

Soil Logs

Engineer/Designer: Jay Renshaw
Excavation Date: April 6, 2016
Others Present: Brian Tremback (Town of Charlotte)
Others Present: Dan Morris (Applicant/Owner)

- TP #1 0'-8" Dark brown, loam/very fine sandy loam, crumb structure, soft, damp, loose, many roots
TP #2 0'-6" Dark brown, loam/very fine sandy loam, fine granular structure, loose, many roots
TP #3 0'-6" Dark brown, loam/very fine sandy loam, crumb structure, soft, damp, loose, many roots
TP #4 0'-6" Dark brown, loam/very fine sandy loam, crumb structure, soft, damp, loose, many roots
TP #5 0'-8" Dark brown, fine sandy loam, fine granular structure, loose, many roots
TP #6 0'-8" Dark brown, fine sandy loam, fine granular structure, damp, loose, many roots
TP #7 0'-6" Dark brown, fine sandy loam, fine granular structure, damp, loose, many roots
TP #8 0'-10" Dark brown, fine sandy loam, fine granular structure, damp, loose, many roots
TP #9 0'-6" Dark brown, very fine sandy loam, saturated, many roots, possible redox @ 6"
TP #10 0'-10" Dark brown, fine sandy loam, fine granular structure, damp, loose, excessive roots, possible redox features @ 10"
TP #11 0'-10" Dark brown, fine sandy loam, fine granular structure, damp, loose, excessive roots, redox features @ 10"

Table 1. Linear Loading Rate Factors Based on Soil Texture and Natural Ground Slope. Table with columns for Soil Texture and Natural Ground Slope (0-2%, 2.1-4%, 4.1-6%, 6.1-8%, 8.1-10%, 10.1-15%, 15.1-20%).

Table from "Simplified Procedure for Prescriptive Desktop Mounding Analysis" dated February 6, 2003, published by State of Vermont Agency of Natural Resources

Performance Based Mounding Analysis for Mound Style Wastewater Disposal System

For Primary System
Design Flow = 490 gpd
Natural Ground Slope = 8.1-10%
Receiving Soil Texture = Very Fine Sandy Loam
From Table 1:
Linear Loading Rate Factor (f) = 13.5
From Soil Test Logs:
Seasonal High Water Table at 15 inches h=15"-6" = 9" reserved unsaturated soil for assumed induced mounding, (f) = 0.7 \* 12 = 7.5 (based on Test Pits)
Primary Linear Loading Rate: (LLR)
LLR = (h) \* (f)
LLR = (.75) \* (13.5) = 10.1
Primary System Length: (L)
For a Design Flow Q = 490 gpd
L = 490 gpd / 10.1 gpd/ft
L = 48.5' (minimum length required)
62 linear feet provided

Basis of Design for Mound Style Wastewater Disposal System

Design Flow:
For a 4 Bedroom Single Family
- Design Flow = 3 bedrooms \* 140gpd gal/day/bedroom = 420 gals/day
- Additional bedroom based on 1 person per/bedroom = 70 gpd
Total Design Flow = 490 gpd
Application Rate:
- For mound system
- Application rate = 0 = 1.0 gals/s.f./day
Required Leach Area:
- Area required = 490 / 1.0 = 490 s.f.
- Use 8' wide Bed
- Required system length = 490 s.f. / 8 ft. = 61.25 ft.
- Use 1, 62' long x 8' wide bed style mound

Mound Elevation Information

Table with columns: Existing Ground, Design H.S.W.T., Bottom Stone, Pipe Inverts, Top Stone, Finish Grade. Row for Primary mound shows elevations from 406.00' to 410.50'.

Basal Area Calculations

For Percolation rate of 0-60 minutes per inch,
Required effective basal area = 490 GPD/0.74 GPD/SF = 662 SF
Primary effective basal area provided = 1650 SF

Percolation Tests

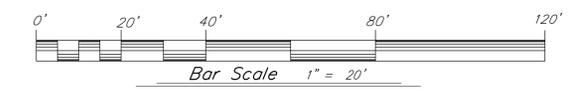
Table with columns: Test #, Percolation Rate. Test A: 33 min./inch, Test B: 31 min./inch.

Legend

- TP-3, TP-1, TBM #1: Soil test hole percolation test, Temporary bench mark
---: Finish Contour
---: Building Envelope
---: Existing Contour
---: New Sewer Forcemain
---: New Water Service
---: Survey Control Point
---: Approximate Property Line
---: Wastewater disposal bed

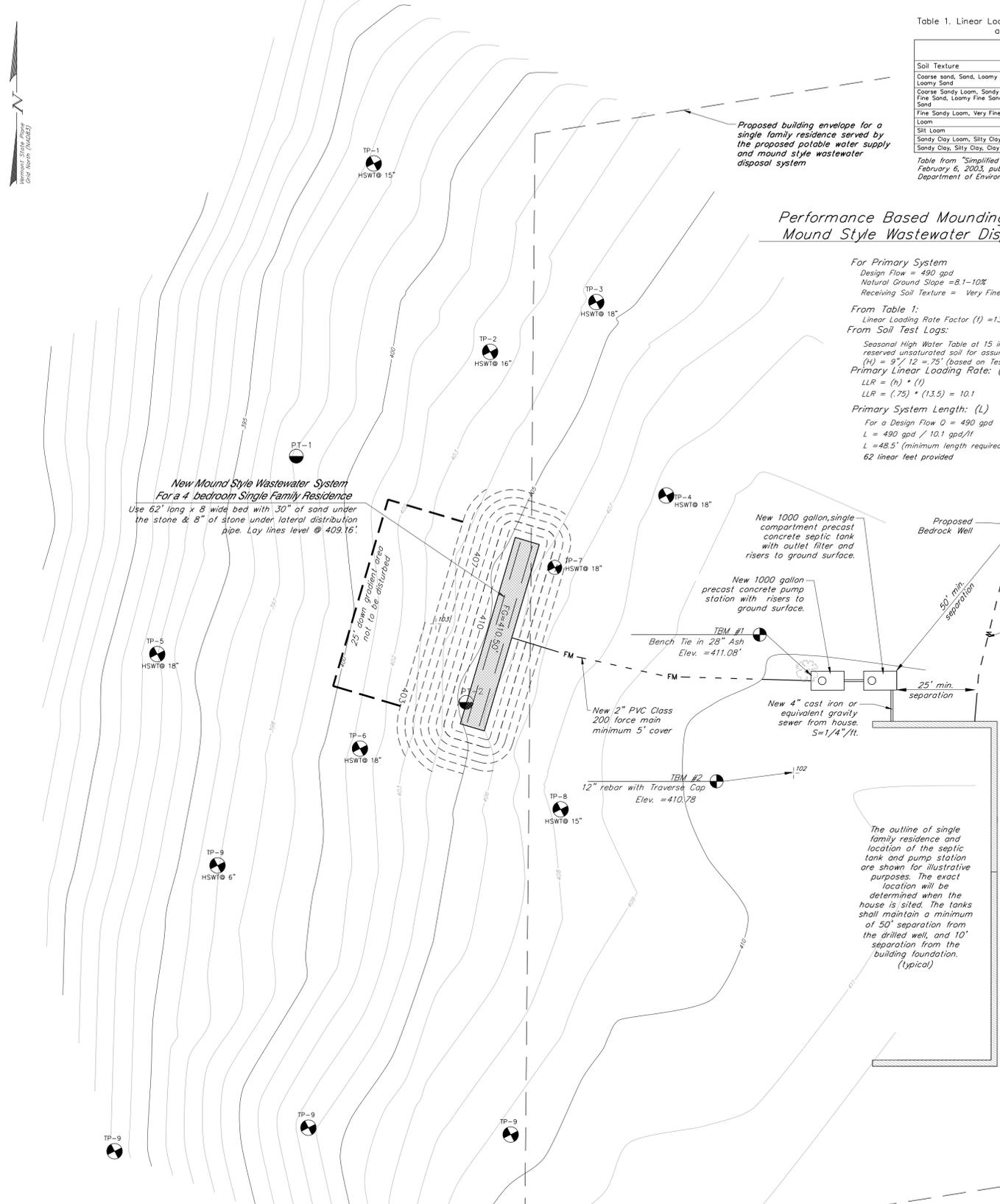
Notes:

- 1. This plan is not a boundary survey. The property lines shown are based on tax maps of Charlotte. Property lines are considered approximate.
2. The underground utilities shown on this plan are based on visible utilities located during a topographic survey performed by Krebs & Lansing in May 3, 2016. Underground utilities are approximate and not warranted to be exact or complete. Dig Safe shall be contacted prior to any excavation.
3. Elevations are based on the NAVD 88 (Geoid 12A) vertical datum.
4. Project Horizontal Coordinates derived from GPS observation using reference frame NAD83 (2011) 2010.00 epoch.
5. The sole intent of this plan is to provide the applicant with the required information in the pursuit of wastewater system and potable water supply permit to construct a single family residence.



New Mound Style Wastewater System For a 4 Bedroom Single Family Residence

Use 62' long x 8' wide bed with 30" of sand under the stone & 8" of stone under lateral distribution pipe. Lay lines level @ 409.16'



Basis of Design - Onsite Potable Water System

Average Day Demand = 4 bedrooms (3 \* 140 GPD x 3 bedrooms = 420 GPD) + 70 G.P.D. per additional bedroom
Total Average Day Demand = 490 Gallons Per Day
Maximum Day Demand 490 G.P.D. = .68 G.P.M.
720 min./perday
Instantaneous Peak Demand = 5 GPM/Unit = 5 G.P.M.
Source capacity = Not required for projects with maximum day demand of 5 GPM or less
Storage capacity = Not required for projects with maximum day demand of 5 GPM or less
Minimum pump Capacity = 5 G.P.M.
Operating pressure range 40 psi to 60 psi
The well is not located in a flood plain

Minimum Isolation Distances

Table with columns: Edge of System, Septic Tank, Sewer. Lists various features like drilled wells, rivers, roads, and property lines with their respective isolation distances.



For Permit Review table with columns: Date revised, Description, Checked, Date. Includes project details for Morris Residence at 700 Mount Philo Road, Charlotte, Vermont, and contact info for KREBS & LANSING Consulting Engineers, Inc.