

C1 1109 SEQUENCE NO. (MDE USE ONLY)

STATE OF MARYLAND WELL COMPLETION REPORT FILL IN THIS FORM COMPLETELY PLEASE TYPE

THIS REPORT MUST BE SUBMITTED WITHIN 45 DAYS AFTER WELL IS COMPLETED.

1 2 3 6 (THIS NUMBER IS TO BE PUNCHED IN COLS. 3-6 ON ALL CARDS)

COUNTY NUMBER

ST/CO USE ONLY DATE Received MM DD YY

DATE WELL COMPLETED MM DD YY 6 23 2010 Depth of Well 22 440 (TO NEAREST FOOT)

PERMIT NO. FROM "PERMIT TO DRILL WELL" HO-95-1911

OWNER Greenfield Homes Inc STREET OR RFD Plumville Drive - Access O TOWN Highland SUBDIVISION Willow Pond SECTION LOT 4

WELL LOG Not required for driven wells

STATE THE KIND OF FORMATIONS PENETRATED, THEIR COLOR, DEPTH, THICKNESS AND IF WATER BEARING

Table with columns: DESCRIPTION (Use additional sheets if needed), FEET (FROM, TO), check if water bearing. Includes handwritten entries: Sand 0-17, Mica Rock 17-440, Steel casing 14' in rock - 120', Dry well back-filled 500-40 Drilling material 40-0 cement.

GROUTING RECORD

WELL HAS BEEN GROUTED (Y/N) TYPE OF GROUTING MATERIAL (Cement, Bentonite Clay) NO. OF BAGS 9 NO. OF POUNDS 846 GALLONS OF WATER 54 DEPTH OF GROUT SEAL (to nearest foot) from 0 to 31 ft.

CASING RECORD

MAIN CASING TYPE (ST, PL) Nominal diameter top (main) casing (nearest inch) 6 Total depth of main casing (nearest foot) 33

OTHER CASING (if used) diameter inch depth (feet) from to

SCREEN RECORD

screen type or open hole (ST, BR, PL, HO, OT) DEPTH (nearest ft.) 1 HO 31 440

NUMBER OF UNSUCCESSFUL WELLS: 1

WELL HYDROFRACTURED (Y/N)

CIRCLE APPROPRIATE LETTER A WELL WAS ABANDONED AND SEALED WHEN THIS WELL WAS COMPLETED

I HEREBY CERTIFY THAT THIS WELL HAS BEEN CONSTRUCTED IN ACCORDANCE WITH COMAR 26.04.04 "WELL CONSTRUCTION" AND IN CONFORMANCE WITH ALL CONDITIONS STATED IN THE ABOVE CAPTIONED PERMIT...

DRILLERS LIC. NO. 1 MS D 024 DRILLERS SIGNATURE Joseph L. Maype

LIC. NO. 1 MS D 027 DRILLERS SIGNATURE Larry Maype

SITE SUPERVISOR (sign. of driller or journeyman responsible for sitework if different from permittee)

DEPTH (nearest ft.) 1 HO 31 440

Table with columns: E A C H S C 3 R E E N, 8 9 11 15 17 21, 23 24 26 30 32 36, 38 39 41 45 47 51

SLOT SIZE 1 2 3 DIAMETER OF SCREEN (NEAREST INCH) 56 60 from to

GRAVEL PACK IF WELL DRILLED WAS FLOWING WELL INSERT F IN BOX 68

MDE USE ONLY (NOT TO BE FILLED IN BY DRILLER) T (E.R.O.S.) W Q

TELESCOPE CASING LOG INDICATOR OTHER DATA

C 3 PUMPING TEST

HOURS PUMPED (nearest hour) 6 PUMPING RATE (gal. per min.) 2.4 METHOD USED TO MEASURE PUMPING RATE Bucket WATER LEVEL (distance from land surface) BEFORE PUMPING 12 ft. WHEN PUMPING 323 ft. TYPE OF PUMP USED (for test) S submersible

PUMP INSTALLED

DRILLER INSTALLED PUMP (YES/NO) YES NO

IF DRILLER INSTALLS PUMP, THIS SECTION MUST BE COMPLETED FOR ALL WELLS.

TYPE OF PUMP INSTALLED PLACE (A,C,J,P,R,S,T,O) IN BOX 29.

CAPACITY: GALLONS PER MINUTE (to nearest gallon) 31 35

PUMP HORSE POWER 37 41

PUMP COLUMN LENGTH (nearest ft.) 43 47

CASING HEIGHT (circle appropriate box and enter casing height) + above } LAND SURFACE - below } 2 (nearest foot)

LOCATION OF WELL ON LOT SHOW PERMANENT STRUCTURE SUCH AS BUILDING, SEPTIC TANKS, AND /OR LANDMARKS AND INDICATE NOT LESS THAN TWO DISTANCES (MEASUREMENTS TO WELL)

See Attached locations -

B 1 6384
1 2 3 6

SEQUENCE NO. (MDE USE ONLY)

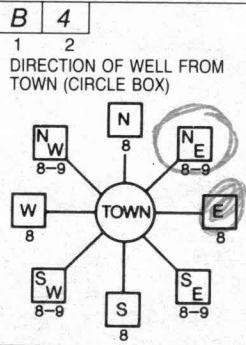
STATE OF MARYLAND
APPLICATION FOR PERMIT TO DRILL WELL
533241 please type

STATE PERMIT NUMBER
HO-95-1911
fill in this form completely 79

Date Received (APA)
8 MM DD YY 13
OWNER INFORMATION
15 Last Name Owner First Name 34
26 Street or RFD 55
57 Town 70 State 72 Zip 76
Greenfield Homes Inc
6656 Rueter Drive
Highland Md 20777

B 3 LOCATION OF WELL
8 COUNTY 21
23 SUBDIVISION 42
SECTION 44 46 LOT 4 48 50
52 NEAREST TOWN 71
Highland
Willow Pond
MILES FROM TOWN (enter 0 if in town) 73 76 77 78
1 Mile

DRILLER INFORMATION
76 Driller's Name License No. 81
Firm Name
Address
Signature Date
Joseph & Mayne MS D 024
Joseph & Mayne Well Drilling
5512 Ridge Rd Mt. Airy Md 21771
Joseph & Mayne 5-12-10



B 4
11 NEAR WHAT ROAD 30
ON WHICH SIDE OF ROAD (CIRCLE APPROPRIATE BOX)
34 37 DISTANCE FROM ROAD FT
ENTER FT OR MI 38 39
TAX MAP: 34 BLK: 17 PARCEL 392
Prestwick Dr. Access Rd
NORTH
WEST
EAST
SOUTH

B 2 WELL INFORMATION
1 2
APPROX. PUMPING RATE (GAL. PER MIN.) 8 12
AVERAGE DAILY QUANTITY NEEDED (GAL. PER DAY) 14 20
4
500

- USE FOR WATER (CIRCLE APPROPRIATE BOX)
- D DOMESTIC POTABLE SUPPLY & RESIDENTIAL IRRIGATION
 - F FARMING (LIVESTOCK WATERING & AGRICULTURAL IRRIGATION)
 - I INDUSTRIAL, COMMERCIAL, DEWATERING
 - P PUBLIC WATER SUPPLY WELL
 - T TEST, OBSERVATION, MONITORING
 - G GEO-THERMAL

NOT TO BE FILLED IN BY DRILLER HEALTH DEPARTMENT APPROVAL
Howard (13)
COUNTY NAME COUNTY NO.
STATE SIGNATURE INSERT S
DATE ISSUED 6/1/2010 Brian Baker 6/1/2011
43 MM DD YY 48 CO SIGNATURE EXP. DATE
NORTH GRID 495 0 0 0 EAST GRID 813 0 0 0
50 55 57 63

APPROXIMATE DEPTH OF WELL 24 28 FEET
APPROXIMATE DIAMETER OF WELL 6 INCH NEAREST INCH

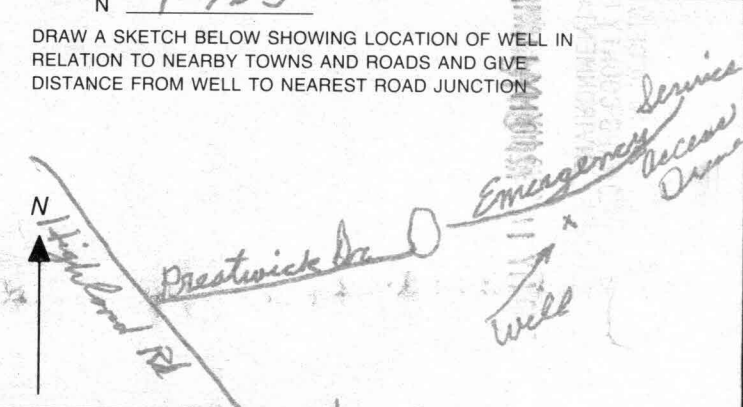
METHOD OF DRILLING (circle one)
BORED (or Augered) JETTED Jetted & DRIVEN
30 AIR-ROTary AIR-PERcussion ROTARY (Hydraulic Rotary)
37 CABLE REVERSE-ROTary DRIVE-POINT
other

REPLACEMENT OR DEEPEMED WELLS (CIRCLE APPROPRIATE BOX)
 N THIS WELL WILL NOT REPLACE AN EXISTING WELL
 Y THIS WELL WILL REPLACE A WELL THAT WILL BE ABANDONED AND SEALED
39 S THIS WELL WILL REPLACE A WELL THAT WILL BE USED AS A STANDBY-CONTACT LOCAL APPROVING AUTHORITY FOR POLICY ON STANDBY WELLS
 D THIS WELL WILL DEEPEMED AN EXISTING WELL
PERMIT NUMBER OF WELL TO BE REPLACED OR DEEPEMED (IF AVAILABLE) 41 52

SHOW MAJOR FEATURES OF BOX & LOCATE WELL WITH AN X
SOURCES OF DRILLING WATER
1. well
2.
3.
WRITE THE BOX NUMBER FROM THE MAP HERE
E 8143
N 4905

6/23/2010
Radium Sample Collected.
BB

Not to be filled in by driller (MDE OR COUNTY USE ONLY)
APPROP. PERMIT NUMBER
PERMIT No. HO-95-1911
70 71 72 73 74 75 76 77 78 79



SPECIAL CONDITIONS
NOTE - APPROVING AUTHORITIES SHOULD USE SEPARATE SHEET IF NEEDED
Well Must be Constructed Highland as Per
Note 52 - See Attached

FIELD DATA SHEET
HOWARD COUNTY WELL YIELD TEST

Well Permit No. HO - 95-1911
 Location of property (road) Westwick Dr - access D
 Subdivision Willow Pond Lot 4 Block _____ Plat _____ Sec. _____
 Well Driller Joseph Mayne Owner Greenfield Homes Inc
 Depth of well 440'
 Distance of measuring point (M.P.) above ground 2'
 Static water level (S.W.L.) below M.P. 12'

I. High rate pumping -- reservoir drawdown

Time pump started 7:00 Pumping rate 20 gpm
 Total time 45 min to reach pumping water level 323 ft. below M.P.

II. Recovery pump test data - observations to be recorded every 15 minutes

TIME (in 15 minute intervals)	WATER LEVEL below M.P.	PUMPING RATE time to fill 5 gallon bucket	FLOW METER READING (if used)	CALCULATED FLOW (gallons per minute)
7:15	117	3 sec		20 gpm
7:30	234	4		15
7:45	323	5		12
8:00	323	25 sec		2.4
8:15	323	25		2.4
8:30	323	25		2.4
8:45	323	25		2.4
9:00	323	25		2.4
9:15	323	25		2.4
9:30	323	25		2.4
9:45	323	25		2.4
10:00	322	25		2.4
10:15	322	25		2.4
10:30	322	25		2.4
10:45	322	25		2.4
11:00	322	25		2.4
11:15	322	25		2.4
11:30	322	25		2.4
11:45	322	25		2.4
12:00	322	25		2.4
12:15	322	25		2.4
12:30	322	25		2.4
12:45	322	25		2.4
1:00	322	25		2.4
1:15	322	25		2.4
1:30	322	25		2.4

HOWARD COUNTY HEALTH DEPARTMENT
BUREAU OF ENVIRONMENTAL HEALTH
WATER AND SEWERAGE PROGRAM
TEL: (410)313-2640 FAX: (410)313-2648

12738
Clarksville Pike

Information Form for the Installation of the Well Pump, Pitless Adapter, and Supply Piping

NOTE: The installer is responsible for requesting an inspection prior to 9 am on the day of the desired inspection. No work is to be covered until approved by the Health Department. All installations must comply with the National Standard Plumbing Code (NSPC, as amended locally) and COMAR 26.04.04 (MD Well Construction Regulations). Submission of a complete form is required prior to Use and Occupancy approval.

Company Name: Gartland Plumbing, Inc Telephone #: 410-875-5303
Address: 1620 W. Old Liberty Rd
Sykesville, MD 21784

(Must circle one) Licensed Plumber Licensed Well Driller Licensed Well Pump Installer
License # and name of individual responsible for the field installation:
Name (Print): Joe Gartland License# 6352

*A licensed individual must perform the actual installation. Apprentices must be under the direct supervision of a licensed journeyman or master plumber, pump installer or well driller. Licenses may be subjected to field verification.

Name of Property Owner: Greenfield Homes Telephone #: 410-281-6782
Subdivision: Willow Pond Lot #: 4 Well Tag #: HO-95-1911
Site Address: 6494 Prestwick Dr
Highland, MD 20777

<u>Submersible Pump Data</u>	<u>Pitless Adapter</u>	<u>Well Cap and Electric Conduit</u>
Make: <u>Goolds</u>	Make: <u>Campbell</u>	Two piece watertight cap: <input checked="" type="checkbox"/>
Model #: <u>106515422C</u>	Model#: <u>800</u>	Screened, vented well cap: <input checked="" type="checkbox"/>
Pump Capacity <u>10</u> GPM	Depth: <u>36"</u> (36" min)	Cap secured to casing: <input checked="" type="checkbox"/>
Well Yield: <u>2.5</u> GPM	NSF approved: <u>Yes</u>	Conduit min 18" B.G.: <input checked="" type="checkbox"/>
Depth of well encountered at time of pump installation: <u>440</u> (feet)		Conduit secured to well cap: <input checked="" type="checkbox"/>

If pump capacity exceeds well yield, a low water cut off switch is required by NSPC 1990 Section 17.8.4

Torque arrestors or Cable guards are required - Must circle one
 Safety rope, if used, attached to inside of well casing with eye bolt

<u>Piping to house</u>	<u>House Connection</u>	} Sleeved under faster to finish Room
Type: <u>Poly</u>	PVC sleeved to undisturbed soil at wall penetration: <u>Yes</u>	
PSI: <u>160</u> (160 psi min)	Approximate length of sleeve: <u>35'</u>	
Depth of supply line: <input checked="" type="checkbox"/> (36" min)	Sleeve caulked and sealed properly: <u>Yes</u>	

The water supply line is required to be at least ten feet from the septic tank, pump chamber, sewage piping, distribution box, drainfields, and sewage reserve area. If this cannot be accomplished, contact this office for approval prior to installation.

Signature of company representative responsible for installation _____ date 8-3-11

For Health Department Use Only - Not to be completed by Installer

Date Insp. Requested: _____ Date Insp. Approved: _____
Inspection Data: Pitless adapter and water supply line at least 36" below grade _____
Two piece cap installed and attached to casing securely _____
Elec. conduit extends at least 18" below grade/attached to cap properly _____
Safety rope installed inside of well casing _____
Correct well tag attached properly and casing 8" above finished grade _____
Water supply line sleeved adequately at house connection _____
Adequate grout observed below pitless adapter _____

**HOWARD COUNTY HEALTH DEPARTMENT
BUREAU OF ENVIRONMENTAL HEALTH
WATER AND SEWERAGE PROGRAM
TEL: (410)313-2640 FAX: (410)313-2648**

Information Form for the Installation of the Well Pump, Pitless Adapter, and Supply Piping

NOTE: The installer is responsible for requesting an inspection prior to 9 am on the day of the desired inspection. No work is to be covered until approved by the Health Department. All installations must comply with the National Standard Plumbing Code (NSPC, as amended locally) and COMAR 26.04.04 (MD Well Construction Regulations). Submission of a complete form is required prior to Use and Occupancy approval.

Company Name: _____ Telephone #: _____
Address: _____

(Must circle one) Licensed Plumber Licensed Well Driller Licensed Well Pump Installer

License # and name of individual responsible for the field installation:

Name (Print): _____ License# _____

***A licensed individual must perform the actual installation. Apprentices must be under the direct supervision of a licensed journeyman or master plumber, pump installer or well driller. Licenses may be subjected to field verification.**

Name of Property Owner: _____ Telephone #: _____
Subdivision: _____ Lot #: 4 Well Tag #: HO - 95-1911
Site Address: Prestwick Drive

Submersible Pump Data

Make: _____
Model #: _____
Pump Capacity _____ GPM
Well Yield: _____ GPM

Pitless Adapter

Make: _____
Model#: _____
Depth: _____ (36" min)
NSF approved: _____

Well Cap and Electric Conduit

Two piece watertight cap: _____
Screened, vented well cap: _____
Cap secured to casing: _____
Conduit min 18" B.G.: _____
Conduit secured to well cap: _____

Depth of well encountered at time of pump installation: _____ (feet)
If pump capacity exceeds well yield, a low water cut off switch is required by NSPC 1990 Section 17.8.4
Torque arrestors or Cable guards are required - Must circle one
Safety rope, if used, attached to inside of well casing with eye bolt _____

Piping to house

Type: _____
PSI: _____ (160 psi min)
Depth of supply line: _____ (36" min)

House Connection

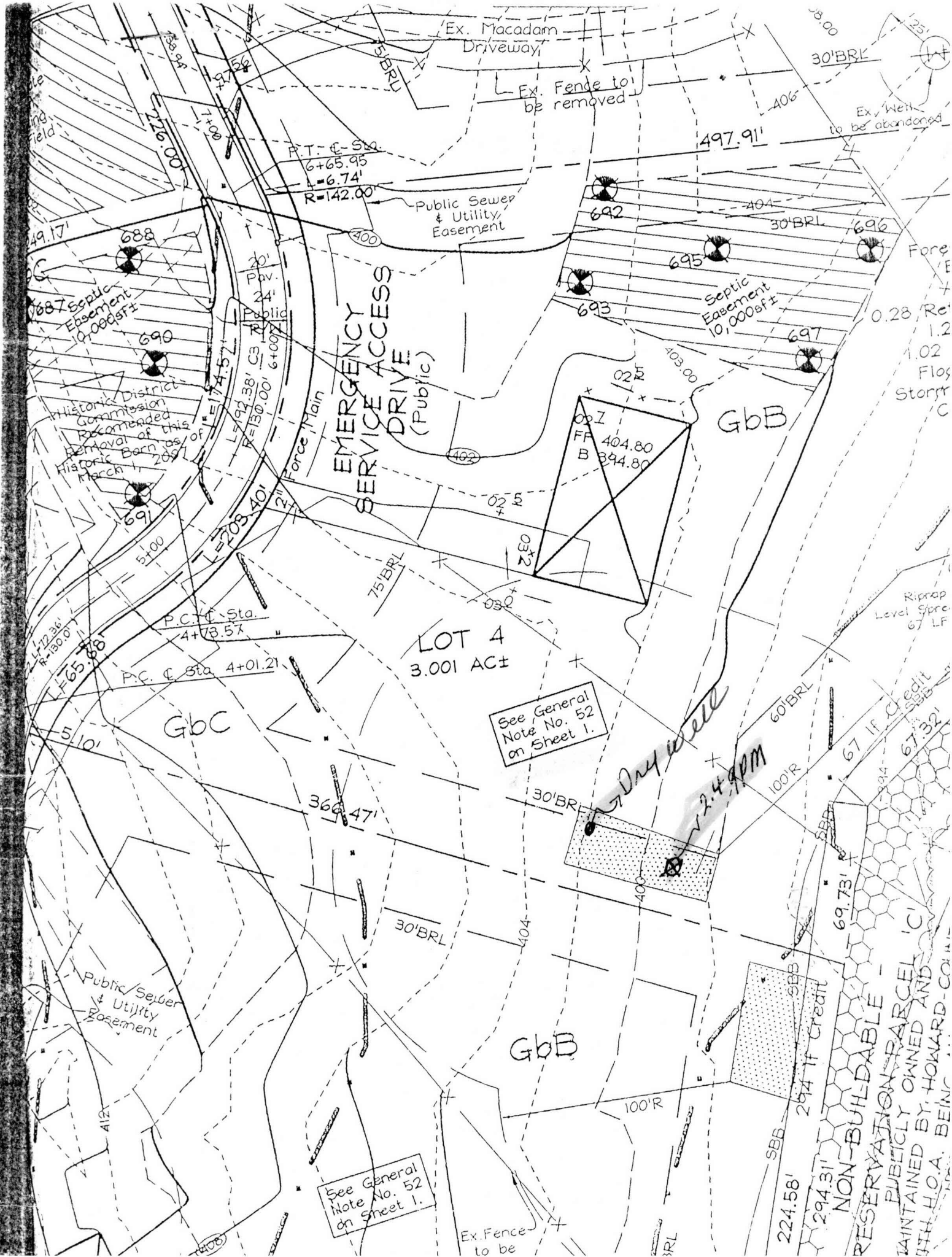
PVC sleeved to undisturbed soil at wall penetration: _____
Approximate length of sleeve: _____
Sleeve caulked and sealed properly: _____

The water supply line is required to be at least ten feet from the septic tank, pump chamber, sewage piping, distribution box, drainfields, and sewage reserve area. If this cannot be accomplished, contact this office for approval prior to installation.

Signature of company representative responsible for installation _____ date _____

For Health Department Use Only - Not to be completed by Installer

Date Insp. Requested: _____ Date Insp. Approved: 8/4/11 (KW)
Inspection Data: Pitless adapter and water supply line at least 36" below grade
Two piece cap installed and attached to casing securely
Elec. conduit extends at least 18" below grade/attached to cap properly
Safety rope installed inside of well casing
Correct well tag attached properly and casing 8" above finished grade
Water supply line sleeved adequately at house connection
Adequate grout observed below pitless adapter



Ex. Macadam Driveway
Ex. Fence to be removed
Ex. Well to be abandoned

P.T. C-500
6+65.95
= 6.74'
R=142.00

Public Sewer & Utility Easement

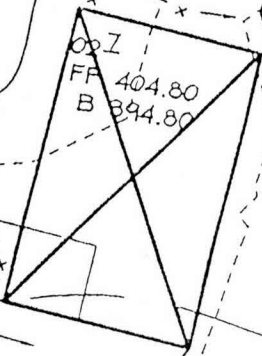
497.91'

30'BRL

Historic District Commission Recommended Removal of this Historic Barn as of March 2007

EMERGENCY SERVICE ACCESS DRIVE (Public)

Septic Easement 10,000sf±



GobB

LOT 4
3.001 AC±

See General Note No. 52 on Sheet 1.

Dry well
2.4 gpm

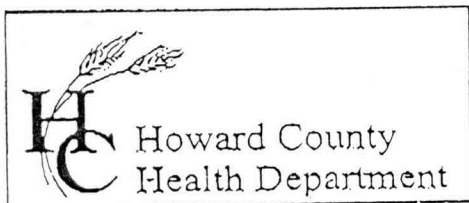
GobC

GobB

NON-BUILDABLE RESERVATION PARCEL 'C' PUBLICLY OWNED AND MAINTAINED BY HOWARD COUNTY, ILL. I.O.A. BEING

See General Note No. 52 on Sheet 1.

Ex. Fence to be



7178 Columbia Gateway Drive, Columbia, MD 21046
 (410) 313-2640 Fax (410) 313-2648
 TDD (410) 313-2323 Toll Free 1-866-313-6300
 website: www.hchealth.org

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

TO ALL INTERESTED PARTIES

When submitting a well permit application for a proposed well for new construction, please indicate one of the following:

Well Site Location:

Willow Pond 4 Prestwick Drive - Access Dr.
 Subdivision/Property Name Lot# Road Name

The well site has been staked by FSH Associates
 (professional land surveyor or company employing professional land surveyors)
 on 5-4-10 (date) and does not require a site inspection.

The well driller, builder or property owner will call the Health Department to schedule a time to meet in the field to verify the proposed well site location.

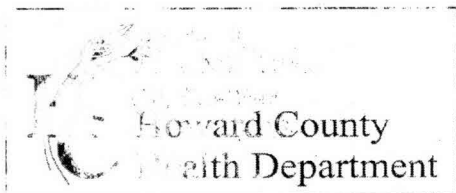
This sheet, along with two copies of an acceptable well site plan, must be attached to the green well permit application.

Revised 3/11/05

Greenfield Homes

Rick Minor

410-365-3702



Bureau of Environmental Health
7178 Gateway Drive Columbia, MD 21046
(410) 313-2640 Fax (410) 313-0800
TDD (410) 313-2323 Toll Free 1-866-321-6500
website: www.hchealth.org

Peter L. Deilenson, M.D., M.P.H., Health Officer

INTERIM CERTIFICATE OF POTABILITY
PERMANENT DEVIATION FOR RADIUM

Expiration Date – November 17, 2012

May 17, 2012

Homeowner
6494 Prestwick Drive
Highland, MD 20777

RE: Willow Pond, Lot #4
6494 Prestwick Drive
Building Permit: B11001809
Well Permit: HO-95-1911

Dear Homeowner:

This is to advise you that the septic system installation and water well construction for the above referenced property have been inspected and approved. Final approval of the septic system was granted on **08/22/2011**. Final approval of the well line connection to the dwelling was granted on **08/04/2012**. The well construction was completed on **06/23/2010**. Water samples were collected on **05/02/2012**.

The water sample results indicate that the water samples submitted for testing were free of coliform and fecal coliform bacteria at the time of sampling and are bacteriologically safe for drinking.

Gross Alpha and Beta samples were also collected on **03/17/2011**. Results showed a Gross Alpha level of **23.8 ± 3.7 pCi/L** and Gross Beta level of **18.1 ± 2.6 pCi/L**. **This exceeds the maximum contaminant level (MCL) of 15 pCi/L and/or 50 pCi/L, respectively.**

After installation of a radionuclide removal device(kitchen tap reverse osmosis system), post-treatment water samples were collected on **04/21/2011** and indicated a Gross Alpha level of **7.2 ± 4.5 pCi/L**, a Gross Beta level of **5.7 ± 3.9 pCi/L**, and a Radium 226/228 level of **2.2 ± 1.0 pCi/L**.

This Department will grant a **permanent deviation** to the Interim Certificate of Potability on condition that the radionuclide removal system effectively maintains a Gross Alpha level of less than **15 pCi/L**, a Gross Beta level of less than **50 pCi/L**, and a Radium 226/228 level of less than **5 pCi/L**.

Furthermore, it will be necessary for you to comply with the following conditions:

1. The system must be properly operated and maintained continuously in accordance with the service contract for the life of the residence.
2. It is recommended that a Maryland certified water laboratory certified for radionuclide analysis perform a yearly radionuclide analysis.
3. If you decide to sell or rent your home in the future, you must make any potential buyer/tenant aware of this permanent deviation. **A person who fails to make this**

disclosure is subject to the penalties set out in COMAR 26.04.04.12F *Enforcement and Environment Article 9-1311, Annotated Code of Maryland.*

This certifies that the initial sampling requirements of COMAR 26.04.04 "Well Regulations" have been met for the water supply system installed under well permit HO-95-1911. Although the submitted sample results are in compliance with COMAR standards, the Health Department does not guarantee water supplies.

This Interim Certificate of Potability will expire **six months** from the date of issuance. Submission of a second bacteriological test indicating the water is free of coliform and fecal coliform bacteria is required prior to the expiration date, after which time a Final Certificate of Potability will be issued. **Failure to submit an additional sample and obtain a Final Certificate of Potability will result in a Notice of Violation and is punishable as a misdemeanor under the *Annotated Code of Maryland, Environment Article, 9-1311, subject to a fine of up to \$500 or imprisonment not to exceed three months.***

Please contact (410) 313-1773 to schedule a final water sample appointment or contact a Maryland certified water quality laboratory to schedule a water sample. A list of laboratories certified by the state of Maryland may be found at the following website:
<http://www.mde.state.md.us/assets/document/WSP-Labs-2010apr16.pdf>

Approving Authority,



Dana Bernard, REHS/RS
Environmental Sanitarian
Well & Septic Program

cc: Howard County Dept. of Inspections, Licenses, and Permits
Community Hygiene Program
File



TRACE LABORATORIES, INC

5 North Park Drive

Hunt Valley, MD 21030 USA

Telephone: 410/584-9099 / Fax: 410/584-9117

Website: www.tracelabs.com / Email: info@tracelabs.com

Maryland State Certified Laboratory #318

CERTIFICATE OF ANALYSIS

Requester:

Greenfield Homes
6656 Luster Drive
Highland, Maryland 20777

S/O Number: 85108

Report Date: May 3, 2012

Potability Testing

Property Sampled: 6494 Prestwick Drive, 21029
Sample Location: Pressure Tank Tap
Residual Chlorine: <0.1 mg/L

Building Permit #: B11001809
Sampler ID #: 0765AR
Samples Iced: Yes

County: Howard
Map: 34

Subdivision: Willow Pond
Parcel: 444

Map: 4

Date/Time Collected in Field: May 2, 2012 @ 12:55 pm
Date/Time Received in Lab: May 2, 2012 @ 3:50 pm

Well Tag #: HO-95-1911
Well Condition: 2-Piece Cap, Satisfactory

Handwritten note: OK 5/10/12 JWS

Water Treatment/Conditioning: Softener, Reverse Osmosis (R/O)

Table with 5 columns: PARAMETER, METHOD, MCL/*SMCL, RESULT, PASS/FAIL. Rows include Total Coliform, E. coli, Nitrate, Turbidity, pH, and Sand.

The results in this report relate only to those items tested. If any additional information or clarification of this report is required, please contact us. This test report shall not be reproduced except in full without the written approval of Trace Laboratories Inc.

Signature of Katherine C. Higgs
Katherine C. Higgs
Manager - Drinking Water Testing

MCL: Maximum Contamination Level, an enforceable level established by the EPA
*SMCL: Secondary Maximum Contamination Level, a level recommended by the EPA
***A non-enforceable parameter that may cause cosmetic effects or aesthetic effects (such as taste, color or odor) in drinking water.



TRACE LABORATORIES, INC
 5 North Park Drive
 Hunt Valley, MD 21030 USA
 Telephone: 410/584-9099 / Fax: 410/584-9117
 Website: www.tracelabs.com / Email: info@tracelabs.com

Maryland State Certified Laboratory #318

CERTIFICATE OF ANALYSIS

Requester: Greenfield Homes
 6656 Luster Drive
 Highland, Maryland 20777

S/O Number: 85108-2

Report Date: May 8, 2012

Radium Testing

Property Sampled: 6494 Prestwick Drive, 21029
Sample Location: R/O Tap ✓
Residual Chlorine: <0.1 mg/L

Building Permit #: B11001809
Sampler ID #: 0765AR
Samples Iced: Yes

County: Howard
Map: 34

Subdivision: Willow Pond
Parcel: 444

Map: 4

Date/Time Collected in Field: May 2, 2012 @ 12:15 pm
Date/Time Received in Lab: May 2, 2012 @ 3:50 pm

Well Tag #: HO-95-1911 ✓
Well Condition: 2-Piece Cap, Satisfactory ✓

Water Treatment/Conditioning: Softener, Reverse Osmosis (R/O)

*OK 5/12/12
 GW*

PARAMETER	METHOD	MDL (pCi/L)	MCL* (pCi/L)	RESULT (pCi/L)	ACCEPTABILITY
Gross Alpha	EPA 900.0	1.0	15	1.1 ± 0.7 ✓	Acceptable
Gross Beta	EPA 900.0	1.8	50	<1.8 ± 1.2 ✓	Acceptable

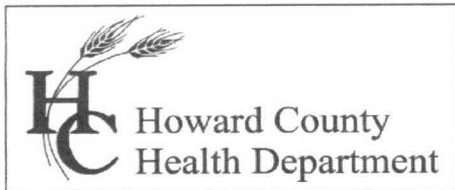
*Note: There are no established limits set forth by the EPA for radionuclide particles in private well water. The limits for public water are instead provided as MCLs in this report and the acceptability of this sample is based on these requirements. Gross Alpha levels under 5 pCi/L are acceptable. Levels between 5 and 15 pCi/L are considered moderate, and levels greater than 15 pCi/L are considered high. When levels are moderate or high, treatment or further testing is recommended and in certain cases may be required by the health department.

The results in this report relate only to those items tested. If any additional information or clarification of this report is required, please contact us. This test report shall not be reproduced except in full without the written approval of Trace Laboratories Inc.

Katherine C. Higgs

 Katherine C. Higgs
 Manager – Drinking Water Testing

MDL: Method Detection Limit
 MCL: Maximum Contamination Level, an enforceable level established by the EPA
 Analysis completed by Laboratory #278



Bureau of Environmental Health
7178 Gateway Drive Columbia, MD 21046
(410) 313-2640 Fax (410) 313-2648
TDD (410) 313-2323 Toll Free 1-866-313-6300
website: www.hchealth.org

Peter L. Beilenson, M.D., M.P.H., Health Officer

September 2, 2010

Greenfield Homes, Inc.
6656 Luster Drive
Highland, Maryland 20777

RE: Willow Pond Lot 4
Prestwick Drive
Well Tag: HO - 95 - 1911

To Whom It May Concern:

A sample was collected during a yield test on June 23, 2010 and submitted to the Department of Health & Mental Hygiene Laboratories to assess the possible presence of **Gross Alpha** and **Gross Beta** in the future well water supply. **Gross Alpha** and **Gross Beta** measure the total alpha and beta particle activity in a water supply. These naturally occurring radioactive nuclides have been demonstrated to be present in a certain type of geologic formation known as the Baltimore Gneiss which exists in your area of development within the County.

Results from this screening revealed a **Gross Alpha** of 159.1 ± 8.2 picocuries/liter (pCi/L); while the **Gross Beta** level was 41.3 ± 2.9 pCi/L. The **Gross Alpha** result was well above its **maximum contaminant level (MCL)** of 15 pCi/L, while the **Gross Beta** level was below its targeted value of 50 pCi/L (roughly equivalent to the **annual dose rate** of 4 millirems/year).

At the time of testing and with respect to these parameters, the future well water supply **does not** appear safe for all uses. Additional testing **for these parameters, plus Radium 226 and Radium 228** will be required to secure the future Use & Occupancy. Given the rather high findings for both **Gross Alpha** and **Gross Beta**, the installation of a water softener system and / or a reverse osmosis system will be necessary. **Both pre and post short and long term Gross Alpha and Beta, plus a post Radium 226 / 228** will be needed to properly evaluate the effectiveness of the installed treatment. Given that it typically takes up to one month to perform and receive back the **Radium** analyses, plan accordingly. Also note, this is in addition to other standard testing parameters (bacteria, nitrate, turbidity and sand) that will still be required.

A copy of the test results is enclosed for your information. Please call this office at **410-313-1773** if you have any further questions or to discuss additional testing requirements.

Sincerely,

Bert Nixon, Director
Bureau of Environmental Health

Enclosure
cc: Barry Glotfelty, MDE Water Mgmt.
Well & Septic property file

Send Report To:

Howard County Health Department
Bureau of Environmental Health
7178 Columbia Gateway Drive
Columbia, Maryland 21046

State of Maryland
DHMH - Laboratories Administration
Division of Environmental Chemistry
RADIATION LABORATORY
201 W. Preston Street, Baltimore, Maryland 21201
John M. DeBoy, Dr. P. H., Director

E001516 16

LABORATORY ANALYSIS REQUEST

Sample Bottle No. A: HOKW1911 RRE No. B: Field Blank Bottle No. 1: HOFB1911 No B:

Plant/Site Name: Willow Pond - Lot 4 County: Howard

Sample Source: Well (mobile pressure test) Location: 40-95-1911
(well no, lab sink, sample tap, etc.)

County: 1 3 Plant No.

CHECK (one per box)

Drinking Water
Landfill
Stream
Other

Community
Non-community
Private
Other

Source (raw water)
Distribution (treated)
MCL

Emergency
Routine
Recheck
Special

Collector: K. Wolf

Telephone No.: 410-313-2645

Date Collected: / /

Time Collected: a.m. 1:30 p.m.

Nitric Acid Preserved: Yes No

Iced: Yes No

Submitters Code:

Federal Project:

Field Data: pH Chlorine

Remarks: Sample pH preserved to < 2.0 / Gross Alpha/Beta sheet & long term

✓	Test	EPA Code	Laboratory No.	Results (pCi/L)	Date Analyzed	Date Reported
✓	Gross Alpha	4000	1516	23.8 ± 3.7	03/17/11	03/18/11
✓	Gross Beta	4100	1516	18.1 ± 2.6	"	"
	Radon-222 Bottle A	4004				
	Radon-222 Bottle B	4004				
	Field Blank #A	4004				
	Field Blank #B	4004				
	Tritium					
	Ra - 226	4020				
	Ra - 228	4030				
	Total Uranium	4006				
✓	Long-term Gross Alpha		1516	20.6 ± 3.1	04/15/11	04/18/11
✓	Long-term Gross Beta		1516	17.2 ± 2.4	"	"

Date Received: 03/16/11

Supervisor: [Signature]

•Tel. No.: (410) 767 - 5537 •Fax No.: (410) 333- 5373



RADIONUCLIDES

Radium in Drinking Water

Radium testing is currently being performed in certain geological formation sites in Baltimore and Howard Counties. The underground rock formation is called the Gneiss Formation (pronounced Nice). Natural levels of radiation in drinking water are generally not considered to be a health emergency. Short-term exposures pose very little risk.

Radionuclides occur naturally as trace elements in rocks, soils, and ground water as a result of radioactive decay. The decay process releases energy in the form of a wave or a particle. The two forms that are measured are alpha particles and beta particles. They are measured in units called "curies". The levels in water are very low so the radioactivity is measured in picocuries per liter, written pCi/L. (One picocurie equals one-trillionth of a curie).

To determine the level of radionuclides in drinking water, it is recommended that the water be tested prior to any treatment for short-term gross alpha (also referred to as gross alpha particle activity (GAPA)) and gross beta (gross beta particle activity (GBPA)). Many labs use the term "radium testing" for these initial tests. These tests are a screening test that will help determine if further testing for Radium 226, Radium 228, and Uranium is necessary. The Environmental Protection Agency (EPA) has established standards for Gross Alpha that should not exceed 15 pCi/L. Gross Beta is not to exceed 50 pCi/L.

The EPA has generated a decision guide for short-term gross alpha results that looks at levels below the EPA standard for short-term gross alpha of 15 pCi/L. This guide can be confusing.

If short-term gross alpha levels are above 15 pCi/L (the EPA standard) then further testing is suggested for Radium 226, Radium 228, and Uranium. This is to help determine the best method of treatment. If levels of Radium 226 and Radium 228 combined are above 5 pCi/L then radium can be effectively removed by a water softener (cation exchange system) or reverse osmosis system. If the Uranium level is above 30 micrograms/L an anion exchange system or a reverse osmosis system may be installed. Keep in mind that a reverse osmosis system is typically only installed at the kitchen tap so it is not treating the whole house. If treatment is installed, the water supply should be retested after treatment to ensure the treatment is effective.

If the gross alpha levels are between 5-15 pCi/L it is suggested by the EPA that further testing still be considered for Radium 226, Radium 228, and Uranium. The logic behind this is due to the EPA standards for Radium 226, Radium 228, and Uranium. Radium 226 (an alpha emitter) and Radium 228 (a beta emitter) have a combined standard of 5 pCi/L. This means that adding the levels for each should not exceed 5 pCi/L. Therefore, if the short-term gross alpha level is between 5 and 15 pCi/L there is the possibility that those levels may be due to Radium 226 having a level above 5 pCi/L. Uranium is also an alpha emitter so this test is also performed to get a baseline level even though the standard for Uranium is 30 micrograms/L.



TRACE LABORATORIES, INC

5 North Park Drive

Hunt Valley, MD 21030 USA

Telephone: 410/584-9099 / Fax: 410/584-9117

Website: www.tracelabs.com / Email: info@tracelabs.com

Maryland State Certified Laboratory #318

If the level for Radium 226 exceeds 5 pCi/L then radium can be effectively removed by a water softener (cation exchange system) or reverse osmosis system. Again keep in mind that a reverse osmosis system is typically only installed at the kitchen tap so it is not treating the whole house. If treatment is installed, the water supply should be retested after treatment to ensure the treatment is effective. If the levels for Radium 226 and Radium 228 fall below 5 pCi/L then no treatment is necessary.

If the gross alpha level is below 5 pCi/L then no additional tests are needed.

In many instances, there will be treatment already present in the home. If a water softener (lime softening system) is present, a decision will need to be made about the location of the testing for radium. A water softener may be a potential method of treatment for elevated levels of radium. In these cases, the client will need to decide if they want to see what levels are coming into the home, what levels are coming through the softening system, or if they want to know the levels of both locations (before and after the treatment). The client should keep in mind that if they choose to only test after the softener and the levels come back elevated, they will not know if it is strictly a problem with the function of the water softener or if it is not the best treatment for removing elevated levels of radium in the drinking water supply.

Radium tests can only be collected on Monday, Tuesday and Wednesday due to the short holding time for the short-term gross alpha and beta test. Results take approximately one week for these tests. If further testing is requested for Radium 226, Radium 228, and Uranium, these tests can be performed from the original samples that are collected but the turnaround time is an additional 9-14 days.

Radon in Drinking Water

Radon exists predominately as a gas that can enter the body through inhalation. Radon enters homes primarily from soil and rock. The contribution of radon from ground water is considered minimal. A test for radon in water can be performed, but at the present time the EPA has not set any guidelines for what is safe or unsafe for well water. If the test is performed, our laboratory CANNOT interpret the results. The only estimate that has been made from the EPA is that for every 10,000 pCi/L radon that is in drinking water, that approximately 1 pCi/L contributes to the radon in the air.

This test takes one to two weeks for results and can only be collected on Monday, Tuesday, or Wednesday due to the short holding time.



Natural levels of radiation in drinking water are generally not considered to be a health emergency. Short-term exposures pose very little risk.

Table 1: Standards for radioactive substances in drinking water and recommended treatment methods.

Contaminant	Primary Type of Radiation	EPA Standard	Best Available Treatment Technology
Gross Alpha (GAPA)	Alpha Particles	15 pCi/L (not including uranium)	Reverse Osmosis
Gross Beta (GBPA)	Beta Particles	4 mrem/yr ≈ 50 pCi/L	Ion Exchange Reverse Osmosis
Radium-224	Alpha Particles	No Standard	Ion Exchange Lime Softening Reverse Osmosis
Radium-226	Alpha Particles	5 pCi/L (combined Ra-226/228)	Ion Exchange Lime Softening Reverse Osmosis
Radium-228	Beta Particles	5 pCi/L (combined Ra-226/228)	Ion Exchange Lime Softening Reverse Osmosis
Total Uranium	Alpha Particles	30 micrograms/L	Anion Exchange Reverse Osmosis

Reference: DEPRM



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 Hunt Valley, MD 21030 USA
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Maryland State Certified Laboratory #318

CERTIFICATE OF ANALYSIS

Requester:

Greenfield Homes
 6656 Luster Drive
 Highland, Maryland 20777

S/O Number: 80482

Report Date: March 1, 2011

Property Sampled: Willow Pond, Lot 4
Sample Location: Bailed Well
Residual Chlorine: <0.1 mg/L

Building Permit #: Not Provided
Sampler ID #: 9813AM
Samples Iced: Yes

County: Howard
Map: N/A

Subdivision: Willow Pond
Parcel: N/A

Lot #: 4

Date/Time Collected in Field: February 23, 2011 @ 11:10 am

Date/Time Received in Lab: February 23, 2011 @ 2:10 pm

Well Tag #: HO-95-1911
Well Condition: 2-Piece Cap, Satisfactory

Well Treatment/Conditioning: N/A

PARAMETER	METHOD	DETECTION LIMIT	MCL*	RESULT	ACCEPTABILITY
Gross Alpha	EPA 900.0	1.0 pCi/L	15 pCi/L	11.3 ± 1.9 pCi/L	Acceptable
Gross Beta	EPA 900.0	1.9 pCi/L	50 pCi/L	19.3 ± 1.9 pCi/L	Acceptable

*Note: There are no established limits set forth by the EPA for radionuclide particles in private well water. The limits for public water are instead provided as MCLs in this report. The acceptability of this sample is based on these requirements.

Katherine C. Higgs
 Katherine C. Higgs
 Administrative Assistant

Send Report To: Bert Nixon
Howard Co. Env Health
7178 Columbia Gateway Dr
Columbia, MD 21046

State of Maryland
 DHMH - Laboratories Administration
 Division of Environmental Chemistry
RADIATION LABORATORY
 201 W. Preston Street, Baltimore, Maryland 21201
 John M. DeBoy, Dr. P. H., Director

EU020041

LABORATORY ANALYSIS REQUEST

Sample Bottle No. A: 951911BB No. B: _____ Field Blank Bottle No. 1: _____ No B: _____

Plant/Site Name: Willow Pond - Lot 4 County: Howard

Sample Source: Prestwick Drive Location: HO-95-1911
(well no, lab sink, sample tap, etc.)

County: 1 3 Plant No.

CHECK (one per box)

Drinking Water
 Landfill
 Stream
 Other

Community
 Non-community
 Private
 Other

Source (raw water)
 Distribution (treated)
 MCL

Emergency
 Routine
 Recheck
 Special

Collector: Brian Baker

Telephone No.: (410) 313-2643

Date Collected: 6/23/2010

Time Collected: _____ a.m. 12 p.m.

Nitric Acid Preserved: Yes No

Iced: Yes No

Submitters Code:

Federal Project:

Field Data: _____ pH _____ Chlorine _____

Remarks: Water Sample Collected During Yield Test
Duplicate 07/01/10 ± 146.0 ± 7.9 B 41.5 ± 2.9

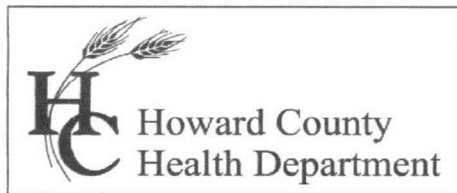
✓	Test	EPA Code	Laboratory No.	Results (pCi/L)	Date Analyzed	Date Reported
✓	Gross Alpha	4000	2527	159.1 ± 8.2	07/01/10	07/22/10
✓	Gross Beta	4100	2527	41.3 ± 2.9	"	"
	Radon-222 Bottle A	4004				
	Radon-222 Bottle B	4004				
	Field Blank #A	4004				
	Field Blank #B	4004				
	Tritium					
	Ra - 226	4020				11-2-10
	Ra - 228	4030				11-2-10
	Total Uranium	4006				11-2-10

Date Received: 06/24/10

Supervisor: [Signature]

• Tel. No.: (410) 767 - 5537 • Fax No.: (410) 333- 5373

LOT 13 PT 10/18/2010



Bureau of Environmental Health
7178 Gateway Drive Columbia, MD 21046
(410) 313-2640 Fax (410) 313-2648
TDD (410) 313-2323 Toll Free 1-866-313-6300
website: www.hchealth.org

Peter L. Beilenson, M.D., M.P.H., Health Officer

January 5, 2011

Greenfield Homes, Inc.
6656 Luster Drive
Highland, Maryland 20777

RE: Willow Pond Lot 3
Prestwick Drive
Well Tag: HO - 95 - 2002

To Whom It May Concern:

A sample was collected during a yield test on October 7, 2010 and submitted to the Department of Health & Mental Hygiene Laboratories to assess the possible presence of **Gross Alpha** and **Gross Beta** in the future well water supply. **Gross Alpha** and **Gross Beta** measure the total alpha and beta particle activity in a water supply. These naturally occurring radioactive nuclides have been demonstrated to be present in a certain type of geologic formation known as the Baltimore Gneiss which exists in your area of development within the County.

Results from this screening revealed a **Gross Alpha** of 227.8 ± 11.0 picocuries/liter (pCi/L); while the **Gross Beta** level was 105.7 ± 4.7 pCi/L. The **Gross Alpha** result was well above its **maximum contaminant level (MCL)** of 15 pCi/L, while the **Gross Beta** level was well above its targeted value of 50 pCi/L (roughly equivalent to the **annual dose rate** of 4 millirems/year).

At the time of testing and with respect to these parameters, the future well water supply **does not** appear safe for all uses. Additional testing **for these parameters, plus Radium 226 and Radium 228** will be required to secure the future Use & Occupancy. Given the very high findings for both **Gross Alpha** and **Gross Beta**, the installation of a water softener system and / or a reverse osmosis system will be necessary. **Both pre and post short and long term Gross Alpha and Beta, plus a post Radium 226 / 228** will be needed to properly evaluate the effectiveness of the installed treatment. Given that it typically takes up to one month to perform and receive back the **Radium** analyses, plan accordingly. Also note, this is in addition to other standard testing parameters (bacteria, nitrate, turbidity and sand) that will still be required.

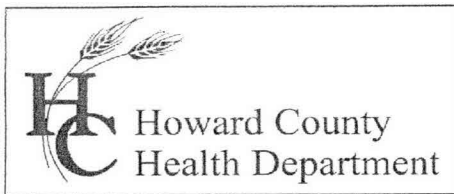
A copy of the test results is enclosed for your information. Please call this office at **410-313-1773** if you have any further questions or to discuss additional testing requirements.

Sincerely,

Bert Nixon, Director
Bureau of Environmental Health

Enclosure

cc: Barry Glotfelty, MDE Water Mgmt.
Well & Septic property file



Bureau of Environmental Health
7178 Gateway Drive Columbia, MD 21046
(410) 313-2640 Fax (410) 313-2648
TDD (410) 313-2323 Toll Free 1-866-313-6300
website: www.hchealth.org

Peter L. Beilenson, M.D., M.P.H., Health Officer

September 2, 2010

Greenfield Homes, Inc.
6656 Luster Drive
Highland, Maryland 20777

RE: Willow Pond Lot 4
Prestwick Drive
Well Tag: HO - 95 - 1911

To Whom It May Concern:

A sample was collected during a yield test on June 23, 2010 and submitted to the Department of Health & Mental Hygiene Laboratories to assess the possible presence of **Gross Alpha** and **Gross Beta** in the future well water supply. **Gross Alpha** and **Gross Beta** measure the total alpha and beta particle activity in a water supply. These naturally occurring radioactive nuclides have been demonstrated to be present in a certain type of geologic formation known as the Baltimore Gneiss which exists in your area of development within the County.

Results from this screening revealed a **Gross Alpha** of 159.1 ± 8.2 picocuries/liter (pCi/L); while the **Gross Beta** level was 41.3 ± 2.9 pCi/L. The **Gross Alpha** result was well above its **maximum contaminant level (MCL)** of **15 pCi/L**, while the **Gross Beta** level was below its targeted value of **50 pCi/L** (roughly equivalent to the **annual dose rate of 4 millirems/year**).

At the time of testing and with respect to these parameters, the future well water supply **does not** appear safe for all uses. Additional testing **for these parameters, plus Radium 226 and Radium 228** will be required to secure the future Use & Occupancy. Given the rather high findings for both **Gross Alpha** and **Gross Beta**, the installation of a water softener system and / or a reverse osmosis system will be necessary. **Both pre and post short and long term Gross Alpha and Beta, plus a post Radium 226 / 228** will be needed to properly evaluate the effectiveness of the installed treatment. Given that it typically takes up to one month to perform and receive back the **Radium** analyses, plan accordingly. Also note, this is in addition to other standard testing parameters (bacteria, nitrate, turbidity and sand) that will still be required.

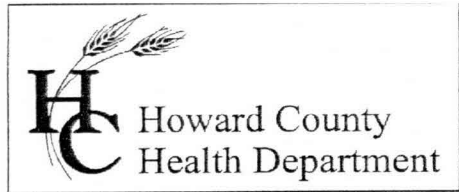
A copy of the test results is enclosed for your information. Please call this office at **410-313-1773** if you have any further questions or to discuss additional testing requirements.

Sincerely,

Bert Nixon, Director
Bureau of Environmental Health

Enclosure

cc: Barry Glotfelty, MDE Water Mgmt.
✓ Well & Septic property file



Bureau of Environmental Health
7178 Gateway Drive Columbia, MD 21046
(410) 313-2640 Fax (410) 313-2648
TDD (410) 313-2323 Toll Free 1-866-313-6300
website: www.hchealth.org

Peter L. Beilenson, M.D., M.P.H., Health Officer

April 29, 2011

Greenfield Homes, Inc.
6656 Luster Drive
Highland, Maryland 20777

RE: Willow Pond Lot 4 Follow-up
Prestwick Drive
Well Tag: HO - 95 - 1911

To Whom It May Concern:

A series of follow-up samples were collected during a simulated yield test on March 15, 2011 and submitted to the Department of Health & Mental Hygiene Laboratories (DHMH) and Florida Radiochemistry (FRC), to help assess the level of treatment necessary to address high **Gross Alpha** and higher than "typical" **Gross Beta** findings from the initial yield test back in June 2010. A portable treatment set-up was constructed to enable a series of samples to be collected prior to and after a softener and reverse osmosis (R/O) device to determine what level or combination of treatment would be needed to adequately address existing contaminant levels.

Pre-treatment results from this screening revealed a **Gross Alpha** of 23.8 ± 3.7 picocuries/liter (pCi/L); while the **Gross Beta** level was 18.1 ± 2.6 pCi/L. The **Gross Alpha** result was above its **maximum contaminant level (MCL)** of 15 pCi/L, while the **Gross Beta** level was below its targeted value of 50 pCi/L (roughly equivalent to the **annual dose rate** of 4 millirems/year).

Pre-treatment long term results from this screening revealed a **Gross Alpha** of 20.6 ± 3.1 pCi/L; while the **Gross Beta** level was 17.2 ± 2.4 pCi/L. The **Gross Alpha** result was again above the **MCL** of 15 pCi/L, while the **Gross Beta** level was below the targeted value of 50 pCi/L.

Post-treatment long term results (after water softener only) revealed a **Gross Alpha** of 47.0 ± 4.9 pCi/L; while the **Gross Beta** level was 18.5 ± 2.5 pCi/L. Here the **Gross Alpha** result remained above the **MCL** of 15 pCi/L, while the **Gross Beta** level was again below the targeted value of 50 pCi/L.

Post-treatment long term results (after water softener and R/O devices) revealed a **Gross Alpha** of 7.2 ± 4.5 pCi/L; while the **Gross Beta** level was 5.7 ± 3.9 pCi/L. Here the **Gross Alpha** result was below the **MCL** of 15 pCi/L, while the **Gross Beta** level again remained below the targeted value of 50 pCi/L.

Post-treatment **Radium** samples were taken (after the softener and post softener / R/O units) to assess the presence of **Radium 226** or **Radium 228** following treatment. These naturally occurring isotopes of radium are considered the most important due to their longer half-lives and health significance. Results (post softener) revealed a **Radium 226** level of $< 1.0 \pm 0.0$ pCi/L; while the **Radium 228** level was $< 1.0 \pm 0.0$ pCi/L. Results (post softener and R/O) revealed a **Radium 226** level of $< 1.0 \pm 0.0$ pCi/L; while the **Radium 228** level was $< 1.2 \pm 1.0$ pCi/L. In both instances, the **combined Radium 226 / 228** was below the **MCL** of 5 pCi/L.

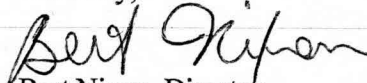
At this time, your treated well water supply (for radium using the softener or softener/R/O combination) appears safe for all uses. When evaluating the short and long term findings, levels for **Gross Alpha** and **Gross Beta** appear to have virtually no short term particle contaminants (based upon similar readings for the pre-treated long term values). Somewhat surprisingly, long term treated **Gross Alpha** levels were higher to significantly higher than pre- water softener levels, while treated softener / R/O long term **Gross Alpha** and **Gross Beta** test results were substantially lower (as would be expected).

Your softener system (alone) appears to be having a "mixed" effect on reducing (to varying degrees) some of these types of contaminants. Though seemingly effective in reducing **Radium 226** and **Radium 228**, it didn't do as well as the softener / R/O combination in reducing the wider spectrum of long term contaminants. To ensure future continuous safe levels, continue to have your system(s) serviced on a regular basis and consider using the combination of the softener and reverse osmosis systems in tandem. As we previously discussed, the Health Department is willing to perform additional testing approximately 6 months after occupancy to give the owners a status update on the treatment unit(s) and perhaps shed some light on a frequency of maintenance / service for the installed treatment.

Also, as previously noted, other standard testing parameters (bacteria, nitrate, turbidity and sand) will still be required to help secure Use and Occupancy.

A copy of each test report is enclosed for your information. Please call this office at (410) 313-1773 if you have any further questions or to discuss future testing needs.

Sincerely,



Bert Nixon, Director

Bureau of Environmental Health

Enclosures

cc: Barry Glotfelty, MDE Water Mgmt.

✓ Well & Septic property file

Send Report To:

State of Maryland
DHMH - Laboratories Administration

Division of Environmental Chemistry
RADIATION LABORATORY

201 W. Preston Street, Baltimore, Maryland 21201
John M. DeBoy, Dr. P. H., Director

Howard County Health Department
Bureau of Environmental Health
7178 Columbia Gateway Drive
Columbia, Maryland 21046

LABORATORY ANALYSIS REQUEST

Sample Bottle No. A: HOKW1911 PT LT ROWS No. B: Field Blank Bottle No. 1: HOFB1911 No B:

Plant/Site Name: Willow Pond - Lot 4 County: Howard

Sample Source: Well (Post RO + ^{H2O} Softener) Location: HO-95-1911
(well no, lab sink, sample tap, etc.)

County: 1 3 Plant No.

CHECK (one per box)

Drinking Water	<input checked="" type="checkbox"/>
Landfill	<input type="checkbox"/>
Stream	<input type="checkbox"/>
Other	<input type="checkbox"/>

Community	<input type="checkbox"/>
Non-community	<input type="checkbox"/>
Private	<input checked="" type="checkbox"/>
Other	<input type="checkbox"/>

Source (raw water)	<input checked="" type="checkbox"/>
Distribution (treated)	<input type="checkbox"/>
MCL	<input type="checkbox"/>

Emergency	<input type="checkbox"/>
Routine	<input checked="" type="checkbox"/>
Recheck	<input type="checkbox"/>
Special	<input type="checkbox"/>

Collector: K. Wolf

Telephone No.: 410.318.2645

Date Collected: 3/15/11

Time Collected: a.m. 1:30 p.m.

Nitric Acid Preserved: Yes No

Iced: Yes No

Submitters Code:

Federal Project:

Field Data: pH Chlorine

Remarks: Sample pH preserved < 2.0 / Gross Alpha/Beta long term

✓	Test	EPA Code	Laboratory No.	Results (pCi/L)	Date Analyzed	Date Reported
	Gross Alpha (LT)	4000	1517	7.2 ± 4.5	04/21/11	04/22/11
	Gross Beta (LT)	4100	1517	5.7 ± 3.9	"	"
	Radon-222 Bottle A	4004				
	Radon-222 Bottle B	4004				
	Field Blank #A	4004				
	Field Blank #B	4004				
	Tritium					
	Ra - 226	4020				
	Ra - 228	4030				
	Total Uranium	4006				
✓	Gross Alpha/Beta long term		✓			

Date Received: 03/16/11

Supervisor: [Signature]

Tel. No.: (410) 767 - 5537 Fax No.: (410) 333- 5373

Send Report To:

State of Maryland
DHMH - Laboratories Administration
Division of Environmental Chemistry
RADIATION LABORATORY

201 W. Preston Street, Baltimore, Maryland 21201
John M. DeBoy, Dr. P. H., Director

LABORATORY ANALYSIS REQUEST

Sample Bottle No. A: HOKW/911PST LTWS No. B: Field Blank Bottle No. 1: HOFB1911 No B:

Plant/Site Name: Willow Pond - Lot 4 County: Howard

Sample Source: Well (Post H₂O saturation) Location: H0-95-1911
(well no, lab sink, sample tap, etc.)

County: 1 3 Plant No.

CHECK (one per box)

Drinking Water	<input checked="" type="checkbox"/>
Landfill	<input type="checkbox"/>
Stream	<input type="checkbox"/>
Other	<input type="checkbox"/>

Community	<input type="checkbox"/>
Non-community	<input type="checkbox"/>
Private	<input checked="" type="checkbox"/>
Other	<input type="checkbox"/>

Source (raw water)	<input checked="" type="checkbox"/>
Distribution (treated)	<input type="checkbox"/>
MCL	<input type="checkbox"/>

Emergency	<input type="checkbox"/>
Routine	<input checked="" type="checkbox"/>
Recheck	<input type="checkbox"/>
Special	<input type="checkbox"/>

Collector: K. Wolf

Telephone No.: 410.313.2645

Date Collected: 3/15/11

Time Collected: a.m. 1:30 p.m.

Nitric Acid Preserved: Yes No

Iced: Yes No

Submitters Code:

Federal Project:

Field Data: pH Chlorine

Remarks: Sample nitric acid preserved 22.0 / Gross Alpha/Beta long term

✓	Test	EPA Code	Laboratory No.	Results (pCi/L)	Date Analyzed	Date Reported
	Gross Alpha (LT)	4000	1518	47.0 ± 4.9	04/18/11	04/19/11
	Gross Beta (LT)	4100	1518	18.5 ± 2.5	"	"
	Radon-222 Bottle A	4004				
	Radon-222 Bottle B	4004				
	Field Blank #A	4004				
	Field Blank #B	4004				
	Tritium					
	Ra - 226	4020				
	Ra - 228	4030				
	Total Uranium	4006				
✓	Gross Alpha/Beta Long		✓			

Date Received: 03/16/11

Supervisor: [Signature]

•Tel. No.: (410) 767 - 5537 •Fax No.: (410) 333 - 5373

Send Report To:

~~Howard County Health Department
Bureau of Environmental Health
7178 Columbia Gateway Drive
Columbia, Maryland 21046~~

State of Maryland
DHMH - Laboratories Administration
Division of Environmental Chemistry
RADIATION LABORATORY
201 W. Preston Street, Baltimore, Maryland 21201
John M. DeBoy, Dr. P. H., Director

001519 E16

LABORATORY ANALYSIS REQUEST

Sample Bottle No. A: HOKW1911 AT WS No. B: - Field Blank Bottle No. 1: HOFB1911 No B:

Plant/Site Name: Willow Pond - Lot 4 County: Howard

Sample Source: Well (Post 400 setting) Location: H0-95-1911
(well no, lab sink, sample tap, etc.)

County: 1 3 Plant No.

CHECK (one per box)

Drinking Water
Landfill
Stream
Other

Community
Non-community
Private
Other

Source (raw water)
Distribution (treated)
MCL

Emergency
Routine
Recheck
Special

Collector: K. Wolf

Telephone No.: 410 713 2645

Date Collected: 3/15/11

Time Collected: a.m. 1:30 p.m.

Nitric Acid Preserved: Yes No

Iced: Yes No

Submitters Code:

Federal Project:

Field Data: pH Chlorine

Remarks: pH preserved < 2.0

✓	Test	EPA Code	Laboratory No.	Results (pCi/L)	Date Analyzed	Date Reported
	Gross Alpha	4000				
	Gross Beta	4100				
	Radon-222 Bottle A	4004				
	Radon-222 Bottle B	4004				
	Field Blank #A	4004				
	Field Blank #B	4004				
	Tritium					
✓	Ra - 226	4020	1519	<1.0	4/18/11	4/19/11
✓	Ra - 228	4030	1519	<1.0	3/25/11	3/30/11
	Total Uranium	4006				

Date Received: 3/16/11

Supervisor: [Signature]

•Tel. No.: (410) 767 - 5537 •Fax No: (410) 333- 5373

E002527 324 5

Send Report To: Bert Nixon
Howard Co. Env. Health
7178 Columbia Gateway Dr
Columbia, MD 21046

State of Maryland
DHMH - Laboratories Administration
Division of Environmental Chemistry
RADIATION LABORATORY
201 W. Preston Street, Baltimore, Maryland 21201
John M. DeBoy, Dr. P. H., Director

LABORATORY ANALYSIS REQUEST

Sample Bottle No. A: 951911BB No. B: _____ Field Blank Bottle No. 1: _____ No B: _____
Plant/Site Name: Willow Pond - Lot 4 County: Howard
Sample Source: Prestwick Drive Location: HO-95-1911
(well no, lab sink, sample tap, etc.)

County: Plant No.

CHECK (one per box)

Drinking Water
Landfill
Stream
Other

Community
Non-community
Private
Other

Source (raw water)
Distribution (treated)
MCL

Emergency
Routine
Recheck
Special

Collector: Brian Baker Telephone No.: (410) 313-2643
Date Collected: 6/23/2010 Time Collected: _____ a.m. 12 p.m.
Nitric Acid Preserved: Yes No Iced: Yes No
Submitters Code: Federal Project: Field Data: _____ pH _____ Chlorine _____

Remarks: Water Sample Collected During Yield Test
Duplicate 07/01/10 ± 146.0 ± 7.9 B 41.5 ± 2.9

✓	Test	EPA Code	Laboratory No.	Results (pCi/L)	Date Analyzed	Date Reported
✓	Gross Alpha	4000	2527	159.1 ± 8.2	07/01/10	07/02/10
✓	Gross Beta	4100	2527	41.3 ± 2.9	"	"
	Radon-222 Bottle A	4004				
	Radon-222 Bottle B	4004				
	Field Blank #A	4004				
	Field Blank #B	4004				
	Tritium					
	Ra - 226	4020				
	Ra - 228	4030				
	Total Uranium	4006				

Date Received: 06/24/10
Supervisor: [Signature]

•Tel. No.: (410) 767 - 5537 •Fax No.: (410) 333 - 5373

WIKI

0001516 0001

Send Report To:

Howard County Health Department
Bureau of Environmental Health
7178 Columbia Gateway Drive
Columbia, Maryland 21046

State of Maryland
DHMH - Laboratories Administration
Division of Environmental Chemistry
RADIATION LABORATORY
201 W. Preston Street, Baltimore, Maryland 21201
John M. DeBay, Dr. P. H., Director



E11004182002
Received: 03/16/2011

RadioChem HOKW1911PR

LABORATORY ANALYSIS REQUEST

Sample Bottle No. A: HOKW1911ARE No. B: Field Blank Bottle No. 1: HOFB1911 No. B:

Plant/Site Name: Willow Pond - Lot 4 County: Howard

Sample Source: Well (mudh pressure tank) Location: HO-25-1911
(well no, lab sink, sample trap, etc.)

County: 1 3 Plant No.

CHECK (one per box)

Drinking Water	<input checked="" type="checkbox"/>
Landfill	<input type="checkbox"/>
Stream	<input type="checkbox"/>
Other	<input type="checkbox"/>

Community	<input type="checkbox"/>
Non-community	<input type="checkbox"/>
Private	<input checked="" type="checkbox"/>
Other	<input type="checkbox"/>

Source (raw water)	<input type="checkbox"/>
Distribution (treated)	<input type="checkbox"/>
MCL	<input type="checkbox"/>

Emergency	<input type="checkbox"/>
Routine	<input checked="" type="checkbox"/>
Recheck	<input type="checkbox"/>
Special	<input type="checkbox"/>

Collector: K. Wolf

Telephone No.: 410-313-2645

Date Collected: 1/1

Time Collected: a.m. 1:30 p.m.

Nitric Acid Preserved: Yes No

Iced: Yes No

Submitters Code: Federal Project:

Field Data: pH Chlorine

Remarks: Sample pH preserved to < 2.0 / Gross Alpha/Beta short & long term

SHORT TERM

Test	EPA Code	Laboratory No.	Results (pCi/L)	Date Analyzed	Date Reported
✓ Gross Alpha	4000	1516	23.8 ± 3.7	03/17/11	03/18/11
✓ Gross Beta	4100	1516	18.1 ± 2.6	"	"
Radon-222 Bottle A	4004				
Radon-222 Bottle B	4004				
Field Blank #A	4004				
Field Blank #B	4004				
Driftum					
Ra - 226	4020				
Ra - 228	4030				
Total Uranium	4006				
✓ Long-term Gross Alpha		1516	20.6 ± 3.1	04/15/11	04/18/11
✓ Long-term Gross Beta		1516	17.2 ± 2.4	"	"

PRS

Date Received: 03/16/11

Supervisor: [Signature]

TEL No.: (410) 767-5577 FAX No.: (410) 333-5373

FORM REVISED 10/07
DHMH 4540 10/07

Send Report To:

State of Maryland
DEMM - Laboratory Administration
Division of Environmental Chemistry
RADIATION LABORATORY

201 W. Preston Street, Baltimore, Maryland 21201
John M. DeBry, Dr. P. M., Director

11004162004
Received: 03/18/2011
RadoChem
HOKW1911P5

LABORATORY ANALYSIS REQUEST

Sample Bottle No. A: HOKW1911P5 LTWS No. B: Field Blank Bottle No. 1: No P0114 No B:

Plant/Site Name: William Road - Lot 4 County: Howard

Sample Source: Well (Post 4th settlement) Location: HO-95-1511
(well no, lab sink, sample tag, etc.)

County: 1 3 Plant No.

CHECK (one per box)

Drinking Water	<input checked="" type="checkbox"/>
Leakoff	<input type="checkbox"/>
Stream	<input type="checkbox"/>
Other	<input type="checkbox"/>

Community	<input type="checkbox"/>
Non-community	<input type="checkbox"/>
Private	<input checked="" type="checkbox"/>
Other	<input type="checkbox"/>

Source (raw water)	<input checked="" type="checkbox"/>
Distribution (treated)	<input type="checkbox"/>
MCL	<input type="checkbox"/>

Emergency	<input type="checkbox"/>
Routine	<input checked="" type="checkbox"/>
Recheck	<input type="checkbox"/>
Special	<input type="checkbox"/>

Collector: K. Wolf

Telephone No.: 410-313-2645

Date Collected: 3/15/11

Time Collected: a.m. 1:30 p.m.

Nitric Acid Preserved: Yes No

Iced: Yes No

Submitter Code:

Federal Project:

Field Data: pH Chlorine

Remarks: Sample pH preserved 6.20 / Gross Alpha/Beta by TSCM

✓	Test	EPA Code	Laboratory No.	Results (pCi/L)	Date Analyzed	Date Reported
	Gross Alpha (LT)	4028	1518	49.0 ± 4.9	04/18/11	04/19/11
	Gross Beta (LT)	4400	1518	18.5 ± 2.5	"	"
	Radon-222 Bottle A	4004				
	Radon-222 Bottle B	4004				
	Field Blank #A	4004				
	Field Blank #B	4004				
	Tritium					
	Ra - 226	4026				
	Ra - 228	4030				
	Total Uranium	4006				
✓	Gross Alpha/Beta by TSCM		✓			

Date Received: 03/16/11

Supervisor: [Signature]

TEL No.: (410) 767-5537 FAX No.: (410) 533-5373

Send Report To:

E001520 FEB 16 11

State of Maryland
DHMH - Laboratories Administration
Division of Environmental Chemistry

RADIATION LABORATORY

201 W. Preston Street, Baltimore, Maryland 21201
John M. DeBoy, Dr. P. H., Director

Howard County Health Department
Bureau of Environmental Health
7178 Columbia Gateway Drive
Columbia, Maryland 21046

LABORATORY ANALYSIS REQUEST

Sample Bottle No. A: HOKW1911PTR0WS No. B: Field Blank Bottle No. 1: H0F131911 No B:

Plant/Site Name: Willow Pond - lot 4 County: Howard

Sample Source: Well (Post RO + H₂O softener) Location: H0-95-1911
(well no, lab sink, sample tap, etc.)

County: 1 3 Plant No.

CHECK (one per box)

Drinking Water
Landfill
Stream
Other

Community
Non-community
Private
Other

Source (raw water)
Distribution (treated)
MCL

Emergency
Routine
Recheck
Special

Collector: K. Wolf Telephone No.: 410.317.2645

Date Collected: 3/15/11 Time Collected: a.m. 1:30 p.m.

Nitric Acid Preserved: Yes No Iced: Yes No

Submitters Code: Federal Project: Field Data: pH Chlorine

Remarks: Sample pH preserved < 2.0

✓	Test	EPA Code	Laboratory No.	Results (pCi/L)	Date Analyzed	Date Reported
	Gross Alpha	4000				
	Gross Beta	4100				
	Radon-222 Bottle A	4004				
	Radon-222 Bottle B	4004				
	Field Blank #A	4004				
	Field Blank #B	4004				
	Tritium					
✓	Ra - 226	4020	1520	< 1.0	4/18/11	4/19/11
✓	Ra - 228	4030	1520	1.2 ± 1.0	3/25/11	3/30/11
	Total Uranium	4006				

Date Received: 3/16/11

Supervisor: [Signature]

•Tel. No.: (410) 767 - 5537 •Fax No: (410) 333- 5373



Florida Radiochemistry Services, Inc.

Contact: Michael J. Naumann

5456 Hoffner Ave., Suite 201 Orlando, FL 32812

Phone: (407) 382-7733 Fax: (407) 382-7744

Certification I. D. # 278

Work Order #: 1104065

Report Date: 04/19/11

MOOP1400850

Report to:

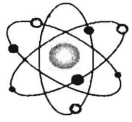
State of Maryland
DHMH, Laboratories Administration
Radiation Laboratory, Room 6-C1
201 West Preston Street
Baltimore, MD 21201
Attention: Mirna Alpizar

I do hereby affirm that this record contains no willful misrepresentations and that this information given by me is true to the best of my knowledge and belief. I further certify that the methods and quality control measures used to produce these laboratory results were implemented in accordance with the requirements of this laboratory's certification and NELAC Standards. The test results in this report relate only to the samples received.

Signed


Michael J. Naumann - President

Date 4-19-11



Florida Radiochemistry Services, Inc.

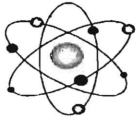
Sample Login

Client:	State of MD DHMH	Date / Time Received	Work order #
Client Contact:	Mirna Alpizar	04/08/11 10:32	1104065
Client P.O.	MOOP1400850		
Project I.D.			

Lab Sample I.D.	Client Sample I.D.	Sample Date/Time	Analysis Requested
1104065-01	1470	03/17/11 12:15	Ra226
1104065-02	1492	03/10/11 09:35	Ra226
1104065-03	1493	03/10/11 10:30	Ra226
1104065-04	1519	03/15/11 13:30	Ra226
1104065-05	1520	03/15/11 13:30	Ra226

} LOT 4
WILLOW
POWD

1519 = POST SOFTWARE
1520 = POST SOFTWARE / R.O.

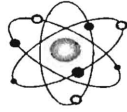


Florida Radiochemistry Services, Inc.

Analysis Report

WILLOW POWD LOT 4

Lab Sample I.D.	1104065-01	1104065-02	1104065-03	1104065-04	1104065-05
Client I.D.	1470	1492	1493	1519	1520
Radium 226	0.8	1.7	0.8	0.3	0.1
Error +/-	0.2	0.3	0.1	0.1	0.1
MDL	0.2	0.3	0.1	0.2	0.1
EPA Method	903.1	903.1	903.1	903.1	903.1
Prep Date	04/11/11	04/11/11	04/11/11	04/11/11	04/11/11
Prep Time	10:10	10:10	10:10	10:10	10:10
Analysis Date	04/18/11	04/18/11	04/18/11	04/18/11	04/18/11
Analysis Time	10:14	11:16	11:16	11:16	11:16
Analyst	MJN	MJN	MJN	MJN	MJN
Units	pCi/l	pCi/l	pCi/l	pCi/l	pCi/l



Florida Radiochemistry Services, Inc.

QA Page

Analyte	Sample #	Date Analyzed	Sample Result	Amount Spiked	Spike Result	Spike /Dup Result	Spike % Rec.	Spike Dup % Rpd
Radium 226	1104064-01	04/18/11	1.6	25.2	24.4	26.9	90	9.7

	Quality	Control	Limits
	% RPD		% Rec.
Radium 226	23.4		78-125



STATE OF MARYLAND
DHMH

Maryland Department of Health and Mental Hygiene
201 W. Preston Street • Baltimore, Maryland 21201

Marlin O'Malley, Governor - Anthony G. Brown, Lt. Governor - John M. Calmer, Secretary

Laboratories Administration
John M. DeBoy, Dr.P.H., Director

Division of Environmental Chemistry
Prince Kassim, Ph.D., Division Chief
Mrs. Dolores Willis, M.S., Manager

RADIATION LABORATORY

FAX COVER SHEET

Date: 04/28/11
To: KEVIN WOLF Fax Number: (410) 313-2648
Department: HOWARD County HEALTH DEPARTMENT
Phone Number: (410) 313-2645 Pages (exclude cover): 3
From: RADIATION Phone Number: (410) 767-5537
Fax Number: 410-333-5373

Special Instructions / Comments:

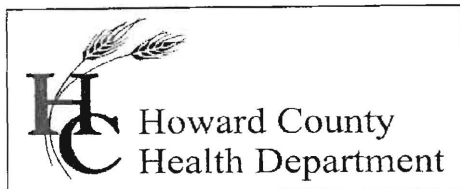
Urgent For Review Please Comment Please Reply For Your Information

Comments:

LAB # Collection Date
1516-1318 03/15/11

The information contained in this facsimile message is intended only for the personal and confidential use of the designated recipient(s) named above.

P.O. BOX 2335 • Baltimore, Maryland 21203-2335
410-767-6100 • TTY for Disabled - Maryland Relay Service 1-800-735-2258
Toll Free 1-877-4MD-DHMH • Web Site: www.dhmh.state.md.us/labs/



Bureau of Environmental Health
7178 Gateway Drive Columbia, MD 21046
(410) 313-2640 Fax (410) 313-2648
TDD (410) 313-2323 Toll Free 1-866-313-6300
website: www.hchealth.org

Peter L. Beilenson, M.D., M.P.H., Health Officer

September 2, 2010

Greenfield Homes, Inc.
6656 Luster Drive
Highland, Maryland 20777

RE: Willow Pond Lot 4
Prestwick Drive
Well Tag: HO - 95 - 1911

To Whom It May Concern:

A sample was collected during a yield test on June 23, 2010 and submitted to the Department of Health & Mental Hygiene Laboratories to assess the possible presence of **Gross Alpha** and **Gross Beta** in the future well water supply. **Gross Alpha** and **Gross Beta** measure the total alpha and beta particle activity in a water supply. These naturally occurring radioactive nuclides have been demonstrated to be present in a certain type of geologic formation known as the Baltimore Gneiss which exists in your area of development within the County.

Results from this screening revealed a **Gross Alpha** of 159.1 ± 8.2 picocuries/liter (pCi/L); while the **Gross Beta** level was 41.3 ± 2.9 pCi/L. The **Gross Alpha** result was well above its **maximum contaminant level (MCL)** of 15 pCi/L, while the **Gross Beta** level was below its targeted value of 50 pCi/L (roughly equivalent to the **annual dose rate** of 4 millirems/year).

At the time of testing and with respect to these parameters, the future well water supply **does not** appear safe for all uses. Additional testing **for these parameters, plus Radium 226 and Radium 228** will be required to secure the future Use & Occupancy. Given the rather high findings for both **Gross Alpha** and **Gross Beta**, the installation of a water softener system and / or a reverse osmosis system will be necessary. **Both pre and post short and long term Gross Alpha and Beta, plus a post Radium 226 / 228** will be needed to properly evaluate the effectiveness of the installed treatment. Given that it typically takes up to one month to perform and receive back the **Radium** analyses, plan accordingly. Also note, this is in addition to other standard testing parameters (bacteria, nitrate, turbidity and sand) that will still be required.

A copy of the test results is enclosed for your information. Please call this office at **410-313-1773** if you have any further questions or to discuss additional testing requirements.

Sincerely,

Bert Nixon, Director
Bureau of Environmental Health

Enclosure
cc: Barry Glotfelty, MDE Water Mgmt.
Well & Septic property file

Circuit Court for
HOWARD COUNTY
Clerk of the Court,
MARGARET D. RAPPAPORT
8360 COURT AVENUE
ELLICOTT CITY, MD 21043-
(410) 313-2111

Transaction Blocks: 767

Ref: 200

AGREEMENT	AMOUNT
IMP FD SURE \$5	40.00
RECORDING FEE \$20.00	20.00

SUBTOTAL: 60.00

TOTAL CHARGES: 60.00

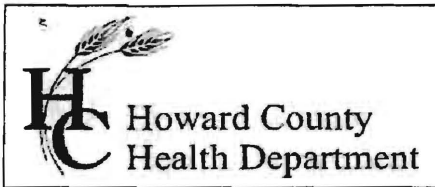
PAYMENTS
CASH 60.00

TOTAL TENDERED: 60.00

Cashier: TLR Reg # H002

 Rcpt # 75413

Date: May 15, 2012 Time: 11:18 am



200

Bureau of Environmental Health
7178 Gateway Drive Columbia, MD 21046
(410) 313-2640 Fax (410) 313-2648
TDD (410) 313-2323 Toll Free 1-866-313-6300
website: www.hchealth.org

Peter L. Beilenson, M.D., M.P.H., Health Officer

**AGREEMENT FOR APPROVAL OF AN INDIVIDUAL DRINKING WELL WITH AN
ON-SITE TREATMENT SYSTEM**

This agreement is entered into by and between the Howard County Health Department ("the Health Department") and HUGH AND THERESA NORWOOD ("the Owner").

WHEREAS, the Owner owns a tract of land at street address 6494 PRESTWICK DRIVE, CLARKSVILLE, MD 21029 and the deed and subdivision plat of the property is recorded among the Land Records of Howard County, Maryland, Tax Map # 34, Grid # 17, Parcel # 444, Deed Reference # 13471/00137 and District # 05, Tax Account # 593278, Block # , WILLOW POND subdivision, Lot 4. ("the Property").

WHEREAS, the Property lacks an available public drinking water source and is required to have an individual well as the source of drinking water for the residence of the property.

WHEREAS, the Owner has installed a residential drinking well under well permit HO-95-1911 that has been tested by the Health Department (or a private laboratory certified to perform testing) for radionuclide particles. The results of the tests have shown that the gross alpha particle content and/or the gross beta particle content and/or the combined radium 226/228 levels exceeds the standards of 15 picocuries per liter (pCi/L), 4 millirems per year (mrem/yr) and/or 5pCi/L respectively.

WHEREAS, The Maryland Department of the Environment (MDE) has promulgated rules and regulations under which a Certificate of Potability may be issued and has delegated the authority to issue such Certificate to the Health Department.

WHEREAS, MDE regulations permit the Health Department to issue as a special condition, a permanent deviation to the Certificate of Potability for individual wells where treatment has been installed to meet the maximum contaminate levels (MCL's) for radionuclides.

WHEREAS, MDE has determined that radium can be effectively removed from the drinking water by the use of treatment devices (e.g., ion exchange or reverse osmosis).

WHEREAS, the Owner is requesting that the Health Department issue a Certificate of Potability contingent upon installation and maintenance of a water treatment device to reduce radionuclides.

WHEREAS, neither the Owner nor the Health Department has knowledge of an alternative safe source of water for the Property.

NOW THEREFORE, the parties have agreed to the following terms and conditions:

1. The Owner will record this Agreement among the Land Records of Howard County, Maryland and provide confirmation to the Health Dept.
2. The Owner agrees to install and maintain a water treatment device, which effectively reduces the gross alpha, gross beta and radium levels to below their respective MCL. The Health Department shall verify that the treatment device is operating effectively and the Owner agrees to allow access to the Health Department to collect a follow-up sample(s).
3. The Health Department shall issue a Certificate of Potability for the well once follow-up sampling shows acceptable gross alpha, gross beta (short and long term) and radium 226 / 228 levels.
4. The Owner agrees that there shall be no liability on part of the Health Department for any immediate or long term impacts to health or property, under any circumstance or including, but not limited to, treatment device failure, improper maintenance or installation, or defect. The Health Department does not warrant nor guarantee that the device will adequately or properly function and the Owner agrees to implement and pay for any necessary changes or corrections.
5. The Owner acknowledges and agrees that neither the Health Department nor any of its agents or employees, either officially or individually, underwrites the operation of any system or treatment device.
6. This Agreement shall not be construed to limit any authority of the Health Department to protect the public health, safety or enjoyment of property or to issue any other orders to take any other action, which is now or may hereafter be within its authority.
7. This agreement contains the entire agreement and understanding between the Health Department and the Owner. There are no additional terms other than as contained in this Agreement. This Agreement may not be modified except in writing signed by each of the parties or their authorized representatives.
8. The Agreement shall run with the land and binds the Owner, his heirs, successors, and assigns. The owner agrees to provide a copy of this agreement to any purchaser or lessee of the property.
9. The laws of the State of Maryland govern the provisions of all transactions

The parties have signed and sealed this Agreement on the dates set forth below.

5-14-12

Date

5-14-12

Date

5/14/2012

Date

[Signature]

Witness

Witness

[Signature]

Owner HUGH NORWOOD

Theresa L. Norwood

Owner THERESA NORWOOD

[Signature]

Howard County Health Department

TAP TO SIGN &
 RECORDING FEE
 TOTAL
 REPT. NAME
 HOK. I.D.
 MAY 15 2012
 HOK. I.D.
 REPT. #
 MAY 11 11:10 AM

pipe depth less than two feet.) and has been field verified or field run.

47. Any changes to a private sewage area shall require a revised perc certification plan.
48. If applicable, groundwater appropriations permit shall be obtained prior to plat recordation.
49. Public Shared Septic Design Flow Calculation:
3 homes with 4 bedrooms = 4 x 150 x 3 = 1,800 gal/day
50. Lot yield is dependent upon nitrogen balance study (if over 5,000gpd then add groundwater mounding and hydrologic balance studies)
51. Lot yield and bedroom counts are subject to review by Maryland Department of the Environment, Bureau of Utilities, and the Howard County Health Department when the water and sewer contract plans with the shared sewage disposal system are submitted.
52. Maryland Department of the Environment has approved the variance to allow the shared sewage disposal system located on Non-Buildable Pres. Parcel D serving lots 2, 3 and 13 to be located up gradient from the private water supply on lots 2,3,4,6 and 7; allowing the initial sewage disposal area and future repair area for Lot 1 to be located up gradient from the private water supply on Lot 1. This is subject to the following conditions: The wells for Lot 1, 2, 3, 4, 6, and 7 must be constructed using a steel well casing, which must be installed at a minimum depth of 50' below ground surface or 10' into the competent bedrock, whichever is deeper. A low pressure dosing system will be required for the shared sewage disposal system.

SHEET	
	1 of 14
n	2 of 14
n	3 of 14
n	4 of 14
lan	5 of 14
lan	6 of 14
lan	7 of 14
	8 of 14
	9 of 14
	10 of 14
et	11 of 14
	12 of 14
	13 of 14
	14 of 14

SS AL 005
 EXHIBIT
 10/11/2008
 10/11/2008

RT	
MUM SIZE	
	21 ±
	04 ±
	6 sf±
	4 sf±
	2 sf±
	9 sf±
	3 sf±
	7 sf±

**OWNER/
PROPERTY (NAECKER PROPERTY
Plat #20373-20375 Lot6)**

GREENFIELD HOMES, Inc.
6656 Luster Drive
Highland, Maryland 20777
410.781.6782

DEVELOPER
GREENFIELD HOMES, Inc.
6656 Luster Drive
Highland, Maryland 20777
410.781.6782

COVER SHEET AND CIRCULATION CERTIFICATION PLAN WILLOW POND

-13, BUILDABLE PRESERVATION PARCEL 'A', NON-BUILDABLE
PRESERVATION PARCELS 'B', 'C', 'D' & NON-BUILDABLE PARCEL 'E'