

C 1 7860	SEQUENCE NO. (DENV USE ONLY)	STATE OF MARYLAND WELL COMPLETION REPORT FILL IN THIS FORM COMPLETELY PLEASE PRINT OR 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 A517386	
ST/CO USE ONLY DATE Received	DATE WELL COMPLETED	Depth of Well 9/2/10 22 100 26 (TO NEAREST FOOT) <i>OK (KW)</i>	PERMIT NO. FROM "PERMIT TO DRILL WELL" MO-95-1976 28 29 30 31 32 33 34 35 36 37
OWNER PATEL AMRISH		STREET OR RFD 12135 FULTON Ridge Drive first name TOWN FULTON	
SUBDIVISION		SECTION LOT	

WELL LOG
Not required for driven wells

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

DESCRIPTION (Use additional sheets if needed)	FEET		Check if water bearing
	FROM	TO	
BR + TAN SANDY SILT	0.0	50.0	
Grey SOFT ROCK	50'	100'	

(10 - Geothermal wells)

Bentonite Grout used for each well 2 1/2 BAGS - 125 lbs with 60 gallons of water

GROUTING RECORD

WELL HAS BEEN GROUTED (Circle Appropriate Box) **Y** **N**

TYPE OF GROUTING MATERIAL
CEMENT **CM** BENTONITE CLAY **BC**

NO. OF BAGS **2 1/2** NO. OF POUNDS **125**

GALLONS OF WATER **60**

DEPTH OF GROUT SEAL (to nearest foot)
from **0** ft. to **100** ft.
(enter 0 if from surface)

CASING RECORD

casing types insert appropriate code below

ST **CO**
STEEL CONCRETE
PL **OT**
PLASTIC OTHER

MAIN CASING TYPE
Nominal diameter top (main) casing (nearest inch) Total depth of main casing (nearest foot)

0 **0** **0**

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

0 **0**

SCREEN RECORD

screen type or open hole insert appropriate code below

ST **BR** **HO**
STEEL BRASS OPEN HOLE
PL **OT**
PLASTIC OTHER

C 3

PUMPING TEST

HOURS PUMPED (nearest hour) **0**

PUMPING RATE (gal. per min. to nearest gal.) **0**

METHOD USED TO MEASURE PUMPING RATE **0**

WATER LEVEL (distance from land surface)

BEFORE PUMPING **0**

WHEN PUMPING **0**

TYPE OF PUMP USED (for test)

A air **P** piston **T** turbine
C centrifugal **R** rotary **O** other (describe below)
J jet **S** submersible

IN HARD ROCK AREAS, IDENTIFY SPECIFICALLY WHERE SATURATED FRACTURES WERE OBSERVED.

WELL HYDROFRACTURED **Y** **N**

CIRCLE APPROPRIATE LETTER

A A WELL WAS ABANDONED AND SEALED WHEN THIS WELL WAS COMPLETED

E ELECTRIC LOG OBTAINED

P TEST WELL CONVERTED TO PRODUCTION WELL

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, AND THAT THE INFORMATION PRESENTED HEREIN IS ACCURATE AND COMPLETE TO THE BEST OF MY KNOWLEDGE.

DRILLERS IDENT. No. **MWD 344**
Alma Stephens

DRILLERS SIGNATURE (MUST MATCH SIGNATURE ON APPLICATION)

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

C 2

DEPTH (nearest ft.)

EACH SCREEN

1 **0** **0** **0** **0** **0** **0** **0** **0**

2 **0** **0** **0** **0** **0** **0** **0** **0**

3 **0** **0** **0** **0** **0** **0** **0** **0**

SLOT SIZE 1 **0** 2 **0** 3 **0**

DIAMETER OF SCREEN **0** (NEAREST INCH)

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.) **0** **0** **0** **0**

TELESCOPE CASING LOG INDICATOR OTHER DATA

PUMP INSTALLED

DRILLER WILL INSTALL PUMP YES **NO**

(CIRCLE) (YES OR NO)

IF DRILLER INSTALLS PUMP, THIS SECTION MUST BE COMPLETED FOR ALL WELLS EXCEPT HOME USE

TYPE OF PUMP INSTALLED PLACE (A,C,J,P,R,S,T,O) IN BOX - SEE ABOVE: **0**

CAPACITY: GALLONS PER MINUTE (to nearest gallon) **0**

PUMP HORSE POWER **0**

PUMP COLUMN LENGTH (nearest ft.) **0**

CASING HEIGHT (circle appropriate box and enter casing height)

+ above **4** (nearest foot)
- below

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).

12135
Fulton Ridge DR.

RT. # 216

B 1 8741 SEQUENCE NO. (MDE USE ONLY)

1 2 3 4 5 6
 (THIS NUMBER IS TO BE PUNCHED IN COLS. 3-6 ON ALL CARDS)

STATE OF MARYLAND
 PERMIT TO DRILL WELL
 please print or type

STATE PERMIT NUMBER
40-95-1976
 70 fill in this form completely 79

Date Received (APA) _____

OWNER INFORMATION

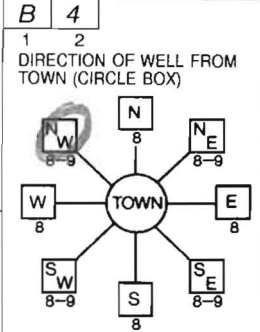
8 MM DD YY 13
PATEL Amrish
 15 Last Name Owner First Name 34
12135 FULTON Ridge Drive
 36 Street or RFD 55
FULTON MD. 20759
 57 Town 70 State 72 Zip 76

B 3 **LOCATION OF WELL**

8 COUNTY HOWARD 21
 23 SUBDIVISION FULTON Ridge 42
 SECTION 44 46 LOT 7 48 50
FULTON
 52 NEAREST TOWN 71
 MILES FROM TOWN (enter 0 if in town) 5.0 M I
 73 76 77 78

DRILLER INFORMATION

Palmer Stephens M W D 344
 76 License No. 81
Palmer Stephens Drilling Assoc. Inc
 Firm Name
669 Windsock Mill Rd. Gwynn Oak, MD. 21207
 Address
Palmer Stephens 05-03-10
 Signature Date



FULTON Ridge Drive
 11 NEAR WHAT ROAD 30
 ON WHICH SIDE OF ROAD (CIRCLE APPROPRIATE BOX)
 NORTH WEST EAST SOUTH
 34 150 37 DISTANCE FROM ROAD FT. 38 39
 ENTER FT OR MI
 TAX MAP: _____ BLK: _____ PARCEL _____

B 2 **WELL INFORMATION**

1 2 APPROX. PUMPING RATE (GAL. PER MIN.) _____ 8 12
 AVERAGE DAILY QUANTITY NEEDED (GAL. PER DAY) _____ 14 20

NOT TO BE FILLED IN BY DRILLER HEALTH DEPARTMENT APPROVAL

Howard (13) A 517386
 COUNTY NAME COUNTY NO.
 STATE SIGNATURE _____ INSERT S → 41
 DATE ISSUED 8/31/10 48
 43 MM DD YY 48 CO SIGNATURE John M. Hall 8/31/10 EXP. DATE
 NORTH GRID 483 50 000 55 EAST GRID 818 57 000 63

USE FOR WATER (CIRCLE APPROPRIATE BOX)

HOME (SINGLE OR DOUBLE HOUSEHOLD UNIT ONLY)
 FARMING (LIVESTOCK WATERING & AGRICULTURAL IRRIGATION)
 22 INDUSTRIAL, COMMERCIAL, STATE AND FEDERAL GOV. OTHER (REQUIRES APPROPRIATION PERMIT)
 PUBLIC OR PRIVATE WATER COMPANY (REQUIRES APPROPRIATION PERMIT AND STATE APPROVAL)
 TEST, OBSERVATION, MONITORING (MAY REQUIRE APPROPRIATION PERMIT) 600 THURMOL

APPROXIMATE DEPTH OF WELL 100 FEET
 24 28

APPROXIMATE DIAMETER OF WELL 4 INCH NEAREST

METHOD OF DRILLING (circle one)

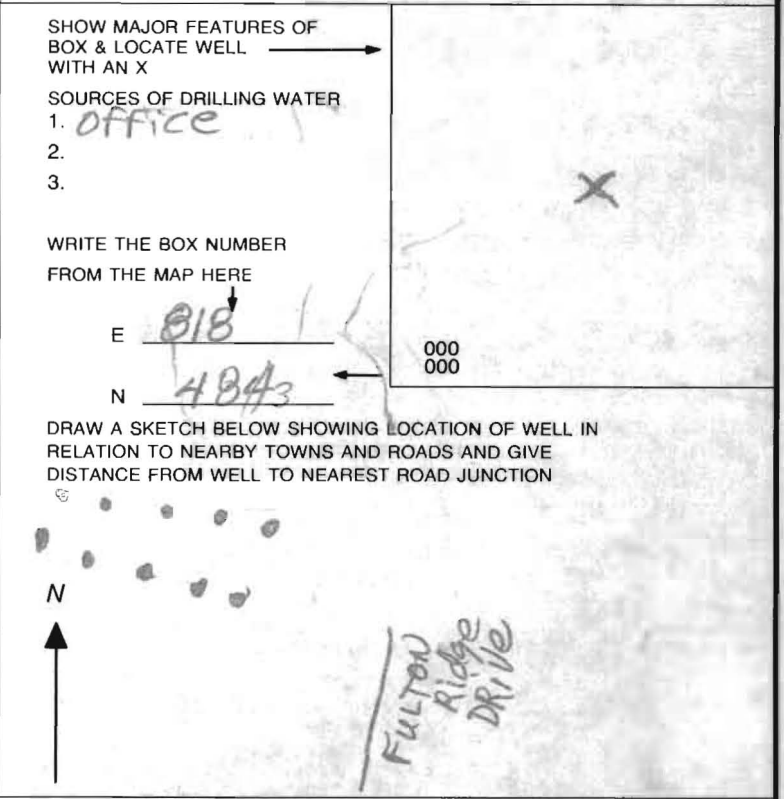
BORED (or Augered) JETTED Jetted & DRIVEN
 30 AIR-ROtary AIR-PERcussion ROTARY (Hydraulic Rotary)
 37 CABLE REVERSE-ROtary DRive-POINT
 other _____

REPLACEMENT OR DEEPEINED WELLS (CIRCLE APPROPRIATE BOX)

THIS WELL WILL NOT REPLACE AN EXISTING WELL
 THIS WELL WILL REPLACE A WELL THAT WILL BE ABANDONED AND SEALED
 39 THIS WELL WILL REPLACE A WELL THAT WILL BE USED AS A STANDBY-CONTACT LOCAL APPROVING AUTHORITY FOR POLICY ON STANDBY WELLS
 THIS WELL WILL DEEPEIN AN EXISTING WELL
 PERMIT NUMBER OF WELL TO BE REPLACED OR DEEPEINED (IF AVAILABLE) 41 _____ 52

Not to be filled in by driller (MDE OR COUNTY USE ONLY)

APPROP. PERMIT NUMBER _____ G A P _____ 63
 WRITE INITIALS IN BOX FORCE _____ PERMIT No. 40-95-1976
 67 68 70 71 72 73 74 75 76 77 78 79



Palmer Stephens Drilling Associates, Inc.

6619 Windsor Mill Road
Gwynn Oak, Maryland 21207
Phone: (410) 944-4804
Fax: (410) 944-0450

August 30, 2010

Mr. Michael J. Davis, R.S.
Bureau of Environmental Health
Howard County Health Department
7178 Columbia Gateway Drive
Columbia, Maryland 21046

Ref: Geothermal Drilling performed by Recon Drilling
12135 Fulton Ridge Drive, Fulton, MD 20759
Building Permit # B09001221

Dear Mr. Davis:

Pursuant to my previous proposals dated July 26, 2010 and August 12, 2010, we performed field sampling of grout materials to confirm that the drilled geothermal wells meet the requirements of COMAR 26.04.04. The investigations and inspections were jointly performed on August 24, 2010 in the presence of the following individuals.

- Palmer Stephens, Master Well Driller, MD
- John Boris, MDE
- Michael Davis, Howard County
- Kevin Wolf, Howard County
- Amrish Patel, Home Owner
- Donald Trone, Richard Erickson, William Rodas and Hugo Macal – Recon Drilling

Following is the summary of inspection and findings:

Utilizing Dietrich D50 drill rig, Recon Drilling proceeded with field sampling of grout at random borehole #14 at 9:00 AM from 4' depth to 88' depth from the existing grade. The grout samples were retrieved every 5' interval by Split Spoon Methods. The grout samples were jointly inspected by me and officials from Howard County and MDE. The sampling was completed by 12:00 noon.

After sampling, Recon Drilling attempted to backfill the borehole with Bentonite grout, but due to the mechanical failure of the pump, the operations were seized until next morning, August 25th. Recon Drilling brought another drill rig with pump and proceeded with "Benseal" Bentonite backfilling on August 25, 8:00 AM in the presence of Mr. Davis. The Bentonite mix was injected in to borehole using 1" dia PE Trimming pipe lowered from 78' depth and upwards to 4' depth. The grouting was completed by 8:45 AM.

In addition to the supervising the entire field drilling operations performed by the staff of Recon Drilling, I have obtained verbal testimonies of home owner Amrish Patel, who is Professional Civil Engineer in the State of MD and Mr. Donald Trone of Recon Drilling. I have also examined the well logs prepared by Recon Drilling for all twenty geothermal boreholes.

10-3 BHIS:31

Palmer Stephens Drilling Associates, Inc.

6619 Windsor Mill Road
Gwynn Oak, Maryland 21207
Phone: (410) 944-4804
Fax: (410) 944-0450

Based on the above mentioned inspections, findings and testimonies, as a MD Licensed Well Driller with 40+ years of well drilling experience, it is my opinion that the all twenty (20) geothermal boreholes have been drilled and grouted satisfactorily and are in conformance of COMAR 26.04.04.

Should you have any questions, please feel free to contact me at (443) 463-3172.

Sincerely Yours,



Palmer Stephens
MD Well Driller, MWD # 344

Attachments: Geothermal Borehole Location Plan
Well Completion Report and Logs
Receipts of Grout Purchase
Written Testimony of Mr. Donald Trone of Recon Drilling

Cc: Mr. Kevin Wolf, Howard Co. Health Department (via e-mail)
Mr. John Boris, MDE (via e-mail)

FILE INQUIRY NOTES

Bore hole soil/bentonite construction

DATE 9am **RESULTS OF REVIEW FOR FILE**

8/24/10 [mostly cloudy, mid 70's.] Present on-site: Kevin Wolf, Mike Davis, John Boris, Amrish Patel, Palmer Stevens, Don Trone, Richard Erickson, William Rodas, Hugo Macal.

With the D50 drilling rig set up over one of the bore holes, samples were successfully taken every 5' approximately. A consistent bentonite sample was excavated down to 90'. ~~The~~ The bore hole was grouted successfully. Grouting of bore hole was performed shortly after the drilling.

New bentonite grout was added back into the excavated bore hole from bottom to top. 78' total of slurry pipe. Bore hole grout mix, verified w/ mud scale. Attempt failed.

Pump problems w/ rig prevented drilling to grout hole.

Will proceed w/ grouting tomorrow for new. (JCW)

8/25/10 Present on-site: Mike Davis, Palmer Stevens, Don Trone, Richard Erickson, William Rodas, Hugo Macal, Amrish Patel. Observed grouting investigational boring from 78ft to the top of loop.

8/31/10 Well Permits Issued on 8/31/10 to Palmer Stevens. (JCW)

M. Davis

RECON DRILLING, INC.

4102 Majestic Lane

Fairfax, VA 22033

Phone: (703) 818-3490 Fax (703) 818-3495

September 1 2010

Mr. Kevin Wolf, R.S.
Bureau of Environmental Health
Howard County Health Department
7178 Columbia Gateway Drive
Columbia, Maryland 21046

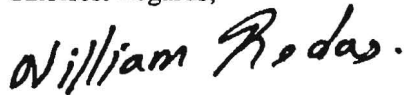
Ref: Geothermal Drilling performed by Recon Drilling
12135 Fulton Ridge Drive, Fulton, MD 20759
Building Permit # B09001221

Dear Mr. Wolf:

Please consider this letter as my personal testimony for the referenced subject. I have personally assisted in drilling of the twenty (20) boreholes by my firm. It is my experience that the drilling of boreholes is in accordance with the industry standard procedures and under the supervision and direction of my supervisor Mr. Donald Trone. All boreholes are grouted with Bentonite using 1" dia. Trimming pipe from 100' depth to 4' depth.

Should you have any questions, please feel free to contact me at (703) 818-3490.

Sincerest Regards,



William Rodas
Recon Drilling Inc.

September 1 2010

Mr. Kevin Wolf, R.S.
Bureau of Environmental Health
Howard County Health Department
7178 Columbia Gateway Drive
Columbia, Maryland 21046

Ref: Geothermal Drilling performed by Recon Drilling
12135 Fulton Ridge Drive, Fulton, MD 20759
Building Permit # B09001221

Dear Mr. Wolf:

As a home owner and a Professional Civil Engineer in the State of Maryland, I hereby declare that I personally have witnessed the drilling and grouting operations of the twenty (20) boreholes by Recon Drilling, Inc. It is my professional opinion that all wells are drilled in accordance with the industry standard procedures for drilling and backfilled using Bentonite.

Should you have any questions, please feel free to contact me at (301) 980-4745.

Very Truly Yours,



Amrish A. Patel, PE
Home Owner
12135 Fulton Ridge Drive
Fulton, Maryland 20706

LV15:03

September 1 2010

Mr. Kevin Wolf, R.S.
Bureau of Environmental Health
Howard County Health Department
7178 Columbia Gateway Drive
Columbia, Maryland 21046

Ref: Geothermal Drilling performed by Recon Drilling
12135 Fulton Ridge Drive, Fulton, MD 20759
Building Permit # B09001221

Dear Mr. Wolf:

As a home owner and a Professional Civil Engineer in the State of Maryland, I hereby declare that I personally have witnessed the drilling and grouting operations of the twenty (20) boreholes by Recon Drilling, Inc during the period of April 19 and May 7 of 2010. The drilling and grouting were performed during the clear weather day without causing any erosion and sedimentation. The holes were augured from ground to the rock bed approximately 40-50' below existing ground and then air hammered up to approximately 100' depth. Two ¾" dia. Geothermal tubes were inserted in to the holes and then backfilled using Bentonite grout through trimming pipe from 100' depth up to the existing ground. Approximately 5' of geothermal loop pipes were left free standing.

It is my professional opinion that all wells are drilled in accordance with the industry standard procedures for drilling and backfilled using Bentonite.

Should you have any questions, please feel free to contact me at (301) 980-4745.

Very Truly Yours,



Amrish A. Patel, PE
Home Owner
12135 Fulton Ridge Drive
Fulton, Maryland 20706

RECON DRILLING, INC.

4102 Majestic Lane

Fairfax, VA 22033

Phone: (703) 818-3490 Fax (703) 818-3495

September 1 2010

Mr. Kevin Wolf, R.S.
Bureau of Environmental Health
Howard County Health Department
7178 Columbia Gateway Drive
Columbia, Maryland 21046

Ref: Geothermal Drilling performed by Recon Drilling
12135 Fulton Ridge Drive, Fulton, MD 20759
Building Permit # B09001221

Dear Mr. Wolf:

Please consider this letter as my personal testimony for the referenced subject. I have personally supervised the drilling of the twenty (20) boreholes by my firm. As a supervisor with 30 years of experience in areas of geotechnical drilling, I hereby declare that the drilling and grouting of all boreholes were performed in accordance with the well construction requirements of COMAR 26.04.04 and industry standard procedures.

Should you have any questions, please feel free to contact me at (703) 932-9575.

Sincerest Regards,



Donald Trone
Recon Drilling Inc.

2010-09-01 10:58:31

RECON DRILLING, INC.

4102 Majestic Lane

Fairfax, VA 22033

Phone: (703) 818-3490 Fax (703) 818-3495

September 1 2010

Mr. Kevin Wolf, R.S.
Bureau of Environmental Health
Howard County Health Department
7178 Columbia Gateway Drive
Columbia, Maryland 21046

Ref: Geothermal Drilling performed by Recon Drilling
12135 Fulton Ridge Drive, Fulton, MD 20759
Building Permit # B09001221

Dear Mr. Wolf:

Please consider this letter as my personal testimony for the referenced subject. I have personally assisted in drilling of the twenty (20) boreholes by my firm. It is my experience that the drilling of boreholes is in accordance with the industry standard procedures and under the supervision and direction of my supervisor Mr. Donald Trone. All boreholes are grouted with Bentonite using 1" dia. Trimming pipe from 100' depth to 4' depth.

Should you have any questions, please feel free to contact me at (703) 818-3490.

Sincerest Regards,

HUGO MACAL

Hugo Macal
Recon Drilling Inc.

RECON DRILLING, INC.

4102 Majestic Lane

Fairfax, VA 22033

Phone: (703) 818-3490 Fax (703) 818-3495

September 1 2010

Mr. Kevin Wolf, R.S.
Bureau of Environmental Health
Howard County Health Department
7178 Columbia Gateway Drive
Columbia, Maryland 21046

Ref: Geothermal Drilling performed by Recon Drilling
12135 Fulton Ridge Drive, Fulton, MD 20759
Building Permit # B09001221

Dear Mr. Wolf:

Please consider this letter as my personal testimony for the referenced subject. I have personally supervised the drilling of the twenty (20) boreholes by my firm. The drilling of boreholes were performed between April 19 and May 7, 2010 during the clear weather. The timing of drilling and grouting operations was from 8:00 AM to 5:00 PM. The boreholes were staked and flagged. The details regarding the construction procedures used in installation has been included in my previous letter dated June 18, 2010. (The copy is attached herewith)

As a supervisor with 30 years of experience in areas of geotechnical drilling, I hereby declare that the drilling and grouting of all boreholes were performed in accordance with the well construction requirements of COMAR 26.04.04 and industry standard procedures.

Should you have any questions, please feel free to contact me at (703) 932-9575.

Sincerest Regards,



Donald Trone
Recon Drilling Inc.

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

August 13, 2010

Recon Drilling Inc.
4102 Majestic Lane
Fairfax, VA 22033

RE: **Un-licensed MD Well Driller onsite during well construction & Drilling without a well permit**
12135 Fulton Ridge Drive
Fulton, MD. 20759
Tax Map 41, Grid 13, Parcel 506

Dear Mr. Trone:

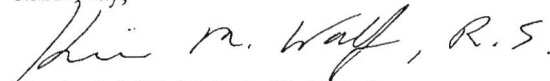
The Howard County Health Department (HCHD) and Mr. John Boris, Maryland Department of the Environment (MDE) have reviewed your July 26, 2010 submittal with the proposal from Mr. Palmer Stephens, MD Well Driller, MWD #344. After receiving clarification on August 12, 2010 from Mr. Stevens regarding the first bulleted item, both Departments have found the proposal acceptable provided that the following requirements are met:

- Open any random bore hole utilizing a truck mounted Dietrich D50 drilling rig and demonstrate that the well has been properly grouted from top to bottom of the geothermal borehole by Split Spoon Method. The HCHD and MDE must be present during this procedure. Call the HCHD at (410) 313-1771 forty-eight (48) hours in advance to schedule an inspection and call Mr. Boris at (410) 537-3678.
- Mr. Stephens shall obtain and provide detailed written testimonies of other professionals who witnessed/supervised the drilling and grouting operations. This shall include specific details including the dates, times, what was witnessed, location the geobore being constructed, and any other details regarding the construction procedures used in the installation. The HCHD and MDE may have follow-up questions to the testimonies.
- Mr. Stephens shall obtain and provide the material purchase receipts for the grout material.
- Mr. Stephens shall provide Well Completion Reports on the approved Maryland Well Completion Report Form after examining well logs provided by Mr. William Rodas, Mr. Hugo Macal, and Mr. Jose Aleman if in his professional opinion the information provided is adequate and accurate.
- Mr. Stephens shall interview Mr. William Rodas, Mr. Hugo Macal, and Mr. Jose Aleman in the presence of the Howard County Health Department and Mr. John

Boris, Maryland Department of the Environment about field drilling procedures and bentonite grouting of previously drilled wells. If Mr. Palmer has concerns he may require the three well drillers to demonstrate the methodology and procedures by drilling an additional geothermal borehole utilizing the same drilling equipment.

After all of these requirements have been met the well permits will be issued and the "hold condition" on the building permit will be released. If you have any questions regarding this letter, please contact me at the Bureau of Environmental Health at 410-313-1771.

Sincerely,



Kevin M. Wolf, R.S./R.E.H.S.
Bureau of Environmental Health
Well and Septic Program

Cc: Amrish Patel, Property Owner
Palmer Stephens, Maryland Licensed Well Driller # 344
Sean Kelly, Department of Inspections, Licenses and Permits
John Boris, Maryland Department of the Environment
Willie Everett, Executive Director, Maryland Board of Well Drillers
File

RECON DRILLING, INC.

4102 Majestic Lane

Fairfax, VA 22033

Phone: (703) 818-3490 Fax (703) 818-3495

July 26, 2010

Mr. Kevin Wolf, R.S.
Bureau of Environmental Health
Howard County Health Department
7178 Columbia Gateway Drive
Columbia, Maryland 21046

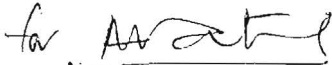
Ref: Geothermal Drilling performed by Recon Drilling
12135 Fulton Ridge Drive, Fulton, MD 20759
Building Permit # B09001221

Dear Mr. Wolf:

Pursuant to your letter dated July 20, 2010, please find attached the proposal from Palmer Stephens Drilling Associates, Inc. a Maryland Master Well Driller stating the procedures to be performed to confirm that the twenty (20) bore holes for geothermal system at the referenced property were constructed and backfilled in accordance with the well construction requirements of COMAR 26.04.04.

Should you have any questions, please feel free to contact me at (443) 463-3172.

Sincerest Regards,



Donald Trone
Recon Drilling Inc.

Attachment: Proposal from Palmer Stephens Drilling Associates, Inc.

2010-07-26 15:33

Palmer Stephens Drilling Associates, Inc.

6619 Windsor Mill Road
Gwynn Oak, Maryland 21207
Phone: (410) 944-4804
Fax: (410) 944-0450

August 12, 2010

Mr. Michael J. Davis, R.S.
Bureau of Environmental Health
Howard County Health Department
7178 Columbia Gateway Drive
Columbia, Maryland 21046

Ref: Geothermal Drilling performed by Recon Drilling
12135 Fulton Ridge Drive, Fulton, MD 20759
Building Permit # B09001221

Dear Mr. Davis:

Pursuant to my previous proposal dated July 26, 2010, I propose the following procedure to confirm that the drilled geothermal wells meet the requirements of COMAR 26.04.04.

- Utilizing a truck mounted Dietrich D50 drilling rig, retrieve and examine the grout samples from top to bottom of the geothermal borehole by Split Spoon Method. The recommended interval of sampling is 10 feet, however, it can be changed in field during sampling. This sampling method will allow us to insert the trimming pipe to backfill the hole with Bentonite "BenSeal" grout.

Should you have any questions, please feel free to contact me at (443) 463-3172.

Sincerely Yours,



Palmer Stephens
MD Well Driller, MWD # 344

Cc: Mr. Kevin Wolf, Howard Co. Health Department (via e-mail)
Mr. John Boris, MDE (via e-mail)

Palmer Stephens Drilling Associates, Inc.

6619 Windsor Mill Road
Gwynn Oak, Maryland 21207
Phone: (410) 944-4804
Fax: (410) 944-0450

July 26, 2010

Mr. Kevin Wolf, R.S.
Bureau of Environmental Health
Howard County Health Department
7178 Columbia Gateway Drive
Columbia, Maryland 21046

Ref: Geothermal Drilling performed by Recon Drilling
12135 Fulton Ridge Drive, Fulton, MD 20759
Building Permit # B09001221

Dear Mr. Wolf:

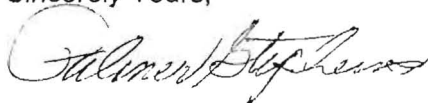
Pursuant to your letter dated July 20, 2010, I propose the following procedures to confirm that the drilled geothermal wells meet the requirements of COMAR 26.04.04.

- Open any random bore hole and inspect to assure the presence of grouted material and type of material.
- Obtain the testimony of other professionals who witnessed / supervised the drilling and grouting operations.
- Obtain the material purchase receipts for the grout material.
- Examine the well logs.
- Conduct interview with well drilling crew about field drilling procedures and bentonite grouting of previously drilled wells. If needed, ask them to demonstrate the methodology and procedures by drilling an additional geothermal borehole utilizing the same drilling equipment.

As a MD Licensed Well Driller with 40+ years of well drilling experience, it is my opinion that the procedures mentioned above shall suffice the conformance of COMAR 26.04.04.

Should you have any questions, please feel free to contact me at (443) 463-3172.

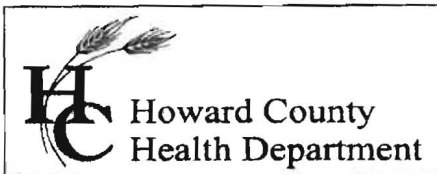
Sincerely Yours,



Palmer Stephens
MD Well Driller, MWD # 344

Cc: Mr. Michael J. Davis, Howard Co. Health Department (via e-mail)
Mr. John Boris, MDE (via e-mail)

2010-07-28



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

SENT VIA REGULAR MAIL and CERTIFIED MAIL #7001160000234094564
RETURN RECEIPT REQUESTED

July 20, 2010

Recon Drilling Inc.
4102 Majestic Lane
Fairfax, VA 22033

RE: **Un-licensed MD Well Driller onsite during well construction & Drilling without a well permit**
12135 Fulton Ridge Drive
Fulton, MD. 20759
Tax Map 41, Grid 13, Parcel 506

Dear Recon:

As a follow-up to the Notice of Violation (NOV) issued to you in person June 8th, 2010, the following actions were to be considered:

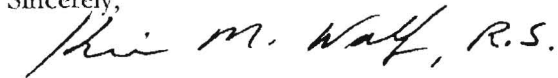
- 1) **Current geobores shall be properly abandoned by a licensed well driller in the State of Maryland per COMAR 26.04.04.11;or**
- 2) **Provide a written proposal within fifteen (15) days of receipt of this Notice of Violation from a well driller licensed in the State of Maryland that indicates what procedure shall be performed to confirm that the twenty (20) wells were constructed in accordance with the well construction requirements of COMAR 26.04.04. If the proposal is found acceptable by this Department and MDE, a final decision and order from the HCHD will be provided and the work shall be completed within fifteen (15) days of receipt of the written notification. If the proposal is not sufficient to correct the violation, MDE or the HCHD may require abandonment and sealing of the wells (COMAR 26.04.04.11C).**

A packet of information was received by this office on June 25, 2010 in what looks to be in regards to option number 2 above. This packet included a letter from Palmer Stevens describing his review and investigation of a single well to a depth of seven (7) feet, a letter from you stating you're procedure of how you drilled the wells, and twenty (20) Department of Ecology State of Washington Water Well Reports.

According to the options stated above that were taken directly from the NOV issued June 8th, 2010, you have not provided the requested information. You were instructed to have a licensed Well Driller in the State of Maryland come up with a proposal for a procedure/s that shall be performed to confirm that the twenty (20) wells were constructed in accordance with the well construction requirements of COMAR 26.04.04. During the June 8, 2010 meeting you were instructed that the proposal must include a procedure that would demonstrate that the wells were grouted from the ground surface to the bottom of the drilling. Please review option number 2 and re-submit the required information to this office with-in 10 business of receipt of this letter.

If you have any questions regarding this letter, please contact me at the Bureau of Environmental Health at 410-313-1771.

Sincerely,



Kevin M. Wolf, R.S./R.E.H.S.
Bureau of Environmental Health
Well and Septic Program

Cc: Armish Patel, Property Owner
Palmer Stephens, Maryland Licensed Well Driller # 344
Sean Kelly, Department of Inspections, Licenses and Permits
John Boris, Maryland Department of the Environment
Willie Everett, Executive Director, Maryland Board of Well Drillers
File

Palmer Stephens Drilling Associates, Inc.

6619 Windsor Mill Road
Gwynn Oak, Maryland 21207
Phone: (410) 944-4804
Fax: (410) 944-0450

June 25, 2010

Mr. Kevin Wolf, R.S.
Bureau of Environmental Health
Howard County Health Department
7178 Columbia Gateway Drive
Columbia, Maryland 21046

Ref: Geothermal Drilling
12135 Fulton Ridge Drive, Fulton, MD 20759
Building Permit # B09001221

Dear Mr. Wolf:

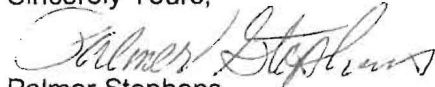
Pursuant to our meeting on June 14, 2010, I performed a due diligence inspection of the geothermal well drilling performed by Recon Drilling. On June 24, 2010, borehole #14 was opened to a depth of 7 feet to inspect the installation of grout.

The borehole was excavated using VacMaster 4000 truck with air-vacuum excavation procedures. The horizontal loop pipes were found at 3.5 feet depth, which were covered using sand. I observed the grout fill from 3.5 feet to 7 feet depth. The hole was properly backfilled using Bentonite Clay (Benseal). I personally checked the sample received at 7 feet depth. All boreholes were personally observed by Mr. Amrish Patel (Registered Professional Engineer in state of Maryland) during the drilling, installation of vertical piping and Tremmie grouted using Bentonite Clay.

I also reviewed the attached testimony and well logs prepared by Recon Drilling for all 20 wells. Based on my inspection, professional experience, inspection of Mr. Patel and Recon's testimony, I as a Licensed Well Driller (MWD # 344) certify that the all wells are drilled and backfilled for entire depth in accordance with the industry standard well drilling procedures while maintaining the safe environment and ground water conditions. Therefore, I respectfully request the acceptance of the drilled wells.

Should you have any questions, please feel free to contact me at (443) 463-3172.

Sincerely Yours,


Palmer Stephens
MD Well Driller, MWD # 344

Attachment: Recon Drilling's Testimony
Well Location Plan and Logs

Cc: Mr. Michael J. Davis, Howard Co. Health Department (via e-mail)
Mr. John Boris, MDE (via e-mail)

KW

RECON DRILLING, INC.

4102 Majestic Lane

Fairfax, VA 22033

Phone (703) 818-3490 Fax (703) 818-3495

June, 18th 2010

Recon Drilling, Inc. was contracted by Mr. Amrish Patel to install Geo-thermal ground loops 2000' to be exact. Upon arriving at 1205 Fulton Ridge Drive Recon Drilling, Inc was presented what appeared to be an approved Geo-Thermal drawing and permit, that included depth of wells, number of wells and well location. We were unaware that this required a separate permit and needed to be installed by a Maryland licensed Driller. What was discovered after the loops were installed by the Howard County Inspector was that there was only a permit and approved drawings for the work to be done inside of the house, not to include the ground loops, this was not stated on the drawings.

Recon Drilling's employees, William Rodas, Hugo Macal and Jose Aleman drilled the wells and installed the loops and grouted the holes from the bottom to the top using Benseal (manufactured by Halliburton) grout, mixed at 24gals per bag which is 2.08lbs per gallon. The holes were drilled first by augering to rock then setting steel casing and completing the hole with an air down hole hammer. Immediately following the completion of the drilling the loops were installed. A ten foot section of 1-1/4" solid hot rolled steel was taped to the bottom of the loop for ballast and the 3/4" PVC tremie pipe was attached using Geo-clips every ten feet. The assembly was then lowered into the boring until the loop was resting on the bottom of the hole at 100'. (See attached boring logs) The loops were purchased by Mr. Patel and were manufactured at 105 feet in length, which left 5' sticking out of the ground. Grout mixed at 24 gal per 50lb bag was pumped through the tremie pipe until the grout was at the surface, the casing was then pulled and the grout was topped off. Two plus bags were used per hole. (See attached calculation sheet).

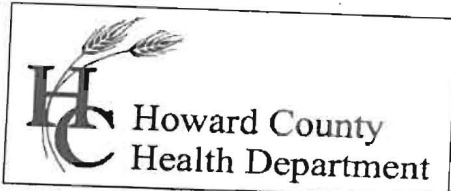
Recon purchased 1 pallet (48 bags) and 20 bags for this project and 5 bags were left over. (See attached receipts) All 20 holes were treated the same way.

There was a hole that was drilled and abandoned as it was too close to storm sewer easement. This hole was grouted the same way as the previous mentioned 20 borings, except no ground loop was installed. The 3/4" tremie pipe was pushed to the bottom of the hole and grout was pumped until it was at the surface then the casing was pulled and the grout was topped off. This concluded Recon Drilling, Inc's involvement in this project.

Sincerest Regards,



Donald Trone
Recon Drilling Inc.



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

NOTICE OF VIOLATION

ISSUED IN PERSON ON JUNE 14, 2010

Mr. Don Trone
Recon Drilling, Inc.
4102 Majestic Lane
Fairfax VA 22033

RE: **Un-licensed MD Well Driller onsite during well construction & Drilling without a well permit**
12135 Fulton Ridge Drive
Fulton, MD. 20759
Tax Map 41, Grid 13, Parcel 506

Dear Mr. Trone:

On Thursday, April 29th, 2010, an on-site inspection was made at the above aforementioned property for a pre-construction meeting with the septic contractor. During this site inspection, I noticed several geothermal loops extending above the ground. The locations of these geobores were scattered in the front yard of the property. An immediate conversation with the property owner, Armish Patel confirmed that there were twenty (20) geothermal wells that had been drilled by Recon Drilling Inc. *Code of Maryland Regulations (COMAR) 26.04.04.03 A* states:

Permit Required. A well may not be constructed until the Approving Authority has issued a permit to the well driller. The requirements for application and for permit issuance are set forth in Regulations .04--.07.

Upon returning to our office and researching the Howard County Health Department (HCHD) well records, no well permit applications had been received by our Department for twenty (20) geothermal wells and therefore, permits had not been issued for the geothermal wells. Furthermore, investigation for current status of Recon Well Drilling, Inc. through the Maryland State Board of Licensed Well Drillers concluded that the company does not employ any well drillers licensed in the State of Maryland. *COMAR 26.04.04.03 C* states:

In accordance with COMAR 26.05.01, the Approving Authority will issue a well construction permit only to a person licensed by the Maryland State Board of Well Drillers as a master well driller, well driver, or well digger.

COMAR 26.04.04.03 D indicates the Permittees' Responsibilities.

Permittees' Responsibilities.

(1) The master well driller, well driver, or well digger to whom a well construction permit is issued is responsible for construction of the well in accordance with the permit and applicable laws and regulations.

(2) Notwithstanding § D(1), other persons working on a potable water supply, including but not limited to a pump installer, a water conditioning installer, an electrician, or a plumber, shall be responsible for their phase of the work and its conformance to applicable laws and regulations.

(3) A completed application for a well construction permit shall be signed and submitted by the master well driller, well driver, or well digger, who will be responsible for construction of the well.

(4) Only the permittee, or his employee or agent who is also licensed by the Maryland State Board of Well Drillers, is authorized to construct the well.

(5) The permittee or his licensed employee or agent shall supervise the actual, on-site work of constructing a well.

(6) The permittee, upon completion of the well, shall prepare, sign, and submit to the Approving Authority a legible well completion report. The requirements for well completion reports are set forth in Regulation .08.

On May 5th, 2010, Mr. John Boris with the Maryland Department of the Environment (MDE), Wastewater Permits Program was notified of these actions. According to Mr. Boris, after comparing this information with his own investigation on this matter, he stated that he contacted you and confirmed that Recon Drilling, Inc. drilled the wells and verified that there was no Maryland licensed well driller on-site at the time of well construction.

This Notice of Violation is issued based on the referenced sections of COMAR. Given these findings, the following options shall be considered:

- 1) Current geoboires shall be properly abandoned by a licensed well driller in the State of Maryland per COMAR 26.04.04.11; or
- 2) Provide a written proposal within fifteen (15) days of receipt of this Notice of Violation from a well driller licensed in the State of Maryland that indicates what procedure shall be performed to confirm that the twenty (20) wells were constructed in accordance with the well construction requirements of COMAR 26.04.04. If the proposal is found acceptable by this Department and MDE, a final decision and order from the HCHD will be provided and the work shall be completed within fifteen days of receipt of the written notification. If the proposal is not sufficient to correct the violation, MDE or the HCHD may require abandonment and sealing of the wells (COMAR 26.04.0412 C).

If you have any questions regarding this letter, please contact me at the Bureau of Environmental Health at 410-313-1771.

Sincerely,



Kevin M. Wolf, R.S./R.E.H.S.
Bureau of Environmental Health
Well and Septic Program

C: Armish Patel, Property Owner
Palmer Stephens, Maryland Licensed Well Driller # 344
Sean Kelly, Department of Inspections, Licenses and Permits
John Boris, Maryland Department of the Environment
Willie Everett, Executive Director, Maryland Board of Well Drillers
File

RECON DRILLING, INC.

4102 Majestic Lane

Fairfax, VA 22033

Phone (703) 818-3490 Fax (703) 818-3495

June, 18th 2010

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Recon purchased 1 pallet and 30 bags for this project and 5 bags were left over. (Receipts can be obtained if needed) All 20 holes were treated the same way. There was a hole that was drilled and abandoned as it was too close to storm leasement. This hole was grouted the same way as the previous mentioned 20 borings, except no ground loop was installed. The 3/4" trimming pipe was pushed to the bottom of the hole and grout was pumped until it was at the surface then the casing was pulled and the grout was topped off. This concluded Recon Drilling, Inc's involvement in this project.

Sincerest Regards,



Donald Trone
Recon Drilling Inc.

11:5:33

FILE INQUIRY NOTES

DATE	RESULTS OF REVIEW FOR FILE
5/10/10	<p>Munday morning 10 am made call to John Roub @ WDF to call me back.</p> <p>Not an emergency permit, cathead letter would be fine - we know that a note was broken (Drilling w/o a permit) more to follow (16)</p>
6/14/10	<p>General meeting - Monroemer (Armed Patrol), Mike Dore, myself, Brian Parker, John Roub, Palmer Stewart, Recor Drilling (Don Trane). Discussion on the issue w/ drilling w/o a permit continued. To come to a resolution, Don Trane discussed how the wells were constructed etc. Also we discussed how to resolve the issue of keeping the wells. as is, will need to come thru Palmer Stewart's. The action will be loose review from the approving authority. Notice of Violation was issued to all parties</p>

FILE INQUIRY NOTES

12135 Fulton Ridge Drive lot 7

DATE	RESULTS OF REVIEW FOR FILE
5/4/10	<p>meeting w/ Mike Davis to confirm what to do about current geotechnical situation: Need to call driller who applied for permit and ask him who actually drilled wells? (Recon or Palmer Stevens) When was ^{were} wells drilled? How many wells drilled? Plan shows 21, I counted 20 in field. Why wasn't a permit filed filed w/ our office prior to drilling the wells?</p>
	<p>- Made phone call to Palmer Stevens (no well driller) and asked him about the geo logs on site @ Fulton Ridge lot 7. He couldn't answer any 'technical' questions because he stated that 'Recon Well Drilling' was the hired by the home owner to drill the wells. Palmer also stated that his involvement w/ the site is he works for ARB consultants who the home owner works for. He explained that when I asked him about why he filled the well permits out after the wells were drilled, he said that the home owner left him out of the loop, that he knew nothing about the wells being drilled (KW)</p>
	<p>- Phone call made to Recon Drilling. Explained who I was, they gave me Daniel Mayle's number (703-898-9464) made call to Daniel Mayle left message. (KW)</p>

STATE BOARD OF WELL DRILLERS
(Companies With Active Licensees as Employees)

TERRY	Terry Environmental Services PO Box 25 Summerville, SC 29484	Phone: 843-873-8200 Fax: 843-873-8765
	MGD099 RANDOLPH K BRAND	
TIDEWATER	Tidewater Inc 8990 Route 108, Suite D Columbia, MD 21045	Phone: 410-997-4458 Fax: 410-997-8713
	AWD845 GAVIN A KITCHENS MGD028 RICHARD D SIES SR	
TLB ASSOC	TLB Associates <i>(Geotechnical Firm)</i> 7280 Baltimore-Annapolis Blvd Glen Burnie, MD 21061	Phone: 443-577-1600 Fax: 443-577-1601
	MWD344 PALMER V STEPHENS <i>(443-463-3172)</i> MWD500 THOMAS L BROWN	
TODD & ASSOC	Todd Environmental Associates PO Box 296 Fallston, MD 21047	Phone: 410-877-9770 Fax: 410-877-9775
	WCI092 D SCOTT THROPP III	
TWIN OAKS	Twin Oaks Contracting 326 Shady Lane Pasadena, MD 21222	Phone: 410-255-1401 Fax: 410-360-5160
	PI0146 MACARTHUR JOHNS	
UNI-TECH	Uni-Tech Drilling 61 Grey Ferry Ave Franklinville, NJ 08322	Phone: 856-694-4200 Fax: 856-694-4242
	AWD882 DANIEL T EVANS JWD363 GERALD F FRECK JWD366 JAY E BLEMINGS JWD367 MICHAEL M SHEPHERD JWD369 ROBERT F BAER MGD012 JOSEPH J JESTER MWD550 DAVID CONOVER MWD557 KARL D HITZELBERGER MWD570 JAMES T EVANS	

FILE INQUIRY NOTES

DATE	RESULTS OF REVIEW FOR FILE
4/2/2010	A site inspection was conducted to evaluate options for transferring conveying wastewater from newly built residence to the septic reserve. Attending were myself Brian Baker and Amrish Patel, owner/designer.
	Plumbing was installed so that S.O. Invert is 46±" below basement elevation, options considered were locating a septic tank and pump tank at either side of septic reserve approx. 100 feet from S.O. stub, and at a location approved on Plot Plan (with 'hung' sewer). Mr. Patel decided to redo house sewer, hang it from 1 st Floor at elevation about 2 feet below soil surface. Tank will be located between garage corner and SW septic reserve corner. A Revised Plot Plan with corrected elevations will be submitted. An ejector pit will be installed in basement if needed. <i>Robert</i>

$$\text{Hole } 4" \phi \times 100' = (2)^2 \times \pi = 12.58''^2 \div 144 = .0874'{}^3$$

$$\frac{\times 100'}{8.74'{}^3}$$

$$\text{Loops } 1" \phi \times 100' \times 2 = (.5)^2 \times \pi \times 2 = 1.5729''^2 \div 144 = .0109'{}^3$$

$$\frac{\times 100'}{1.09'{}^3}$$

$$\text{Blast } 1/4" \phi \times 10' = (5/8)^2 \times \pi = .390''^2 \div 144 = .0027'{}^3$$

$$\frac{\times 10'}{.027'{}^3}$$

$$\text{Hole} - (\text{Loops} + \text{Blast}) = \text{Remaining Volume}$$

$$8.74'{}^3 - (1.09'{}^3 + .027'{}^3) =$$

$$8.74'{}^3 - 1.36'{}^3 = 7.38'{}^3 \times 7.48 = 55,202.9 \text{ gal per } 1'{}^3$$

$$24 \text{ gal} + 5 \text{ gal} \approx 29 \text{ gal} \times 2 = 58 \text{ gal}$$

water Density
 (bag) (50 lb bag)

$$50 \text{ lbs} \approx 5 \text{ gal}$$

$$7.48 \text{ gal per } 1'{}^3 \quad 1 \text{ [cubic foot]}$$



Load Short Form

ZONE 3

Job:
Date:
By:

Project Information

For: PATEL RESIDENCE
12135 FULTON RIDGE DRIVE, FULTON, MD 20759

Design Information

	Htg	Clg	Method	Infiltration	Simplified
Outside db (°F)	0	95			
Inside db (°F)	70	75	Construction quality		Average
Design TD (°F)	70	20	Fireplaces		0
Daily range	-	M			
Inside humidity (%)	30	50			
Moisture difference (gr/lb)	28	40			

HEATING EQUIPMENT

Make ENVISION
Trade
Model NDV064A111CT
ARI ref no.
Efficiency 0 COP
Heating input 0 Btuh
Heating output 0 Btuh
Temperature rise 0 °F
Actual air flow 2000 cfm
Air flow factor 0.039 cfm/Btuh
Static pressure 0.05 in H2O
Space thermostat

COOLING EQUIPMENT

Make ENVISION
Trade
Cond NDV064A111CT
Coil
ARI ref no.
Efficiency 0 EER
Sensible cooling 0 Btuh
Latent cooling 0 Btuh
Total cooling 0 Btuh
Actual air flow **2000** cfm
Air flow factor 0.051 cfm/Btuh
Static pressure 0.05 in H2O
Load sensible heat ratio 0.85

ROOM NAME	Area (ft²)	Htg load (Btuh)	Clg load (Btuh)	Htg AVF (cfm)	Clg AVF (cfm)
BEDROOM #2	299	7529	6348	295	323
BATH #2	56	138	86	5	4
WIC #3	49	121	76	5	4
WIC#2	42	680	163	27	8
BATH #3	56	138	86	5	4
BEDROOM #3	312	7561	5981	296	304
OPEN SPACE	352	9454	6666	370	339
SITTING RM	143	2672	2975	105	151
M BEDROOM	208	5399	5092	211	259
OPEN TO BELOW	368	4132	3512	162	179
BEDROOM #4	192	3207	3036	126	155
M BATH	148	3743	3457	147	176
BATH #4	40	99	62	4	3
DRESS	62	317	124	12	6
LDRY	71	235	149	9	8
MECH CLOSET	9	30	19	1	1

Bold/italic values have been manually overridden

Printout certified by ACCA to meet all requirements of Manual J 8th Ed.

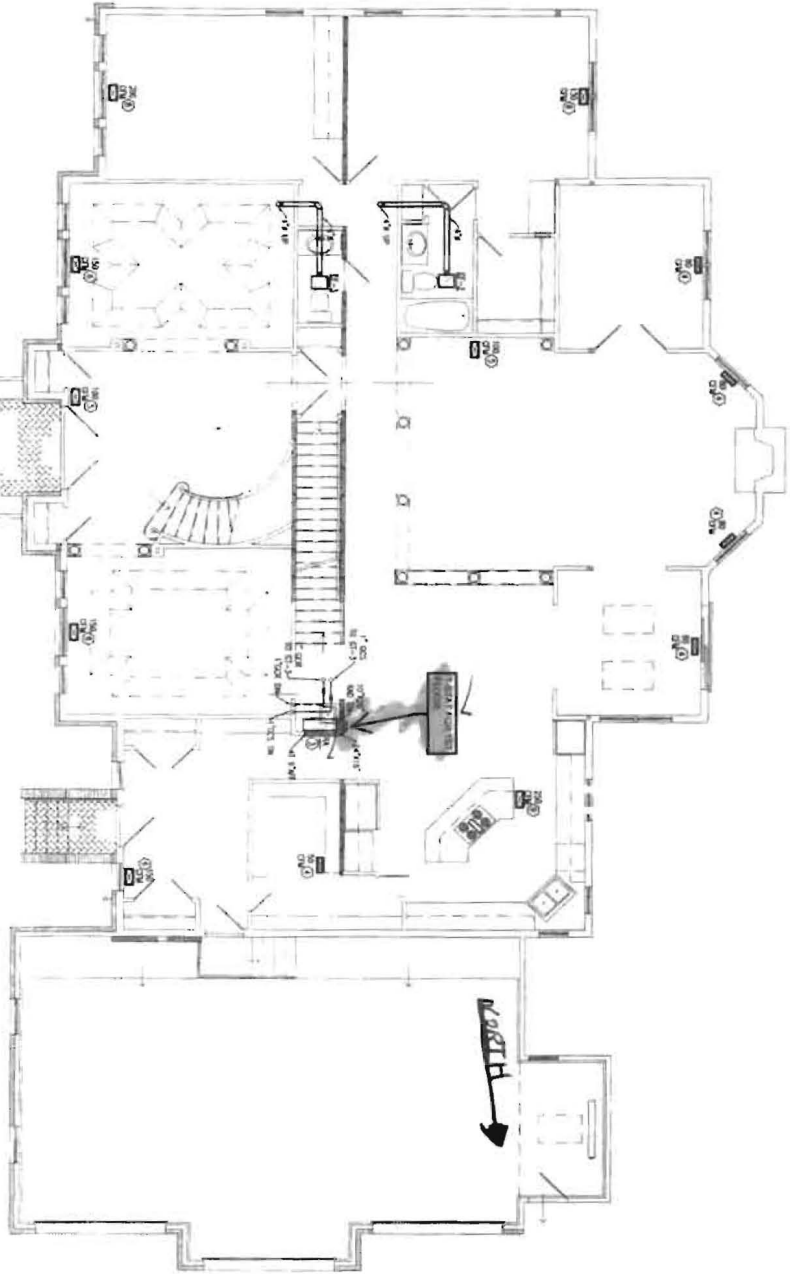
HALLWAY #2	200	493	309	19	16
M WIC	156	2987	707	117	36
STRG	60	2137	440	84	22
<hr/>					
ZONE 3	d 2823	51072	39290	2000	2000
Other equip loads		6038	1725		
Equip. @ 1.00 RSM			41015		
Latent cooling			7283		
<hr/>					
TOTALS	2823	57110	48298	2000	2000

Bold/italic values have been manually overridden

Printout certified by ACCA to meet all requirements of Manual J 8th Ed.

M09001003

FIRST FLOOR PLAN 1/8" = 1'-0"



*Accounting Planning +
 Air-Conditioning
 James D. Rubin
 State License 15973*

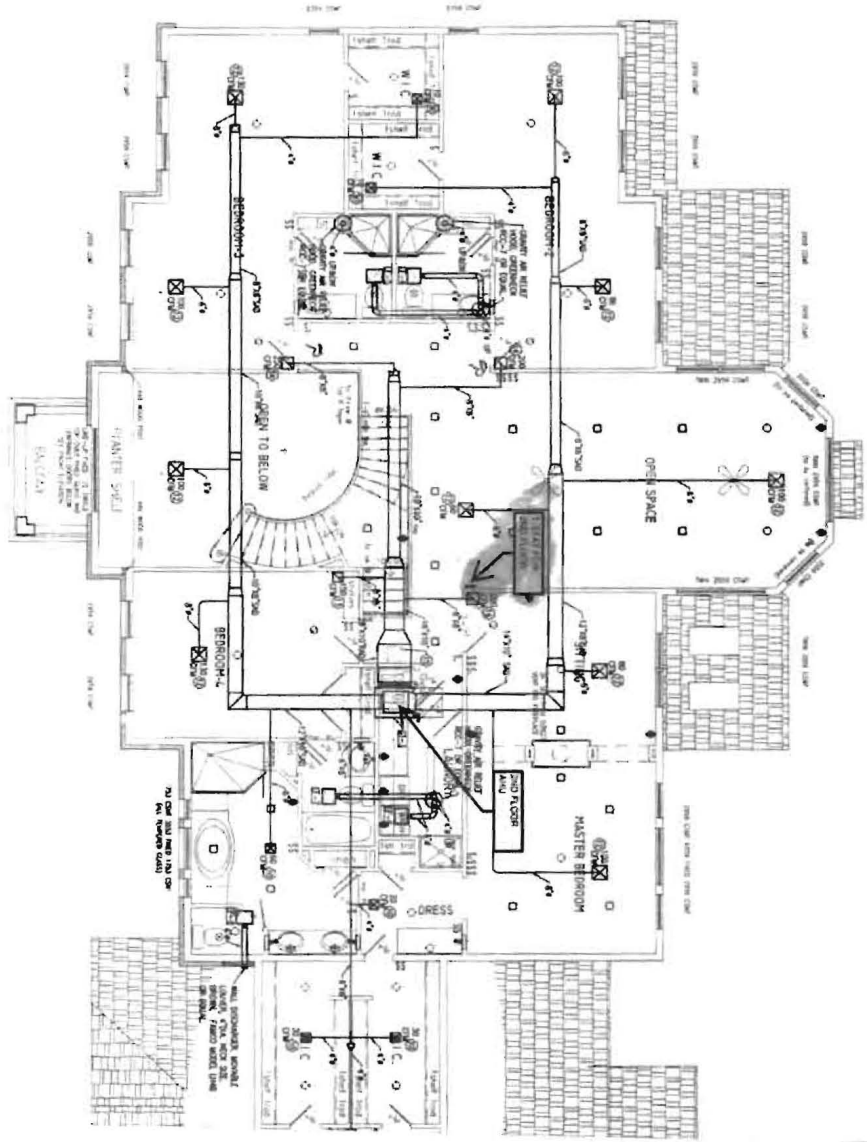
PROPERTY ADDRESS
 6411 48TH AVE
 LOT #7 2125 FULTON RD. DRIVE FULTON, MO 63019
 CONTRACTOR ACCOUNTING HEATING & AC
 LICENSE # 15973
 LICENSEE NAME JAMES DONALD RUBIN
 SIGNATURE

James D. Rubin

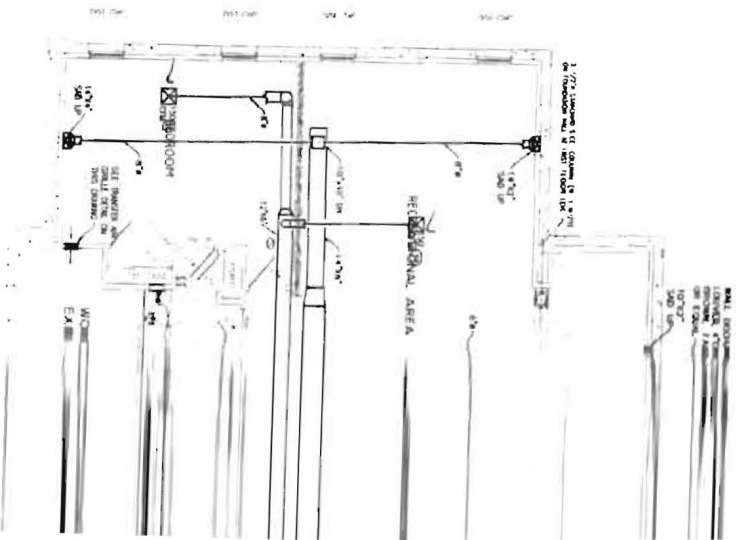
AMS Associates

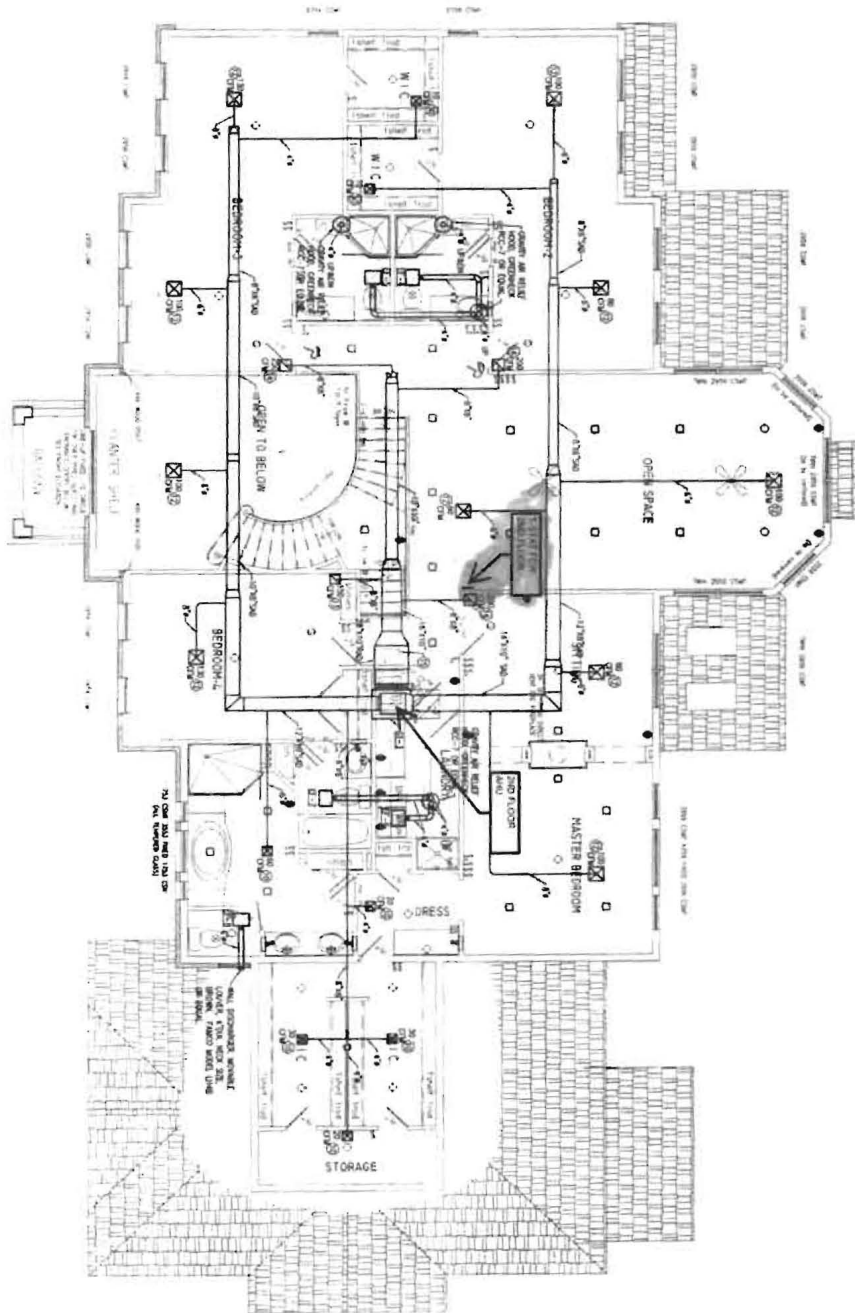
AGE

1715 BRIDGE WOOD



NOTES:
 1. ALL DIMENSIONS ARE TO FACE UNLESS NOTED OTHERWISE.
 2. ALL WALLS ARE 1/2" THICK UNLESS NOTED OTHERWISE.
 3. ALL FLOORS ARE 1 1/2" THICK UNLESS NOTED OTHERWISE.
 4. ALL CEILING ARE 8' HIGH UNLESS NOTED OTHERWISE.
 5. ALL ROOF ARE 12/12 UNLESS NOTED OTHERWISE.
 6. ALL WINDOWS ARE 6' 0" HIGH UNLESS NOTED OTHERWISE.
 7. ALL DOORS ARE 6' 8" HIGH UNLESS NOTED OTHERWISE.
 8. ALL STAIRS ARE 8' 0" WIDE UNLESS NOTED OTHERWISE.
 9. ALL HALLWAYS ARE 4' 0" WIDE UNLESS NOTED OTHERWISE.
 10. ALL ROOMS ARE TO BE FINISHED UNLESS NOTED OTHERWISE.
 11. ALL EXTERIOR WALLS ARE TO BE FINISHED UNLESS NOTED OTHERWISE.
 12. ALL EXTERIOR ROOF ARE TO BE FINISHED UNLESS NOTED OTHERWISE.
 13. ALL EXTERIOR FLOORS ARE TO BE FINISHED UNLESS NOTED OTHERWISE.
 14. ALL EXTERIOR STAIRS ARE TO BE FINISHED UNLESS NOTED OTHERWISE.
 15. ALL EXTERIOR LIGHTS ARE TO BE FINISHED UNLESS NOTED OTHERWISE.
 16. ALL EXTERIOR VENTILATORS ARE TO BE FINISHED UNLESS NOTED OTHERWISE.
 17. ALL EXTERIOR HANDRAILS ARE TO BE FINISHED UNLESS NOTED OTHERWISE.
 18. ALL EXTERIOR RAILINGS ARE TO BE FINISHED UNLESS NOTED OTHERWISE.
 19. ALL EXTERIOR FENCES ARE TO BE FINISHED UNLESS NOTED OTHERWISE.
 20. ALL EXTERIOR GATES ARE TO BE FINISHED UNLESS NOTED OTHERWISE.





DATE: 1/15/11
 DRAWN BY: [Signature]

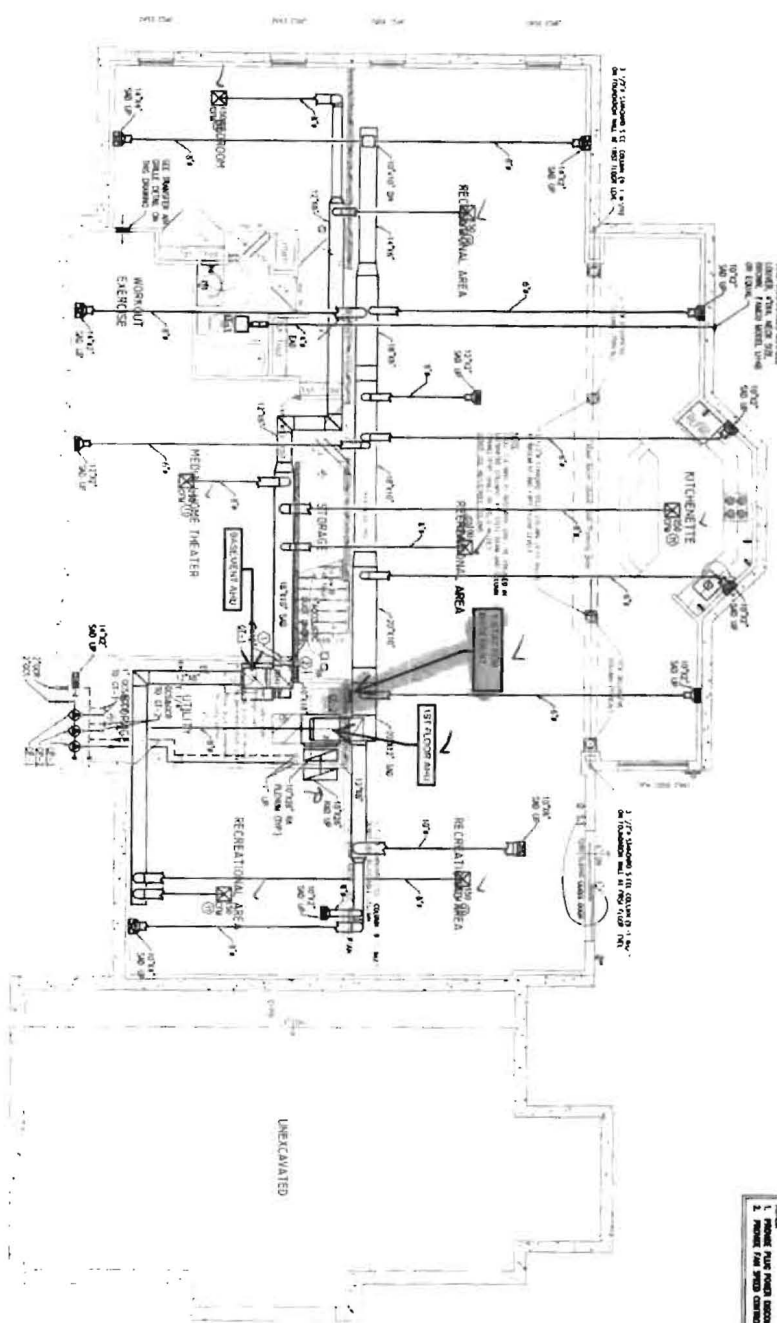
NOTE:
 1. ALL WORK SHALL BE IN ACCORDANCE WITH THE 2009 INTERNATIONAL RESIDENTIAL CODE BOOK, AS AMENDED BY THE CITY OF BALTIMORE, MARYLAND, AND THE 2009 INTERNATIONAL MECHANICAL AND ELECTRICAL CODES, AS AMENDED BY THE CITY OF BALTIMORE, MARYLAND.
 2. ALL WORK SHALL BE SUBJECT TO THE APPROVAL OF THE CITY OF BALTIMORE, MARYLAND, DEPARTMENT OF PERMITS AND INSPECTIONS.
 3. ALL WORK SHALL BE SUBJECT TO THE APPROVAL OF THE CITY OF BALTIMORE, MARYLAND, DEPARTMENT OF PUBLIC WORKS.
 4. ALL WORK SHALL BE SUBJECT TO THE APPROVAL OF THE CITY OF BALTIMORE, MARYLAND, DEPARTMENT OF ENVIRONMENTAL AND PLANNING.
 5. ALL WORK SHALL BE SUBJECT TO THE APPROVAL OF THE CITY OF BALTIMORE, MARYLAND, DEPARTMENT OF TRANSPORTATION.
 6. ALL WORK SHALL BE SUBJECT TO THE APPROVAL OF THE CITY OF BALTIMORE, MARYLAND, DEPARTMENT OF SOCIAL SERVICES.
 7. ALL WORK SHALL BE SUBJECT TO THE APPROVAL OF THE CITY OF BALTIMORE, MARYLAND, DEPARTMENT OF HEALTH AND HUMAN SERVICES.
 8. ALL WORK SHALL BE SUBJECT TO THE APPROVAL OF THE CITY OF BALTIMORE, MARYLAND, DEPARTMENT OF EDUCATION.
 9. ALL WORK SHALL BE SUBJECT TO THE APPROVAL OF THE CITY OF BALTIMORE, MARYLAND, DEPARTMENT OF LABOR AND INDUSTRY.
 10. ALL WORK SHALL BE SUBJECT TO THE APPROVAL OF THE CITY OF BALTIMORE, MARYLAND, DEPARTMENT OF REVENUE AND TAXATION.
 11. ALL WORK SHALL BE SUBJECT TO THE APPROVAL OF THE CITY OF BALTIMORE, MARYLAND, DEPARTMENT OF GENERAL SERVICES.
 12. ALL WORK SHALL BE SUBJECT TO THE APPROVAL OF THE CITY OF BALTIMORE, MARYLAND, DEPARTMENT OF INFORMATION TECHNOLOGY.
 13. ALL WORK SHALL BE SUBJECT TO THE APPROVAL OF THE CITY OF BALTIMORE, MARYLAND, DEPARTMENT OF POLICE.
 14. ALL WORK SHALL BE SUBJECT TO THE APPROVAL OF THE CITY OF BALTIMORE, MARYLAND, DEPARTMENT OF FIRE.
 15. ALL WORK SHALL BE SUBJECT TO THE APPROVAL OF THE CITY OF BALTIMORE, MARYLAND, DEPARTMENT OF CORRECTIONS.
 16. ALL WORK SHALL BE SUBJECT TO THE APPROVAL OF THE CITY OF BALTIMORE, MARYLAND, DEPARTMENT OF JUVENILE SERVICES.
 17. ALL WORK SHALL BE SUBJECT TO THE APPROVAL OF THE CITY OF BALTIMORE, MARYLAND, DEPARTMENT OF HUMAN RELATIONS.
 18. ALL WORK SHALL BE SUBJECT TO THE APPROVAL OF THE CITY OF BALTIMORE, MARYLAND, DEPARTMENT OF COMMUNITY DEVELOPMENT.
 19. ALL WORK SHALL BE SUBJECT TO THE APPROVAL OF THE CITY OF BALTIMORE, MARYLAND, DEPARTMENT OF ECONOMIC DEVELOPMENT.
 20. ALL WORK SHALL BE SUBJECT TO THE APPROVAL OF THE CITY OF BALTIMORE, MARYLAND, DEPARTMENT OF CULTURAL AND RECREATION SERVICES.
 21. ALL WORK SHALL BE SUBJECT TO THE APPROVAL OF THE CITY OF BALTIMORE, MARYLAND, DEPARTMENT OF ARTS AND CULTURE.
 22. ALL WORK SHALL BE SUBJECT TO THE APPROVAL OF THE CITY OF BALTIMORE, MARYLAND, DEPARTMENT OF LIBRARIES AND ARCHIVES.
 23. ALL WORK SHALL BE SUBJECT TO THE APPROVAL OF THE CITY OF BALTIMORE, MARYLAND, DEPARTMENT OF HISTORIC PRESERVATION.
 24. ALL WORK SHALL BE SUBJECT TO THE APPROVAL OF THE CITY OF BALTIMORE, MARYLAND, DEPARTMENT OF PARKS AND RECREATION.
 25. ALL WORK SHALL BE SUBJECT TO THE APPROVAL OF THE CITY OF BALTIMORE, MARYLAND, DEPARTMENT OF PLANNING AND ZONING.
 26. ALL WORK SHALL BE SUBJECT TO THE APPROVAL OF THE CITY OF BALTIMORE, MARYLAND, DEPARTMENT OF PUBLIC AFFAIRS.
 27. ALL WORK SHALL BE SUBJECT TO THE APPROVAL OF THE CITY OF BALTIMORE, MARYLAND, DEPARTMENT OF OFFICIALS AND EMPLOYEES RELATIONS.
 28. ALL WORK SHALL BE SUBJECT TO THE APPROVAL OF THE CITY OF BALTIMORE, MARYLAND, DEPARTMENT OF LEGAL AFFAIRS.
 29. ALL WORK SHALL BE SUBJECT TO THE APPROVAL OF THE CITY OF BALTIMORE, MARYLAND, DEPARTMENT OF CONTRACT ADMINISTRATION.
 30. ALL WORK SHALL BE SUBJECT TO THE APPROVAL OF THE CITY OF BALTIMORE, MARYLAND, DEPARTMENT OF PROCUREMENT.
 31. ALL WORK SHALL BE SUBJECT TO THE APPROVAL OF THE CITY OF BALTIMORE, MARYLAND, DEPARTMENT OF FINANCE AND ACCOUNTING.
 32. ALL WORK SHALL BE SUBJECT TO THE APPROVAL OF THE CITY OF BALTIMORE, MARYLAND, DEPARTMENT OF INFORMATION MANAGEMENT.
 33. ALL WORK SHALL BE SUBJECT TO THE APPROVAL OF THE CITY OF BALTIMORE, MARYLAND, DEPARTMENT OF OPERATIONS AND MAINTENANCE.
 34. ALL WORK SHALL BE SUBJECT TO THE APPROVAL OF THE CITY OF BALTIMORE, MARYLAND, DEPARTMENT OF FACILITIES MANAGEMENT.
 35. ALL WORK SHALL BE SUBJECT TO THE APPROVAL OF THE CITY OF BALTIMORE, MARYLAND, DEPARTMENT OF SAFETY AND SECURITY.
 36. ALL WORK SHALL BE SUBJECT TO THE APPROVAL OF THE CITY OF BALTIMORE, MARYLAND, DEPARTMENT OF RISK MANAGEMENT.
 37. ALL WORK SHALL BE SUBJECT TO THE APPROVAL OF THE CITY OF BALTIMORE, MARYLAND, DEPARTMENT OF COMPLIANCE.
 38. ALL WORK SHALL BE SUBJECT TO THE APPROVAL OF THE CITY OF BALTIMORE, MARYLAND, DEPARTMENT OF ETHICS.
 39. ALL WORK SHALL BE SUBJECT TO THE APPROVAL OF THE CITY OF BALTIMORE, MARYLAND, DEPARTMENT OF INDEPENDENT OFFICIALS.
 40. ALL WORK SHALL BE SUBJECT TO THE APPROVAL OF THE CITY OF BALTIMORE, MARYLAND, DEPARTMENT OF THE COMPTROLLER AND TREASURER.
 41. ALL WORK SHALL BE SUBJECT TO THE APPROVAL OF THE CITY OF BALTIMORE, MARYLAND, DEPARTMENT OF THE CLERK OF THE CIRCUIT COURT.
 42. ALL WORK SHALL BE SUBJECT TO THE APPROVAL OF THE CITY OF BALTIMORE, MARYLAND, DEPARTMENT OF THE CLERK OF THE DISTRICT COURT.
 43. ALL WORK SHALL BE SUBJECT TO THE APPROVAL OF THE CITY OF BALTIMORE, MARYLAND, DEPARTMENT OF THE CLERK OF THE PROBATE COURT.
 44. ALL WORK SHALL BE SUBJECT TO THE APPROVAL OF THE CITY OF BALTIMORE, MARYLAND, DEPARTMENT OF THE CLERK OF THE SUPERIOR COURT.
 45. ALL WORK SHALL BE SUBJECT TO THE APPROVAL OF THE CITY OF BALTIMORE, MARYLAND, DEPARTMENT OF THE CLERK OF THE COURT OF APPEALS.
 46. ALL WORK SHALL BE SUBJECT TO THE APPROVAL OF THE CITY OF BALTIMORE, MARYLAND, DEPARTMENT OF THE CLERK OF THE COURT OF MORTGAGE DISPUTES.
 47. ALL WORK SHALL BE SUBJECT TO THE APPROVAL OF THE CITY OF BALTIMORE, MARYLAND, DEPARTMENT OF THE CLERK OF THE COURT OF COMMON PLEAS.
 48. ALL WORK SHALL BE SUBJECT TO THE APPROVAL OF THE CITY OF BALTIMORE, MARYLAND, DEPARTMENT OF THE CLERK OF THE COURT OF CHANCERY.
 49. ALL WORK SHALL BE SUBJECT TO THE APPROVAL OF THE CITY OF BALTIMORE, MARYLAND, DEPARTMENT OF THE CLERK OF THE COURT OF MENTAL HEALTH DISPUTES.
 50. ALL WORK SHALL BE SUBJECT TO THE APPROVAL OF THE CITY OF BALTIMORE, MARYLAND, DEPARTMENT OF THE CLERK OF THE COURT OF JUDICIAL REVIEW.
 51. ALL WORK SHALL BE SUBJECT TO THE APPROVAL OF THE CITY OF BALTIMORE, MARYLAND, DEPARTMENT OF THE CLERK OF THE COURT OF APPEALS IN REVISION.
 52. ALL WORK SHALL BE SUBJECT TO THE APPROVAL OF THE CITY OF BALTIMORE, MARYLAND, DEPARTMENT OF THE CLERK OF THE COURT OF APPEALS IN REHEARING.
 53. ALL WORK SHALL BE SUBJECT TO THE APPROVAL OF THE CITY OF BALTIMORE, MARYLAND, DEPARTMENT OF THE CLERK OF THE COURT OF APPEALS IN RECALL.
 54. ALL WORK SHALL BE SUBJECT TO THE APPROVAL OF THE CITY OF BALTIMORE, MARYLAND, DEPARTMENT OF THE CLERK OF THE COURT OF APPEALS IN REWRITING.
 55. ALL WORK SHALL BE SUBJECT TO THE APPROVAL OF THE CITY OF BALTIMORE, MARYLAND, DEPARTMENT OF THE CLERK OF THE COURT OF APPEALS IN REVERSAL.
 56. ALL WORK SHALL BE SUBJECT TO THE APPROVAL OF THE CITY OF BALTIMORE, MARYLAND, DEPARTMENT OF THE CLERK OF THE COURT OF APPEALS IN REMITTANCE.
 57. ALL WORK SHALL BE SUBJECT TO THE APPROVAL OF THE CITY OF BALTIMORE, MARYLAND, DEPARTMENT OF THE CLERK OF THE COURT OF APPEALS IN RESCINDMENT.
 58. ALL WORK SHALL BE SUBJECT TO THE APPROVAL OF THE CITY OF BALTIMORE, MARYLAND, DEPARTMENT OF THE CLERK OF THE COURT OF APPEALS IN REVOCATION.
 59. ALL WORK SHALL BE SUBJECT TO THE APPROVAL OF THE CITY OF BALTIMORE, MARYLAND, DEPARTMENT OF THE CLERK OF THE COURT OF APPEALS IN REPEAL.
 60. ALL WORK SHALL BE SUBJECT TO THE APPROVAL OF THE CITY OF BALTIMORE, MARYLAND, DEPARTMENT OF THE CLERK OF THE COURT OF APPEALS IN REPEL.
 61. ALL WORK SHALL BE SUBJECT TO THE APPROVAL OF THE CITY OF BALTIMORE, MARYLAND, DEPARTMENT OF THE CLERK OF THE COURT OF APPEALS IN REPRISAL.
 62. ALL WORK SHALL BE SUBJECT TO THE APPROVAL OF THE CITY OF BALTIMORE, MARYLAND, DEPARTMENT OF THE CLERK OF THE COURT OF APPEALS IN REPROBATION.
 63. ALL WORK SHALL BE SUBJECT TO THE APPROVAL OF THE CITY OF BALTIMORE, MARYLAND, DEPARTMENT OF THE CLERK OF THE COURT OF APPEALS IN REPROOF.
 64. ALL WORK SHALL BE SUBJECT TO THE APPROVAL OF THE CITY OF BALTIMORE, MARYLAND, DEPARTMENT OF THE CLERK OF THE COURT OF APPEALS IN REPROVAL.
 65. ALL WORK SHALL BE SUBJECT TO THE APPROVAL OF THE CITY OF BALTIMORE, MARYLAND, DEPARTMENT OF THE CLERK OF THE COURT OF APPEALS IN REPROVE.
 66. ALL WORK SHALL BE SUBJECT TO THE APPROVAL OF THE CITY OF BALTIMORE, MARYLAND, DEPARTMENT OF THE CLERK OF THE COURT OF APPEALS IN REPROVAL.
 67. ALL WORK SHALL BE SUBJECT TO THE APPROVAL OF THE CITY OF BALTIMORE, MARYLAND, DEPARTMENT OF THE CLERK OF THE COURT OF APPEALS IN REPROVAL.
 68. ALL WORK SHALL BE SUBJECT TO THE APPROVAL OF THE CITY OF BALTIMORE, MARYLAND, DEPARTMENT OF THE CLERK OF THE COURT OF APPEALS IN REPROVAL.
 69. ALL WORK SHALL BE SUBJECT TO THE APPROVAL OF THE CITY OF BALTIMORE, MARYLAND, DEPARTMENT OF THE CLERK OF THE COURT OF APPEALS IN REPROVAL.
 70. ALL WORK SHALL BE SUBJECT TO THE APPROVAL OF THE CITY OF BALTIMORE, MARYLAND, DEPARTMENT OF THE CLERK OF THE COURT OF APPEALS IN REPROVAL.

PROPERTY ADDRESS:
 1111 N. GREENBELT ROAD, BALTIMORE, MD 21204
CONTRACTOR: JAMES C. BROWN & SONS, INC.
GENERAL CONTRACTOR: JAMES C. BROWN & SONS, INC.
OWNER: JAMES C. BROWN & SONS, INC.
DATE: 1/15/11
SCALE: AS SHOWN

SECOND FLOOR PLAN
 1/15/11
 JAMES C. BROWN & SONS, INC.
 1111 N. GREENBELT ROAD, BALTIMORE, MD 21204
 (410) 326-1111
 www.jcbrown.com

8-2

BASEMAN III - JAN
1ST FLOOR PLAN



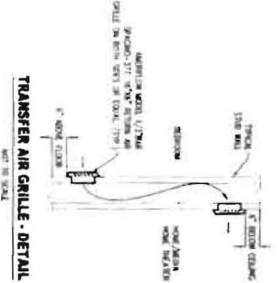
EXHAUST FAN (EF) SCHEDULE

UNIT	S.A. NO.	S.A. SIZES	S.A. NO.	S.A. SIZES	ELECTRICAL DATA		RATED HORSEPOWER
					WATTS	PHASE	
1	1	10"	10"	10"	10"	10"	10"
2	2	12"	12"	12"	12"	12"	12"
3	3	14"	14"	14"	14"	14"	14"

NOTES:
1. PROVIDE FAN MOTOR CONNECTOR AND GROUND MOUNTING DAMPER.
2. PROVIDE FOR FAN CONTROL.

AIR DISTRIBUTION DEVICE SCHEDULE

UNIT	QTY	SIZE	TYPE	MODEL
1	1	12" x 12"	DIFFUSER	1212
2	1	12" x 12"	DIFFUSER	1212
3	1	12" x 12"	DIFFUSER	1212
4	1	12" x 12"	DIFFUSER	1212
5	1	12" x 12"	DIFFUSER	1212
6	1	12" x 12"	DIFFUSER	1212
7	1	12" x 12"	DIFFUSER	1212
8	1	12" x 12"	DIFFUSER	1212
9	1	12" x 12"	DIFFUSER	1212
10	1	12" x 12"	DIFFUSER	1212
11	1	12" x 12"	DIFFUSER	1212
12	1	12" x 12"	DIFFUSER	1212
13	1	12" x 12"	DIFFUSER	1212
14	1	12" x 12"	DIFFUSER	1212
15	1	12" x 12"	DIFFUSER	1212
16	1	12" x 12"	DIFFUSER	1212
17	1	12" x 12"	DIFFUSER	1212
18	1	12" x 12"	DIFFUSER	1212
19	1	12" x 12"	DIFFUSER	1212
20	1	12" x 12"	DIFFUSER	1212
21	1	12" x 12"	DIFFUSER	1212
22	1	12" x 12"	DIFFUSER	1212
23	1	12" x 12"	DIFFUSER	1212
24	1	12" x 12"	DIFFUSER	1212
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30	1	12" x 12"	DIFFUSER	1212
31	1	12" x 12"	DIFFUSER	1212
32	1	12" x 12"	DIFFUSER	1212
33	1	12" x 12"	DIFFUSER	1212
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41	1	12" x 12"	DIFFUSER	1212
42	1	12" x 12"	DIFFUSER	1212
43	1	12" x 12"	DIFFUSER	1212
44	1	12" x 12"	DIFFUSER	1212
45	1	12" x 12"	DIFFUSER	1212
46	1	12" x 12"	DIFFUSER	1212
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62	1	12" x 12"	DIFFUSER	1212
63	1	12" x 12"	DIFFUSER	1212
64	1	12" x 12"	DIFFUSER	1212
65	1	12" x 12"	DIFFUSER	1212
66	1	12" x 12"	DIFFUSER	1212
67	1	12" x 12"	DIFFUSER	1212
68	1	12" x 12"	DIFFUSER	1212
69	1	12" x 12"	DIFFUSER	1212
70	1	12" x 12"	DIFFUSER	1212
71	1	12" x 12"	DIFFUSER	1212
72	1	12" x 12"	DIFFUSER	1212
73	1	12" x 12"	DIFFUSER	1212
74	1	12" x 12"	DIFFUSER	1212
75	1	12" x 12"	DIFFUSER	1212
76	1	12" x 12"	DIFFUSER	1212
77	1	12" x 12"	DIFFUSER	1212
78	1	12" x 12"	DIFFUSER	1212
79	1	12" x 12"	DIFFUSER	1212
80	1	12" x 12"	DIFFUSER	1212
81	1	12" x 12"	DIFFUSER	1212
82	1	12" x 12"	DIFFUSER	1212
83	1	12" x 12"	DIFFUSER	1212
84	1	12" x 12"	DIFFUSER	1212
85	1	12" x 12"	DIFFUSER	1212
86	1	12" x 12"	DIFFUSER	1212
87	1	12" x 12"	DIFFUSER	1212
88	1	12" x 12"	DIFFUSER	1212
89	1	12" x 12"	DIFFUSER	1212
90	1	12" x 12"	DIFFUSER	1212
91	1	12" x 12"	DIFFUSER	1212
92	1	12" x 12"	DIFFUSER	1212
93	1	12" x 12"	DIFFUSER	1212
94	1	12" x 12"	DIFFUSER	1212
95	1	12" x 12"	DIFFUSER	1212
96	1	12" x 12"	DIFFUSER	1212
97	1	12" x 12"	DIFFUSER	1212
98	1	12" x 12"	DIFFUSER	1212
99	1	12" x 12"	DIFFUSER	1212
100	1	12" x 12"	DIFFUSER	1212



NOTES:
1. PROVIDE FAN MOTOR CONNECTOR AND GROUND MOUNTING DAMPER.
2. PROVIDE FOR FAN CONTROL.

CONTRACT ADDRESS:
PARK RESERVE
4017 STIVELAND DRIVE
CONSTRUCTION ACCREDITED CONTRACTOR
MARCH 1988
SCHEDULE NAME: BASEMAN III
SCALE: 1/4" = 1'-0"

FERGUSON ENTERPRISES, INC.

13890 LOWE STREET
CHANTILLY, VA 20151-3213

INVOICE NUMBER	CUSTOMER	PAGE
4119932	85350	1

PLEASE REFER TO INVOICE NUMBER WHEN
MAKING PAYMENT AND REMIT TO:

Please contact with Questions:
703-375-5800

FERGUSON ENTERPRISES #1300
FED ID 54-1211771
PO BOX 644054
PITTSBURGH, PA 15264-4054

00005874 01 MB 0.382 01 TR 023 FRIDCR01 000000
RECON DRILLING INC
4102 MAJESTIC LANE
FAIRFAX, VA 22033

SHIP TO

COUNTER PICK UP
13022 BALLS FORD ROAD
HUB = F001
MANASSAS, VA 20109-3022



SHIP WHSE.	SELL WHSE.	TAX CODE	CUSTOMER ORDER NUMBER	SALESMAN	JOB NAME	INVOICE DATE	BATCH
146	146	VAONLY		HH	AMRISH	03/09/10	10 137110
ORDERED	SHIPPED	ITEM NUMBER	DESCRIPTION	UNIT PRICE	UM	AMOUNT	
1	0	IGCRK	2 GALV MI 150# CRS		EA	0.00	
1	0	IGS9K	2 GALV MI 150# ST 90 ELL		EA	0.00	
10	10	B201087	50# QUICKGEL BENTONITE DRILLING MUD	11.820	EA	118.20	
48	48	BAR201759	50# BENSEAL 8 MESH BENTONITE MUD	11.170	EA	536.16	
1	1	IGNKCL	2XCLOSE GALV STL NTP	3.162	EA	3.16	
INVOICE SUB-TOTAL							657.52
TAX VIRGINIA STATE ONLY							32.88

FERGUSON ENTERPRISES, INC.

115:01

FERGUSON ENTERPRISES, INC.

13890 LOWE STREET
CHANTILLY, VA 20151-3213

INVOICE NUMBER	CUSTOMER	PAGE
4218278	85350	1

PLEASE REFER TO INVOICE NUMBER WHEN MAKING PAYMENT AND REMIT TO:

Please contact with Questions:
703-375-5800

FERGUSON ENTERPRISES #1300
FED ID 54-1211771
PO BOX 644054
PITTSBURGH, PA 15264-4054

00006135 01 MB 0.382 01 TR 027 FRIDCW01 00000
RECON DRILLING INC
4102 MAJESTIC LANE
FAIRFAX, VA 22033

SHIP TO:

COUNTER PICK UP
13022 BALLS FORD ROAD
HUB = F001
MANASSAS, VA 20109-3022



SHIP WHSE.	SELL WHSE.	TAX CODE	CUSTOMER ORDER NUMBER	SALESMAN	JOB NAME	INVOICE DATE	BATCH
146	146	VAONLY	BENSEAL	HH	BENSEAL	04/23/10	10 139066
ORDERED	SHIPPED	ITEM NUMBER	DESCRIPTION		UNIT PRICE	UM	AMOUNT
20	20	BAR201759	50# BENSEAL 8 MESH BENTONITE MUD		11.170	EA	223.40
			INVOICE SUB-TOTAL				223.40
			TAX VIRGINIA STATE ONLY				11.17

TERMS: NET 10TH PROX

ORIGINAL INVOICE

TOTAL DUE

234.57

All accounts are due and payable per the invoiced terms. All past due amounts are subject to a service charge at the maximum rate allowed by state law plus

WARRANTY PROVISIONS: SEE REVERSE SIDE A

Transaction Receipt

Howard County Office of the Health Officer
Environmental Health
7178 Columbia Gateway Drive
Columbia , MD 21046
410-3136300
05/03/2010 12:43PM
Environmen050310124024Sim
31646910
Well and Septic
Geo Thermal Well: Fulton Ridge Lot 7, Fulton Ridge Drive *QA # 13105*

AB Construction, INC
9450 Annapolis Road
Lanham, MD 20706
*****2360
055002707

Amount: \$160.00

I hereby authorize
Howard County Office of the Health Officer
to debit my account
indicated above.

Signature



[click here](#) to continue.

Transaction Receipt

Howard County Office of the Health Officer
Environmental Health
7178 Columbia Gateway Drive
Columbia , MD 21046
410-3136300

05/03/2010 12:45PM

Environmen050310124330Sim
31647035

Well and Septic

#2 Geo Thermal Well: Fulton Ridge Lot 7, Fulton Ridge Drive *OH # 13106*

AB Construction, INC
9450 Annapolis Road
Lanham, MD 20706
*****2360
055002707

Amount: \$160.00

I hereby authorize
Howard County Office of the Health Officer
to debit my account
indicated above.

Signature



[click here to continue.](#)

M09000003

wrightsoft Load Short Form
ZONE 1

Job:
Date:
By:

Project Information

For: PATEL RESIDENCE
12135 FULTON RIDGE DRIVE, FULTON, MD 20759

Design Information

	Htg	Clg	Infiltration	
Outside db (°F)	0	95	Method	Simplified
Inside db (°F)	70	75	Construction quality	Average
Design TD (°F)	70	20	Fireplaces	0
Daily range	-	M		
Inside humidity (%)	30	50		
Moisture difference (gr/lb)	28	40		

HEATING EQUIPMENT

Make ENVISION
Trade
Model NDV026A111CT
ARI ref no.
Efficiency 0 COP
Heating input 0 Btuh
Heating output 0 Btuh
Temperature rise 0 °F
Actual air flow 800 cfm
Air flow factor 0.026 cfm/Btuh
Static pressure 0.05 in H2O
Space thermostat

COOLING EQUIPMENT

Make ENVISION
Trade
Cond NDV026A111CT
Coil
ARI ref no.
Efficiency 0 EER
Sensible cooling 0 Btuh
Latent cooling 0 Btuh
Total cooling 0 Btuh
Actual air flow 800 cfm
Air flow factor 0.060 cfm/Btuh
Static pressure 0.05 in H2O
Load sensible heat ratio 0.84

ROOM NAME	Area (ft²)	Htg load (Btuh)	Clg load (Btuh)	Htg AVF (cfm)	Clg AVF (cfm)
B BEDROOM	281	4696	3220	123	194
B BATH	58	108	0	3	0
MEDIA RM	502	2956	310	78	19
UTILITY RM	180	1168	128	31	8
REC RM	1413	14154	7680	372	482
KITCHENETTE	408	7392	1960	194	118
ZONE 1	2842	30473	13298	800	800
Other equip loads		2432	695		
Equip. @ 1.00 RSM			13993		
Latent cooling			2699		
TOTALS	2842	32905	16692	800	800

Bold/italic values have been manually overridden

Printout certified by ACCA to meet all requirements of Manual J 8th Ed.



Load Short Form ZONE 2

Job:
Date:
By:

Project Information

For: PATEL RESIDENCE
12135 FULTON RIDGE DRIVE, FULTON, MD 20759

Design Information

	Htg	Clg	Method	Infiltration
Outside db (°F)	0	95		Simplified
Inside db (°F)	70	75	Construction quality	Average
Design TD (°F)	70	20	Fireplaces	0
Daily range	-	M		
Inside humidity (%)	30	50		
Molsture difference (gr/lb)	28	40		

HEATING EQUIPMENT

Make ENVISION
Trade
Model NVD049A11CT
ARI ref no.
Efficiency 0 COP
Heating input 0 Btuh
Heating output 0 Btuh
Temperature rise 0 °F
Actual air flow 1600 cfm
Air flow factor 0.031 cfm/Btuh
Static pressure 0.05 in H2O
Space thermostat

COOLING EQUIPMENT

Make ENVISION
Trade
Cond NVD049A11CT
Coil
ARI ref no.
Efficiency 0 EER
Sensible cooling 0 Btuh
Latent cooling 0 Btuh
Total cooling 0 Btuh
Actual air flow 1600 cfm
Air flow factor 0.048 cfm/Btuh
Static pressure 0.06 in H2O
Load sensible heat ratio 0.82

ROOM NAME	Area (ft²)	Htg load (Btuh)	Clg load (Btuh)	Htg AVF (cfm)	Clg AVF (cfm)
IN LAW SUITE	245	6399	3450	197	185
LIVING RM	192	5064	4620	156	220
POWDER RM	21	0	0	0	0
BATH	66	0	0	0	0
WIC	42	0	0	0	0
PRAYER RM	143	4630	3268	142	156
FAMILY RM	440	4190	3142	129	150
MORNING RM	121	5440	2885	167	138
BREAKFAST RM	132	0	0	0	0
KITCHEN	274	4870	3061	150	148
PANTRY	80	944	217	29	10
HALL	174	5043	2986	155	142
DINING RM	192	5152	4638	158	221
FOYER	256	2631	765	81	36
HALLWAY	259	0	0	0	0
LIBRARY	221	7676	4519	236	218

Bold/italic values have been manually overridden

Printout certified by ACCA to meet all requirements of Manual J 8th Ed.

M09000003

wrightsoft Load Short Form
ZONE 1

Job:
Date:
By:

Project Information

For: **PATEL RESIDENCE**
12135 FULTON RIDGE DRIVE, FULTON, MD 20759

Design Information

	Htg	Clg	Method	Infiltration	Simplified
Outside db (°F)	0	95			
Inside db (°F)	70	75	Construction quality		Average
Design TD (°F)	70	20	Fireplaces		0
Daily range	-	M			
Inside humidity (%)	30	60			
Moisture difference (gr/lb)	28	40			

HEATING EQUIPMENT

Make **ENVISION**
Trade
Model **NDV026A111CT**
ARI ref no.
Efficiency **0 COP**
Heating input **0 Btuh**
Heating output **0 Btuh**
Temperature rise **0 °F**
Actual air flow **800 cfm**
Air flow factor **0.026 cfm/Btuh**
Static pressure **0.05 in H2O**
Space thermostat

COOLING EQUIPMENT

Make **ENVISION**
Trade
Cond **NDV026A111CT**
Coil
ARI ref no.
Efficiency **0 EER**
Sensible cooling **0 Btuh**
Latent cooling **0 Btuh**
Total cooling **0 Btuh**
Actual air flow **800 cfm**
Air flow factor **0.060 cfm/Btuh**
Static pressure **0.05 in H2O**
Load sensible heat ratio **0.84**

ROOM NAME	Area (ft²)	Htg load (Btuh)	Clg load (Btuh)	Htg AVF (cfm)	Clg AVF (cfm)
B BEDROOM	281	4696	3220	123	194
B BATH	58	108	0	3	0
MEDIA RM	502	2956	310	78	19
UTILITY RM	180	1168	128	31	8
REC RM	1413	14154	7680	372	462
KITCHENETTE	408	7392	1960	194	118
ZONE 1	2842	30473	13298	800	800
Other equip loads		2432	695		
Equip. @ 1.00 RSM			13993		
Latent cooling			2699		
TOTALS	2842	32905	16692	800	800

Bold/italic values have been manually overridden

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Load Short Form ZONE 3

Job:
Date:
By:

Project Information

For: PATEL RESIDENCE
12135 FULTON RIDGE DRIVE, FULTON, MD 20759

Design Information

	Htg	Clg	Method	Infiltration	Simplified
Outside db (°F)	0	95			
Inside db (°F)	70	75	Construction quality		Average
Design TD (°F)	70	20	Fireplaces		0
Daily range	-	M			
Inside humidity (%)	30	50			
Moisture difference (gr/lb)	28	40			

HEATING EQUIPMENT

Make ENVISION
Trade
Model NDV064A111CT
ARI ref no.

Efficiency 0 COP
Heating input 0 Btuh
Heating output 0 Btuh
Temperature rise 0 °F
Actual air flow 2000 cfm
Air flow factor 0.039 cfm/Btuh
Static pressure 0.05 in H2O
Space thermostat

COOLING EQUIPMENT

Make ENVISION
Trade
Cond NDV064A111CT
Coil
ARI ref no.

Efficiency 0 EER
Sensible cooling 0 Btuh
Latent cooling 0 Btuh
Total cooling 0 Btuh
Actual air flow 2000 cfm
Air flow factor 0.051 cfm/Btuh
Static pressure 0.05 in H2O
Load sensible heat ratio 0.85

ROOM NAME	Area (ft²)	Htg load (Btuh)	Clg load (Btuh)	Htg AVF (cfm)	Clg AVF (cfm)
BEDROOM #2	299	7529	6348	295	323
BATH #2	56	138	86	5	4
WIC #3	49	121	76	5	4
WIC#2	42	680	163	27	8
BATH #3	56	138	86	5	4
BEDROOM #3	312	7561	5981	295	304
OPEN SPACE	352	9454	6666	370	339
SITTING RM	143	2672	2975	105	151
M BEDROOM	208	5399	5092	211	259
OPEN TO BELOW	368	4132	3512	162	179
BEDROOM #4	192	3207	3038	126	155
M BATH	148	3743	3457	147	178
BATH #4	40	99	62	4	3
DRESS	62	317	124	12	6
LDRY	71	235	149	9	8
MECH CLOSET	9	30	19	1	1

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ZONE 2					
Other equip loads	d	2858	52039	33550	1600
Equip. @ 1.00 RSM			8894	1970	1600
Latent cooling				35520	
				7935	
TOTALS		2858	58933	43455	1600

Both/All values have been manually overridden

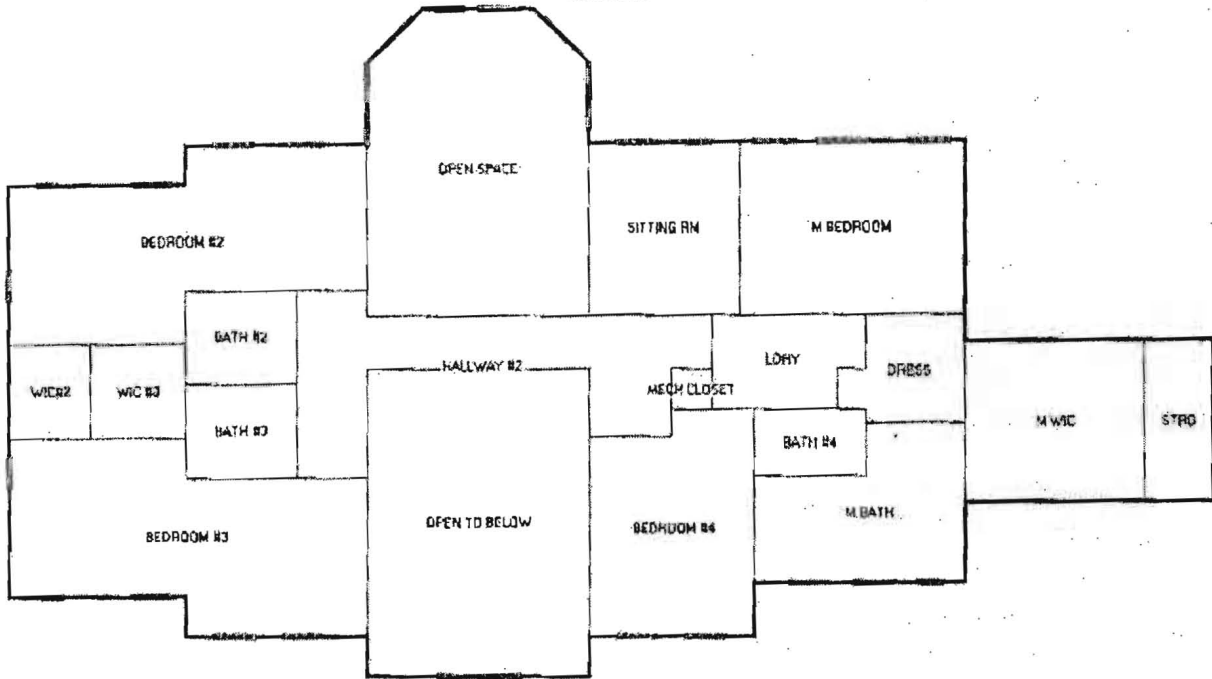
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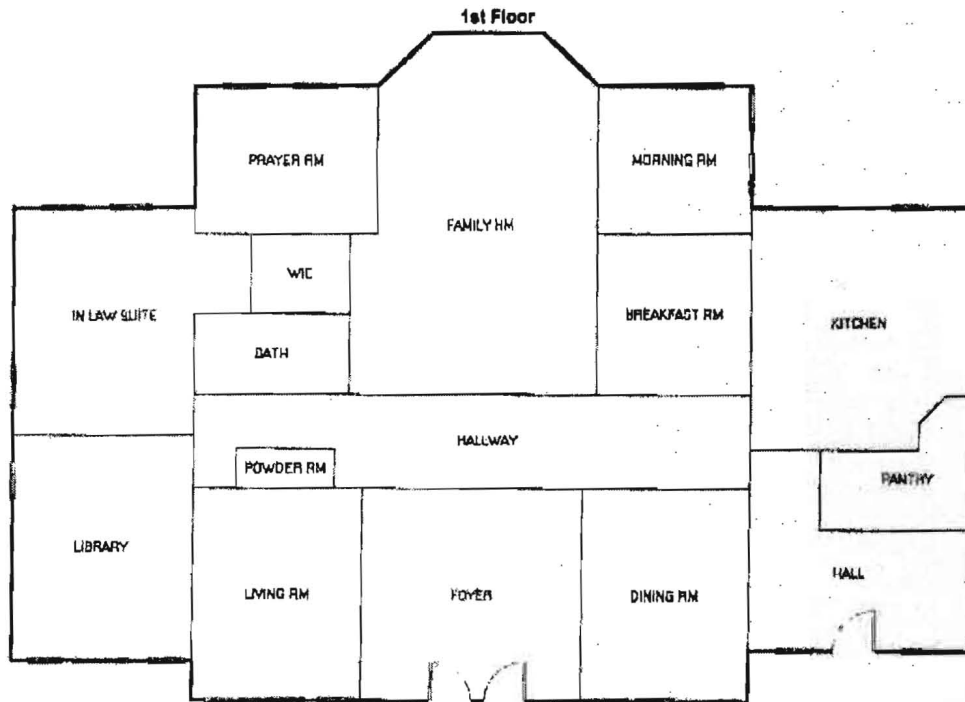
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 Page 3

2nd Floor



Job #:
Performed for:
PATEL RESIDENCE
12135 FULTON RIDGE DRIVE
FULTON, MD 20759

Scale: 1 : 162
Page 3
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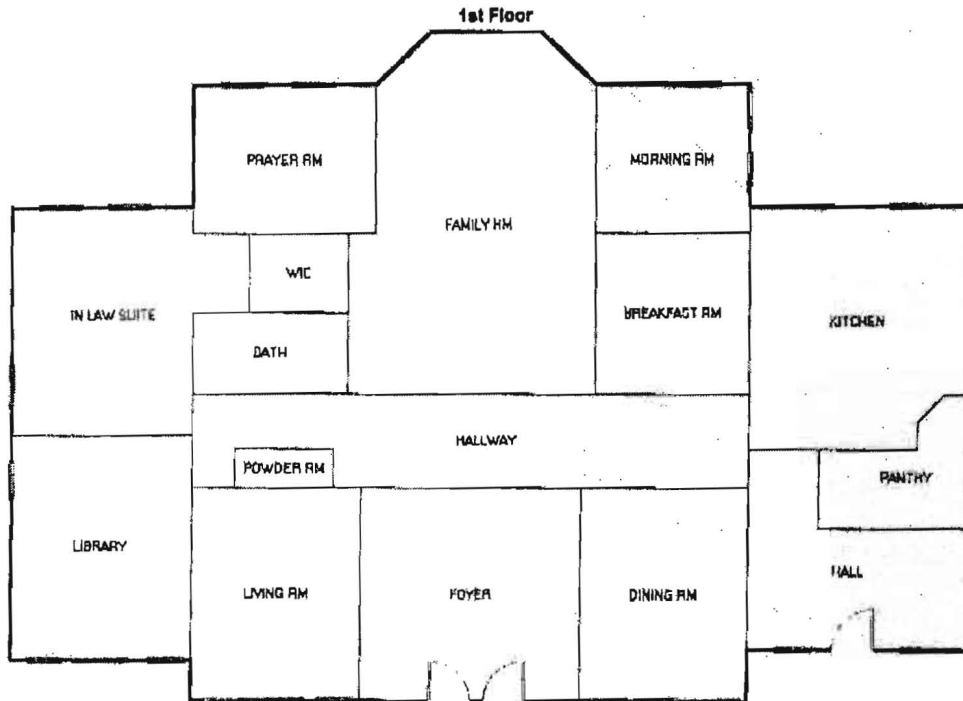
Job #:
Performed for:
 PATEL RESIDENCE
 12135 FULTON RIDGE DRIVE
 FULTON, MD 20759

Scale: 1 : 152
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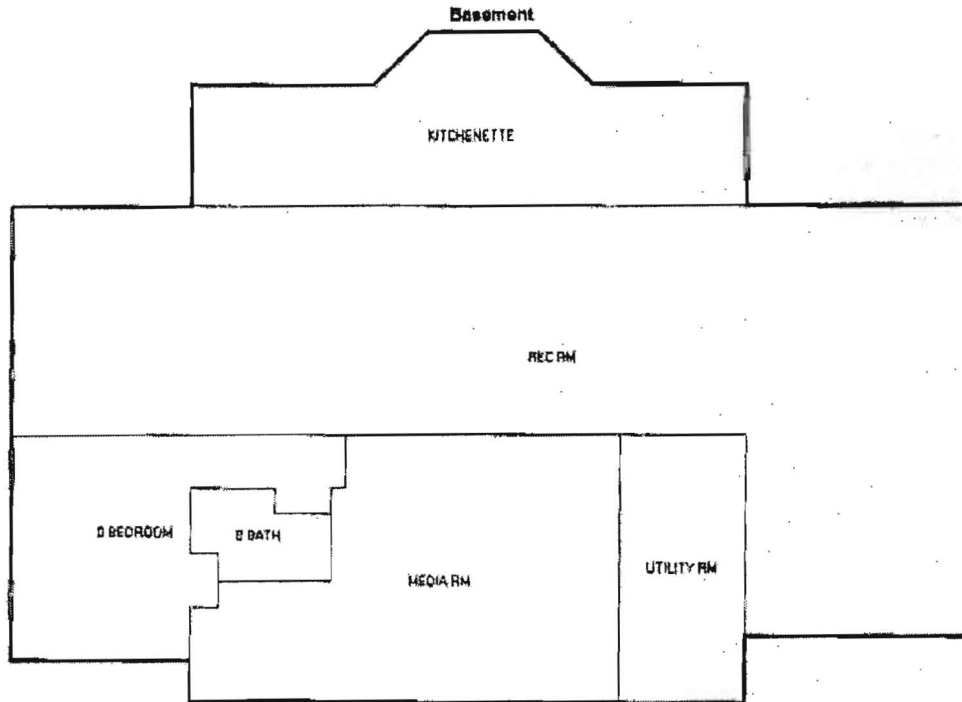
FAX NO. :

FROM :



Job #:
Performed for:
 PATEL RESIDENCE
 12135 FULTON RIDGE DRIVE
 FULTON, MD 20759

Scale: 1 : 152
 Page 2
 Right-Suite® Universal
 7.1.01 RSU06543
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Job #:
Performed for:
 PATEL RESIDENCE
 12135 FULTON RIDGE DRIVE
 FULTON, MD 20769

Scale: 1 : 152
 Page 1
 Right-Suite® Universal
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HALLWAY #2	200	493	309	19	18
M WIC	156	2987	707	117	36
STRG	60	2137	440	84	22
ZONE 3	2823	51072	39290	2000	2000
Other equip loads		6038	1726		
Equip. @ 1.00 RSM			41015		
Latent cooling			7283		
TOTALS	2823	57110	48298	2000	2000

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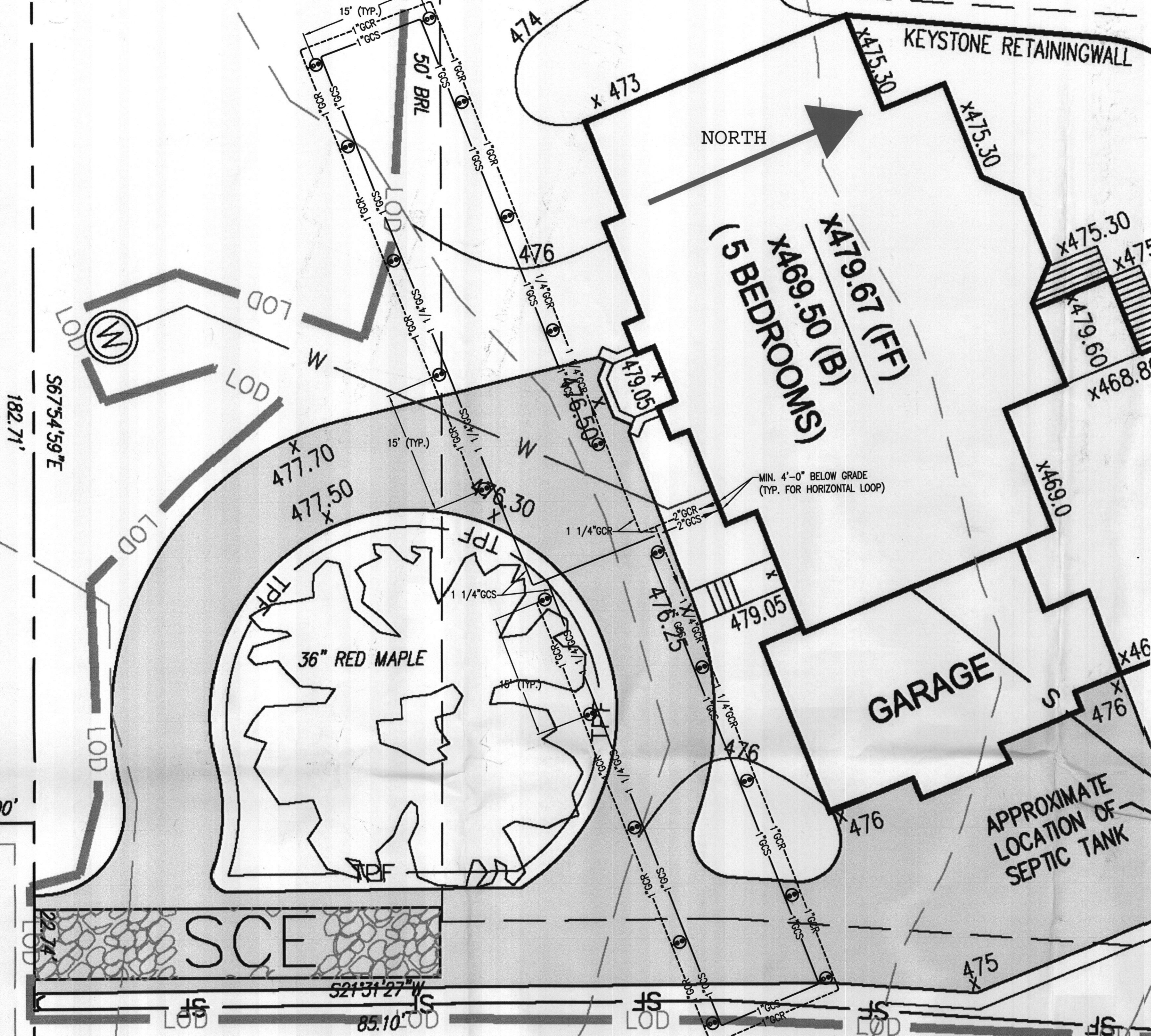
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Right-Suite® Universal 7.1.01 RBU06543

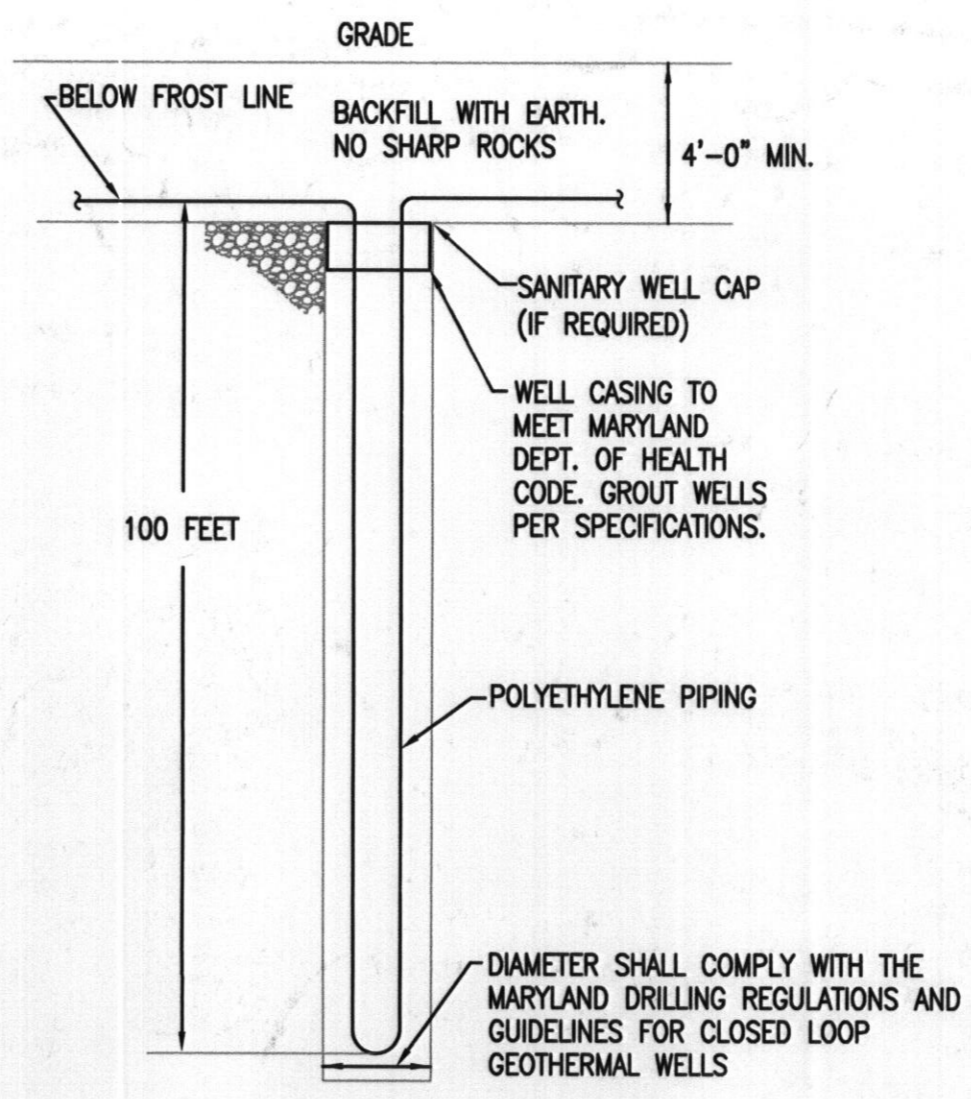
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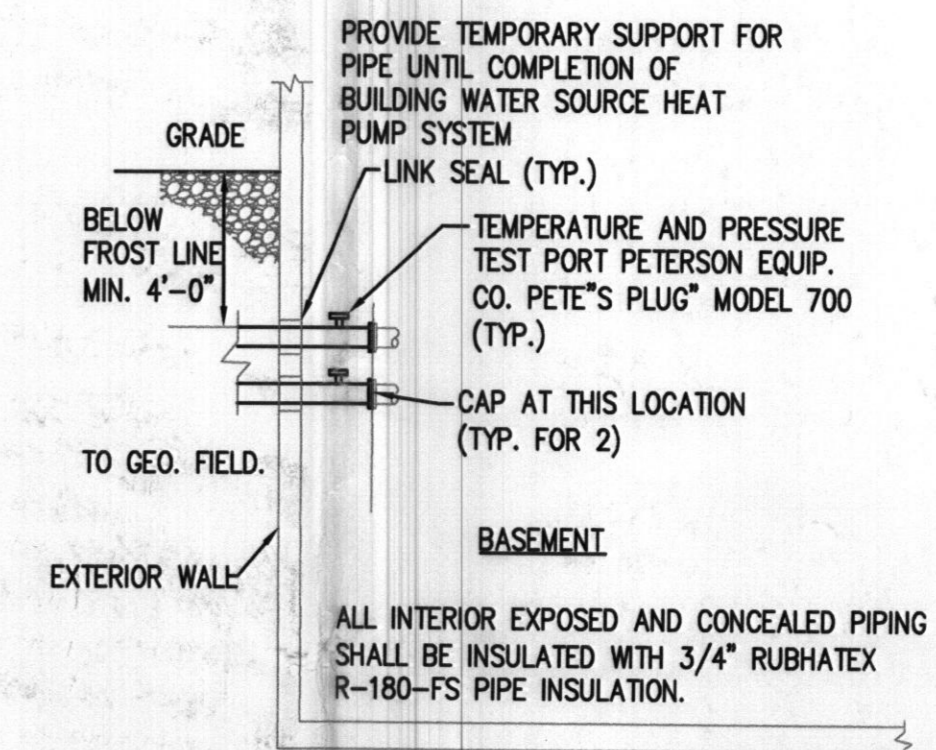
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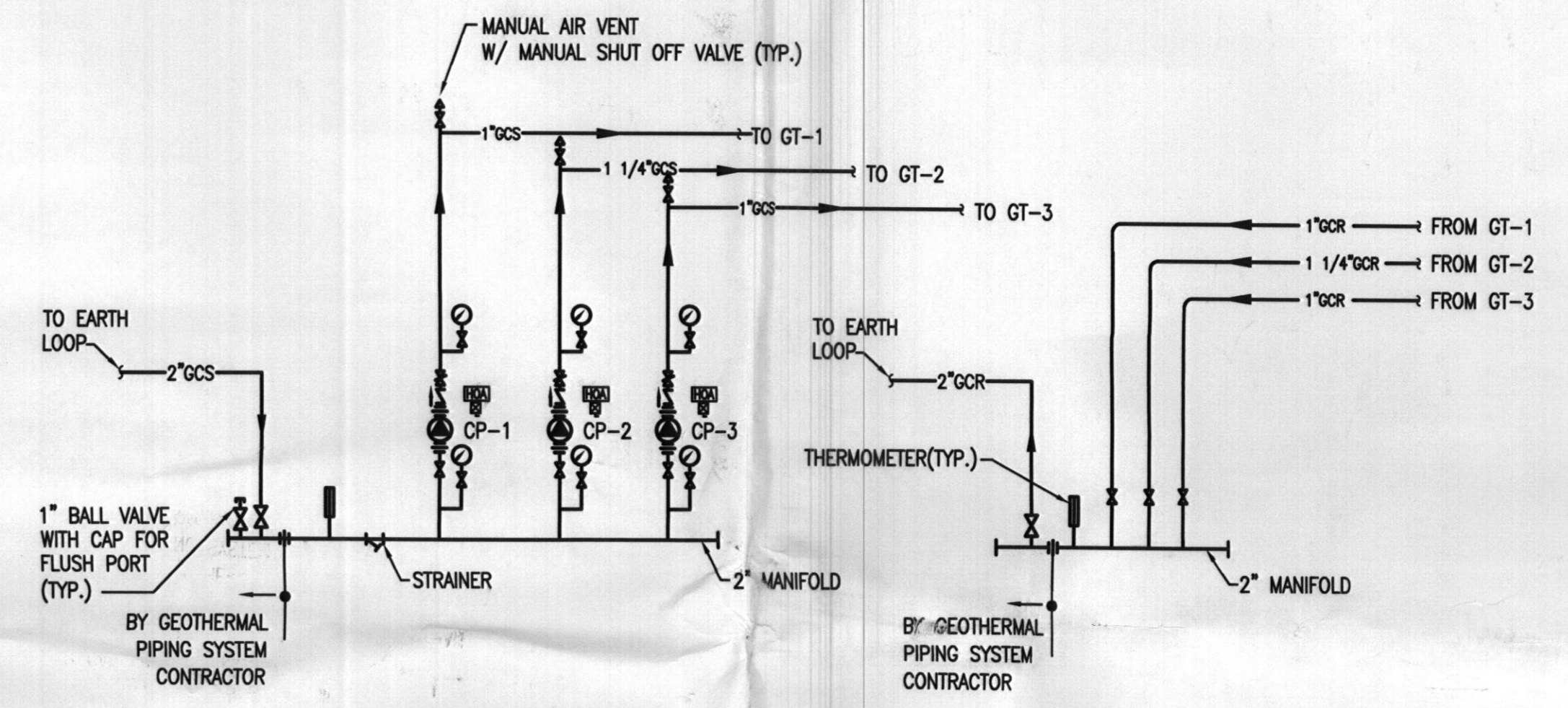
SITE PLAN
SCALE: 1/8"=1'-0"



GEOHERMAL WELL DETAIL
NOT TO SCALE

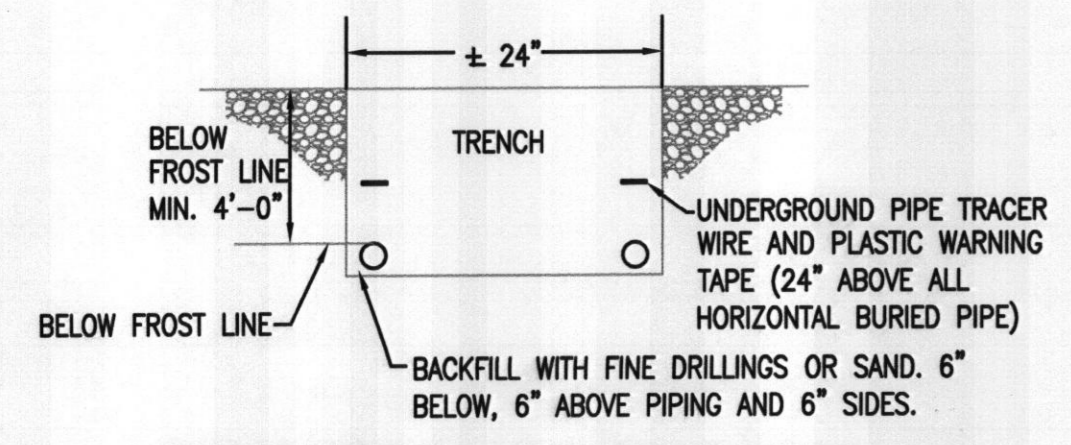


BASEMENT (SECTION)
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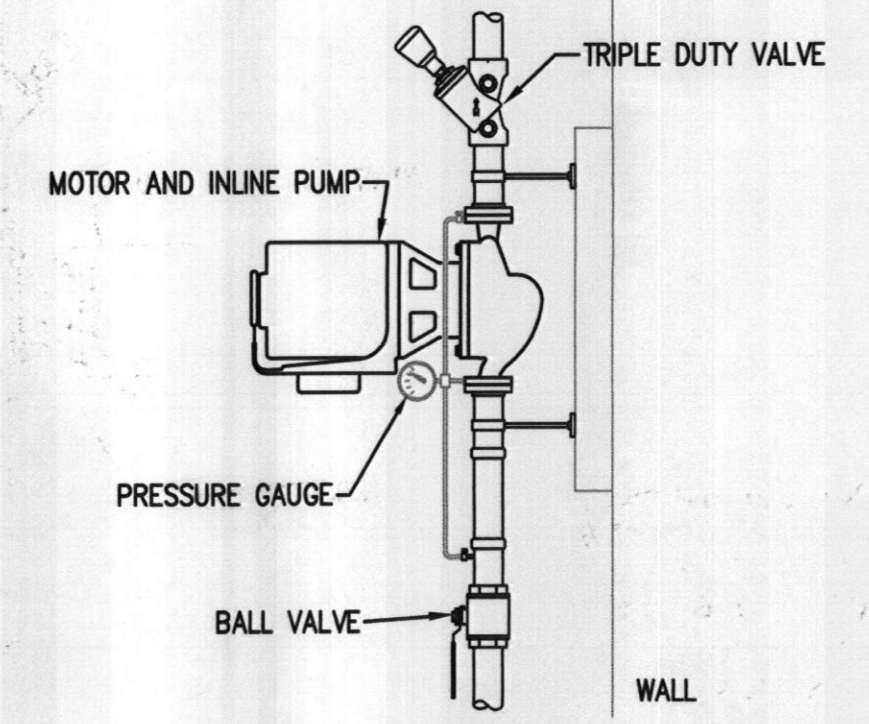


PIPING SCHEMATIC DIAGRAM
NO SCALE

ALL DUCTS IN UNCONDITIONED AIR AREA SHALL HAVE INSULATION R-5 OR GREATER



GEOHERMAL TRENCH DETAIL
NOT TO SCALE



TYPICAL IN-LINE PUMP DETAIL
NOT TO SCALE

GEOHERMAL WATER TO AIR HEAT PUMP SCHEDULE

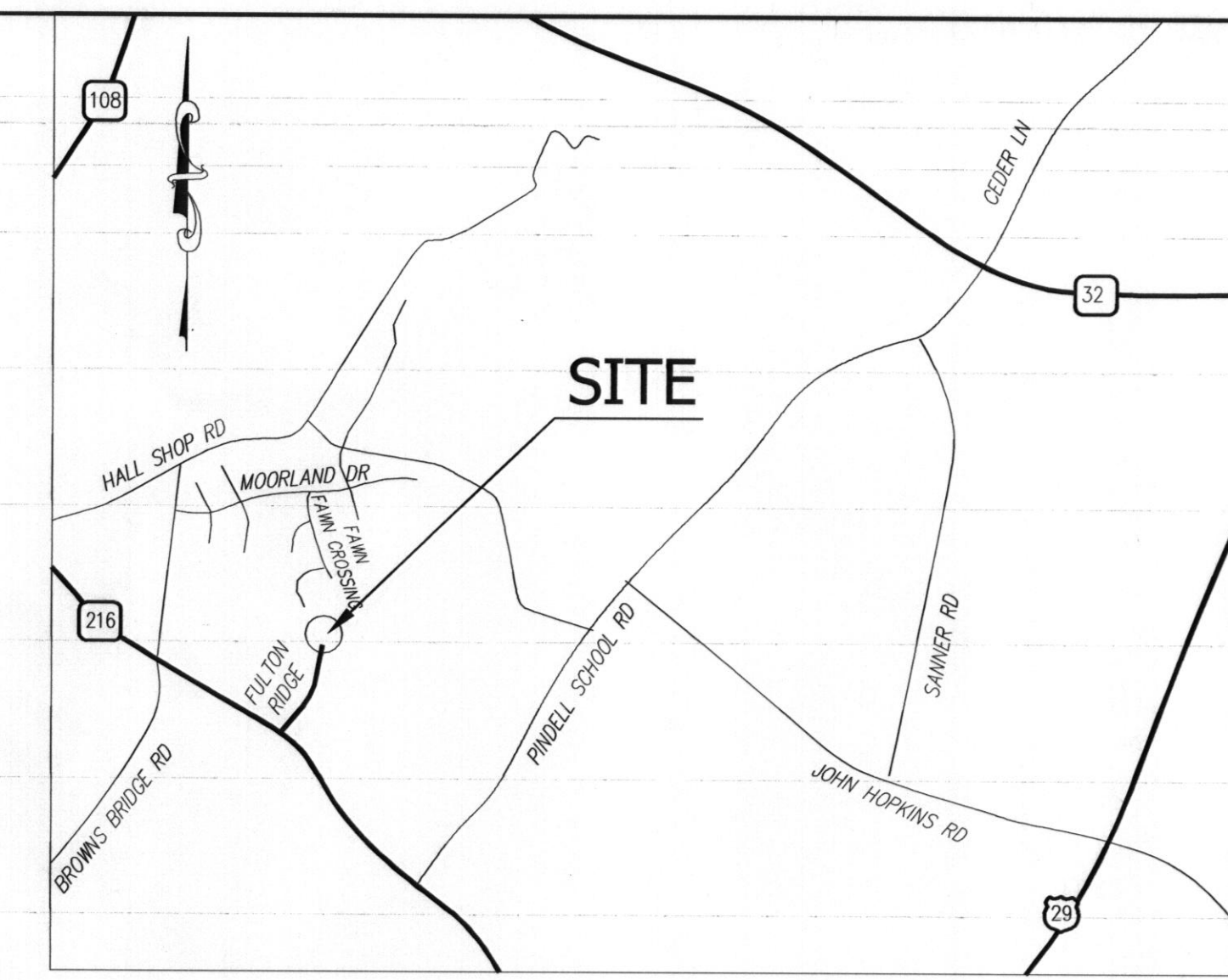
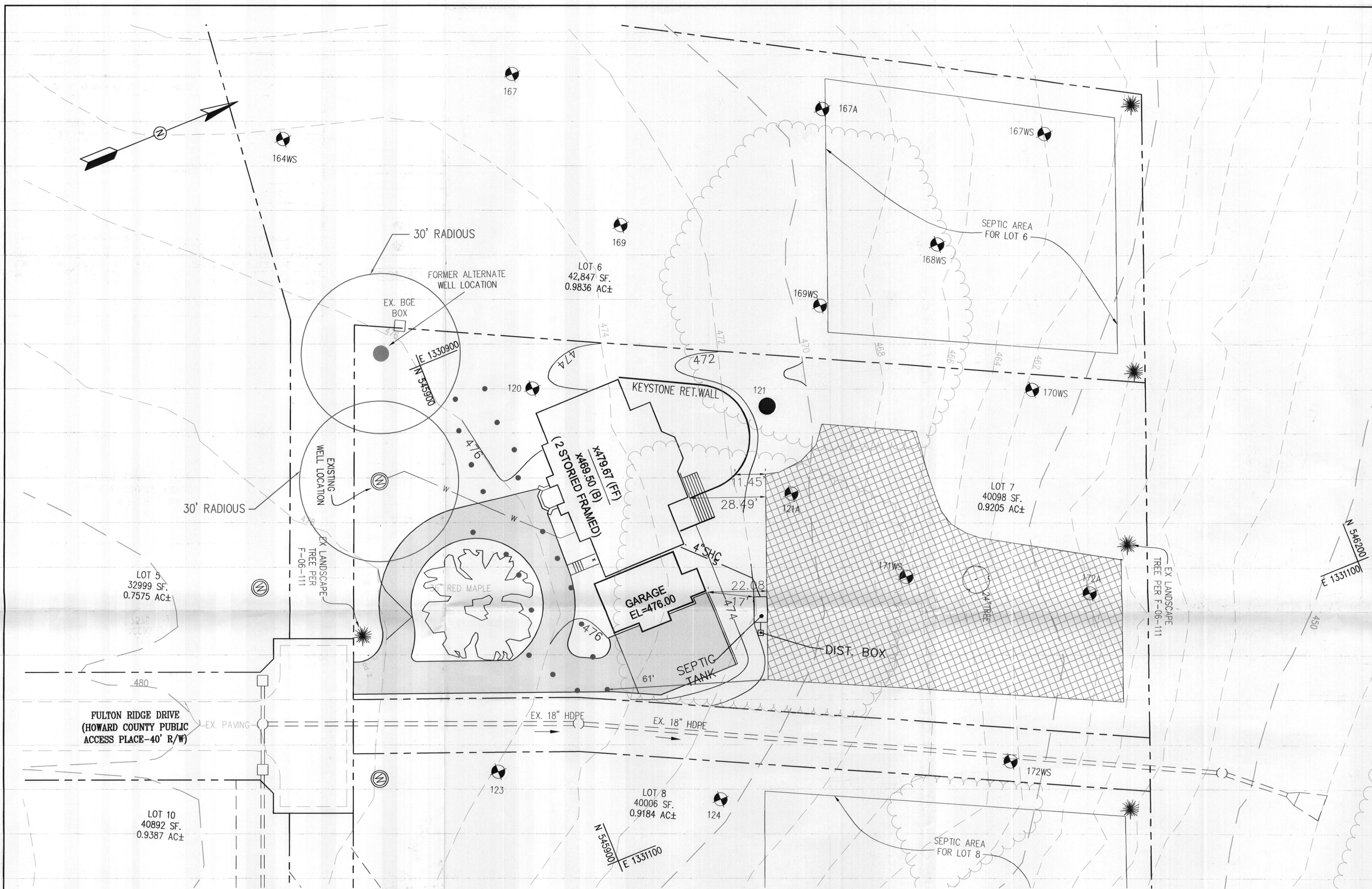
UNIT NO.	LOCATION	CAPACITY CONTROL	FAN				COOLING CAPACITY				HEATING CAPACITY				SOURCE WATER		ELECTRICAL DATA					BASED ON WATER FURNACE MODEL NO.
			TOTAL CFM	MIN. OA CFM (3)	ESP IN	MOTOR HP	TOTAL MBH	EAT °F.DB/°F.WB	EER	EWT	AIR HEATING MBH	EAT °F.DB/°F.WB	COP	EWT	GPM	WATER PD FT @ 30°F	HEAT PUMP					
																	V	HZ	PH	MCA	MOCP	
GT-1	MECHANICAL RM FOR BASEMENT	2-STAGE COOL/ 2-STAGE HEAT	1200	100	1	1/2	40.2	80.6/66.2	20.1	77	26.3	68/59	4.2	32	9	3.6	208	60	1	30.6	45	ENVISION NDV038 OR EQUAL
GT-2	MECHANICAL RM FOR 1ST FLOOR	2-STAGE COOL/ 2-STAGE HEAT	1600	150	1	1	48.3	80.6/66.2	18.3	77	37.6	68/59	3.9	32	12	3.9	208	60	1	39.2	60	ENVISION NDV049 OR EQUAL
GT-3	MECHANICAL RM FOR 2ND FLOOR	2-STAGE COOL/ 2-STAGE HEAT	1200	100	1	1/2	40.2	80.6/66.2	20.1	77	26.3	68/59	4.2	32	9	3.6	208	60	1	30.6	45	ENVISION NDV038 OR EQUAL

NOTE: (1) FILL A PROPER VOLUME OF ANTIFREEZE SOLUTION, 25% ETHANOL ANTIFREEZE SOLUTION, INTO GROUND LOOP WATER PIPING SYSTEM TO KEEP THE FREEZING POINT OF SOURCE WATER AT 15°F. (2) ECM MOTOR, AIR AND COAXIAL COIL INSULATION PACKAGE, DISCONNECT SWITCH, 2" MERV 13 DISPOSAL FILTER, 2-WAY VALVE WITH WATER REGULATOR AND MEASURFLO HOSE KIT. (3) REFRIGERANT: R410-A

PUMP SCHEDULE

UNIT No.	LOCATION	PUMP STYLE	SERVICE	FLOW GPM	HEAD FT H ₂ O	MOTOR					REMARKS
						V	PH	HZ	RPM	HP	
CP-1	MECH. ROOM	IN-LINE	GT-1 EARTH LOOP	9	28	120	1	60	3250	1/6	BELL & GOSSETT PL-35 OR EQUAL.
CP-2	MECH. ROOM	IN-LINE	GT-1 EARTH LOOP	12	27	120	1	60	3250	1/6	BELL & GOSSETT PL-35 OR EQUAL.
CP-3	MECH. ROOM	IN-LINE	GT-1 EARTH LOOP	9	30	120	1	60	3250	1/6	BELL & GOSSETT PL-35 OR EQUAL.

PROPERTY ADDRESS:
PAHEL RESIDENCE
LOT #7, 12135 FULTON RIDGE DRIVE, FULTON, MD 20759
CONTRACTOR: ACCUTEMP HEATING & A/C
HVACR LICENSE # 15983
LICENSEE NAME: JAMES CURKINS
SIGNATURE: _____



VICINITY MAP

SITE PLAN
SCALE: 1"=20'

DEVELOPER'S CERTIFICATE
I/WE CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN, AND THAT ANY RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF THE ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTIONS BY THE HOWARD SOIL CONSERVATION DISTRICT.

DEVELOPER _____ DATE _____

ENGINEER'S CERTIFICATE
I HEREBY CERTIFY THAT THIS PLAN FOR EROSION AND SEDIMENT CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS AND THAT IT WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT.

ENGINEER - AMRISH PATEL, P.E.# 19372 _____ DATE _____

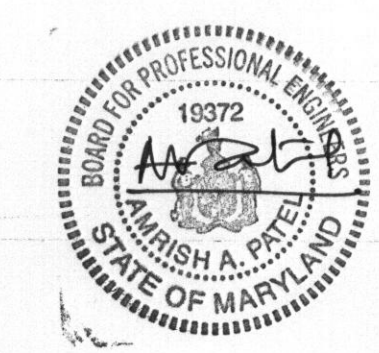
THIS DEVELOPMENT PLAN IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT.

HOWARD SOIL CONSERVATION DISTRICT _____ DATE _____

- LEGEND**
- PERCOLATION TEST HOLE - FAILED
 - ⊕ PERCOLATION TEST HOLE - PASSED
 - ▬ STABILIZED CONSTRUCTION ENTRANCE
 - ▨ APPROVED LOCATION OF SEPTIC DRAIN FIELD
 - ▭ PROPOSED ASPHALT PAVEMENT
 - GEOTHERMAL WELL LOCATION

GENERAL NOTES:

1. THE LOT SHOWN HEREON WAS RECORDED ON THE PLAT FOR FULTON RIDGE, PLAT NO. 18906. REFER TO THE PLAT FOR LOT DIMENSIONS, LOT AREAS AND ALL EASEMENTS.
 2. ▨ THIS AREA DESIGNATES A PRIVATE SEWERAGE EASEMENT OF AT LEAST 10,000 SQ. FT. AS REQUIRED BY THE STATE DEPARTMENT OF THE ENVIRONMENT FOR INDIVIDUAL SEWERAGE DISPOSAL IMPROVEMENTS OF ANY NATURE IN THIS AREA IS RESTRICTED UNTIL PUBLIC SEWER IS AVAILABLE. THIS EASEMENT SHALL BECOME NULL AND VOID UPON CONNECTION TO A PUBLIC SEWERAGE SYSTEM. THE COUNTY HEALTH OFFICER SHALL HAVE THE AUTHORITY TO GRANT ADJUSTMENTS TO THE PRIVATE SEWERAGE EASEMENT. ANY CHANGES TO A PRIVATE SEWERAGE EASEMENT SHALL REQUIRE A REVISED PERCOLATION CERTIFICATION PLAN. RECORDED OF A MODIFIED EASEMENT PLAT SHALL NOT BE NECESSARY.
 3. SEDIMENT AND EROSION CONTROLS WILL BE APPROVED BY HOWARD SOIL CONSERVATION DISTRICT AND SHALL BE MODIFIED FOR THIS SPECIFIC HOUSE.
 4. TOPOGRAPHY SHOWN WAS FIELD RUN BY LDE, INC. DATED 2006.
 5. EXACT LENGTH OF SEPTIC TRENCHES ARE TO BE DETERMINED BY THE HEALTH DEPARTMENT AT THE TIME OF TRENCH LAYOUT AND INSPECTION.
 6. SPOIL FROM THE TRENCHING OF THE SEPTIC AREA IS TO BE PLACED ON THE UPHILL SIDE OF THE EXCAVATION FOR EACH INDIVIDUAL LOT.
 7. ALL SEDIMENT AND EROSION CONTROL FEATURES USED ON THIS SITE SHALL COMPLY WITH 1984 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL.
 8. ALL DRAINAGE AND STORMWATER MANAGEMENT FEATURES USED ON THIS SITE MUST COMPLY WITH THE APPROVED ROAD CONSTRUCTION PLANS F-06-111.
 9. SEPTIC TANK FOR THIS LOT IS 2,000 GALLONS.
- THE EXISTING WELL SHOWN ON THIS PLAN, HO-95-0541, HAS BEEN FIELD LOCATED BY AB CONSULTANTS, INC. AND IS ACCURATELY SHOWN.



GEOHERMAL WELL LOCATION PLAN
BUILDING PERMIT # B09001221

MARCH 03, 2010
PATEL RESIDENCE
Lot #7, 12135 Fulton Ridge Dr., Fulton, MD 20775
PLAT # 18905-18907
AB CONSULTANTS, INC.
9430 LAMHAM, MD 20716
301-506-3081
PROJ. NO. B09.08
SHEET NO. OF
C-01