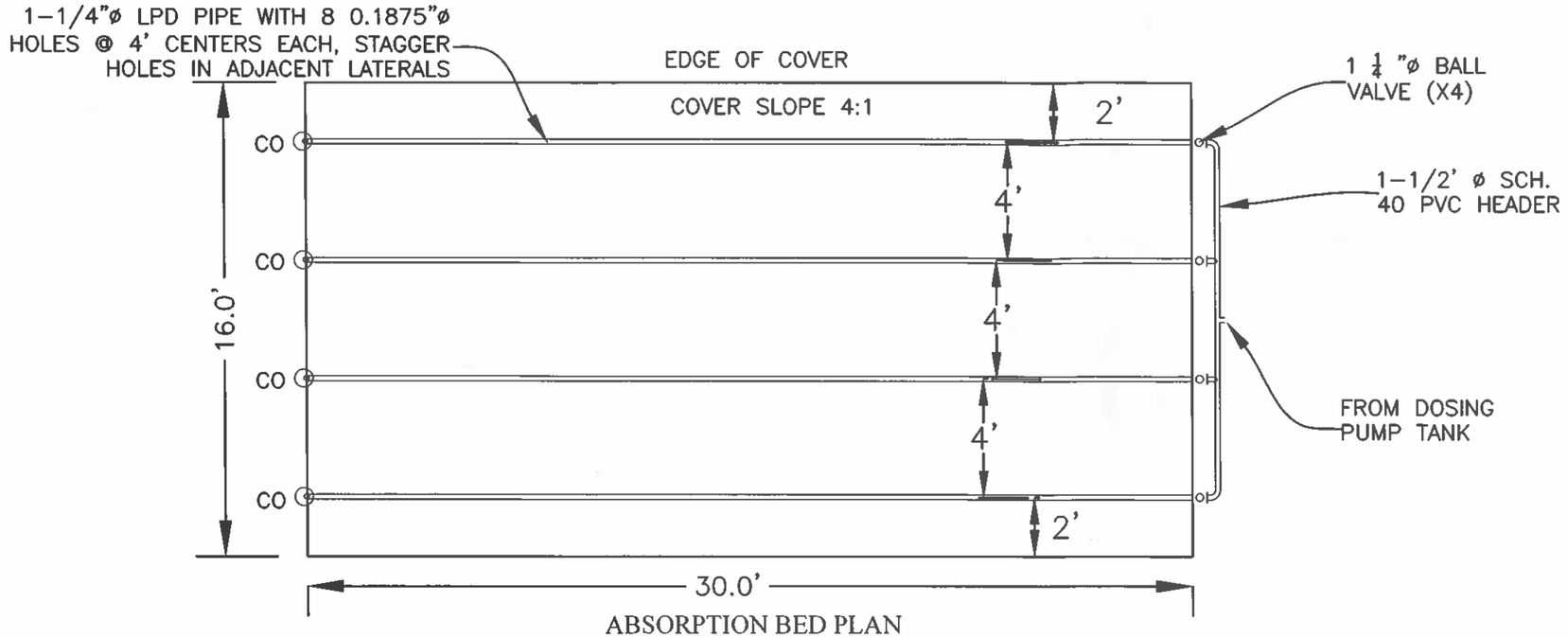
COMMONWEALTH OF VIRGINIA
Wayne A. Savage
WAYNE A. SAVAGE
Lic. No. 56830
08-22-2025
PROFESSIONAL ENGINEER

PROPOSED LAYOUT

SHEET 5

SOILS INC.
8331 WEST MAIN ST, MARSHALL, VA 20115
P.844.447.SOIL (7645) F.540.364.2060

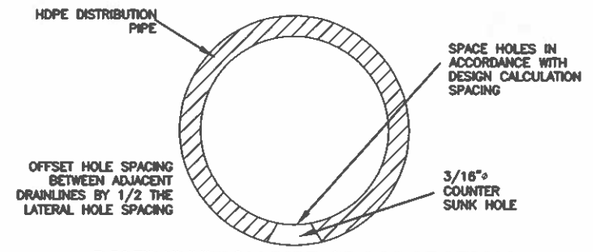
PROJECT: 345 AIRPORT ROAD
DATE: 8/22/2025 JOB #T6305
GPIN OR TM #: 23 165X 107
COUNTY/STATE: KING & QUEEN COUNTY, VA



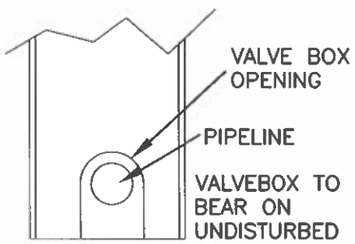
ABSORPTION BED PLAN
SCALE: 1" = 5'

NOTES:

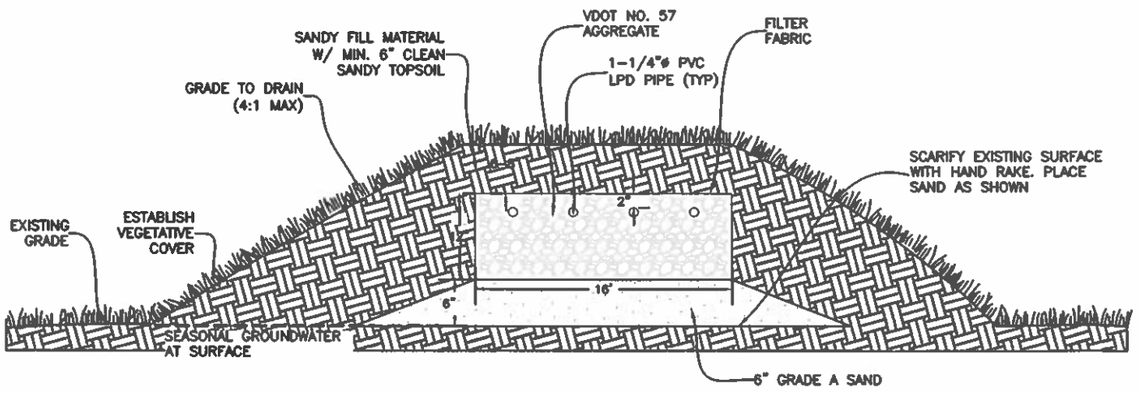
1. COVER SOIL SHALL BE CLEAN NATURAL SOIL FREE OF ROOTS, STONES, DEBRIS AND FOREIGN MATERIAL PLACED OVER THE DRAINFIELD LOCATION PRIOR TO INSTALLATION.
2. TOP 6" OF COVER SOIL SHALL BE TOPSOIL CONTAINING SUFFICIENT ORGANIC MATERIAL TO SUPPORT GRASS COVER. SEED AND MULCH ALL DISTURBED AREAS AND MAINTAIN UNTIL A UNIFORM STABLE STAND OF GRASS IS ESTABLISHED.
3. COVER SOIL SURFACE SHALL BE GRADED TO PROVIDE DRAINAGE FROM THE SURFACE WITHOUT EROSION.



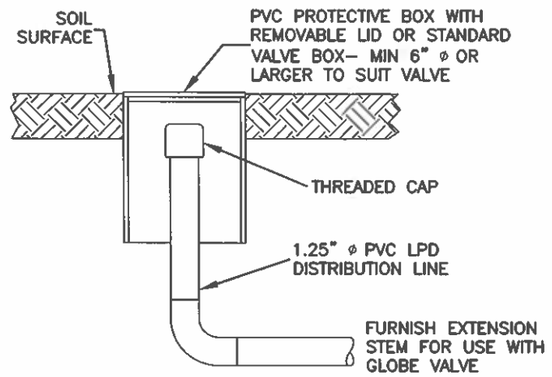
DISTRIBUTION PIPE CROSS SECTION
SCALE: NTS



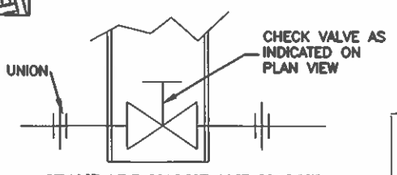
VALVE BOX BOTTOM DETAIL
N.T.S.



ABSORPTION BED CROSS SECTION
N.T.S.



LPD DISTRIBUTION LINE CLEANOUT & INSPECTION DETAIL
N.T.S.



STANDARD VALVE AND VALVE BOX DETAIL
N.T.S.

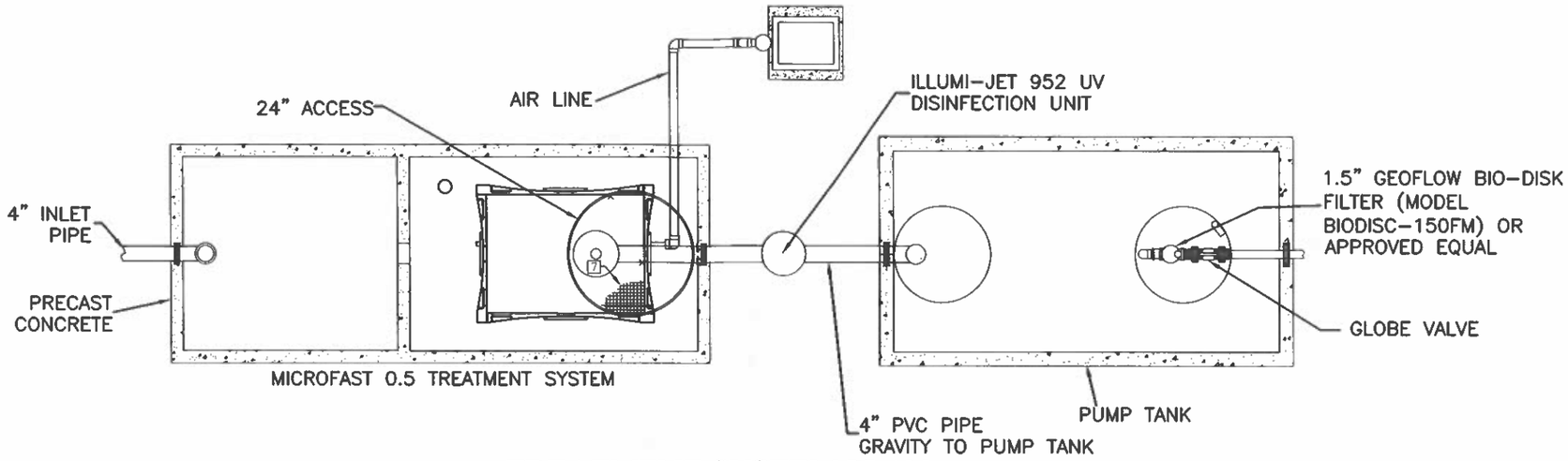
COMMONWEALTH OF VIRGINIA
Wayne A. Savage
WAYNE A. SAVAGE
Lic. No. 56830
08-22-2025
PROFESSIONAL ENGINEER

ABSORPTION BED DETAILS

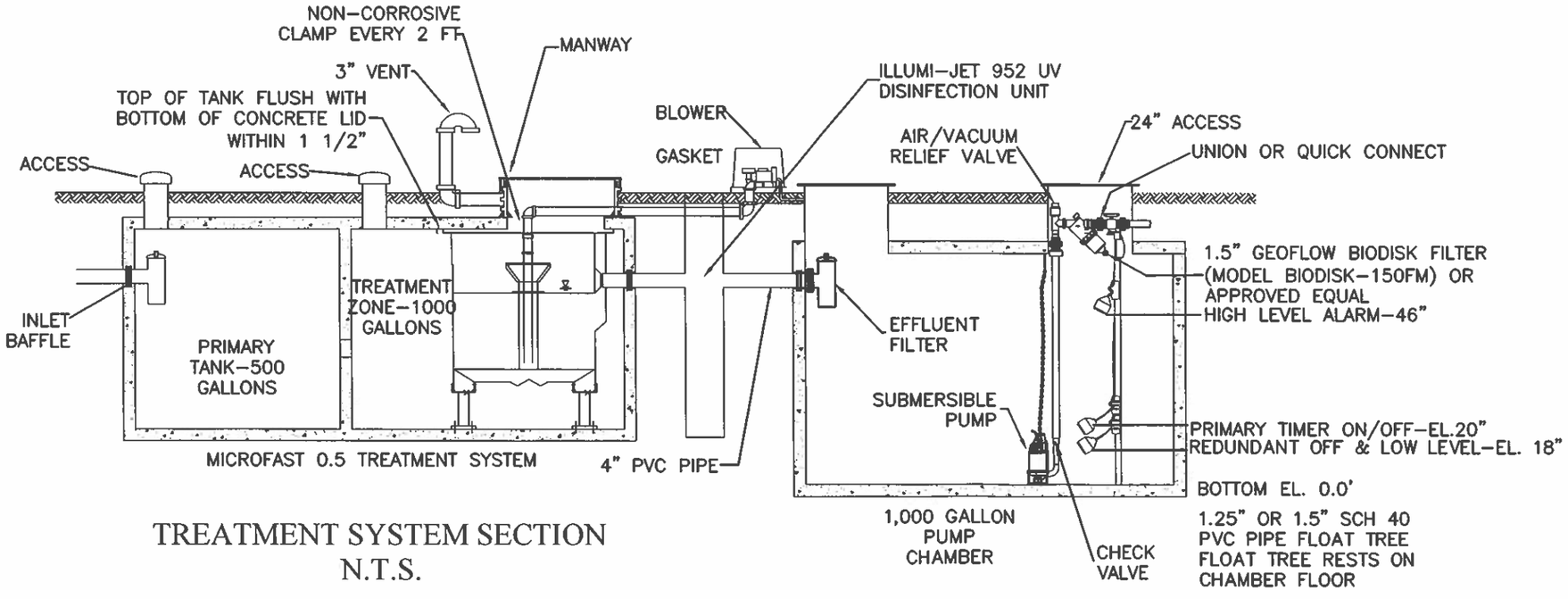
SHEET 6

SOILS INC.
8331 WEST MAIN ST, MARSHALL, VA 20115
P.844.447.SOIL (7645) F.540.364.2060

PROJECT: 345 AIRPORT ROAD
DATE: 8/22/2025 JOB #T6305
GPIN OR TM #: 23 165X 107
COUNTY/STATE: KING & QUEEN COUNTY, VA



TREATMENT SYSTEM PLAN
N.T.S.



TREATMENT SYSTEM SECTION
N.T.S.

NOTES:

1. LOCATE MOTOR CONTROLS AND DISCONNECT SWITCH IN A SECURE LOCATION ABOVE GRADE
2. CHECK TANK FOR FLOTATION AND MODIFY BALLAST TO PREVENT FLOTATION

COMMONWEALTH OF VIRGINIA
Wayne A. Savage
WAYNE A. SAVAGE
Lic. No. 56830
08-22-2025
PROFESSIONAL ENGINEER

TREATMENT PLAN & DETAILS

SHEET 7

SOILS INC.
8331 WEST MAIN ST, MARSHALL, VA 20115
P.844.447.SOIL (7645) F.540.364.2060

PROJECT: 345 AIRPORT ROAD
DATE: 8/22/2025 JOB #T6305
GPIN OR TM #: 23 165X 107
COUNTY/STATE: KING & QUEEN COUNTY, VA

GENERAL NOTES:

TREATMENT AND PUMPING SYSTEM

1. TREATMENT SYSTEM TO BE MICROFAST 0.5 AS MANUFACTURED BY BIO–MICROBICS OR APPROVED EQUAL.
2. ALL PIPING TO BE PRESSURE TYPE, SCHEDULE 40,WITH SOLVENT WELDED JOINTS
3. JOINTS SHALL BE SOLVENT WELDED OR THREADED, NO COMPRESSION FITTINGS
4. INSTALL ALL UNITS LEVEL AND WATERTIGHT TO SUIT REQUIRED HYDRAULIC GRADE OF THE SYSTEM
5. ALL TANKS AND APPURTENANCES SHALL BE VDH APPROVED
6. PROVIDE VENTING FOR AERATION TANK IN ACCORDANCE WITH LOCAL CODES

TREATMENT SYSTEM NOTES

1. BLOWER PIPING TO TREATMENT UNIT MAY NOT EXCEED 100 FT (30.5m) . USE A MAXIMUM OF 4 ELBOWS IN THE PIPING SYSTEM (@ 100 FT). FOR DISTANCES GREATER THAN 100 FT CONSULT FACTORY. BLOWER MUST BE LOCATED ABOVE FLOOD LEVELS. BLOWER TO BE MOUNTED ON A CONCRETE BASE.
2. VENT TO BE LOCATED ABOVE FINISH GRADE OR HIGHER TO AVOID INFILTRATION. CAP WITH 3" VENT SCREEN . SECURE WITH STAINLESS STEEL SCREWS (SEE NTF 1.5 X DRAWING).
   OR:
   RUN VENT TO DESIRED LOCATION AND COVER OPENING WITH MIN. 3" VENT GRATE . SECURE WITH STAINLESS STEEL SCREWS. VENT MUST NOT ALLOW EXCESS MOISTURE BUILDUP OR BACK PRESSURE.
3. ALL APPURTENANCES TO TREATMENT UNIT (e.g. SEPTIC TANK, PUMPOUTS, ETC.) MUST CONFORM TO ALL US, STATE, AND LOCAL CODES.
4. BLOWER CONTROL SYSTEM BY TREATMENT SYSTEM MANUFACTURER
5. NO MORE THAN 4 FT OF FILL MAY BE PLACED OVER TREATMENT UNIT LID. UNIT MAY STAND INSIDE TANK. SEE MANUFACTURERS DRAWINGS AND REFER TO INSTALLATION MANUAL FOR MORE DETAILS.

CONTROLS

1. VERIFY HIGH LEVEL ALARM AND LOW LEVEL SHUTOFF CONTROLS ARE OPERABLE AND SUITABLE FOR THE APPLICATION
2. PLACE ELECTRICAL CONTROLS AND MASTER DISCONNECT IN SECURE LOCATION ABOVE GRADE AND REMOTE FROM PUMP STATION
3. PROVIDE MASTER OVERRIDE SWITCH FOR EACH MOTOR CONTROL CENTER
4. HIGH WATER ALARM SHALL HAVE REMOTE SENSING AND ELECTRICAL CIRCUITRY SEPARATE FROM THE MOTOR CONTROL CENTER
5. ALARMS SHALL BE AUDIOVISUAL AND SHALL ALARM IN AN AREA THAT IS EASILY MONITORED (LIVING AREA)
6. ELECTRICAL DEVICES SHALL BE NEMA 4, PUMP AND ALARMS TO BE ON SEPARATE CIRCUITS

DISCHARGE PUMPING SYSTEM

1. GALLONS PER CYCLE = 53.55 GAL
2. TIMED DOSE – FURNISH ZOELLER MODEL 10 OR EQUAL INCLUDING NEMA 4X ENCLOSURE, PROGRAMMABLE TIMER, HOA AND ALARM, HIGH OVERRIDE AND LOW SHUTOFF.
3. PUMP SHALL BE ZOELLER 53 OR APPROVED EQUAL. PUMP SHALL BE VDH APPROVED EFFLUENT TYPE.
4. PUMP CAPACITY = NOMINAL 26 GPM @ 12.7' TDH.
5. THROTTLE PUMP TO 15.05 GPM @ 10.3' TDH
6. PUMP DOWN RANGE SHALL BE AS DETERMINED FOR TANK DIMENSIONS SUPPLIED
7. CYCLE FREQUENCY = 5.6 CYCLES PER DAY,
8. PUMP OPERATING TIME = APPROX. 3.56 MIN/CYCLE

COMMONWEALTH OF VIRGINIA
Wayne A. Savage
WAYNE A. SAVAGE
Lic. No. 56830
08-22-2025
PROFESSIONAL ENGINEER

TREATMENT PLAN NOTES
SHEET 8

SOILS INC.
8331 WEST MAIN ST, MARSHALL, VA 20115
P.844.447.SOIL (7645) F.540.364.2060

PROJECT: 345 AIRPORT ROAD
DATE: 8/22/2025 JOB #T6305
GPIN OR TM #: 23 165X 107
COUNTY/STATE: KING & QUEEN COUNTY, VA

ON-LOT TREATMENT AND DISPOSAL SYSTEM
DESIGN CALCULATIONS

BACKGROUND DATA SHEET

PAGE 1 OF 7

Calculation Date:	8/21/2025
Revision:	-
Project Number:	T6305
CLIENT	
Name:	Gloria P. Chandler c/o MPPDC
Mailing Address:	345 Airport Road Mattaponi, VA 23110
Phone:	(804) 758-8100 x 3005 (Taylor Ovide, MPPDC)
Cell:	
Fax:	
E-mail:	tovide@mppdc.com
Property Information:	
Tax Map ID:	23 165X 107
HDID:	-
County:	King & Queen
Location/Address - 911 Address	345 Airport Road
Acres:	0.458± ac.
Engineer:	Wayne A. Savage, P.E.
Phone No.	844-447-7645
AOSE:	Markham D. Smith
AOSE Phone Number:	540-364-1122
Soils Report Date:	7/24/2025
VDH :	King & Queen Health Department 167 Court House Landing Road King & Queen, VA 23085 (804) 785-5154
System Information:	
New or Repair/Replacement or Upgrade	Repair
No. of bedrooms	3
Design Flow Rate (gpd)	300
Estimated Perc Rate (mpi)	30
Treatment Level	TL3 w/ disfection
Treatment Unit Manufacturer	BioMicrobics
Model No. of Treatment Unit	MicroFAST 0.5
Pump	Zoeller 53

ON-LOT TREATMENT AND DISPOSAL SYSTEM
DESIGN CALCULATIONS

DETAILED SOILS DATA

PAGE 2 OF 7

Calculation Date:	8/21/2025
Revision:	-
Project Number:	T6305
Client:	Gloria P. Chandler c/o MPPDC
Tax Map ID#:	23 165X 107
HDID#:	-
County:	King & Queen
Location/Address	345 Airport Road
Soils Report Date:	7/24/25
AOSE:	Markham D. Smith
AOSE Phone Number:	540-364-1122
Type of Approval:	Repair
Proposed Use:	Residential
Number of Bedrooms:	3
Conditions:	Conditional to 4 occupants
Water Supply:	Existing well
Depth to Seasonal High Water (in)	0

ON-LOT TREATMENT AND DISPOSAL SYSTEM
DESIGN CALCULATIONS

Absorption Bed Design

PAGE 3 OF 7

Calculation Date:	8/21/2025
Revision:	-
Client:	Gloria P. Chandler c/o MPPDC
Tax Map ID#:	23 165X 107
HDID#:	-
County:	King & Queen
Location/Address	345 Airport Road

Sizing

Bedrooms	3
Design Daily Flow (gal.)	300
Estimated Perc Rate (min/in)	30

Absorption Area

Percolation Rate (mpi) 30 Design Rate
Hydraulic Loading Rate (From 12-VAC5-610 Table 5.5)
Bed 1.11 gpd/sf

Min. Required Absorp. Area (sf) Bed 270 sf

Size of Absorption Bed/Field		Width (ft)	Length (ft)	Area (sf)
	Design	16.00	30.00	480

System Design
MicroFAST 0.5
Absorption System

Type	LPD Pad
Square Feet	480.00 Design Value
Width (ft)	16.00 Design Value
Length (ft)	30.00 Design Value

ON-LOT TREATMENT AND DISPOSAL SYSTEM
DESIGN CALCULATIONS

LOW PRESSURE DISTRIBUTION SYSTEM DESIGN

PAGE 4 OF 7

Calculation Date:	8/21/2025
Revision Date:	-
Client:	Gloria P. Chandler c/o MPPDC
Tax Map ID#:	23 165X 107
HDID#:	-
County:	King & Queen
Location/Address	345 Airport Road

NOTE: this spreadsheet does not account for elevation changes across the drainfield

Based on Hazen-Williams equation:

H=(4.727/C^4.87)*L*((Q/C)^1.85)

where: H = head loss in feet
D = Pipe diameter in feet
L = Pipe length in feet
Q = Flow in cubic feet per second
C = Friction loss coefficient, assumed to be 140

Also based on the orifice equation

Q = C*A*((2*g*H)^0.5)

where: C = orifice coefficient, = 0.60 * 0.80 = 0.48
A = area of orifice, square feet
g = acceleration due to gravity, = 32.2 ft/sec/sec
H = Head at the orifice, feet
Q = Flow in cubic feet per second

Required input values:

Head at last orifice, in feet	2		
Diameter of orifice, in inches	0.1875		
Distance between orifices, in feet	4		
Diameter of lateral pipe, in inches	1.25		
Number of laterals	4		
Length of individual laterals, ft	30.00	# Orifices	Total Pipe Flow
Selected flow per lateral, gpm	3.78	8	3.783383
Total combined flow, gpm	15.05		

Note: Lateral length is from first to last orifice

Note: Selection highlighted below is the design for the current project

Orifice #	Head feet	Orifice diameter inches	Individual orifice flow gpm	total pipe flow gpm	distance between orifices feet	pipe diameter inches	Head loss feet	velocity fps	average velocity fps	% variation	First to Last Orifice feet
1	2.000	0.1875	0.4689	0.4689	4	1.25	0.000	0.03	0.03		0
2	2.000	0.1875	0.4690	0.9379	4	1.25	0.001	0.06	0.05	0.009	4
3	2.002	0.1875	0.4691	1.4071	4	1.25	0.003	0.09	0.06	0.043	8
4	2.005	0.1875	0.4695	1.8766	4	1.25	0.005	0.12	0.08	0.115	12
5	2.009	0.1875	0.4701	2.3466	4	1.25	0.007	0.15	0.09	0.237	16
6	2.017	0.1875	0.4709	2.8175	4	1.25	0.010	0.18	0.11	0.421	20
7	2.027	0.1875	0.4721	3.2897	4	1.25	0.014	0.22	0.12	0.679	24
8	2.041	0.1875	0.4737	3.7634	4	1.25	0.018	0.25	0.14	1.021	28
9	2.059	0.1875	0.4758	4.2392	4	1.25	0.022	0.28	0.15	1.458	32
10	2.081	0.1875	0.4783	4.7175	4	1.25	0.027	0.31	0.17	2.000	36
11	2.108	0.1875	0.4814	5.1989	4	1.25	0.032	0.34	0.18	2.657	40
12	2.140	0.1875	0.4851	5.6840	4	1.25	0.038	0.37	0.20	3.438	44
13	2.178	0.1875	0.4893	6.1733	4	1.25	0.044	0.40	0.22	4.351	48
14	2.222	0.1875	0.4943	6.6676	4	1.25	0.051	0.44	0.23	5.405	52
15	2.273	0.1875	0.4999	7.1675	4	1.25	0.058	0.47	0.25	6.608	56
16	2.331	0.1875	0.5063	7.6738	4	1.25	0.066	0.50	0.26	7.956	60
17	2.397	0.1875	0.5134	8.1873	4	1.25	0.075	0.54	0.28	9.487	64
18	2.472	0.1875	0.5214	8.7086	4	1.25	0.084	0.57	0.30	11.178	68
19	2.556	0.1875	0.5301	9.2387	4	1.25	0.093	0.60	0.31	13.040	72
20	2.649	0.1875	0.5397	9.7784	4	1.25	0.104	0.64	0.33	15.084	76

NOTE: Orifices are numbered starting from the most distant (distal) orifice

COMMONWEALTH OF VIRGINIA
Wayne A. Savage
WAYNE A. SAVAGE
Lic. No. 56830
08-22-2025
PROFESSIONAL ENGINEER

DRAINFIELD & PUMP CALCULATIONS

SHEET 9

SOILS INC.
8331 WEST MAIN ST, MARSHALL, VA 20115
P.844.447.SOIL (7645) F.540.364.2060

PROJECT: 345 AIRPORT ROAD
DATE: 8/22/2025 JOB #T6305
GPIN OR TM #: 23 165X 107
COUNTY/STATE: KING & QUEEN COUNTY, VA

ON-LOT TREATMENT AND DISPOSAL SYSTEM
DESIGN CALCULATIONS

TIMED DOSING CALCULATION FOR LPD SYSTEM

PAGE 5 OF 7

Calculation Date:	8/21/2025
Revision Date:	-
Client:	Gloria P. Chandler c/o MPPDC
Tax Map ID#:	23 165X 107
HDID#:	-
County:	King & Queen
Location/Address	345 Airport Road

TIMED DOSING CALCULATION

BASIS:

ESTABLISH INSTANTANEOUS FLOW
RATE BY CALCULATING DOSE

DATA:

Daily Flow (gal.)	300	FINAL DESIGN
Diameter of LPD Piping (in.)	1.25	LPD
Length of ABS Field Piping (ft.)	120.00	FINAL DESIGN

Total Volume of Absorption

	Cu Ft	Gal	Total Volume (gal)	
Field Distribution Piping Volume of distribution piping	1.02	7.65	7.65	FINAL DESIGN

Selected Cycles Per Day (Based on doses equal to 7x pipe capacity)	5.60	FINAL DESIGN
Design Gal. Per Cycle (Based on doses equal to 7x pipe capacity)	53.55	FINAL DESIGN
Selected Running Time Per Cycle	3.56	FINAL DESIGN
Design Pump Gallons Per Min.	15.05	FINAL DESIGN

ON-LOT TREATMENT AND DISPOSAL SYSTEM
DESIGN CALCULATIONS

PUMP STATION SIZING

PAGE 6 OF 7

Calculation Date:	8/21/2025
Revision:	-
Client:	Gloria P. Chandler c/o MPPDC
Tax Map ID#:	23 165X 107
HDID#:	-
County:	King & Queen
Location/Address	345 Airport Road

Pump Station Sizing

Base Information

Wet Well Sizing

Project Data

Type of Distribution	LPD
Daily Flow (gpd)	300
Cap of wet well as multiple of daily flow	1
Required Wet Well Capacity	300
Nominal Capacity of Tank (gal)	1000
Proposed Inside Dimen. of Wet Well (feet)	
L (ft)	7.50
W (ft)	4.42
H (ft)	5.17
Concrete (cu yd)	2.1
Wall thickness(in)	3
Inlet Invert Elev Above Bottom(ft)	51
HWL Alarm above bottom (in)	46
Min Freeboard required above emergency high water level (in) to inlet	3
Provided Freeboard above HWL for reserve volume (in)	5
Heel required above wet well floor for pump suction (in)	18
Working volume calculation(cuft) to hwl alarm (Using Hanover Tanks)	77.29
Working volume calculation(gal)	578
Safety Reserve Volume Above HW Alarm(gal)	103.24
Safety Reserve Percent of Daily Flow	34.41%
Dosing Volume	53.55
Dosing Switch above low level shutoff(in)	2.47

Selected Pump Tank	
Size (gal)	1000
Working volume (gal)	578
Low level shutoff (in)	18
Level Switch Operating Points above bottom(in)	20
High Level alarm(in)	46

ON-LOT TREATMENT AND DISPOSAL SYSTEM
DESIGN CALCULATIONS

DISCHARGE PUMP SIZING

PAGE 7 OF 7

Calculation Date:	8/21/2025
Revision:	-
Client:	Gloria P. Chandler c/o MPPDC
Tax Map ID#	23 165X 107
HDID#:	-
County:	King & Queen
Location/Address:	345 Airport Road

HAZEN WILLIAMS FORMULA
- USE FOR PUMP FLOW
- USE FOR PRESSURE PIPE LINES
- THE FOLLOWING CALCULATION IS TO BE USED TO DEVELOP A SYSTEM CURVE FOR TYPICAL PUMPING SITUATIONS
- THE CALCULATION USES THE HAZEN WILLIAMS EQUATION TO DEVELOP HEAD LOSS INFORMATION. MINOR LOSSES ARE CONVERTED TO EQUIVALENT PIPE LENGTHS

SYSTEM CURVE CALCULATION

V = 1.318*C*R^.63*S^.54)

WHERE,
V = VELOCITY (FPS)
C = COEFFICIENT OF ROUGHNESS
S = ENERGY LOSS

hf(ft= .002083 *L(100/C)^1.85)*q^1.85/d^4.8655)

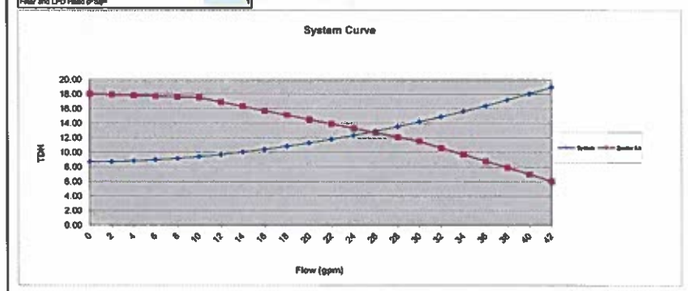
WHERE,
Hf(ft = HEAD LOSS DUE TO FRICTION IN FEET
L = LENGTH OF PIPE INCLUDING EQUIVALENT LENGTH FOR LOSS THROUGH FITTINGS IN FT
C = FRICTION FACTOR FOR HAZEN WILLIAMS
q = FLOW IN GALLONS PER MINUTE
D = INSIDE DIAMETER OF CIRCULAR PIPE IN INCHES

MINOR LOSSES FOR SUCTION AND DISCHARGE PIPING
ENTER THE NUMBER OF FITTINGS OR LOSSES IN THE SPACE PROVIDED

LOSS	NUMBER	EQ. L (PIPE DIA)	EQUIV L
GLOBE VALVE	1	175	19.83
ANGLE VALVE		145	0.00
SWING CHECK	1	135	15.30
CLOSE RETURN		50	0.00
STD TEE	1	60	6.80
STD ELBOW	1	30	3.40
MED SWEEP ELL		50	0.00
LONG SWEEP ELL		20	0.00
45 ELL	3	16	0.00
GATE VALVE		13	0.00
STD INLET		50	0.00
STD EXIT	1	100	11.33
GEOFLOW VORTEX FILTER	1	100	11.33
TOTAL			68.00

DATA ENTRY:

TEMPERATURE (DEG F)	68
SUCTION WATER LEVEL (FT) =	0
CENTERLINE PUMP EL. =	0.4
DISCH. ELEVATION (FT) =	6
INT. TANK PIPE ID (IN) =	1.660
INT. TANK PIPE LENGTH (FT) =	5
FM PIPE ID (IN) =	2.040
FM PIPE LENGTH (FT)=	13
C =	150
TDH @ STATIC CONDITIONS =	6.367
Filter and LPD Head (PSI)=	1



COMMONWEALTH OF VIRGINIA
Wayne A. Savage
WAYNE A. SAVAGE
Lic. No. 56830
08-22-2025
PROFESSIONAL ENGINEER

cont. DRAINFIELD & PUMP CALCULATIONS
SHEET 10

SOILS INC.
8331 WEST MAIN ST, MARSHALL, VA 20115
P.844.447.SOIL (7645) F.540.364.2060

PROJECT: 345 AIRPORT ROAD
DATE: 8/22/2025 JOB #T6305
GPIN OR TM #: 23 165X 107
COUNTY/STATE: KING & QUEEN COUNTY, VA

Trusted. Tested. Tough.®

Product information presented here reflects conditions at time of publication. Consult factory regarding discrepancies or inconsistencies.

ZOELLER. PUMP COMPANY

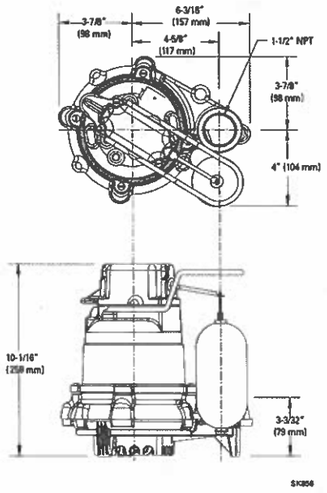
SECTION: 2.15.020
FM2778
1120
Supersedes
0515

TECHNICAL DATA SHEET
MIGHTY-MATE SERIES
Cast Iron Models 53, 57 and Bronze Models 55, 59
Submersible Effluent / Dewatering Pumps

PRODUCT SPECIFICATIONS

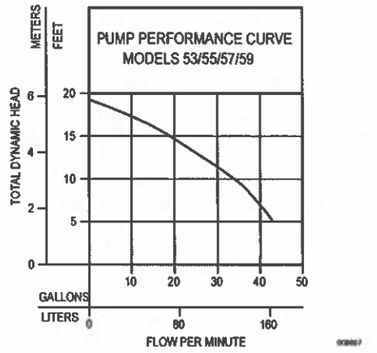
MOTOR	Horse Power	3/10
	Voltage	115 or 230
	Phase	1 Ph
	Hertz	60 Hz
	RPM	1550
	Type	Shaded pole
	Insulation	Class B
	Amps	4.8 - 9.7
PUMP	Operation	Automatic or nonautomatic
	Auto On/Off Points	7-1/4" (18.4 cm) / 3" (7.6 cm)
	Discharge Size	1-1/2" NPT
	Solids Handling	1/2" (12 mm) spherical solids
	Cord Length	9' (3 m) automatic, 15' (5 m) nonautomatic
	Cord Type	UL listed, 3-wire, grounded plug
	Max. Head	19.25' (5.9 m)
	Max. Flow Rate	43 GPM (163 LPM)
	Max. Operating Temp.	130° F (54° C)
	Cooling	Oil filled
	Motor Protection	Auto reset thermal overload
MATERIALS	Cap	Cast iron or bronze
	Motor Housing	Cast iron or bronze
	Pump Housing	Cast iron or bronze
	Base	Cast iron, bronze or engineered thermoplastic
	Upper Bearing	Sleeve bearing
	Lower Bearing	Sleeve bearing
	Mechanical Seals	Carbon and ceramic
	Impeller Type	Non-clogging vortex
	Impeller	Plastic, cast iron or bronze
	Hardware	Stainless steel
	Motor Shaft	AISI 1215 cold rolled steel
	Gasket	Neoprene

NOTE: See model comparison chart for specific details.



TOTAL DYNAMIC HEAD FLOW PER MINUTE

MODEL		53/55/57/59	
Feet	Meters	Gal.	Liters
5	1.5	43	163
10	3.0	34	129
15	4.6	19	72
Shut-off Head:		19.25 ft.(5.9m)	



Model	MODEL COMPARISON										
	Seal	Mode	Volts	Ph	Amps	HP	Hz	Lbs	Kg	Simplex	Duplex
M53/M55	Single	Auto	115	1	9.7	3/10	60	23	10	1	---
N53/N55	Single	Non	115	1	9.7	3/10	60	23	10	2	3 & 4
* BN53	Single	Auto	115	1	9.7	3/10	60	25	11	*	---
* BE53/BE57	Single	Auto	230	1	4.8	3/10	60	24 / 30	11 / 13	*	---
D53	Single	Auto	230	1	4.8	3/10	60	23	10	1	---
E53/E55	Single	Non	230	1	4.8	3/10	60	22	10	2	3 & 4
M57/M59	Single	Auto	115	1	9.7	3/10	60	29 / 33	13 / 15	1	---
N57/N59	Single	Non	115	1	9.7	3/10	60	28 / 29	12 / 13	2	3 & 4
* BN57	Single	Auto	115	1	9.7	3/10	60	30	13	*	---
D57/D59	Single	Auto	230	1	4.8	3/10	60	30 / 33	13 / 15	1	---
E57/E59	Single	Non	230	1	4.8	3/10	60	28 / 29	12 / 13	2	3 & 4
E59	Single	Non	230	1	4.8	3/10	60	29	13	2	3 & 4

* Single piggyback switch included.

SPECIAL MODEL FEATURES

Additional cord lengths are available in 15' (5 m), 25' (8 m) and 35' (11 m). 50' (15 m) cord lengths available for 230 V units only.

BE and BN models include a piggyback variable level pump switch.

Model 53: cast iron switch case, motor and pump housing, a plastic impeller and base. Model 57: all cast iron construction with a cast iron impeller. Model 55: bronze switch case, motor and pump housing, a plastic impeller and base. Model 59: bronze construction with a bronze impeller.

Optional pump stand (P/N 10-2421).

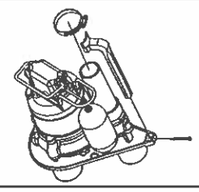
SELECTION GUIDE

1. Integral float-operated mechanical switch, no external control required.
2. Single piggyback variable level float switch or double piggyback variable level float switch. Refer to FM0477.
3. See FM0712 for correct model of Electrical Alternator.
4. Variable level control switch 10-0743 used as a control activator with electrical alternator (3) or (4) float system.

OPTIONAL PUMP STAND P/N 10-2421

- Reduces potential clogging by debris
- Replaces rocks or bricks under the pump
- Made of durable, noncorrosive ABS
- Raises pump 2" (5 cm) off bottom of basin
- Provides the ability to raise intake by adding sections of 1½" or 2" (DN40 or DN50) PVC piping
- Attaches securely to pump
- Accommodates sump, dewatering and effluent applications

NOTE: Make sure float is free from obstruction.



CAUTION All installation of controls, protection devices and wiring should be done by a qualified licensed electrician. All electrical and safety codes should be followed including the most recent National Electrical Code (NEC) and the Occupational Safety and Health Act (OSHA).

502-778-2731 | 800-928-7867 | 3649 Cane Run Road | Louisville, KY 40211-1961 | zoellerpumps.com

COMMONWEALTH OF VIRGINIA
Wayne A. Savage
WAYNE A. SAVAGE
Lic. No. 56830
08-22-2025
PROFESSIONAL ENGINEER

PUMP SPECIFICATIONS
SHEET 11

SOILS INC.
8331 WEST MAIN ST, MARSHALL, VA 20115
P.844.447.SOIL (7645) F.540.364.2060

PROJECT: 345 AIRPORT ROAD
DATE: 8/22/2025 JOB #T6305
GPIN OR TM #: 23 165X 107
COUNTY/STATE: KING & QUEEN COUNTY, VA

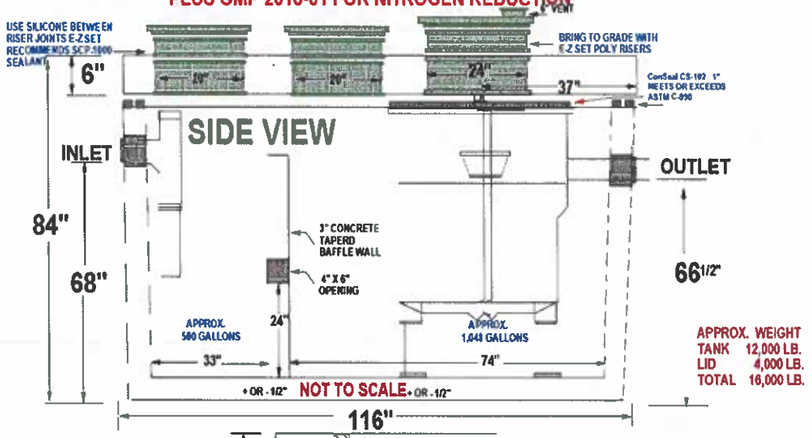
Hanover PRECAST

1500 GALLON AEROBIC TREATMENT UNIT

MicroFAST 0.50 / 0.625 / 0.75 MODEL F / LEGS

"MEETS ALL APPROVALS FOR TL-3 AND TL-2 TREATMENT (GMP 2016-03)"

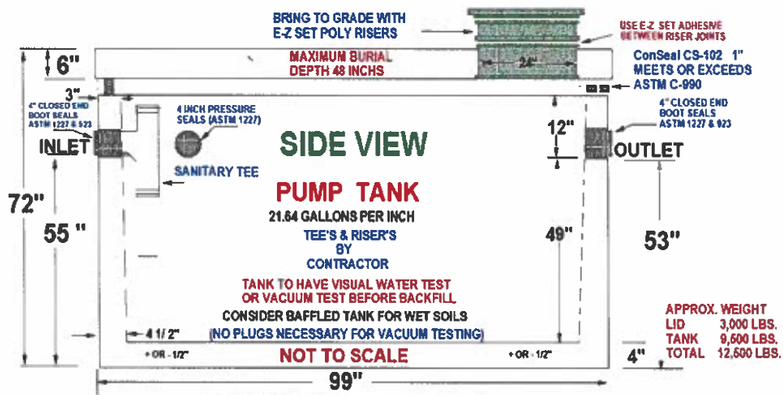
"PLUS GMP 2013-01 FOR NITROGEN REDUCTION"



(804)-798-2336 FAX (804)-798-233! WWW.HANOVERPRECAST.COM OCTOBER 2018 PAGE M-81 MODEL F

Hanover PRECAST

1000 GALLON TOP SEAM PUMP TANK



(804)-798-2336 FAX (804)-798-2339 WWW.HANOVERPRECAST.COM FEBRUARY 2015 PAGE 28 / PUMP TANK

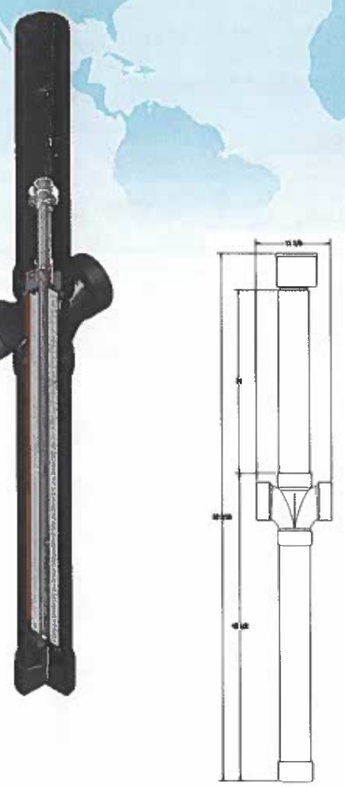
Jet

Wastewater Treatment Solutions

Founded on Innovation. Anchored by Service.®

Illumi-Jet UV Disinfection Unit®

Designed to disinfect the effluent from advanced onsite treatment systems, the model Illumi-Jet is capable of reducing fecal coliform bacteria levels to well below the most stringent U.S. treatment standards. The Illumi-Jet utilizes a germicidal lamp which emits 95% of the ultraviolet energy at the wavelength of 254 nanometers. This wavelength is in the region of maximum germicidal effectiveness and is highly lethal to virus, bacteria, protozoa and mold. The disinfection chamber couples directly to any system's 4" discharge pipe and is permanently installed below grade. When fully inserted, the lamp housing is properly positioned by an integrated keyway near the top of the disinfection chamber. This creates a well defined flow path ensuring system effluent has the proper ultraviolet exposure time. Under standard operating conditions, fecal coliform reduction exceeds 99.9%.



Parameter	Specification
UV Lamp	GPH787T5
UV Dose at 10 GPM	64,000 µW at 0-4cm
Lamp Wattage	37
Ballast Type	WHI-120-C
Voltage	120 VAC
Frequency	50/60 HZ
Current	0.4 A
Power	40 W
Alarm Contacts	NC/NO
Indicator Light	Green LED
Enclosure Type	NEMA 6P
Unit Height	63" - 70"
Connections	4"
Material	ABS
Reservoir Capacity	~2 Gallon
Max. Flow Rate	10 GPM
Min. Influent Quality	30 TSS / 30 BOD

Jet Inc. 750 Alpha Drive Cleveland, OH 44143 www.jetincorp.com 800.321.6960

REV 2014-11-11

QA-SAL-148

COMMONWEALTH OF VIRGINIA
WAYNE A. SAVAGE
Lic. No. 56830
08-22-2025
PROFESSIONAL ENGINEER

TANK AND UV DETAILS

SHEET 12

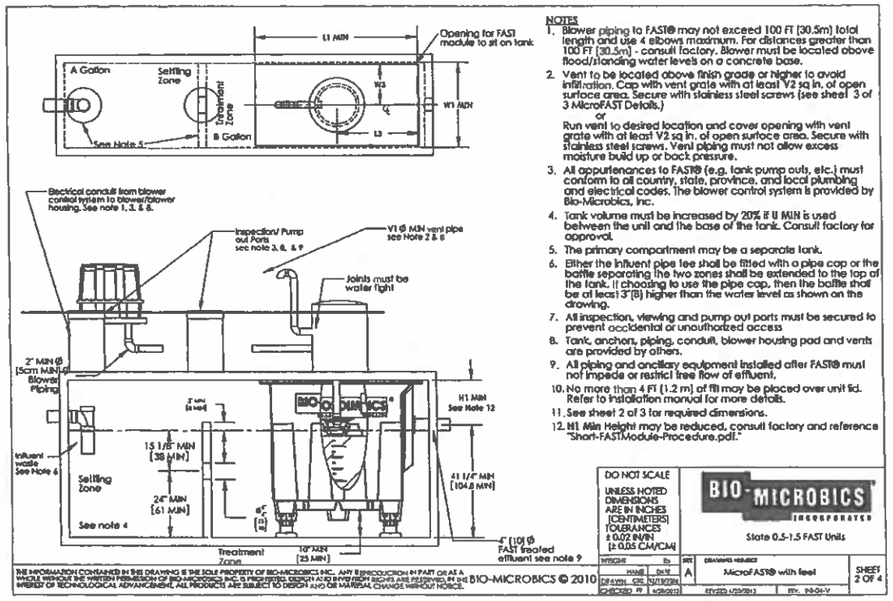
SOILS INC.
8331 WEST MAIN ST, MARSHALL, VA 20115
P.844.447.SOIL (7645) F.540.364.2060

PROJECT: 345 AIRPORT ROAD

DATE: 8/22/2025 JOB #T6305

GPIN OR TM #: 23 165X 107

COUNTY/STATE: KING & QUEEN COUNTY, VA



NOTES

1. Blower piping to FAST® may not exceed 100 FT [30.5m] total length and use 4 elbows maximum. For distances greater than 100 FT [30.5m] - consult factory. Blower must be located above flood/standing water levels on a concrete base.
2. Vent to be located above finish grade or higher to avoid infiltration. Cap with vent grate with at least V2 sq in. of open surface area. Secure with stainless steel screws (see sheet 3 of 3 MicroFAST Details.)
   or
   Run vent to desired location and cover opening with vent grate with at least V2 sq in. of open surface area. Secure with stainless steel screws. Vent piping must not allow excess moisture build up or back pressure.
3. All appurtenances to FAST® (e.g. tank pump outs, etc.) must conform to all country, state, province, and local plumbing and electrical codes. The blower control system is provided by Bio-Microbics, Inc.
4. Tank volume must be increased by 20% if U MIN is used between the unit and the base of the tank. Consult factory for approval.
5. The primary compartment may be a separate tank.
6. Either the influent pipe tee shall be fitted with a pipe cap or the baffle separating the two zones shall be extended to the top of the tank. If choosing to use the pipe cap, then the baffle shall be at least 3"(8) higher than the water level as shown on this drawing.
7. All inspection, viewing and pump out ports must be secured to prevent accidental or unauthorized access
8. Tank, anchors, piping, conduit, blower housing pad and vents are provided by others.
9. All piping and ancillary equipment installed after FAST® must not impede or restrict free flow of effluent.
10. No more than 4 FT [1.2 m] of fill may be placed over unit tid. Refer to installation manual for more details.
11. See sheet 2 of 3 for required dimensions.
12. H1 Min Height may be reduced, consult factory and reference "Short-FASTModule-Procedure.pdf."

DO NOT SCALE
UNLESS NOTED DIMENSIONS ARE IN INCHES [CENTIMETERS] TOLERANCES ± 0.02 IN/IN [± 0.05 CM/CM]

BIO-MICROBICS INCORPORATED
Slate 0.5-1.5 FAST Units

WEIGHT: lb | SIZE: A | DRAWING NUMBER: MicroFAST® with feet | SHEET 2 OF 4
DRAWN: CPC 7/27/2012 | NAME | DATE
CHECKED: PF 4/29/2013 | REVISED 4/29/2013 | REV. 8-06-V

Unit Size	A MIN	B MIN	V1 Dia. MIN	V2 MIN	L1	L2	L3	W1 MIN	W2	W3	H1 MIN
0.50	Refer to State tank requirments for minimum volumes.		3"	7.1 in sq	59.5"	54"	29.75"	31.25"	25"	15.125"	16.375"
0.625			3"	7.1 in sq	60"	54"	31.5"	44.25"	37"	21.5"	16.375"
0.75			3"	7.1 in sq	60"	54"	31.5"	44.25"	37"	21.5"	16.375"
0.90			3"	7.1 in sq	59"	54"	31.25"	54.5"	49"	26.625"	16.375"
1.50			4"	9 in sq	83.5"	75.75"	42.875"	55.75"	49"	27.625"	16.25"

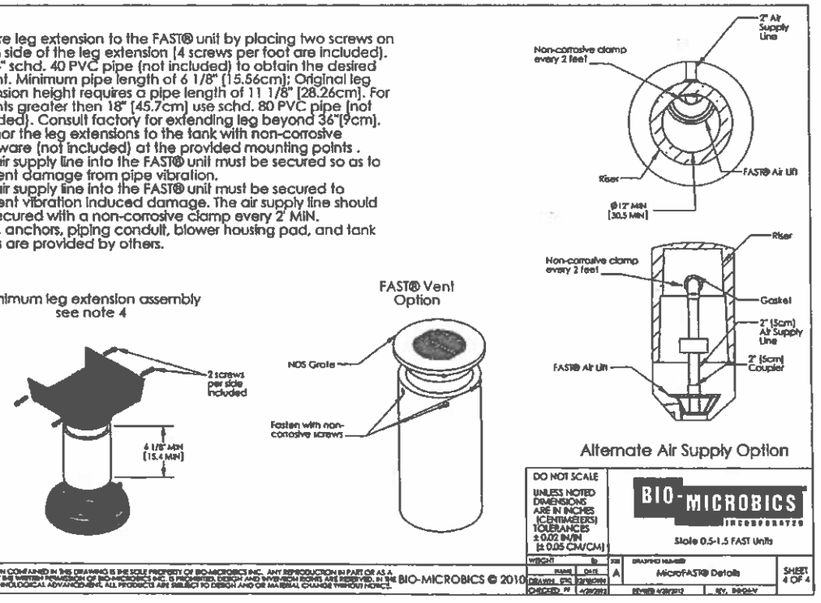
A MIN	Setting Zone (MIN Liquid Capacity)
B MIN	FAST ® Chamber (MIN Liquid Capacity)
V1 MIN	Vent Diameter (MIN)
V2 MIN	Vent grate open area (MIN).
L1	FAST® Length and MIN Tank Length
L2	Length of tank opening for hanging FAST®
L3	FAST® Length from edge of liner to center of airline.
W1 MIN	FAST® MIN Tank Width.
W2	Width of tank opening for hanging FAST®.
W3	FAST® Width from edge of liner to center of airline.
H1 MIN	Clearance from center of outlet to (inside) top of tank.

DO NOT SCALE
UNLESS NOTED DIMENSIONS ARE IN INCHES [CENTIMETERS] TOLERANCES ± 0.02 IN/IN [± 0.05 CM/CM]

BIO-MICROBICS INCORPORATED
Slate 0.5-1.5 FAST Units

WEIGHT: lb | SIZE: A | DRAWING NUMBER: Chart | SHEET 3 OF 4
DRAWN: CPC 7/27/2012 | NAME | DATE
CHECKED: PF 7/27/2012 | REVISED 7/27/2012 | REV. 8-06-V

Notes
1. Secure leg extension to the FAST® unit by placing two screws on each side of the leg extension (4 screws per foot are included).
2. Cut 4" schd. 40 PVC pipe (not included) to obtain the desired height. Minimum pipe length of 6 1/8" [15.56cm]; Original leg extension height requires a pipe length of 11 1/8" [28.26cm]. For heights greater then 18" [45.7cm] use schd. 80 PVC pipe (not included). Consult factory for extending leg beyond 36"[9cm].
3. Anchor the leg extensions to the tank with non-corrosive hardware (not included) at the provided mounting points .
4. The air supply line into the FAST® unit must be secured so as to prevent damage from pipe vibration.
5. The air supply line into the FAST® unit must be secured to prevent vibration induced damage. The air supply line should be secured with a non-corrosive clamp every 2' MIN.
6. Tank, anchors, piping conduit, blower housing pad, and tank vents are provided by others.



DO NOT SCALE
UNLESS NOTED DIMENSIONS ARE IN INCHES [CENTIMETERS] TOLERANCES ± 0.02 IN/IN [± 0.05 CM/CM]

BIO-MICROBICS INCORPORATED
Slate 0.5-1.5 FAST Units

WEIGHT: lb | SIZE: A | DRAWING NUMBER: MicroFAST® Details | SHEET 4 OF 4
DRAWN: CPC 7/27/2012 | NAME | DATE
CHECKED: PF 4/29/2013 | REVISED 4/29/2013 | REV. 8-06-V

Virginia Tank Sizes for Different Effluent Qualities

MicroFAST Model Size	Maximum Flow GPD	GMP 147 (TL3) Settling Zone Gallons	GMP 147 (TL3) Treatment Zone Gallons	GMP 147 (TL3) Total Tank Volume Gallons	Secondary Effluent (TL2) Settling Zone Gallons	Secondary Effluent (TL2) Treatment Zone Gallons	Secondary Effluent (TL2) Total Tank Volume Gallons
0.50	500	500	750	1250	350	450	800
0.625	625	500	900	1400	375	540	915
0.75	750	500	1000	1500	375	625	1000
0.90	900	725	1250	1975	500	750	1250
1.50	1500	1075	1875	2950	750	1125	1875 See Note 1

Notes:

1. For flows >900 gpd and ≤1,000 gpd, the 1.5 unit is to be used and is Generally Approved for both TL2 and TL3 effluent quality.
2. All tank volumes listed above are minimum volumes of the liquid capacity of the tank. The tank volumes listed for the Settling and Treatment Zone may be two compartment tanks or two separate tanks if used for BOD/TSS reduction only. If total nitrogen reduction is required, then the tanks must be two compartment tanks.

COMMONWEALTH OF VIRGINIA
Wayne A. Savage
WAYNE A. SAVAGE
Lic. No. 56830
08-22-2025
PROFESSIONAL ENGINEER

MICROFAST DETAILS
SHEET 13

SOILS INC.
8331 WEST MAIN ST, MARSHALL, VA 20115
P.844.447.SOIL (7645) F.540.364.2060

PROJECT: 345 AIRPORT ROAD
DATE: 8/22/2025 JOB #T6305
GPIN OR TM #: 23 165X 107
COUNTY/STATE: KING & QUEEN COUNTY, VA

Soils Inc.
T: (540) 364-1122 F: (540) 364-2060

SOIL SUMMARY REPORT

GENERAL INFORMATION

Date: 7/24/2025 Submitted to: King & Queen County Health Department

Owner: Gloria P. Chandler c/o MPPDC Telephone Number: (804) 758-8100 x 3005 (Taylor Ovide, MPPDC)

Address: 345 Airport Road Mattaponi, VA 23110

Agent: Soils Inc. Address: 8331 W. Main Street Marshall, VA 20115

Property Location: 345 Airport Road Tax Map/GPIN: 23 165X 107

Subdivision : Airville Blk/Sec: A Lot: 24-26

1. Position in Landscape Satisfactory: ☑ Yes ☐ No
   Describe: Open yard, flat
2. Slope: <1 %
3. Depth to Rock or Impervious Strata: Max. _____ Min. _____ None ☑
4. Depth to seasonal water table (gray mottling or gray color): Not Observed ☐ Yes ☑ 0"
5. Free Water Present? ☐ No ☑ Yes Range: 15 inches
6. Soil Percolation rate estimated: ☑ Yes ☐ No Texture Group: I ☐ II ☑ III ☐ IV ☐ Estimated rate: 30 mpi
7. Permeability Test Performed? ☑ No ☐ Yes
   If yes, note type of test performed and attached results. Test Type: NA

☑ Site Approved. Drainfield to be placed at +6 " depth at site designated on permit.

☐ Site Disapproved. See reasons for rejection.

Reasons for rejection:

1☐ Position in Landscape subject to flooding or periodic saturation.
2☐ Insufficient depth of suibable soil over hard rock.
3☐ Insufficient depth of suitable soil to seasonal water table.
4☐ Rates of absorption too slow.
5☐ Insufficient area of suitable soil for drainfield and/or reserve area.
6☐ Proposed system to close to well.
7☐ Other (Specify Below. Add additional pages if necessary)

Additional Notes: ***REPAIR - TL3 with disinfection to LPD pad***

T6305

SOILS INC.

Profiles for 345 Airport Rd.

Profile 1

Horizon	Depth (in)	Texture Class	Description
A	0-6	IIa	Very dark greyish brown (2.5Y 3/2), Sandy loam, Redox to surface, very friable
E	6-12	IIa	Dark greyish brown (2.5Y 4/2), Sandy loam, very friable
C	12-25	IIa	Light yellowish brown (2.5Y 6/4), Sandy loam, very friable, free water at 22 inches

Profile 2

Horizon	Depth (in)	Texture Class	Description
A	0-5	IIa	Very dark greyish brown (2.5Y 3/2), Sandy loam, Redox to surface, very friable
E	5-11	IIa	Dark greyish brown (2.5Y 4/2), Sandy loam, very friable
Bt	11-21	IIb	Yellowish brown (10YR 5/6), Sandy clay loam, friable, free water at 19 inches

Profile 3

Horizon	Depth (in)	Texture Class	Description
A	0-3	IIa	Very dark greyish brown (2.5Y 3/2), Sandy loam, Redox to surface, very friable
E	3-12	IIa	Dark greyish brown (2.5Y 4/2), Sandy loam, very friable
Bt	12-17	IIb	Yellowish brown (10YR 5/6), Sandy clay loam, friable, free water at 15 inches

COMMONWEALTH OF VIRGINIA
Wayne A. Savage
WAYNE A. SAVAGE
Lic. No. 56830
08-22-2025
PROFESSIONAL ENGINEER

SOIL SUMMARY & PROFILES
SHEET 14

SOILS INC.
8331 WEST MAIN ST, MARSHALL, VA 20115
P.844.447.SOIL (7645) F.540.364.2060

PROJECT: 345 AIRPORT ROAD
DATE: 8/22/2025 JOB #T6305
GPIN OR TM #: 23 165X 107
COUNTY/STATE: KING & QUEEN COUNTY, VA

HORIZONTAL DATUM BASED ON PLAN OF AIRVILLE, SEC. A1

APPROXIMATE LOCATION OF EXISTING DRAINFIELD PER HDID# 149-00-020

JONATHAN C. KINNEY & RALPH W. JOHNSON, TRUSTEES
MAP ID #23 165X 132
D.B. 222, PAGE 568

S 16°06'33" E 157.60'

CHICKEN COOP

VINYL SHED

WOOD SHED

VINYL SHED

(50')

(50')

(57.6')

APPROXIMATE LOCATION OF EXISTING DRAINFIELD PER HDID 149-14-035

PROPOSED DRAINFIELD

GLORIA P. CHANDLER
MAP ID #23 165X 107 & 23 165X 110
D.B. 112, PAGE 79
0.458 ACRES

APPROXIMATE LOCATION OF EXISTING DRAINFIELD PER HDID 149-15-029

SAT. DISH

METAL SHED

APPROXIMATE LOCATION EXISTING DWELLING

LISA J. BUCHANAN
MAP ID #23 165X 105
D.B. 99, PAGE 15
#319 AIRPORT ROAD

N 74°00'00" E 126.50'

S 74°00'00" W 126.80'

LOT 27
KAY F. KEENY
MAP ID #23 165X 111
D.B. 207, PAGE 621
#387 AIRPORT ROAD

EXISTING 3 BDR DWELLING CONDITIONAL TO 4 OCCUPANTS

APPROXIMATE LOCATION EXISTING DWELLING

50.0'

50.0'

APPROXIMATE LOCATION OF EXISTING DRAINFIELD PER HDID# 149-03-111

EXISTING CONCRETE DRIVE

EXISTING CLASS IIIA WELL

APPROXIMATE LOCATION OF EXISTING CLASS IIIA WELL PER HDID# 149-00-020

APPROXIMATE LOCATION OF ABANDONED WELL PER HDID# 149-15-029

EXISTING CLASS IIIA WELL

ABANDONED DRILLED WELL PER HDID 149-14-035

EXISTING CLASS IIIB WELL PER HDID# 149-03-111

50.0'

50.0'

50.0'

N 16°00'00" W 157.60'

OUL

T

TAR & GR. PAVEMENT

"AIRPORT ROAD" ROUTE 643
(50' R/W)

COMMONWEALTH OF VIRGINIA
Wayne A. Savage
WAYNE A. SAVAGE
Lic. No. 56830
08-22-2025
PROFESSIONAL ENGINEER

200' SANITARY SURVEY

SHEET 15

0 30 60 90

SCALE: 1" = 30'

SOILS INC.
8331 WEST MAIN ST, MARSHALL, VA 20115
P.844.447.SOIL (7645) F.540.364.2060

PROJECT: 345 AIRPORT ROAD
DATE: 8/22/2025 JOB #T6305
GPIN OR TM #: 23 165X 107
COUNTY/STATE: KING & QUEEN COUNTY, V.