

**MATHEWS SOIL CONSULTANTS, INC.**

(804) 271-0136

E-mail: info@mathewssoil.com Website: [www.mathewssoil.com](http://www.mathewssoil.com)

OSE JOB# 8###

Health Dept. ID #

**OSE/PE REPORT****For**☒ Construction Permit☐ Certification Letter☐ Subdivision Approval☐ Repair Permit☐ Expansion Permit☐ Modification Permit**PROPERTY LOCATION:** Street Address: EXAMPLE REPORT

SUBDIVISION: LOT # BLOCK SECTION

COUNTY: GPIN OR TAX MAP #

LATITUDE/LONGITUDE:

DIRECTIONS:

APPLICANT/CLIENT – ADDRESS	Prepared by OSE <input checked="" type="checkbox"/> Harold L. Mathews OSE Lic. # PSS Lic. #  Post Office Box 34099 5700-C Hopkins Road North Chesterfield, Virginia 23234
OWNER NAME	
& ADDRESS	

**Contents/Index of this Report**☒ Soil Information Summary☒ Construction Specifications☒ Soil Profile Descriptions☒ Construction Drawings☒ Site Sketch☒ Product Specification Sheet

**Certification Statement:** I hereby certify that the evaluations and/or designs contained herein were conducted in accordance with the applicable provisions of the Sewage Handling and Disposal Regulations (12 VAC5-610), the Private Well Regulations (12 VAC5-630), the Regulations for Alternative Onsite Sewage System (12 VAC5-613) and all other applicable laws, regulations and policies implemented by the Virginia Department of Health. I further certify that I currently possess 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. **This design has been completed by the licensed OSE under the engineering exemption contained in Section 54.1-402.A.11 of the code of Virginia**

I recommend that a ☒ Permit; ☐ Certification Letter; ☐ Subdivision Approval be issued

**Services rendered by MSCI are specifically limited to twenty four (24) months (services are hereinafter referred to "services") and are provided without warranty or representation other than the warranty that such services were rendered in accordance with §32.1-163.5 of the Code of Virginia. MSCI makes no warranties or representations of any kind, express or implied, including, without limitation, any warranty of or representation that the property can be used for any purpose other than a drainfield and reserve drainfield for single family home construction or that the property can be utilized for any particular use twenty four (24) months subsequent to the date of the rendition of the services. MSCI shall have no liability or responsibility to any person or entity in the event the topographical features of either the property inspected or adjoining properties are altered and MSCI shall have no liability for any indirect, incidental or consequential damages, resulting from the rendition of any services by MSCI. Any claim for any damages, whatsoever, shall be waived unless asserted within twenty four (24) months of the date the services were rendered.**

MSCI requests notification by the local health department prior to Level 2 field reviews.

Please give 48 hours' notice at (804) 271-0136, or by email: info@mathewssoil.com



## SOIL EVALUATION REPORT

# MATHEWS SOIL CONSULTANTS INC.

## EXAMPLE REPORT, ANY COUNTY, VIRGINIA

### SUMMARY OF SOIL OBSERVATIONS & DESIGN SUGGESTIONS

Conveyance Type: Gravity ( ☒ ) Holes 1-6

Soil Texture Group: III Depth to: Redox Features: None in;

Chroma 2 Mottles: None in. (quartz gravel)

Percolation Rate: 55 Estimated ( ☒ ) Field Test ( )

Recommended Trench Bottom: 32 in. Separation Distance Required: 18 in.

Drainfield Required/bedroom: 412 ft.<sup>2</sup>: Center to Center Spacing 9 ft.

Drainfield Required: 5 BEDROOMS = 2060 ft.<sup>2</sup>

#### PRIMARY DRAINFIELD

7 lines X 100 ft. X 3 ft. = 2100 ft.<sup>2</sup>

#### RESERVE DRAINFIELD

7 lines X 100 ft. X 3 ft. = 2100 ft.<sup>2</sup>

Reserve Drainfield: Required Yes ( ☒ ) No ( ) % Available 100

Septic Tank Size: 5 BR = 1 - 1500 gallons & 1 - 1000 gal for Roman shower &/or jetted tub

Water Supply: Public ( ); Class IIIA ( ); Class IIIB ( ☒ ); Class IIIC ( )

Depth to Rock: Max      Min. Estimated to be > 25' None ☒

Depth to Impervious (clay) Strata: Max.      Min.      None ☒

Free Water Present: No ☒ Yes      Range (in inches)

Slope 9 % Position in Landscape Satisfactory: Yes ☒ No

**REMARKS RE:** Rock, Free Water & Landscape Position: The soils of this site have developed from the weathering products of granite gneiss and mica schist of the Piedmont Physiographic Province. This site occupies an upland topo position and usually become more permeable with depth.

**COMMENTS:** It is important that this drainfield system is installed on grade with the maximum trench bottom being at the recommended depth or within the specified range in depth. The drainfield should be installed in a manner where it will not "buck grade."

We recommend that the well be installed, and flow tested before the start of construction. We also recommend that someone skilled in the location of water supply wells be consulted regarding the type and depth of the well to be constructed. The location of the well can be changed with the approval of the local health department or the design OSE. Care must be taken to be sure that separation distances between all drainfields and other sources of contamination are maintained. Changes in well locations should be done by a professional. No warranties are given or implied regarding yield of water at the well site shown on the site sketch. The location and drilling of the well must be approved by the local health department.

The following trees (weeping willow, maple, locust, sycamore, poplar and bamboo) should be removed if within 25' of drainfield lines, septic tanks or distribution boxes. The roots of these trees have an affinity for water and will enter distribution lines, boxes, and drainfield ditches. Roots frequently cause clogging of distribution lines and failure of the drainfield system. We do not recommend that these species be utilized as landscape vegetation because of this problem. They should not be used as landscape materials within 50 feet of drainfield systems.

**EXAMPLE REPORT, ANY COUNTY, VIRGINIA**

NOTE: See the site sketch for the location of the house, drainfield, well, drive and buried utility corridor.

**SOIL PROFILE DESCRIPTIONS**

*\*The location of soil evaluation profile holes is shown on the schematic drawing or site plan which accompanies this report. The site sketch includes the estimated or measured location of all known wells, sewage disposal systems, springs, and structural features within 100 feet of the proposed drainfield and/or reserve drainfield site.*

HORIZON	DEPTH INCHES	DESCRIPTION OF COLOR, TEXTURE, ETC	TEXTURE GROUP
HOLE #1	JS		
AE	0-13	brown 10YR 4/3 grading to light yellowish brown 10YR 6/4; very friable; sandy loam	IIB
Bt1	13-48	red 2.5YR 5/8; friable; clay loam; moderate fine to medium subangular blocky structure	III
BC	48-60+	variegated, red 2.5YR 5/8, reddish yellow 7.5YR 6/6, yellow 10YR 7/6, and brownish yellow 10YR 6/6; friable; light micaceous sandy clay loam; all colors are lithochromic; no chroma 2, no redox; hole terminated at 60"	IIB
HOLE #2	JS		
A	0-8	reddish brown 5YR 5/4; very friable; sandy loam	IIB
Bt	8-50+	red 2.5YR 5/8; friable; heavy sandy clay loam quickly grading to clay loam; moderate fine to medium subangular blocky structure; all colors are lithochromic; no chroma 2, no redox; hole terminated at 50" on quartz vein	IIB/III
HOLE #3	JS		
AE	0-10	brown 10YR 4/3 grading to light yellowish brown 10YR 6/4; very friable; sandy loam	IIB
Bt1	10-42	red 2.5YR 5/8; friable; clay loam; moderate fine to medium subangular blocky structure	III
BC	42-60+	variegated, red 2.5YR 5/8, reddish yellow 7.5YR, yellow 10YR 7/6, and brownish yellow 10YR 6/6, steel gray from mica banding; friable; very micaceous light sandy clay loam; all colors are lithochromic; no chroma 2, no redox; hole terminated at 60"	IIB
HOLE #4	JS		
AE	0-10	brown 10YR 4/3 grading to light yellowish brown 10YR 6/4; very friable; sandy loam	IIB
Bt1	10-40	red 2.5YR 5/8; friable; clay loam; moderate fine to medium subangular blocky structure	III
BC	40-54+	variegated, red 2.5YR 5/8, reddish yellow 7.5YR, yellow 10YR 7/6, and brownish yellow 10YR 6/6; friable; light micaceous sandy clay loam; all colors are lithochromic; no chroma 2, no redox; hole terminated at 54" on a quartz vein	IIB
HOLE #5	JS		
AE	0-20	brown 10YR 4/3 grading to light yellowish brown 10YR 6/4; very friable; sandy loam	IIB
Bt1	20-32	strong brown 7.5YR 5/6; friable; heavy sandy clay loam grading to light clay loam; moderate fine to medium subangular blocking structure	IIB/III
Bt2	32-50	red 2.5YR 5/8; friable; clay loam; moderate fine to medium subangular blocky structure	III
BC	50-60+	variegated, red 2.5YR 5/8, reddish yellow 7.5YR, yellow 10YR 7/6, and brownish yellow 10YR 6/6; friable; light micaceous sandy clay loam; all colors are lithochromic; no chroma 2, no redox; hole terminated at 60"	IIB

## EXAMPLE REPORT, ANY COUNTY, VIRGINIA

## SOIL PROFILE DESCRIPTIONS

*\*The location of soil evaluation profile holes is shown on the schematic drawing or site plan which accompanies this report. The site sketch includes the estimated or measured location of all known wells, sewage disposal systems, springs, and structural features within 100 feet of the proposed drainfield and/or reserve drainfield site.*

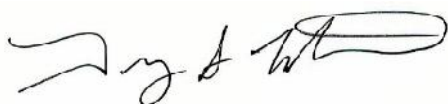
HORIZON	DEPTH INCHES	DESCRIPTION OF COLOR, TEXTURE, ETC	TEXTURE GROUP
HOLE #6	JS		
A	0-10	reddish brown 5YR 5/4; very friable; sandy loam	IIB
Bt	10-48	red 2.5YR 5/8; friable; heavy sandy clay loam quickly grading to clay loam; moderate fine to medium subangular blocky structure;	IIB/III
BC	48-60+	variegated, red 2.5YR, yellow 10YR 7/6, and brownish yellow 10YR 6/6; friable; light micaceous sandy clay loam; all colors are lithochromic; no chroma 2, no redox; hole terminated at 60"	IIB

SITE EVALUATED: July 23, 2018 JS

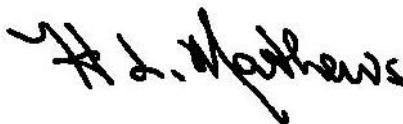
JOB NUMBER:

REPORT DATE:

## MATHEWS SOIL CONSULTANTS INC



Tracy S. Mathews  
Staff Soil Scientist  
OSE Lic. No.



Harold L. Mathews  
LPSS Lic.  
OSE Lic. No.

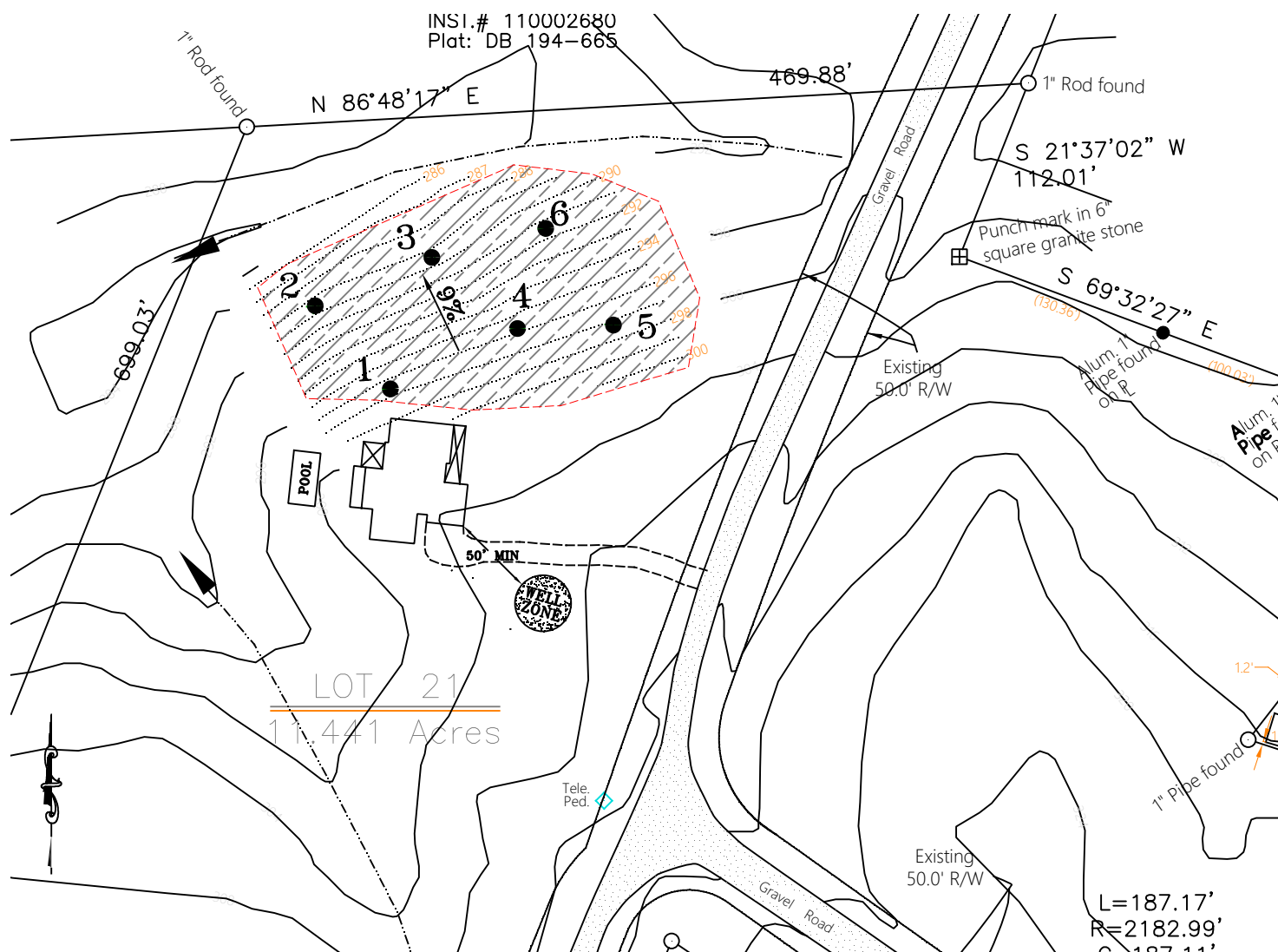
# SITE SKETCH EXAMPLE REPORT

SITE SKETCH DRAWN TO SCALE FROM A PLAT PROVIDED BY.

DRAINFIELD MUST BE INSTALLED ON GRADE.

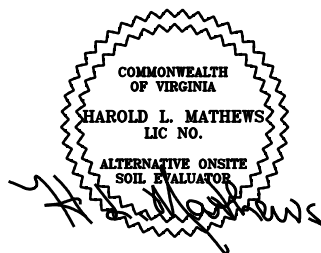
WELLS OR SEPTIC FIELDS OBSERVED WITHIN 200' OF THE PROPOSED DRAINFIELD ARE SHOWN ON THE SITE SKETCH.

NOTE: THE BACK-FLUSH FLUIDS FROM WATER TREATMENT UNITS SHALL NOT BE DISCHARGED INTO HOUSEHOLD PLUMBING. ALL WARRANTIES EITHER WRITTEN OR IMPLIED ARE NULL AND VOID IF WATER TREATMENT FLUIDS ARE DISCHARGED INTO SEWERS LEADING TO THE DRAINFIELD OR SEWAGE TREATMENT COMPONENTS.



## LEGEND

- 4 SOIL BORE # & LOCATION
- DOCUMENTED SOIL AREA
- TOPO
- GULLY
- NATURAL DRAINAGE SWALE
- PROPOSED HOUSESITE
- PROPOSED DRIVEWAY
- WELL PROPOSED WELL SITE



DATE:  
JOB NUMBER:  
EXAMPLE REPORT



**MATHEWS SOIL CONSULTANTS INC.**  
5700-C HOPKINS ROAD  
POST OFFICE BOX 34099  
NORTH CHESTERFIELD, VIRGINIA 23234  
EMAIL: [INFO@MATHEWSSOIL.COM](mailto:INFO@MATHEWSSOIL.COM)  
PHONE: 804-271-0136

Sewage Disposal System Construction Specifications  
General Information

JN:

New ( X )    Repair ( )    Expanded ( )    Modified ( ) Owner: <u>EAMPLE REPORT</u> For a Type <u>I</u> sewage disposal system which is to be constructed on/at _____ Subdivision: _____ Section: _____ Block: _____ Lot #: _____ Actual or estimated water use <u>750</u> gpd <u>5 Bedroom</u>	
DESIGN	NOTES
Water supply, existing: (describe) _____ To be installed: <u>IIIB</u> Cased: <u>50'/bottom</u> Grouted: <u>50'</u>	
Building sewer: <u>4"</u> Inside diameter PVC 40, or equivalent Slope: 1.25" per 10' required (minimum). ( ) Other: . _____	
Septic tank: Capacity: <u>1-1500 gal, 1 - 1200 gal in series (minimum)</u> ( X ) Other: <u>Place a riser on the inlet end of the first (1500 Gal) tank and the outlet end of the second tank. Second tank may be omitted if no jetted tub or Roman shower.</u>	<b>All risers to have child proof covers.</b>
Inlet-outlet structure: PVC 40, 4" tees or equivalent ( X ) Other: <u>SEE NOTES &amp; USE Sch 40 pvc for "T's"</u>	<b>Use Orenco FT 08 22-14B outlet filter as the outlet "T" for the 2nd septic tank.</b> <b>No substitutions</b>
Pump and pump station: No ( X ) Yes ( ) describe and show design if yes _____	
Gravity mains: 3" or larger inside diameter, minimum 6" fall per 100', 1500 lb. Crush strength or equivalent ( ) Other: _____	<b>Use schedule 40 pvc pipe</b>
Distribution box: <u>Star Monster</u> with <u>8</u> ports ( X ) Other: <u>SEE NOTES</u>	<b><u>Use a Star Monster D-box with Topp Industries 4" grommets. Bring the riser to the soil surface</u></b>
Header lines: Material: 4" inside diameter, 1500 lb. Crush strength plastic or equivalent from distribution box to 2' into absorption trench ( ) Other: _____	<b>Header line trench bottoms must be a minimum of 12 inches above the drainfield trench bottoms. 18 +/- inches of soil cover is required. Bed in stone or well compacted sandy soil.</b>
Percolation lines: Gravity 4" plastic 1000 lb. Per foot bearing load or equivalent, slope 2" minimum, 4" maximum per 100' ( ) Other: _____	<b>Pipe in stone</b>
Percolation lines: <u>2100</u> square feet to be installed <u>13</u> inches minimum aggregate depth <u>32</u> inches from ground surface to bottom of trench <u>9</u> feet between trench centers <u>7</u> trenches <u>100</u> feet long <u>3</u> feet wide	<b><u>CONTACT OSE BEFORE MAKING ANY SUBSTITUTIONS!</u></b>

**CONTRACTOR MUST CONFIRM TOPO AND CALL OSE FOR AUTHORIZATION TO PROCEED. DO NOT START JOB UNTIL AUTHORIZATION IS GIVEN. PHONE # 804-271-0136 THE DRAINFIELD CONTRACTOR IS TO SCHEDULE AN ONSITE MEETING OR A PHONE CONSULTATION WITH THE DESIGN OSE BEFORE THE START OF CONSTRUCTION. 24 HOUR NOTICE REQUIRED FOR INSPECTIONS.**

# DRAINFIELD DIMENSION & DESIGN EXAMPLE REPORT

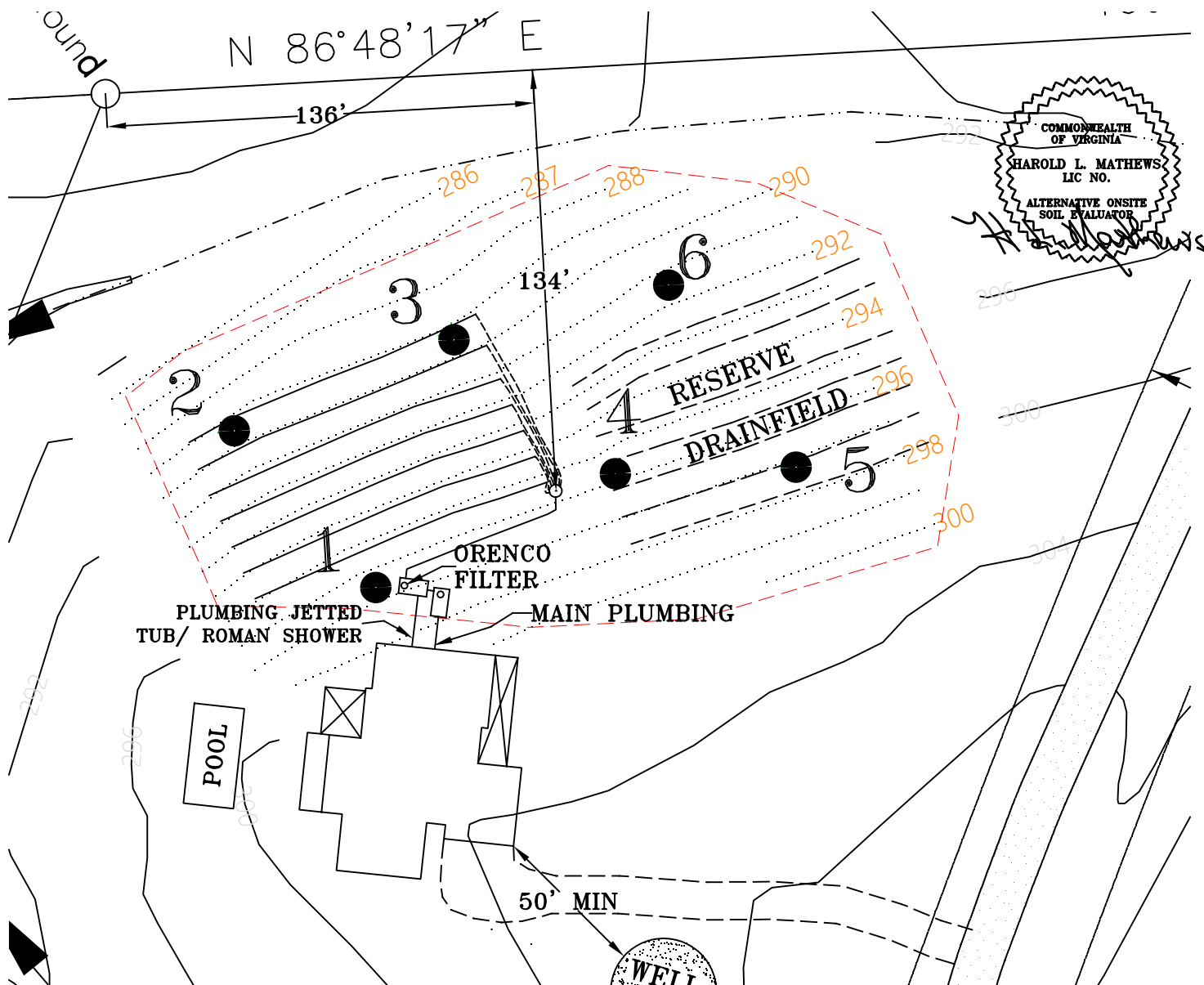
## PRIMARY DRAINFIELD:

- 7 TRENCHES
- 100' LONG
- 32" DEEP
- 3.0' WIDE
- 9.0' ON CENTER
- 1 1500 GAL SEPTIC TANK
- 1 1200 GAL SEPTIC TANK
- 1 ORENCO FT 08 14-22B OUTLET FILTER
- 1 STAR MONSTER D-BOX

INSTALL ON GRADE

## IMPORTANT NOTICE:

**!!! BURIED UTILITIES AND/OR IRRIGATION PIPES SHALL NOT BE INSTALLED IN THE DRAINFIELD OR RESERVE DRAINFIELD !!!**



COMMONWEALTH OF VIRGINIA  
HAROLD L. MATHEWS  
LIC NO.  
ALTERNATIVE ONSITE  
SOIL EVALUATOR



DATE:  
JOB NUMBER:  
FILE: EXAMPLE REPORT

## MATHEWS SOIL CONSULTANTS INC.

5700-C HOPKINS ROAD  
POST OFFICE BOX 34099  
NORTH CHESTERFIELD, VIRGINIA 23234  
EMAIL: INFO@MATHEWSSOIL.COM  
PHONE: 804-271-0136



**Addendum to AOSE/PE Certification Statement  
For Private Well Construction Permit**

Instructions: Please check one box in 1-3 below. Statement templates for item #2 and #3 are on the following pages.

The proposed well site shown herein,

- ☒ 1. Is located a minimum of 50 feet from all property lines.
- ☐ 2. Is located within 50 feet of the adjacent property line(s) but I have determined that the adjacent property is not used for an agricultural operation.
- ☐ i. Written affirmation from the adjacent property owner(s) that their property is not used for an agricultural operation.
- ☐ ii. Other confirmation that land use is not an agricultural operation, please describe:
- ☐ 3. Is located within 50 feet of an adjacent property line where the property is used for an agricultural operation. For confirmation, I have attached the appropriate documentation pursuant to § 32.1-176.5:2 of the *Code of Virginia*. (check one below)
- ☐ i. Written permission from the adjacent property owner(s) for the well construction.
- ☐ ii. I certify that no other site on the property complies with the Board's Regulations for the construction of a private well.



## NOTES

**SITE PLAN CHANGES:** The health codes require that the OSE responsible for the drainfield design make changes to that design when they occur. It is the responsibility of the builder/owner to contact MSCI and the local health department regarding changes in the site plan as shown on the drainfield design sheet. Changes must be reviewed and approved by MSCI prior to lot clearing. Builders and owners are cautioned to minimize changes and keep the house within the building footprint shown on the MSCI site sketch when practical. Changes requiring re-drafting etc., will be billed to the builder/owner.

**ALTERNATIVE SYSTEMS & SHALLOW CONVENTIONAL SYSTEMS:** All drainfields to be installed less than 24 inches below the original soil surface require that the design OSE or his designee confirm the system location and grades before the start of construction. MSCI will assist in the staking of the system upon request. Contractors who proceed with construction without the "staking review" do so at their own risk. MSCI will assume no responsibility for the function of drainfields which meet these parameters unless they are field reviewed prior to the start of construction.

**SITE PLAN ALTERNATIONS OR OVERSITES:** It is the drainfield contractor's responsibility to immediately inform MSCI of significant site changes or discrepancies which occur as a result of clearing, grading or other changes. All wells which occur on the subject site or adjacent sites must meet health department regulation with respect to separation distances from drainfields.

**PLUMBING OUTLETS:** It is the responsibility of the builder/owner to install the plumbing outlet at an elevation which will allow gravity flow to the septic tank and drainfield for gravity systems. Failure to do so may result in the use of a pump system.

**PUMP CHAMBER:** Calculations for drawdown distances and run times are for tanks manufactured by Hanover Precast. It is the responsibility of the contractor to provide calculations when tanks other than the Hanover Precast tanks are installed.

**GRINDER PUMPS:** MSCI does not allow the use of grinder pumps when discharged to drainfield systems. Premature failure of the drainfield is likely. When basement or lower level plumbing is planned and lift stations are necessary, the builder or drainfield contractor should contact MSCI for alternative plans. Builders who use grinder pumps with MSCI drainfield systems do so at their own risk. All MSCI warranties, either stated or implied are null and void when grinder pumps are used.

**MISS UTILITY:** The contractor shall verify locations and elevations of underground utilities in the area of land disturbance. No claims for damages or extra compensation shall accrue to the contractor for underground pipes or obstructions. The contractor shall be responsible for damages for any underground structures or utilities. The contractor shall contact Miss Utility at least 48 hours prior to beginning excavation at 1-800-552-7001.

**BURIED UTILITIES FOR HOME SERVICE:** It is the responsibility of the builder/owner to see that buried water, electric, phone, cable and other utilities are not installed within 10 feet of the drainfield or the reserve drainfield. Buried utilities should be placed in the utilities corridor when noted on the MSCI site plan. No part of any irrigation system shall be within 20 feet of the drainfield/reserve drainfield system.

**COUNTY ORDINANCES:** It is the responsibility of the builder/owner to check local and state ordinances and comply with all setback distances as required by local or state government. The owner/contractor is responsible for verifying the accuracy of setback distances as noted on MSCI site sketch/design drawings.

**CLEARING OF DRAINFIELD:** It is important that clearing of the drainfield area be carefully planned to protect the drainfield site. The drainfield should be treated as a sensitive environmental area. It should be protected from vehicular traffic and not used for storage of construction materials. The drainfield should be cleared by hand or by the use of an excavator. It is very important that the topsoil is not removed during clearing. The clearing contractor should contact MSCI at (804) 271-0136 for special instructions when drainfields are to be installed at a depth of 24 inches or less.

**PRE-CONSTRUCTION NOTICE:** The drainfield contractor should contact MSCI at (804) 271-0136 forty-eight (48) hours before the planned start of construction. Preliminary scheduling for final construction inspection will be done with this phone call.

**FINAL INSPECTIONS/COMPLETION STATEMENTS:** The OSE Regulations require that the design OSE perform an inspection and provide a completion statement **BEFORE** an Occupancy Permit can be issued. Twenty four (24) hours notice is required by MSCI to provide this service. Installations **MUST** be in accordance with design or approved design alterations. **NO COMPLETION STATEMENT WILL BE ISSUED IN CASES WHERE INSTALLATION IS NOT IN SUBSTANTIAL COMPLIANCE WITH DESIGNS OR DESIGN MODIFICATIONS.**

A fee will be charged to the builder or drainfield contractor for the inspection report. We recommend that the fee be established before the start of construction and included as a part of the contractor's billing. Some Health Districts may also require an inspection by the local EHS. It is the responsibility of the contractor to schedule inspections by MSCI and the Health Department.

**MISCELLANEOUS ITEMS:** 1. The contractor is responsible for testing of system, including all valve adjustments. 2. All construction staking shall be done by the contractor. Alarms circuits shall be controlled with adjustable mercury float switches. 3. The final grading of the drainfield shall provide for positive drainage away from the drainfield and tanks. 4. Installation shall be in accordance with the most current Virginia Board of Health Sewage Handling Regulations. 5. Maintain a minimum ten (10) feet separation between the drainfield and waterlines or other underground utilities.

## PRINCIPLES OF GOOD DRAINFIELD MAINTENANCE

Harold L. Mathews, Ph.D., CPSS, OSE

1. DO use water saving fixtures - use sensible water conservation practices.
  2. DO use the washing machine sparingly on a daily basis. Wash one (1) or two (2) loads daily rather than saving for a wash day.
  3. DO maintain faucets and other fixtures on a regular basis, so that leaking does not occur when not in use.
  4. DO have septic tanks, boxes, and the drainfield system evaluated regularly; pump and clean all tanks and distribution boxes once every three (3) to (5) five years.
  5. DO pump grease traps for garbage disposer every one (1) to two (2) years.
  6. DO add additional tanks if you install a garbage disposer or jetted tub.
  7. DO keep a record of the septic tank(s), distribution box(es), and drainfield design layout and of the pumping schedule.
  8. DO consult your local health department or consultant before installing structures, home additions, swimming pools, decks, patios, parking, or other soil disturbing practices.
  9. DO consider preventative design practices. The installation of multiple tanks in series is a good practice which will insure longer drainfield life. This practice is very cost effective when the expense and inconvenience of repairs is considered.
- 
1. DON'T use excessive amounts of water in short periods of time.
  2. DON'T dump grease or coffee grounds down the drain or dispose of household and automotive chemicals, insecticides, herbicides or petroleum products in a drainfield system. Septic tank systems are not designed to decompose these materials.
  3. DON'T dispose of sanitary napkins, disposable diapers, plastics or synthetic rubber products.
  4. DON'T use excessive amounts of drain cleaner, plumber's helper, yeast, bacteria, enzymes, etc. These materials are not good for the septic tank system and are normally a waste of money.
  5. DON'T place bark, sawdust, or plastic mulch over drainfield systems.
  6. DON'T place lawn irrigation systems on or contiguous to septic tank drainfields.
  7. DON'T plant maple, weeping willow, sycamore, cottonwood, locust or bamboo in or near a drainfield.
  8. DON'T use the drainfield area for growing a vegetable garden.
  9. DON'T park, place structures, cut and fill, or otherwise abuse the drainfield or the reserve drainfield or any area within 25' of the drainfield.
  10. DON'T destroy old drainfields after a repair. They will become serviceable after five (5) to eight (8) years.
  11. DON'T discharge back flush water from water treatment equipment or swimming pools into a septic system. Sodium from this process causes soils to lose structure which is essential to good percolation. Failure of the system will result from improper discharge from these systems.

### DO NOT FLUSH

CAT LITTER, PESTICIDES, CIGARETTE BUTTS  
 PHOTOGRAPHIC SUPPLIES, COFFEE GROUNDS  
 SANITARY NAPKINS, CONDOMS, TAMPONS  
 DISPOSABLE DIAPERS, THINNERS, FAT, GREASE  
 OR OIL, VARNISHES, PAINTS, WASTE OILS  
 PAPER TOWELS

*These items overburden or destroy the biological process taking place in your system.*

(Revised 7/04)

(HLM - 08/01/96)

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## IMPORTANT FACTORS TO CONSIDER WHEN INSTALLING AND MAINTAINING SEPTIC TANK DRAINFIELD SYSTEMS

Harold L. Mathews, Ph.D., CPSS, OSE

**SURFACE DRAINAGE AND USE OF THE DRAIN FIELD AREA:** Surface and roof water should be directed away from the drainfield, and the finished grade should promote good surface drainage without ponding of water near the drainfield. Cut and fill of the drainfield or the natural soil within 25' of the drainfield should be avoided. Drainfields should not be used for parking automobiles or other secondary uses which would cause compaction. Trucks, tractors, and other heavy equipment should not be driven across drainfields or septic tanks. Drainfields should be graded and seeded to an appropriate lawn grass and maintained as a lawn area. Consult your local Extension Service office for seed and fertilizer recommendations.

**WATER TREATMENT EQUIPMENT:** The back flush from home water treatment systems and swimming pools should not be discharged into a sewer system leading to a septic tank drainfield. The drainfield design does not include allowances for this type of discharge. Most treatment units use salt. Sodium causes clays to disperse and soil structure to break down. Soil structure is essential for good percolation in clayey soils and failure of drainfield systems will result from sodium rich back flush waters being placed in drainfield systems. The back flush water from the home water treatment systems and swimming pool filters should be discharged on the surface at a point well away from the house and any part of the septic tank drainfield system. It is important that water from these treatment units does not flow over any part of a drainfield system including the septic tanks, distribution lines or drainfield trenches.

**JACUZZI (jetted tubs):** MSCI recommends that those homes which utilize indoor hot tubs or Jacuzzi tubs (large jetted bathtubs) provide a separate absorption system or dedicated septic tank for the disposal of this effluent. The sudden release of 40 to 100 gallons of water into the primary septic tank will cause suspension of sediments within the tank. Solids suspended in the effluent will subsequently flow into the drainfield system and can lead to premature failure of the system. A separate plumbing outlet is required.

**GARBAGE DISPOSER:** If the homeowner desires the installation of a garbage disposer, the kitchen plumbing should be plumbed to a separate outlet and a 1250 or 1500 gallon septic tank/grease trap installed to receive only kitchen effluent. Effluent from this tank can flow to the primary drainfield or to a separate drainfield. This grease trap should be pumped to remove grease and solids once every two years. We do not recommend that kitchen garbage disposer units be installed with conventional septic tank drainfield systems which do not have dedicated septic tanks (grease traps).

**TREES, SHRUBS, GARDENS AND THE DRAIN FIELD:** Trees and plants such as weeping willow, maple, locust, sycamore, cottonwood, tree of heaven and bamboo should be removed if within 50 feet of drainfield lines, septic tanks, or distribution boxes. The roots of these trees have an affinity for water and will enter distribution lines, distribution boxes and drainfield trenches. These roots frequently cause clogging of distribution lines and failure of the drainfield system. We do not recommend that these species be utilized as landscape vegetation in the vicinity of the drainfield system because of this problem. They should not be planted within 50' of any part of the drainfield and should not be used as landscape materials near adjacent drainfield systems. We do not recommend that any vegetable garden practices be conducted in the vicinity of a drainfield. Common sense dictates that the production of home gardens and sewage disposal are not compatible practices.

**BURIED UTILITIES AND DRAINFIELD PROBLEMS:** It is the responsibility of the builder, developer, utility contractor, subcontractor, realtor, and the homeowner to be sure that cable routes for buried utilities (e.g., electric, natural gas, water, telephone, cable tv) do not cross the drainfield/reserve drainfield. Trenches for buried cables and other utilities frequently cause drainfield failure by providing an avenue for lateral movement of effluent. Contractors and sub-contractors must be made aware of the problems and held responsible for staying clear of designated drainfield zones. Detailed site plans are recommended for their use.

**MULCH:** We do not recommend the use of bark, sawdust or plastic sheeting mulch on drainfield sites. Septic tank drainfield systems are designed to percolate water into the soil system and evapotranspiration is a principal part of the removal of water from that system. Mulches are designed to prevent evaporation and hold water in the soil system. The use of mulch over drainfields often contributes to premature failure of the system.

**SPRAY IRRIGATION SYSTEMS:** Spray irrigation systems should not be installed over or near the drainfield and reserve drainfield site. Septic tank drainfield systems are designed for percolation of water into the soil system. Those designs take into consideration annual rainfall but do not allow for irrigation. Spray irrigation systems may lead to failure of the drainfield system because of additional water being placed in the drainfield area and the improper design and installation of piping systems.