



Commonwealth of Massachusetts  
 City/Town of MERRIMACK  
**Form 11 - Soil Suitability Assessment for On-Site Sewage Disposal**

JOB FILE  
MEER-0028

DEP has provided this form for use by on-site professionals and local Boards of Health. Other forms may be used, but the information must be substantially the same as provided here. Before using this form, check with your local Board of Health to determine the form they use.

**A. Facility Information**

1. Facility Information  
 Owner Name: THULE (DOLL)  
 Street Address: 107 BIRCHDALE ROAD  
 City/Town: HALE MOUNTAIN State: CA Zip Code: 94019  
 HAYES ENGINEERING, INC.  
 603 SALEM STREET  
 WAKEFIELD, MA 01880  
 TEL: (617) 250-2300  
 FAX: (617) 250-7596

**B. Site Information**

1. (Check one) New Construction  Upgrade  Repair   
 2. Published Soil Survey available? Yes  No  If yes: Year Published: 1981 Publication Scale: 1:15,000 Soil Map Unit: Wrb  
 Soil Name: Woodbridge Fine Sandy loam Soil Limitations: \_\_\_\_\_

3. Surficial Geological Report available? Yes  No  If yes: Year Published: \_\_\_\_\_ Publication Scale: \_\_\_\_\_ Map Unit: \_\_\_\_\_  
 Geologic Material: \_\_\_\_\_ Landform: \_\_\_\_\_

4. Flood Rate Insurance Map:  
 Above the 500 year flood boundary? Yes  No  Within the 100 year flood boundary? Yes  No   
 Within the 500 year flood boundary? Yes  No  Within a Velocity Zone? Yes  No

5. Wetland Area: National Wetland Inventory Map  
 Wetlands Conservancy Program Map  
 Map Unit: \_\_\_\_\_ Name: \_\_\_\_\_  
 Map Unit: \_\_\_\_\_ Name: \_\_\_\_\_  
 Range: Above Normal  Normal  Below Normal

6. Current Water Resource Conditions (USGS)  
 Month/Year: \_\_\_\_\_  
 7. Other references reviewed: \_\_\_\_\_



Commonwealth of Massachusetts  
 City/Town of MELLENDA  
**Form 11 - Soil Suitability Assessment for On-Site Sewage Disposal**

**D. Determination of High Groundwater Elevation**

1. Method used:  Depth observed standing water in observation hole  
 Depth weeping from side of observation hole  
 Depth to soil redoximorphic features (mottles)  
 Groundwater adjustment (USGS methodology)

2. Index Well Number \_\_\_\_\_ Reading Date \_\_\_\_\_ Index Well Level \_\_\_\_\_  
 Adjustment Factor \_\_\_\_\_ Adjusted Groundwater Level \_\_\_\_\_

|                     |                      |                      |                      |
|---------------------|----------------------|----------------------|----------------------|
| A. <u>98</u> inches | B. <u>108</u> inches | A. <u>100</u> inches | B. <u>110</u> inches |
| A. <u>88</u> inches | B. <u>92</u> inches  | A. <u>96</u> inches  | B. <u>67</u> inches  |
| A. <u>92</u> inches | B. <u>92</u> inches  | A. <u>90</u> inches  | B. <u>98</u> inches  |
| A. _____ inches     | B. _____ inches      | A. _____ inches      | B. _____ inches      |

**E. Depth of Pervious Material**

1. Depth of Naturally Occurring Pervious Material \_\_\_\_\_

a. Does at least four feet of naturally occurring pervious material exist in all areas observed throughout the area proposed for the soil absorption system? Yes  No

b. If yes, at what depth was it observed? Upper boundary: \_\_\_\_\_ inches Lower boundary: \_\_\_\_\_ inches

**F. Certification**

I certify that I am currently approved by the Department of Environmental Protection pursuant to 310 CMR 15.017 to conduct soil evaluations and that the above analysis has been performed by me consistent with the required training, expertise and experience described in 310 CMR 15.017. I further certify that the results of my soil evaluation, as indicated in the attached Soil Evaluation Form, are accurate and in accordance with 310 CMR 15.100 through 15.107.

Signature of Soil Evaluator: Rogers Date: Dec 14 2009  
 GORDON ROBERTSON SE 2074 NOV. 1994  
 Typed or Printed Name of Soil Evaluator/License Number  
 Name of Board of Health Witness: Debrah Ketchen Board of Health: MELLENDA  
 Date of Soil Evaluator Exam

Note: In accordance with 310 CMR 15.018(2) this form must be submitted to the approving authority within 60 days of the date of field testing, and to the designer and the property owner with Percolation Test Form 12.



Commonwealth of Massachusetts  
 City/Town of MEERINAC  
**Form 11 - Soil Suitability Assessment for On-Site Sewage Disposal**

**C. On-Site Review (Cont.)**

Deep Observation Hole Number: T-1 Date: 12-14-09 Time: \_\_\_\_\_ Weather: Sunny 39°

1. Location

Ground Elevation at Surface of Hole \_\_\_\_\_

Location (Identify on Plan) 114 BARR Hill Road

2. Land Use: Woods

(e.g. woodland, agricultural field, vacant lot, etc.)

Vegetation: Maple, pine, oak

Landform \_\_\_\_\_

Surface Stones: Few

Slope (%): A/S

Position on landscape (attach sketch) \_\_\_\_\_

3. Distances from: Open Water Body \_\_\_\_\_

feet

Drainage Way \_\_\_\_\_

feet

Possible Wet Area \_\_\_\_\_

feet

Property Line \_\_\_\_\_

feet

Drinking Water Well \_\_\_\_\_

feet

Other \_\_\_\_\_

feet

4. Parent Material: Clayey silt

\_\_\_\_\_

Unsuitable Materials Present: Yes  No

If Yes: Disturbed Soil

Fill Material

Impervious Layer(s)

Weathered/Fractured Rock

Bedrock

5. Groundwater Observed: Yes  No

If Yes: Depth Weeping from Pit 88

Depth Standing Water in Hole 98

Estimated Depth to High Groundwater: \_\_\_\_\_

inches 72

elevation \_\_\_\_\_



Commonwealth of Massachusetts  
 City/Town of MEZRIAM  
 Form 11 - Soil Suitability Assessment for On-Site Sewage Disposal

Deep Observation Hole Number: T.1

| Depth (In.) | Soil Horizon/ Layer | Soil Matrix: Color-Moist (Munsell) | Redoximorphic Features (mottles) |                    |         | Soil Texture (USDA) | Coarse Fragments % by Volume |                  | Soil Structure | Soil Consistence (Moist) | Other |
|-------------|---------------------|------------------------------------|----------------------------------|--------------------|---------|---------------------|------------------------------|------------------|----------------|--------------------------|-------|
|             |                     |                                    | Depth                            | Color              | Percent |                     | Gravel                       | Cobbles & Stones |                |                          |       |
| 0 - 6       | Ap                  | 10YR 3/3                           |                                  |                    |         | fsl                 | 0                            | 0%               | gv             | mf                       |       |
| 6 - 12      | B <sub>0</sub>      | 10YR 4/6                           |                                  |                    |         | fsl                 | 0                            | 0%               | gr             | mf                       |       |
| 12 - 35     | D <sub>1</sub>      | 10YR 5/6                           |                                  |                    |         | ls                  | 0                            | 0%               | m              | mf                       |       |
| 35 - 72     | C <sub>2</sub>      | 10YR 5/4                           |                                  |                    |         | grls                | 20                           | 0%               | m              | mf                       |       |
| 72 - 102    | C <sub>3</sub>      | 2.5Y 5/3                           | 72                               | 10YR 6/8<br>5Y 7/1 | 20      | sl                  | 10                           | 10/0%            | ble            | mf                       |       |

Additional Notes

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Commonwealth of Massachusetts  
 City/Town of MERRIMACK  
**Form 11 - Soil Suitability Assessment for On-Site Sewage Disposal**

**C. On-Site Review (Cont.)**

Deep Observation Hole Number: T-2 12-14-09

1. Location \_\_\_\_\_ Date \_\_\_\_\_ Time \_\_\_\_\_ Weather Sunny 39°

Ground Elevation at Surfaces of Hole \_\_\_\_\_  
 Location (Identify on Plan) 114 BARE Hill Rd.

2. Land Use: Woods (e.g. woodland, agricultural field, vacant lot, etc.)  
 Surface Stones Few Slope (%) A/B  
 Vegetation Maple, pine, oak

3. Distances from: Open Water Body \_\_\_\_\_ Landform \_\_\_\_\_  
 Property Line \_\_\_\_\_ feet \_\_\_\_\_ Drainage Way \_\_\_\_\_ feet \_\_\_\_\_ Possible Wet Area \_\_\_\_\_ feet \_\_\_\_\_  
 Drinking Water Well \_\_\_\_\_ feet \_\_\_\_\_ Other \_\_\_\_\_ feet \_\_\_\_\_  
 Position on landscape (attach sheet)

4. Parent Material: Chicard till Unsuitable Materials Present: Yes  No   
 If Yes: Disturbed Soil  Fill Material  Impervious Layer(s)  Weathered/Fractured Rock  Bedrock

5. Groundwater Observed: Yes  No   
 If Yes: Depth Weeping from Pit 72 Depth Standing Water in Hole 108  
 Estimated Depth to High Groundwater: \_\_\_\_\_ inches \_\_\_\_\_ elevation



Commonwealth of Massachusetts  
 City/Town of  
**Form 11 - Soil Suitability Assessment for On-Site Sewage Disposal**

Deep Observation Hole Number: 7.2

| Depth (In.) | Soil Horizon/ Layer | Soil Matrix: Color-Moist (Munsell) | Redoximorphic Features (mottles) |                    |         | Soil Texture (USDA) | Coarse Fragments % by Volume |                  | Soil Structure | Soil Consistence (Moist) | Other |
|-------------|---------------------|------------------------------------|----------------------------------|--------------------|---------|---------------------|------------------------------|------------------|----------------|--------------------------|-------|
|             |                     |                                    | Depth                            | Color              | Percent |                     | Gravel                       | Cobbles & Stones |                |                          |       |
| 0-8         | Ap                  | 10YR 2/3                           |                                  |                    |         | fs/                 | 0                            | 0%               | gr             | mf                       |       |
| 8-16        | Bw                  | 10YR 2/6                           |                                  |                    |         | fs/                 | 0                            | 0%               | gr             | mf                       |       |
| 16-72       | C <sub>1</sub>      | 10YR 5/4                           |                                  |                    |         | ls                  | 0                            | 0%               | m              | mvf                      |       |
| 72-112      | C <sub>2</sub>      | 2.5Y 5/3                           | 72"                              | 10YR 6/5<br>5Y 7/1 | 5       | sl                  | 10                           | 10/0%            | m              | mf                       |       |
|             |                     |                                    |                                  |                    |         |                     |                              |                  |                |                          |       |
|             |                     |                                    |                                  |                    |         |                     |                              |                  |                |                          |       |

Additional Notes

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Commonwealth of Massachusetts  
City/Town of Melrose  
Form 11 - Soil Suitability Assessment for On-Site Sewage Disposal

C. On-Site Review (Cont.)

Deep Observation Hole Number: T-3 12-14-09

1. Location \_\_\_\_\_ Date \_\_\_\_\_ Time \_\_\_\_\_ Weather Sunny 39°

Ground Elevation at Surface of Hole \_\_\_\_\_

Location (Identify on Plan) 114 Bare Hill Rd.

2. Land Use: Woods

(e.g. woodland, agricultural field, vacant lot, etc.)  
Vegetation Maple, Pine, Oak

Surface Storages Few

Slope (%) B

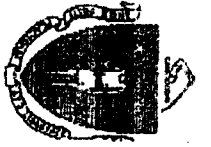
3. Distances from: Open Water Body \_\_\_\_\_ Landform \_\_\_\_\_ Possible Wet Area \_\_\_\_\_  
Property Line \_\_\_\_\_ feet \_\_\_\_\_ Drinking Water Well \_\_\_\_\_ feet \_\_\_\_\_ Other \_\_\_\_\_ feet \_\_\_\_\_  
Position on Landscape (attach sheet)

4. Parent Material: Glacial Till

If Yes: Disturbed Soil  Fill Material  ImperVIOUS Layer(s)  Weathered/Fractured Rock  Bedrock   
Unsuitable Materials Present: Yes  No

5. Groundwater Observed: Yes  No

If Yes: Depth Weeping from Pit 76 Depth Standing Water in Hole 100  
Estimated Depth to High Groundwater: \_\_\_\_\_ inches \_\_\_\_\_ elevation



Commonwealth of Massachusetts  
 City/Town of *MARLBOROUGH*  
**Form 11 - Soil Suitability Assessment for On-Site Sewage Disposal**

Deep Observation Hole Number: 73

| Depth (in.) | Soil Horizon/ Layer | Soil Matrix: Color-Moist (Munsell) | Redoximorphic Features (mottles) |          |         | Soil Texture (USDA) | Coarse Fragments % by Volume |                  | Soil Structure | Soil Consistence (Moist) | Other |
|-------------|---------------------|------------------------------------|----------------------------------|----------|---------|---------------------|------------------------------|------------------|----------------|--------------------------|-------|
|             |                     |                                    | Depth                            | Color    | Percent |                     | Gravel                       | Cobbles & Stones |                |                          |       |
| 0-8         | Ap                  | 10YR 3/3                           |                                  |          |         | Si                  | 0                            | 0%               | gr             | mf                       |       |
| 8-16        | Bd                  | 10YR 4/6                           |                                  |          |         | Si                  | 0                            | 0%               | gr             | mf                       |       |
| 16-76       | C <sub>1</sub>      | 10YR 5/4                           | 40"                              | 10YR 3/6 |         | ls                  | 10                           | 0%               | m              | mf                       |       |
| 76-108      | C <sub>2</sub>      | 2.5Y 7/3                           |                                  |          |         | sl                  | 5                            | 10%              | ble            | mf                       |       |
|             |                     |                                    |                                  |          |         |                     |                              |                  |                |                          |       |
|             |                     |                                    |                                  |          |         |                     |                              |                  |                |                          |       |
|             |                     |                                    |                                  |          |         |                     |                              |                  |                |                          |       |

Additional Notes

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Commonwealth of Massachusetts  
 City/Town of NEELAND  
**Form 11 - Soil Suitability Assessment for On-Site Sewage Disposal**

**C. On-Site Review (Cont.)**

Deep Observation Hole Number: 7-4

Date: 12-14-09

Time: \_\_\_\_\_

Weather: Sunny 39°

1. Location

Ground Elevation at Surface of Hole \_\_\_\_\_

Location (Identify on Plan) 114 Bare Hill Rd

2. Land Use: Woods

(e.g. woodland, agricultural field, vacant lot, etc.)  
Maple, Pine, Oak  
 Vegetation

Surface Stones Few

Slope (%) B

3. Distances from: Open Water Body \_\_\_\_\_

feet

Drainage Way \_\_\_\_\_

feet

Possible Wet Area \_\_\_\_\_

feet

Property Line \_\_\_\_\_

feet

Drinking Water Well \_\_\_\_\_

feet

Other \_\_\_\_\_

feet

Position on landscape (attach sheet)

4. Parent Material: Clayed till

Unsuitable Materials Present: Yes  No

If Yes: Disturbed Soil

Fill Material

Impervious Layer(s)

Weathered/Fractured Rock

Bedrock

5. Groundwater Observed: Yes  No

If Yes: Depth Weeping from pit 67

Depth Standing Water in Hole 110

Estimated Depth to High Groundwater: \_\_\_\_\_

Inches

elevation



Commonwealth of Massachusetts  
 City/Town of **MERRIMACK**  
**Form 11 - Soil Suitability Assessment for On-Site Sewage Disposal**

Deep Observation Hole Number: TY

| Depth (in.) | Soil Horizon/ Layer | Soil Matrix: Color-Moist (Munsell) | Redoximorphic Features (nodules) |                    |         | Soil Texture (USDA) | Coarse Fragments % by Volume |                  | Soil Structure | Soil Consistence (Moist) | Other |
|-------------|---------------------|------------------------------------|----------------------------------|--------------------|---------|---------------------|------------------------------|------------------|----------------|--------------------------|-------|
|             |                     |                                    | Depth                            | Color              | Percent |                     | Gravel                       | Cobbles & Stones |                |                          |       |
| 0 - 8       | Ap                  | 10YR 3/3                           |                                  |                    |         | fs1                 | 0                            | 0%               | gr             | mf                       |       |
| 8 - 16      | Bw                  | 10YR 4/6                           |                                  |                    |         | fs1                 | 0                            | 0%               | gr             | mf                       |       |
| 16 - 72     | C1                  | 10YR 5/4                           | 48                               | 10YR 2/6<br>5Y 7/1 | 20      | gr 1fs              | 10                           | 5/0%             | m              | anuf                     |       |
| 72 - 120    | C2                  | 2.5Y 5/3                           |                                  |                    |         | sl                  | 0                            | 5/0%             | blk            | mf                       |       |
|             |                     |                                    |                                  |                    |         |                     |                              |                  |                |                          |       |
|             |                     |                                    |                                  |                    |         |                     |                              |                  |                |                          |       |

Additional Notes

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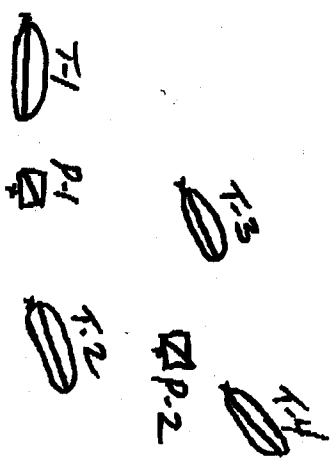
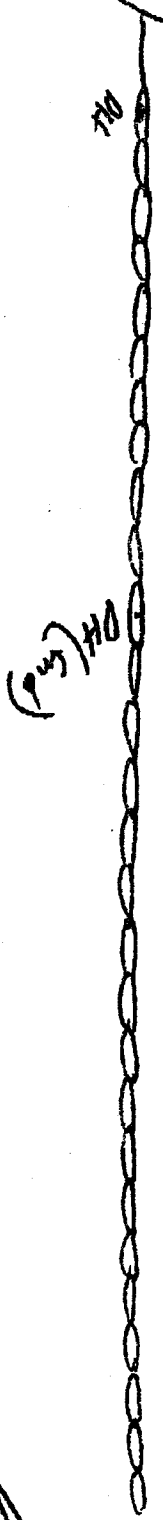
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Commonwealth of Massachusetts  
 City/Town of *Merrill*  
 Form 11 - Soil Suitability Assessment for On-Site Sewage Disposal

Use this sheet for field diagrams:

*BARE HILL ROAD*



# DESCRIPTION OF HORIZONS

|                     |      |                    |      |  |
|---------------------|------|--------------------|------|--|
| gravel              | g    | gravely sandy loam | gsi  |  |
| very coarse sand    | vcos | loam               | l    |  |
| coarse sand         | cos  | gravely loam       | gl   |  |
| sand                | s    | stony loam         | sl   |  |
| fine sand           | fs   | silt               | si   |  |
| very fine sand      | vfs  | silt loam          | sil  |  |
| loamy coarse sand   | lcos | clay loam          | cl   |  |
| loamy sand          | ls   | silty clay loam    | sicl |  |
| loamy fine sand     | lfs  | sandy clay loam    | scl  |  |
| sandy loam          | sl   | stony clay loam    | slcl |  |
| fine sandy loam     | fsl  | silty clay         | sic  |  |
| very fine sand loam | vfsl | clay               | c    |  |

|               |             |                   |
|---------------|-------------|-------------------|
| Grade:        | Size:       | Form or Type:     |
| structureless | 0 very fine | platy             |
| weak          | 1 fine      | psismatic         |
| moderate      | 2 medium    | columnar          |
| strong        | 3 coarse    | blocky            |
|               |             | angular blocky    |
|               |             | subangular blocky |
|               |             | granular          |
|               |             | single grain      |
|               |             | massive           |
|               |             | loose             |

|                  |                    |                     |
|------------------|--------------------|---------------------|
| Wet Soil:        | Moist Soil:        | Dry Soil:           |
| nonsticky        | wso loose          | ml loose            |
| slightly sticky  | wss very friable   | mvfr soft           |
| sticky           | ws friable         | mfr slightly hard   |
| very sticky      | wvs firm           | mfi hard            |
| nonplastic       | wpo very firm      | mvfi very hard      |
| slightly plastic | wps extremely firm | mvfi extremely hard |
| plastic          | wp                 |                     |
| very plastic     | wvp                |                     |

|            |             |             |             |   |
|------------|-------------|-------------|-------------|---|
| Abundance: | Size:       | Contrast:   |             |   |
| few        | f (0-2%)    | ml fine     | 1 faint     | f |
| common     | c (2-20%)   | mvfr medium | 2 distinct  | d |
| many       | m (20-100%) | mfr coarse  | 3 prominent | p |



Commonwealth of Massachusetts  
 City/Town of MERRIMAC  
**Percolation Test**  
 Form 12

HAYES ENGINEERING, INC.  
 603 SALEM STREET  
 WAKEFIELD, MA 01880  
 (781) 246-2800  
 (781) 246-7596

Percolation test results must be submitted with the Soil Suitability Assessment for On-site Sewage Disposal. DEP has provided this form for use by local Boards of Health. Other forms may be used, but the information must be substantially the same as that provided here. Before using this form, check with the local Board of Health to determine the form they use.

Important:  
 When filling out forms on the computer, use only the tab key to move your cursor - do not use the return key.



**A. Site Information**

JANICE CONN  
 Owner Name  
104 BIRKDALE RD  
 Street Address or Lot #  
HOLE MOON BAY CA 94019  
 City/Town State Zip Code  
 Contact Person (if different from Owner) Telephone Number

**B. Test Results**

| Observation Hole # | Date   | Time            | Date   | Time            |
|--------------------|--|-----------------|--|-----------------|
|                    |  | <u>12-14-09</u> |  | <u>12-14-09</u> |
|                    | <u>P-1</u>                                       |                 | <u>P-2</u>                                       |                 |
| Depth of Perc      | <u>24" + 18" = 42"</u>                           |                 | <u>26" + 18" = 44"</u>                           |                 |
| Start Pre-Soak     | <u>11:05</u>                                     |                 | <u>11:05</u>                                     |                 |
| End Pre-Soak       |  |                 |  |                 |
| Time at 12"        | <u>11:20</u>                                     |                 | <u>11:20</u>                                     |                 |
| Time at 9"         | <u>11:32</u>                                     |                 | <u>11:45</u>                                     |                 |
| Time at 6"         | <u>11:50</u>                                     |                 | <u>12:41</u>                                     |                 |
| Time (9"-6")       | <u>18</u>  |                 | <u>56</u>  |                 |
| Rate (Min./Inch)   | <u>16 m/i</u>                                    |                 | <u>19 m/i</u>                                    |                 |
|                    | Test Passed: <input checked="" type="checkbox"/> |                 | Test Passed: <input checked="" type="checkbox"/> |                 |
|                    | Test Failed: <input type="checkbox"/>            |                 | Test Failed: <input type="checkbox"/>            |                 |

Gordon Rogerson  
 Test Performed By:  
DEB Keetchen  
 Witnessed By:

Comments:  
 \_\_\_\_\_  
 \_\_\_\_\_