M&M Soil Consultants, Inc.
P.O. Box 7004
Fredericksburg, Virginia 22404
(540) 373-3414

Installation Area Soil Summary Report

GENERAL INFORMATION

Date *January 17, 2006* Submitted to *Madison County* Health Department

Applican *Graystone Homes* Telephone *(540) 825-1600*

Address *1202 Orange Road,Culpeper, VA 22701*

Owner *Same* **Address** *Same*

Location *From Madison, Rt. 29 North, property is on right one half mile past intersection of Rt. 607 and Rt. 29.*

Tax Map *40-79A & 41-9* Subdivision *Carpenter's Ridge* (12)

Block/Sec. Lot *12, Site 15-M* ***Installation, Upper 1/2: Conventional trench***

SOIL INFORMATION SUMMARY

1. Position in landscape satisfactory Yes ☑ No ☐
   Wooded Piedmont Sloping Ridge
2. Slope *6-7* %
3. Depth to rock or impervious strata: Max. ____ Min. ____ None *X*
4. Depth to seasonal water table (gray mottling or gray color) No ☑ Yes ☐ ____ inches
5. Free water present No ☑ Yes ☐ ____ range in inches
6. Soil percolation rate estimated Yes ☑ Texture group *IIA/B*
   No ☐ Estimated Rate *45*
7. Permeability test performed Yes ☐
   No ☑
   If yes, note type of test performed and attach

**All applicable regulations as well as the specific soil and site conditions (including the trench sidewalls) were taken into account when the estimated percolation rate was assigned.*

☑ Site Approved: Primary drainfield to be placed at *36* inch depth at site designated on permit.
If required, reserve drainfield to be placed at *36* inches as designated on

☐ Site Disapproved

Reasons for rejection:
1. ☐ Position in landscape subject to flooding or periodic saturation.
2. ☐ Insufficient depth of suitable soil over hard rock.
3. ☐ Insufficient area of acceptable soil for required drainfield, and/or Reserve Area
4. ☐ Rates of absorption too slow.
5. ☐ Insufficient area of acceptable soil for required drainfield, and/or Reserve Area
6. ☐ Proposed system too close to well.
7. ☐ Other

(attach additional pages if necessary)

The information presented in this submittal package represents the best available information as of the evaluation date noted on the next page of this package. Due to the potential for subsequent events to negatively impact the recommendations made in this package, it is our firm's very strong recommendation to submit this documentation to the local health department for approval as soon as it is received by the client. Failure to do so may render the information contained in this package void. M & M Soil Consultants, Inc., as well as the certifying individual, accepts no liability for subsequent events that occur after the date of the evaluation.

M&M Soil Consultants, Inc.
P.O. Box 7004
Fredericksburg, Virginia 22404
(540) 373-3414

Reserve Area Soil Summary Report

GENERAL INFORMATION

Date *January 17, 2006* Submitted to *Madison County* Health Department

Applican *Graystone Homes* Telephone *(540) 825-1600*

Address *1202 Orange Road, Culpeper, VA 22701*

Owner *Same* Address *Same*

Location *From Madison, Rt. 29 North, property is on right one half mile past intersection of Rt. 607 and Rt. 29.*

Tax Map *40-79A & 41-9* Subdivision *Carpenter's Ridge*

Block/Sec. Lot *12, Site 15-M Reserve, Lower 1/2: Conventional trench*

SOIL INFORMATION SUMMARY

1. Position in landscape satisfactory Yes ☑ No ☐
   Wooded Piedmont Sloping Ridge
2. Slope *6-7* %
3. Depth to rock or impervious strata: Max. _____ Min. _____ None X
4. Depth to seasonal water table (gray mottling or gray color) No ☑ Yes ☐ _____ inches
5. Free water present No ☑ Yes ☐ _____ range in inches
6. Soil percolation rate estimated Yes ☑ Texture group *IIA/B*
   No ☐ Estimated Rate *45*
7. Permeability test performed Yes ☐
   No ☑

**All applicable regulations as well as the specific soil and site conditions (including the trench sidewalls) were taken into account when the estimated percolation rate was assigned.*

If yes, note type of test performed and attach

☑ Site Approved: Primary drainfield to be placed at *36* inch depth at site designated on permit.

If required, reserve drainfield to be placed at *36* inches as designated on

☐ Site Disapproved

Reasons for rejection:

1. ☐ Position in landscape subject to flooding or periodic saturation.
2. ☐ Insufficient depth of suitable soil over hard rock.
3. ☐ Insufficient area of acceptable soil for required drainfield, and/or Reserve Area
4. ☐ Rates of absorption too slow.
5. ☐ Insufficient area of acceptable soil for required drainfield, and/or Reserve Area
6. ☐ Proposed system too close to well.
7. ☐ Other _____

(attach additional pages if necessary)

M&M Soil Consultants, Inc.
P.O. Box 7004
Fredericksburg, Virginia 22404
(540) 373-3414

SOIL PROFILE DESCRIPTION REPORT

Date of Evaluation *January 6, 2006*

Carpenter's Ridge, Lot 12, Site 15-M

Where the local health department conducts the soil evaluation, the location of profiles holes may be shown on the schematic drawing on the construction permit or the sketch submitted with the application. If soil evaluations are conducted by a private soil scientist, location of profile holes and sketch of the area investigated including all structural features, i.e., sewage disposal systems, wells, etc., within 100 feet of site (See Section 4) and reserve site shall be shown on the reverse side of this page or prepared on a separate page and attached on this form.

☐ See application sketch page ☐ See construction permit ☑ See sketch attached to this form

Hole	Horizon	Depth (inches	Description of color, texture, etc.	Texture Group
1	A	0-5	7.5YR 4/3 Loam, Very Friable	IIB
	Bt	5-30	2.5YR 4/8, 5/8, 5YR 5/8 Light Clay Loam, Friable, 2 msbk	III
	C	30-60+	Multi-colored 2.5YR 4/8, 5YR 6/6, 7.5YR 6/6, 6/8, 7/6, 10YR 7/6, 2.5Y 4/4, 5/4 Loam to Fine Sandy Loam, Very Friable	IIA/B
2	A	0-5	10YR 4/3 Loam, Very Friable	IIB
	Bt1	5-40	5YR 5/6, 5/8 Light Clay Loam, Friable, 2-3 msbk	III
	Bt2	40-60	2.5YR 4/6, 4/8, 5YR 5/8 Light Clay Loam, Friable to Firm, few quartz gravels	III
3	A	0-4	7.5YR 4/3 Loam, Very Friable	IIB
	Bt	4-29	2.5YR 4/8, 5YR 5/8 Clay Loam, Friable to Firm, 2 msbk	III
	C	29-60	Multi-colored 2.5YR 4/8, 5YR 6/6, 7.5YR 6/6, 6/8, 7/6, 10YR 7/6, 2.5Y 4/4, 5/4 Loam to Fine Sandy Loam, Very Friable	IIA/B
4	A	0-4	7.5YR 4/4 Loam, Friable	IIB
	Bt	4-33	5YR 5/6, 5/8 Clay Loam, Friable to Firm, 2-3 msbk	III
	C	33-60	5YR 5/6, 5/8, 7.5YR 6/6, 6/8, 2.5Y 4/4, 5/4 Fine Sandy Loam, Very Friable	IIA
5	A	0-4	10YR 4/3 Loam, Very Friable	IIB
	Bt	4-23	2.5YR 4/6, 5YR 5/8 Clay Loam, Friable to Firm, 2-3 msbk	III
	C	23-60	Multi-colored 2.5YR 4/8, 5YR 6/6, 7.5YR 6/6, 6/8, 7/6, 10YR 7/6, 2.5Y 4/4, 5/4 Loam to Fine Sandy Loam, Very Friable	IIA/B

M&M Soil Consultants, Inc.
P.O. Box 7004
Fredericksburg, Virginia 22404
(540) 373-3414

Abbreviated Design Form *(Installation, Upper 1/2: Conventional trench)* , *Lot 12, Site 15-M*

Design Basis

A. a. Estimated Percolation Rate (minutes per inch)	*45*
b. Recommended trench bottom (inches)	*36*
c. Depth to restrictive feature or to limit of evaluation (inches)	*60*
d. Minimum separation distance required (18 inches for conventional systems)	*18*
e. Separation distance in inches provided in design (Ac-Ab)	*24*
f. Minimum trench bottom due to slope in inches [(% slope · 8)/2 + (18)]	*18*
g. Is the slope greater than 10%? (If no, go to line Ai; if yes, go to line Ah)	*No*
h. If slope is >10%, does 24 inches to a restriction exist below trench bottom in Ab?	*n/a*
i. Additional center-to-center spacing required in feet. (If no to Ag, insert 0. If yes to Ag and yes to Ah, insert 0 from 10 to 19% slope, insert 1 from 20 to 29% slope, insert 2 from 30 to 39% slope, insert 3 from 40 to 49% slope. If yes to Ag and no to Ah, insert 1 from 10 to 19% slope, insert 2 from 20 to 29% slope, insert 3 from 30 to 39% slope, insert 4 from 40 to 49% slope.)	*0*
B. Trench bottom sq. ft. required per bedroom from Table 5.4 using the gravity column	*344*
C. Number of Bedrooms	*4*

Area Calculations

D. Length of trench (across slope)	*50 feet*
Length of available area (across slope)	*50 feet*
E. Width of trench	*3 feet*
F. Number of trenches	*10*
G. Center-to-center spacing	*9 feet*
H. a. Width required downslope (G(F-1) + E)	*84 feet*
b. Total width of available area (includes area allocated for reserve)	*200 feet*
I. Total square footage required (B*C)	*1,376 sq. ft.*
J. Square footage in design (D*E*F)	*1,500 sq. ft.*
K. Is a reserve area required? ☑ Yes ☐ No	
Percent required:	*100*
Percent available:	*130.81*

Notes: 130.81% reserve is available with the 12, 50' lines remaining in this area using a conventional trench system. To the best our knowledge and belief, this site complies with all the local ordinances such as the CBPA. (Reserve area calculations are shown on a seperate abbreviated design form later in this package.)

M&M Soil Consultants, Inc.
P.O. Box 7004
Fredericksburg, Virginia 22404
(540) 373-3414

Abbreviated Design Form *(Reserve, Lower 1/2: Conventional trench), Lot 12, Site 15-M*

A. a. Estimated Percolation Rate (minutes per inch)	45
b. Recommended trench bottom (inches)	36
c. Depth to restrictive feature or to limit of evaluation (inches)	60
d. Minimum separation distance required (18 inches for conventional systems)	18
e. Separation distance in inches provided in design (Ac-Ab)	24
f. Percent slope	6-7
f. Minimum trench bottom due to slope in inches [(% slope - 8)/2 + (18)]	18
h. Is the slope greater than 10%? (If no, go to line Ai; if yes, go to line Ah)	No
i. If slope is >10%, does 24 inches to a restriction exist below trench bottom in Ab?	n/a
j. Additional center-to-center spacing required in feet. (If no to Ah, insert 0. If yes to Ah and yes to Ai, insert 0 from 10 to 19% slope, insert 1 from 20 to 29% slope, insert 2 from 30 to 39% slope, insert 3 from 40 to 49% slope. If yes to Ah and no to Ai, insert 1 from 10 to 19% slope, insert 2 from 20 to 29% slope, insert 3 from 30 to 39% slope, insert 4 from 40 to 49% slope.)	0
B. Trench bottom sq. ft. required per bedroom from Table 5.4 using the gravity column	344
C. Number of Bedrooms	4

Area Calculations

D. Length of trench (across slope)	50 feet
Length of available area (across slope)	50 feet
E. Width of trench	3 feet
F. Number of trenches	12
G. Center-to-center spacing	9 feet
H. a. Width required downslope (G(F-1) + E)	102 feet
b. Total width of available area (does not include area allocated for installation)	113 feet
I. Total square footage required (B*C)	1,376 sq. ft.
J. Square footage in design (D*E*F)	1,800 sq. ft.

K. Is a reserve area required? ☑ Yes ☐ No

Percent required: 100

Percent available: 130.81