



HOWARD COUNTY HEALTH DEPARTMENT

Bureau of Environmental Health
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TDD (410) 313-2323 Toll Free 1-877-4MD-DHMH

Penny E. Borenstein, M.D., M.P.H., County Health Officer

September 23, 2002

Sanitary/Environmental Eng., Inc.
C/o James Clise
1414 Washington Road
Westminster, Maryland 21157

RE: Sand Mound Design Plan (A514178)
Brighton Pines Lot 1
N/W corner of Lakeside Dr. & Nichols Dr.
Tax Map: 34 Parcel: P/O 110

Dear Mr. Clise:

I'm pleased to inform you that the recently submitted Sand Mound Design Plan for the above mentioned project is approved, with one minor change, which I've included on the two copies you had forwarded. That correction on the Mound Design Cross-section changes the depth of the gravel bed from 12 inches to 10 inches.

One other item not shown in your plan was the number and location of turnups at the lateral ends. Typically in Howard County we prefer showing at least two turnups (on diagonally opposing lateral ends) and shown on the mound layout plan. More than two turnups are also acceptable.

A third item, not included at this time, is the sequence of construction. Rather than using the general sequence as found in the **Sand Mound Design & Construction Manual** (by MDE, Nov. 1987), I suggest a somewhat more detail sequence specific to the limited site access found on this property. That revised sequence of construction will be provide by the local county health dept. at the time of issuance of the Septic Permit.

We are retaining two copies of the approved plans for our records. If you need additional copies with Health Dept. signature, please submit these at your convenience, for pickup or mailing as you select.

If you have any questions, please call me at 410-313-2640.

Very truly yours,

Ronald J. Pinkley, R.S.

Water and Sewerage Program

cc: Richard Demmitt
File

BRIGHTON FIELDS

LOT 1

6% SLOPE

TABLE 3.1

EQUATIONS FOR CALCULATING SAND MOUND DIMENSIONS

Absorption bed ft.² (A x B) = $\frac{750 \text{ GPD}}{1.2 \text{ gpd/ft.}^2} = 625 \text{ ft.}^2$

Bed length (B) = 100 ft. (21 ft. to 101 ft. dependent on site)

Bed width (A) = $\frac{\text{Bed } 625 \text{ ft.}^2}{B \text{ } 100 \text{ ft.}} = 6.25 \text{ ft.}$ (15 ft. or less)

Upslope sand fill depth (D) = 48 in. - Z in. = 18 in. (12 in. min.)

Downslope sand fill depth (E) = [12 A x % slope] + D in. = 23 in. ^{22.5 OK}

Cap + topsoil at bed center (H) = 18 in.

Cap + topsoil at bed edge (G) = 12 in.

Total Bed Depth (F) = 10 in.

Sideslope setback (K) = $\frac{(D + E) + 28 \text{ in.}}{2} \times 3 = 145.5 \text{ in.}$ ^{20.5} = 12.125' ^{OK}

Upslope setback (J) = $(22 \text{ in.} + D) \times 3 \times \text{upslope corr. factor} = 103.2 \text{ in.}$ ⁴⁰ ^{.86} $\approx 8.6'$

Downslope setback (I) = $(22 \text{ in.} + E) \times 3 \times \text{downslope corr. factor} = 164.7 \text{ in.}$ ⁴⁵ ^{1.22} $\approx 13.725'$

Total Width of Mound (W) = 12A + J + I = 342.9 in. ^{28.575} $29' \pm \text{OK}$

Total Length of Mound (L) = 12B + K + K = 1,491.0 in. ^{124.25} $124' \pm \text{OK}$

BASAL AREA REQUIRED = 1,500 \pm
BASAL AREA PROVIDED = 2,000 \pm

BY: FSH ASSOCIATES

TEST DATA

Top Map 34 Parcel P/0110

| | |
|---|--------------------------|
| NAME _____ | FILE NO <u>A513592-A</u> |
| LOCATION <u>Brighton Pines Ct</u> | COUNTY <u>Howard</u> |
| <u>N/Nichols Rd on NE side of Colacide Dr</u> | DATE <u>7/14/00</u> |
| RECORDED BY <u>P. P. [Signature]</u> | GRID _____ E N |

| HOLE NO. | TEST NO. | DEPTH | CLOCK TIME | ELAPSED TIME | MEASUREMENT | REMARKS (Method, Moisture, Biopores) |
|----------|----------|--------|----------------------|--------------|-------------------------|---|
| | SM-2 | 20-25" | 3:20 | | | Test pulled - leaving around outside edge |
| | SM-2 | 23-30" | 3:36 3:46 4:04 | ≈ 10 min | 7" 5 5/16" 2 1/4" | Unusually fast for Clay loam soils - suggest soil wet - need more longer test anyway. No moisture in log, so do this procedure alternate next date |
| | SM-4 | 20-26" | 3:39 3:49 4:08 | ≈ 10 min | 7" 5 3/4" 3 3/4" | 1/2 Dia. root below bottom of soil plug upon wetting → Need to test some Done here. Do some conventional pore H ₂ O @ some depths next time Pp 7/13/00 |

TEST DATA

NAME Richard Demuth FILE NO A 514 592
 LOCATION Brighton Pines (off) Colln. Testing COUNTY Howard
Nichols Dr. f DATE 4/30/01
 GRID _____ E
 RECORDED BY R. Demuth _____ N

500 yds
 skunk cabbage
 @ edge of woods
 40' N of TP11
 and in woods elsewhere
 (60-150' from ST1 Tests)

| HOLE NO. | TEST NO. | DEPTH | CLOCK TIME | ELAPSED TIME | MEASUREMENT | REMARKS (Method, Moisture, Biopores) |
|----------|-------------------------------|-----------------|--|--------------|---|---|
| | SM-8 35' due west of SM-6A | 20-25 1/2" | 10:35:30 10:42:30 10:53:20 11:03:00 11:37:00 11:41:00 | | 7" 6 1/4" 5 1/2" 4 3/4" 2 7/8" 2 3/4" ~19 mpx OK | in str. Brn. CL |
| | SM-9 40' N of SM-9 | 20-25" | 10:50:00 11:35:00 11:52:30 12:11:00 12:52 | | 11 1/2" 12 1/2" 13" 13 1/8" 14" 60 mpx OK | in str. Brn.-yel. Ben. CL. (grittier) (initial some bubbling - Terres started when water level quiet). |
| | S SM-10 | 22-27" Basal | 11:48:00 11:53:40 12:10:00 12:15:00 12:25:00 12:42 | | 7" 6 3/4" 4 3/8" 7" 5 1/4" 3 3/4" ~12 mpx OK | in a str. Brn.-yel. Red CL (2m-PSB4) Mod sticky (Loam soil from 0-15") |

TEST DATA

| | |
|--|--------------------------------|
| NAME <u>Highland Development Corp (see agent - Richard Demitt)</u> | FILE NO <u>A513592</u> |
| LOCATION <u>Brighton Pines lot 1</u> | COUNTY <u>Howard</u> |
| <u>Corner of Cobles Creek & Nichols Ave</u> | DATE <u>8/25/00</u> |
| RECORDED BY <u>R. Demitt</u> | GRID _____ |
| | <u>also present R. Demitt,</u> |

| HOLE NO. | TEST NO. | DEPTH | CLOCK TIME | ELAPSED TIME | MEASUREMENT | REMARKS (Method, Moisture, Biopores) |
|----------|------------------------------|--------------|---|--------------|--|--|
| | Inf SH-1 | 18 1/2 - 24" | 11:03 11:18 11:28:30 11:39:00 Repair 11:45:00 12:06:00 12:25 12:51 | | 7" start 5 7/16" 4 1/2" 3 5/8" 7" 5 3/8" 4 3/16" 2 7/8" | |
| | Inf SH-5 | 19 - 24 1/2" | 11:08:30 11:19:30 11:29:30 11:40:00 Repair 11:47:30 12:07:00 12:27 12:52 | | 7" start 5 9/16" 4 1/4" 3 1/8" 7" 5 3/8" 4 1/8" 2 7/8" | |
| | Inf SH-6A | 20 - 25" | 11:16:00 11:26:00 11:41 | | 7" start 7" (No Change) 6 7/8" | 1/8" in 25 min Too Slow |
| | Redug 8 ft to South SH-6B | | 11:56:30 12:12:00 12:36:30 12:56 1:36 1:58 Repair 2:00 2:28 3:00 | | 7" start 7" (No Change) 6 7/8" 7" 6 1/2" 5 7/8" 5 1/2" 3 7/8" 3 1/4" 7" 6 1/4" 5 5/8" | 1 1/2" in 60 min 1 1/2" in 10 min 45 mps |

TEST DATA

| | |
|--|---------------------------------|
| NAME _____ | FILE NO <u>A 513592</u> |
| LOCATION <u>Brighton Pines Lot 1</u> | COUNTY <u>Howard</u> |
| <u>NE Corner of Nichols Dr + Lakeside Dr</u> | DATE <u>8/25/00</u> |
| RECORDED BY <u>R. P. Pinbley</u> | GRID _____ E |
| | <u>also Present R. Demitt</u> N |

| HOLE NO. | TEST NO. | DEPTH | CLOCK TIME | ELAPSED TIME | MEASUREMENT | REMARKS (Method, Moisture, Biopores) |
|----------|-----------------------|---------------|-----------------|-------------------|-----------------|---|
| | <u>Inlet SH-3</u> | <u>19-26"</u> | <u>11:22:00</u> | | <u>7"</u> | |
| | | | <u>11:32:00</u> | | <u>5 11/16"</u> | |
| | | | <u>11:42:20</u> | | <u>4 1/2"</u> | |
| | | | <u>11:49</u> | | <u>3 7/8"</u> | |
| | | <u>Repair</u> | <u>11:50:20</u> | | <u>7"</u> | |
| | | | <u>12:09:00</u> | | <u>5 3/8"</u> | |
| | | | <u>12:30</u> | <u>4" in 65mm</u> | <u>4 1/8"</u> | |
| | | | <u>12:55</u> | <u>2.15m</u> | <u>2 7/8"</u> | |

MARYLAND DEPT. OF THE ENVIRONMENT
 ONSITE SEWAGE DISPOSAL SYSTEM
 SITE EVALUATION REPORT

FILE NO. AS13-592
 MD. GRID:
 TAX MAP/B/P:
 SUBDIVISION: Brighton Pines Lot
 DATE: 4/30/0
 BY:

SOIL PROFILE DESCRIPTION
 location about 40' NNW of SH-9 and 20-25' W of low edge of
 lowest projected SH

| DEPTH | TEXTURE | MATRIX COLOR | MOTTLES DESCRIPTION | STRUCTURE | CONSISTENCE | %ROCK BY VOL. | REMARKS (Caving, moisture, etc.) |
|--|-----------|---------------|--------------------------|--|----------------------------|--|--|
| HOLE TP11 (a gravelly) | | | | | | | |
| 0-10" | A1x A2 | hsil | dark yel Brn | 2FSbk | — | — | wet cf roots |
| 10-26" | Bt1 | hl-CL | Str Brn | 2FSbk -vFSbk | gravelly (25% 2-4 gran) | mfr | about cm roots Moist-vMoist |
| 26-34" | Bt2 | hl-CL | Str Brn- yell | 1 m plety | mfr | 25-35% gravel | v. Moist-Moist |
| 34-40" | Bx1 | CL-SiCL | dark yel Brn 10YR 4/3 | 1 c pr-Massive -1 m plety | mfi | 65% gravel + cobbles | dense drier cavities begin here |
| 40-" | Bx | CL | Str Brn- Mix Red Brn | 10YR 6/2 Face (m3p) + yel Brn interior (CL) | 1 m Pr | " | v. Moist-wet free water flowing on faces when caving |
| 48-5' | Bc | co mica SL | H4 Brn | esp Red yel 10YR 6/2 | Massive-Ls | 10% Boulder | Saturated-wet |
| OP-1 (a gravelly) | | | | | | | |
| 0-11" | A1x A2 | h loam | dark Brn | gran vFSmSBK | mfr | 20% - 15% rounded cobbles | 10% banded g ₂ cobbles |
| 11-21" | Bt1 | CL | yel Brn 10YR 5/8 | (2 m SBK) | mfi - mfr | 15-20% gran cobbles | cold - v. moist - moist 20% clay Red plates 1/2 - 3/4" thick |
| 21-30" | Bt2 | CL | yel Brn 10YR 5/6 | 2 m of SBK - 2 c plety | mfi - mfr | 15-20% dry gravel | Moist -> Not quite wet |
| 30-60" | Btx | CL-AL | 10YR 5/4 Red yel Brn | 2 m of SBK - 2 c plety | mfi | Red mottles start @ 30" gran mottles @ 34" | dense, wet, has about 26-28% clay v. Moist - Moist is terrier |
| 60"-70" | Bx | PSL | Blue gray 7.5YR 7/0 | 2 m Pr | mfr | — | wet - Saturated |
| 70"-7 1/2' | C | M26 Loam | Dark Brn F. Black | massive | mfr | — | active water seepage rock @ bottom wet - Saturated |
| Slope %- | | EL. (ft) - | Chroma 2 - | Least Permeable Layers - | | | |
| Landscape Position - | | Water BLS - | | Limiting Zones - | | | |
| Additional Remarks - active water flow on top of Boulder exposed + seeps @ 4 1/2' + caving @ 4' water seepage on shell @ 4', water seepage @ 4 1/2' | | | | | | | |

with
seepage

D-3

OP-1 caving @ 5' + active water seepage - mottles start @ 2 1/2' (+ wet faces in spring) - suspect highest water table @ 30", definite by 34"
 1st OP-1 reading (stick up 30") - water below mark 93' - 30 = 63"

SANITARY/ENVIRONMENTAL ENG., INC.

Consulting Engineers
1414 Washington Road
WESTMINSTER, MARYLAND 21157
(410) 876-7740
FAX (410) 840-9924

JOB BRIGHTON PINES

SHEET NO. LOT 1

CALCULATED BY _____

CHECKED BY _____

SCALE _____

A514178

OF _____
DATE 9/6/02

DATE _____

5 BEDROOMS X 150 = 750 GPD 8% slope
LOADING RATE - 1.2 GPD/Sq. Ft = 750/1.2 = 625 Sq. Ft.
BED 9' X 70 = 630 Sq. Ft. OK

UP SIDE SAND DEPTH - 18" OK
DOWNSIDE SAND DEPTH = 18" + (.08 x 108") = 26.64" (26 1/2")

UPSLOPE SETBACK = (18" + 22") (3) (0.8) = 96" = 8' OK

DOWNSLOPE SETBACK = (26.5" + 22") (3) (1.32) = 192" = 16' OK

SIDE SLOPE SETBACK = (18" + 26.5" + 28") (3) = 151" = 12'-7" OK

MOUND WIDTH = 9' + 8' + 16' = 33' OK
MOUND LENGTH = 70' + 12'-7" + 12'-7" = 95'-2" OK

PUMP RATE = 30 PERFORATIONS X 1.63 GPM = 49 GPM OK

DOSE = 5 X 3 X 63' = 945' = 1" LATERAL @ 4.5 GAL/100'
9.45 X 4.5 = 42.5 GAL OK

PLUS = 142' - 2" @ 17.4 GAL/100' = 1.42 X 17.4 = 24.7 OK
42.5 + 24.7 = 67.2 GAL OK

DOSE = 750 GAL/6 = 125 GAL @ 16.7 cu ft
BOTTOM AREA PUMP CHAMBER = 58 Sq. Ft. (57.62) OK

16.7 cu ft / 58 Sq. Ft = 0.29' = 3 1/2" OK

EMERGENCY STORAGE = 58 Sq. Ft X 1.96' = 113.7 cu ft = 850 GAL.
850 > 750 OK

TDH - ELEV. DIFFERENCE = 393.9 - 379.4 = 14.5' ✓
DISTAL HEAD = 2.0' ✓

f = 2" = 6' + valve + L + Union + L + L + 35' + 45' + 95' + 45' + 6' + 6'
6' + 1.3 + 7 + 2 + 7 + 7 + 35' + 4' + 95' + 4' + 6' + 10' + 6' ✓

190' - 2" @ 49 GPM = 1.9 X 3.98 = 7.6' ✓
TDH = 14.5' + 2.0' + 7.6' = 24.1' (24') OK

PUMP TO REMOVE (49 GPM @ 24' TDH)
Goulds - Model 3885 - WECO 5H - 1/2 hp OK

cdc OK
only one small typographical error on plan
(gives 12" as gravel bed depth but used 10" in calculations)
I'll call Mr. Chase & so advise. App 9/19/02

Health Department File Number: A514178

Project Location: Brighton Pines lot 1

| | | | |
|---------------------------|------------------|----------------------------|----------------|
| Total mound width: | 33.1 feet | Total mound length: | 95 feet |
|---------------------------|------------------|----------------------------|----------------|

| | |
|---|-------------------------------------|
| Slope percent [Enter as decimal - e.g., 6 % slope = 0.06]: | 8% |
| Z- Restrictive depth to rock or water (Z): | 30 inches |
| Percolation rate: | 60 minutes/inch |
| Design flow: | 750 gallons per day |
| Design infiltration rate for sand: | 1.2 gallons per day per square foot |
| Absorption bed = Design flow / Design infiltration rate: | 625 square feet |
| A- Bed width (A) - 15 feet or less: | 9 feet |
| B- Bed length (B) = Absorption bed (sq. ft.)/Bed width (ft.) (21 to 101 feet)= | 69.4 feet |
| D- Upslope sand fill depth (D) = 48 in. - Z = | 18 inches |
| E- Downslope sand fill depth (E) = 12 A X % slope + D in. = | 26.64 inches |
| H- Cap + topsoil at bed center (H): | 18 inches |
| G- Cap + topsoil at bed edge (G): | 12 inches |
| F- Total Bed Depth (F): | 10 inches |
| K- Sideslope setback (K) = [(D + E)/2 + 28 in.]/12 X 3 = | 12.58 feet |
| Upslope correction factor: | 0.806452 |
| J- Upslope setback (J) = (22 in. + D)/12 X 3 X Upslope corr. factor = | 8.064516 feet |
| Downslope correction factor: | 1.315789 |
| I- Downslope setback (I) = (22 in. + E)/12 X 3 X Downslope corr. factor = | 16 feet |
| W- Preliminary Width of mound (W) = A + J + I = | 33.06452 feet |
| L- Total Length of Mound (L) = B + 2K = | 94.56 feet |
| Linear loading rate = Design flow/Bed Length = | 10.80692 gallons per linear foot |
| Soil infiltration rate based on percolation rate: | 0.5 gallons per square foot per day |
| Basal area required = Design flow / infiltration rate | 1500 square feet |
| Basal area provided with preliminary width: Sloping Site = (A + I) X B = | 1735 square feet |
| Adequate basal area is provided - no modifications to preliminary dimensions required | |