

# APPLICATION

PERCOLATION TESTING

A 49343

P \_\_\_\_\_

HOWARD COUNTY HEALTH DEPARTMENT

BUREAU OF ENVIRONMENTAL HEALTH

3525-H ELLICOTT MILLS DRIVE/ELLICOTT CITY, MARYLAND 21043  
TELEPHONE: 313-2640

DISTRICT \_\_\_\_\_

DATE 6/15/93

✓ PREVIOUS OK  
PROPOSED SUBDIVISION  
100' SETBACK RESTRICTION  
(100)

TO: THE COUNTY HEALTH OFFICER  
ELLICOTT CITY, MARYLAND

I HEREBY APPLY FOR THE NECESSARY TEST PRIOR TO APPLICATION FOR PERMIT TO CONSTRUCT (OR RECONSTRUCT) A SEWAGE DISPOSAL SYSTEM.

PROPERTY OWNER MR. WILLIAM T. CODD & WIFE

ADDRESS 630 RIVER ROAD SYKESVILLE PHONE \_\_\_\_\_  
MD. 21784

AGENT OR PROSPECTIVE BUYER FISHER COLLINS & CARTER INC. c/o Zach Fisch

ADDRESS 9171 Baltimore national pike PHONE 461-2855  
ELLICOTT CITY MD. 21042

PROPERTY LOCATION:

SUBDIVISION CODD PROPERTY LOT NO. 1

ROAD AND DESCRIPTION 630 RIVER ROAD

TAX MAP 4 PARCEL # 11

SIZE OF LOT 3.22 AC.± TYPE BLDG. S.F.D.  
(SINGLE FAMILY DWELLING OR COMMERCIAL)

THE SYSTEM INSTALLED UNDER THIS APPLICATION IS ACCEPTABLE ONLY UNTIL PUBLIC FACILITIES BECOME AVAILABLE. I FULLY UNDERSTAND THE

FEE CONNECTED WITH THE FILING OF THIS PERC TEST APPLICATION IS NON-REFUNDABLE UNDER ANY CIRCUMSTANCES. I ALSO AGREE TO

COMPLY WITH ALL M.O.S.H.A. REQUIREMENTS IN TESTING THIS LOT. Zacharia Y. Fisch (agent)  
(SIGNATURE OF APPLICANT)

APPROVED BY C. Bothe FOR {shallow trench system only} DATE 7/20/93

DISAPPROVED BY \_\_\_\_\_ FOR \_\_\_\_\_ DATE \_\_\_\_\_

HOLD PENDING FURTHER TESTS \_\_\_\_\_

REASONS FOR REJECTION OR HOLDING (Need new plat 7/20/93)  
new perc areas different from original  
Test Plots.

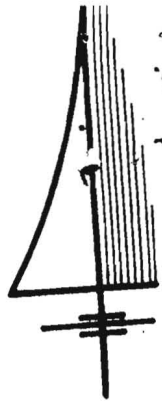
PERCOLATION TEST PLAT/PRELIMINARY PLAT - TITLE OR I.D. # \_\_\_\_\_ DATE \_\_\_\_\_

SITE DEVELOPMENT PLAN/FINAL PLAT - TITLE OR I.D. # \_\_\_\_\_ DATE \_\_\_\_\_

## THIS IS NOT A PERMIT

\_\_\_\_\_





PROPERTY OF  
LAURETTE E. METTEE  
BOYD N. METTEE  
1008/683

N46°54'57"W  
83.69'

RIVER

425.00'

F/R 4

LOT #1  
190,406±  
(3.22 AC.)

LOT #3  
135,316±  
(3.11 AC.)

EX BARN  
TO REMAIN

EX FENCE

EX FENCE TO BE  
RELOCATED

EX F/R

LOT #2  
131,663±  
(3.48 AC.)

PROPERTY OF  
DARLENE WISNIEWSKI  
RICHARD WISNIEWSKI  
972/649

PROPERTY OF  
SHIRLEY O'HAI  
FRANCIS O'HAI  
848/61



#630  
EX DWELLING  
TO REMAIN

EX DRIVEWAY

E 813,500  
N 553,000

S52°52'00"E

N19°19'00"E

W - 783 - 3326  
# - 374 - 5403

**FINAL  
STORMWATER MANAGEMENT  
COMPUTATIONS**

**CODD PROPERTY  
LOT 1**

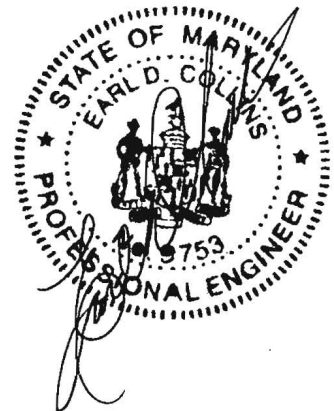
**3rd ELECTION DISTRICT  
HOWARD COUNTY, MARYLAND**

**Prepared for:  
Mr. Eric Ricasa  
1 River Road  
Sykesville, MD 21784-5503  
301-252-8458**

**Prepared by:  
Fisher, Collins & Carter, Inc.  
10272 Baltimore National Pike  
Ellicott City, Maryland  
21042  
410-461-2855**

**Prepared:  
October, 2005**

**W/O No. 05084-6001**





## **NARRATIVE**

### **A. INTRODUCTION:**

The purpose of this report is to present the means of providing stormwater management facilities in accordance with current Maryland Department of the Environment and Howard County guidelines and to demonstrate their feasibility. It will establish the overall design aspects of the facilities. The data utilized in this report includes information based upon Howard County Aerial Topography and Survey Maps. This report will look at the volume requirements for each of the following criteria:

1. Water Quality Volume (WQv)
2. Recharge Volume (Rev)
3. Channel Protection Volume (Cpv)

It is to be noted that Overbank Flood Protection (Qp) and Extreme Flood Volume (Qf) criteria were not addressed because there will be no stormwater discharge from this site.

### **B. SITE INFORMATION:**

Lot 1 of the Codd Property is located within the 3rd Election District of Howard County. The property is depicted Tax map 4, and is zoned RR-DEO per the 2-2-04 Comprehensive Zoning Plan. The lot area is 3.035 acres and is located on River Road north of the intersection of Windrive Drive and River Road .

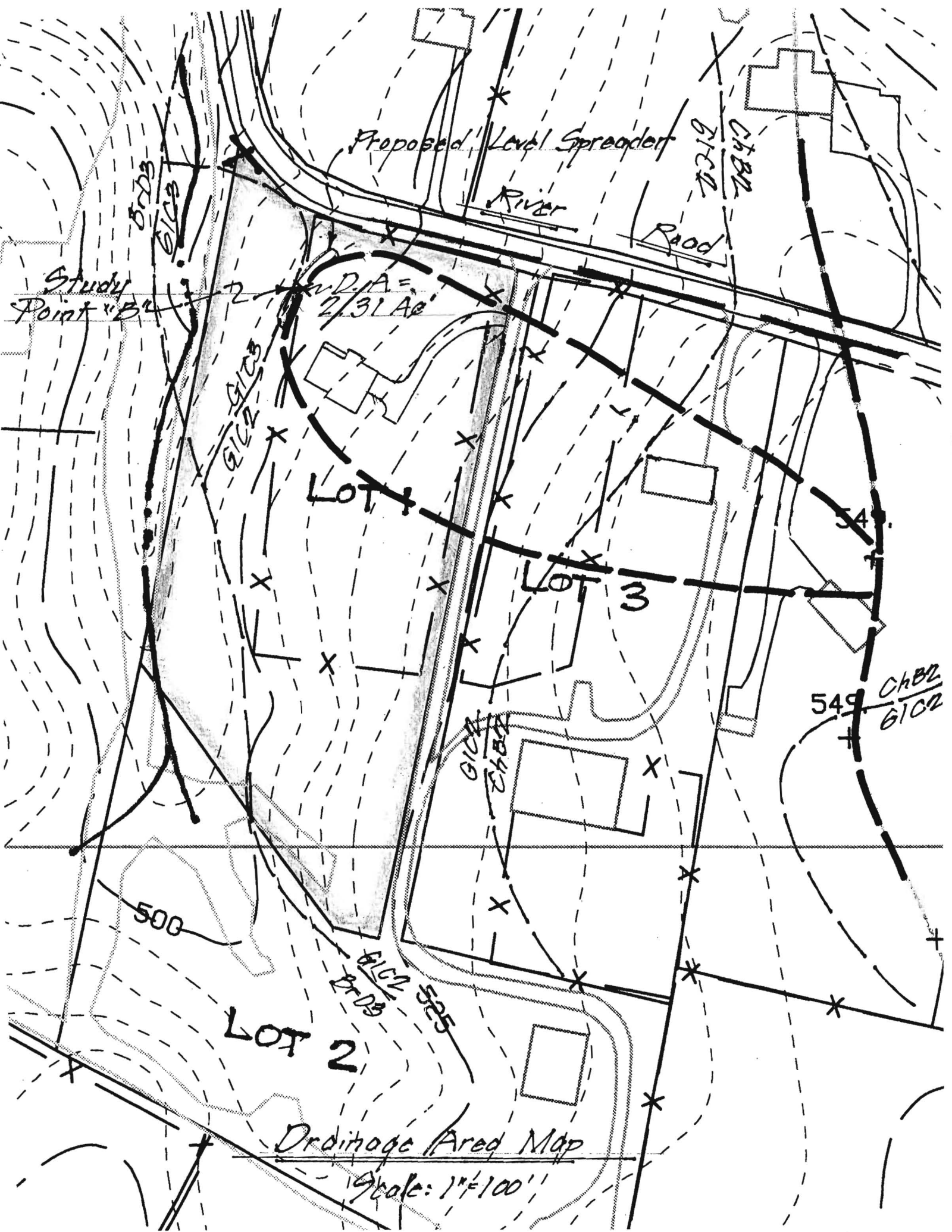
Presently, runoff from this site drains into an unnamed stream that ultimately flows into the South Branch of the Patapsco River. At the present time, the site is partially wooded and according to the Howard County Soil Survey Maps, the predominant soils are Type B Glenelg loams (G1C2 & G1C3).

There will be no impact to existing or proposed utilities.

## **NARRATIVE (cont.)**

### **C. CONCLUSION:**

Based upon the attached drainage area map & computations, the 1-year peak discharge to study point A is 1.28 cfs. As this is less than the 2.0 cfs mandated by the Maryland Stormwater Management Design Manual for Channel Protection Volume (Cpv), Cpv will not be required for this site. Requirements for Water Quality Volume (WQv) and Groundwater Recharge Volume (Rev) per Sections 5.2 and 5.3 of the aforementioned Manual will be met via rooftop and driveway disconnections. The rooftop runoff and a portion of the driveway will be disconnected by the use of a level spreader located at the rear of the house. The reminder of the driveway runoff will be disconnected by the use of a parallel level area as shown on the accompanying plan.



Proposed Level Spreader

River

Road

Study Point B2

D/A = 2/31 Ac

LOT 1

LOT 3

LOT 2

Drainage Area Map

Scale: 1"=100'

500

549

ChB2  
G1C2

G1C4  
ChB2

G1C2  
BrD3

BrD3  
G1C3

ChB2  
G1C4



**Codd Property Lot 1**  
**SWM Credit Calculations**

**Rooftop Disconnection Credits**

Site data = 1 Lot

Area = 2.31 ac.

Original impervious area = 0.12 ac

Original  $R_v$  = 0.05

No. of disconnected rooftops = 1

Original  $WQ_v$  = 0.039 ac. ft

Original  $Rev$  = 0.0025 ac. ft (Percent Volume Method)

= 0.013 ac. (Percent Area Method)

Soil Specific Recharge Factor = 0.26

**Net Impervious Area Reduction – Rooftop, Driveway (within D.A.), Sidewalk, Porches**

Roof area Lot 1 = 2175 sq. ft. or 0.05 ac. (2175/43560)

Driveway, sidewalk, porches = 3214 sq.ft. or 0.07 ac (3214/43560)

Total impervious area reduction = 0.12 (0.05+0.07)

New impervious area = 0.00 ac.

Codd property Lot 1  
SWM Computations for Study Point "B"

Total Site Drainage Area (A) = 2.31 ac

Measured Impervious Area = 0.12 ac

Percentage of Impervious Area (I)

$$I = 0.12/2.31 = 0.05 \text{ or } 5\%$$

Soil Specific Recharge Factor (S)

"B" Soil (0.26) (100%)

Volumetric Runoff Coefficient (Rv)

$$Rv = 0.05 + (0.009) (I)$$

$$Rv = 0.05 + (0.009) (0.05) = 0.05$$

Compute Water Quality (WQv)

$$WQv = [(P)(Rv)(A)]/12$$

$$WQv = [(1.0") (0.05) (2.31)]/12 = 0.0096 \text{ ac. ft.}$$

$$\text{Minimum Required} = [(0.2") (2.31 \text{ ac})]/12 = 0.039 \text{ ac. ft}$$

0.0096 ac. ft is less than 0.039 ac. ft

Use 0.039 ac. ft.

\*Eastern Rainfall Zone P = 1.0 inches

Compute Recharge Volume (Rev)

$$Rev = [(S)(Rv)(A)]/12 (\text{Percent Volume Method})$$

$$Rev = [(0.26) (0.05) (2.31)]/12 = 0.0025 \text{ ac. ft}$$

$$Rev = (S)(Ai) (\text{Percent Area Method})$$

$$Rev = (0.26)(0.05) = 0.013 \text{ ac}$$

# Worksheet 4: Graphical Peak Discharge method

Project CODD PROPERTY - RIVER ROAD

By Joe

Date 10.11.05

Location Study Point "A" for CA

Checked \_\_\_\_\_

Date \_\_\_\_\_

Circle one: Present Developed \_\_\_\_\_

## 1. Data:

Drainage area .....  $A_m = 0.0080$  mi<sup>2</sup> (acres/640)

Runoff curve number .... CN = 65 (From worksheet 2) \*

Time of concentration ..  $T_c =$  \_\_\_\_\_ hr (From worksheet 3)

Rainfall distribution type = II (I, IA, II, III)

Pond and swamp areas spread throughout watershed ..... = — percent of  $A_m$  (\_\_\_\_\_ acres or mi<sup>2</sup> covered)

2. Frequency ..... yr

yr

3. Rainfall, P (24-hour) ..... in

in

4. Initial abstraction,  $I_a$  ..... in  
(Use CN with table 4-1.)

in

5. Compute  $I_a/P$  .....

6. Unit peak discharge,  $q_u$  ..... csm/in  
(Use  $T_c$  and  $I_a/P$  with exhibit 4-\_\_\_\_\_)

csm/in

7. Runoff, Q ..... in  
(From worksheet 2).

in

8. Pond and swamp adjustment factor,  $F_p$  .....  
(Use percent pond and swamp area with table 4-2. Factor is 1.0 for zero percent pond and swamp area.)

9. Peak discharge,  $q_p$  ..... cfs  
(Where  $q_p = q_u A_m QF_p$ )

cfs

Storm #1	Storm #2	Storm #3
1		
2.6		
1.077		
0.414		
485		
0.33		
—		
1.28		

\* From Table 2-2a "Runoff CN's for Urban Areas"

# Worksheet 3: Time of concentration ( $T_c$ ) or travel time ( $T_t$ )

Project COOD PROPERTY By JUC Date 10.11.05  
 Location STUDY POINT "A" FOR CPV Checked \_\_\_\_\_ Date \_\_\_\_\_

Circle one: Present Developed \_\_\_\_\_

Circle one:  $T_c$   $T_t$  through subarea \_\_\_\_\_

NOTES: Space for as many as two segments per flow type can be used for each worksheet.

Include a map, schematic, or description of flow segments.

## Sheet flow (Applicable to $T_c$ only)

Segment ID

1. Surface description (table 3-1) .....
2. Manning's roughness coeff.,  $n$  (table 3-1) ..
3. Flow length,  $L$  (total  $L \leq 300$  ft) ..... ft
4. Two-yr 24-hr rainfall,  $P_2$  ..... in
5. Land slope,  $s$  ..... ft/ft
6.  $T_t = \frac{0.007 (nL)^{0.8}}{P_2^{0.5} s^{0.4}}$  Compute  $T_t$  ..... hr

<u>A-B</u>	
<u>Dense Grass</u>	
<u>0.24</u>	
<u>100</u>	
<u>3.2</u>	
<u>0.02</u>	
<u>0.24</u>	+

= 0.24

## Shallow concentrated flow

Segment ID

7. Surface description (paved or unpaved) .....
8. Flow length,  $L$  ..... ft
9. Watercourse slope,  $s$  ..... ft/ft
10. Average velocity,  $V$  (figure 3-1) ..... ft/s
11.  $T_t = \frac{L}{3600 V}$  Compute  $T_t$  ..... hr

<u>B-C</u>	
<u>Unpaved</u>	
<u>660</u>	
<u>0.037</u>	
<u>5.0</u>	
<u>0.037</u>	+

= 0.037

## Channel flow

Segment ID

12. Cross sectional flow area,  $a$  ..... ft<sup>2</sup>
13. Wetted perimeter,  $p_w$  ..... ft
14. Hydraulic radius,  $r = \frac{a}{p_w}$  Compute  $r$  ..... ft
15. Channel slope,  $s$  ..... ft/ft
16. Manning's roughness coeff.,  $n$  .....
17.  $V = \frac{1.49 r^{2/3} s^{1/2}}{n}$  Compute  $V$  ..... ft/s
18. Flow length,  $L$  ..... ft
19.  $T_t = \frac{L}{3600 V}$  Compute  $T_t$  ..... hr
20. Watershed or subarea  $T_c$  or  $T_t$  (add  $T_t$  in steps 6, 11, and 19) ..... hr

	+

= 0.28

