

**Bureau of Environmental Health**  
 8930 Stanford Boulevard, Columbia, MD 21045  
 Main: 410-313-2640 | Fax: 410-313-2648  
 TDD 410-313-2323 | Toll Free 1-866-313-6300  
[www.hchealth.org](http://www.hchealth.org)  
 Facebook: [www.facebook.com/hocohealth](http://www.facebook.com/hocohealth)

Maura J. Rossman, M.D., Health Officer

RECEIPT DATE: 2/21/19 **ONSITE SEWAGE DISPOSAL SYSTEM**

P 564767A

APPROVAL DATE: 5/9/19 **PERMIT: CONSTRUCTION**

A \_\_\_\_\_

PROPERTY ADDRESS: 13845 Mill Creek Court Clarksville, MD 21029

SUBDIVISION: Crawford Subdivision LOT: 19 TAX ID: \_\_\_\_\_

CONTRACTOR: South Carroll Backhoe EMAIL: \_\_\_\_\_

CONTRACTOR ADDRESS: 4410 Salem Bottom Road, Westminster, MD 21157 PHONE: 410-596-3618

PROPERTY OWNER: NVR Inc EMAIL: \_\_\_\_\_

OWNER ADDRESS: 9720 Patuxent Drive Columbia, Maryland 21046 PHONE: 410-379-5956

SEPTIC TANK SIZE (GALLONS): 2000 TANK MANUFACTURER: Babylon

PUMP MODEL: Zoeller E 152 PUMP SIZE 4/10 PUMP TANK CAPACITY: 1500gal

DISTRIBUTION SYSTEM:  GRAVITY  PRESSURE DOSED BEDROOMS: 5 APPLICATION RATE: 1.2

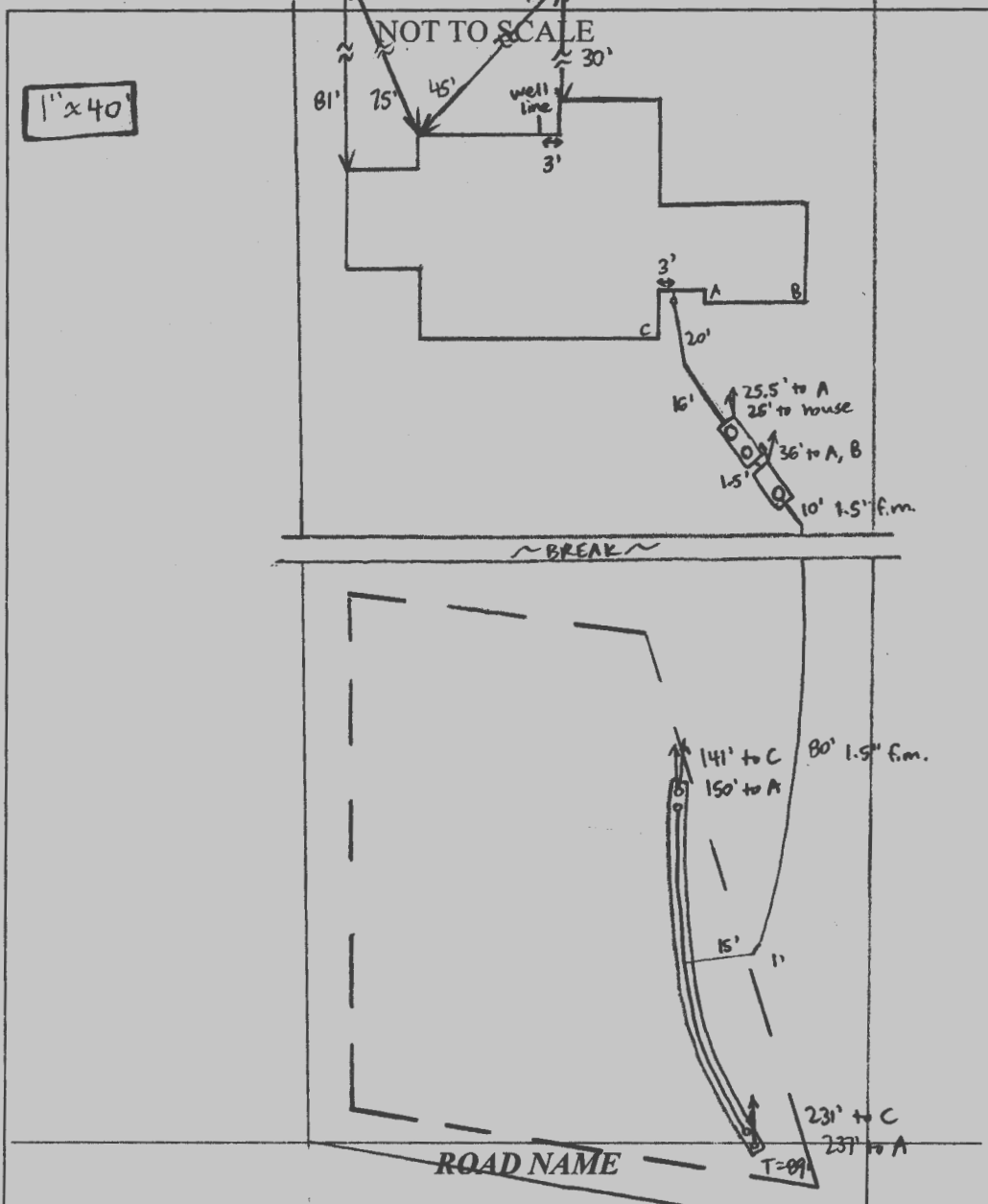
TRENCHES:	LINEAR FEET REQUIRED: <u>86.9</u>	INLET DEPTH: <u>2</u>
	TRENCH WIDTH: <u>3</u>	MAXIMUM BOTTOM DEPTH: <u>8</u>
	MINIMUM SPACE BETWEEN TRENCHES: <u>11</u>	EFFECTIVE AREA BEGINNING DEPTH: <u>4</u>
LOCATION:	PER APPROVED SITE PLAN. SEWAGE DISPOSAL AREA AND TANK LOCATIONS MUST BE STAKED BY LICENSED SURVEYOR PRIOR TO PRE-CONSTRUCTION INSPECTION.	
NOTES:		

ISSUED BY: Jeff Williams ISSUE DATE: 2/21/19 EXPIRATION DATE: 2/21/19

- NOTE: CONTRACTOR MUST SCHEDULE A PRE-CONSTRUCTION INSPECTION PRIOR TO BEGINNING ANY INSTALLATION
- NOTE: CONTRACTOR MUST SCHEDULE AN INSPECTION AND GAIN APPROVAL OF ALL COMPONENTS PRIOR TO COVERING
- NOTE: STONE MUST BE APPROVED BY HEALTH DEPARTMENT AND GRAVEL TICKET MUST BE AVAILABLE FOR REVIEW.
- NOTE: WATERTIGHT TANKS REQUIRED
- NOTE: ALL PARTS OF SEPTIC SYSTEM SHALL BE AT LEAST 100 FEET DOWNGRADIENT FROM ANY WATER WELL
- NOTE: MANHOLE RISERS REQUIRED ON ALL SEPTIC TANKS AND PUMP CHAMBERS
- NOTE: AN ELECTRICAL PERMIT IS REQUIRED FOR INSTALLATION OF ANY ELECTRICAL COMPONENTS OF THE SYSTEM  
 ELECTRICAL PERMIT ISSUED E \_\_\_\_\_
- NOTE: MDE RECOMMENDS SEPTIC TANKS, BAT, AND OTHER PRETREATMENT UNITS BE PUMPED AT A FREQUENCY ADEQUATE TO ENSURE THAT SOLIDS ARE NOT DISCHARGED TO THE DISPOSAL AREA

**NEITHER THE HOWARD COUNTY COUNCIL NOR THE HEALTH DEPARTMENT IS RESPONSIBLE FOR THE SUCCESSFUL OPERATION OF ANY SYSTEM.**

**PERMITTEE RESPONSIBLE FOR OBTAINING FINAL APPROVAL ON THIS PERMIT.  
 CALL 410-313-1771 TO SCHEDULE INSPECTIONS.**



TRENCH/DRAINFIELD DATA		
WIDTH	INLET	BOTTOM
3'	2'	8'
NUMBER OF TRENCHES <u>1</u>		
TOTAL LENGTH <u>89'</u>		
ABSORPTION AREA <u>267' + SIDEWALL</u>		
DISTRIBUTION BOX LEVEL <u>---</u>		
DISTRIBUTION BOX BAFFLE <u>---</u>		
DISTRIBUTION BOX PORT <u>---</u>		

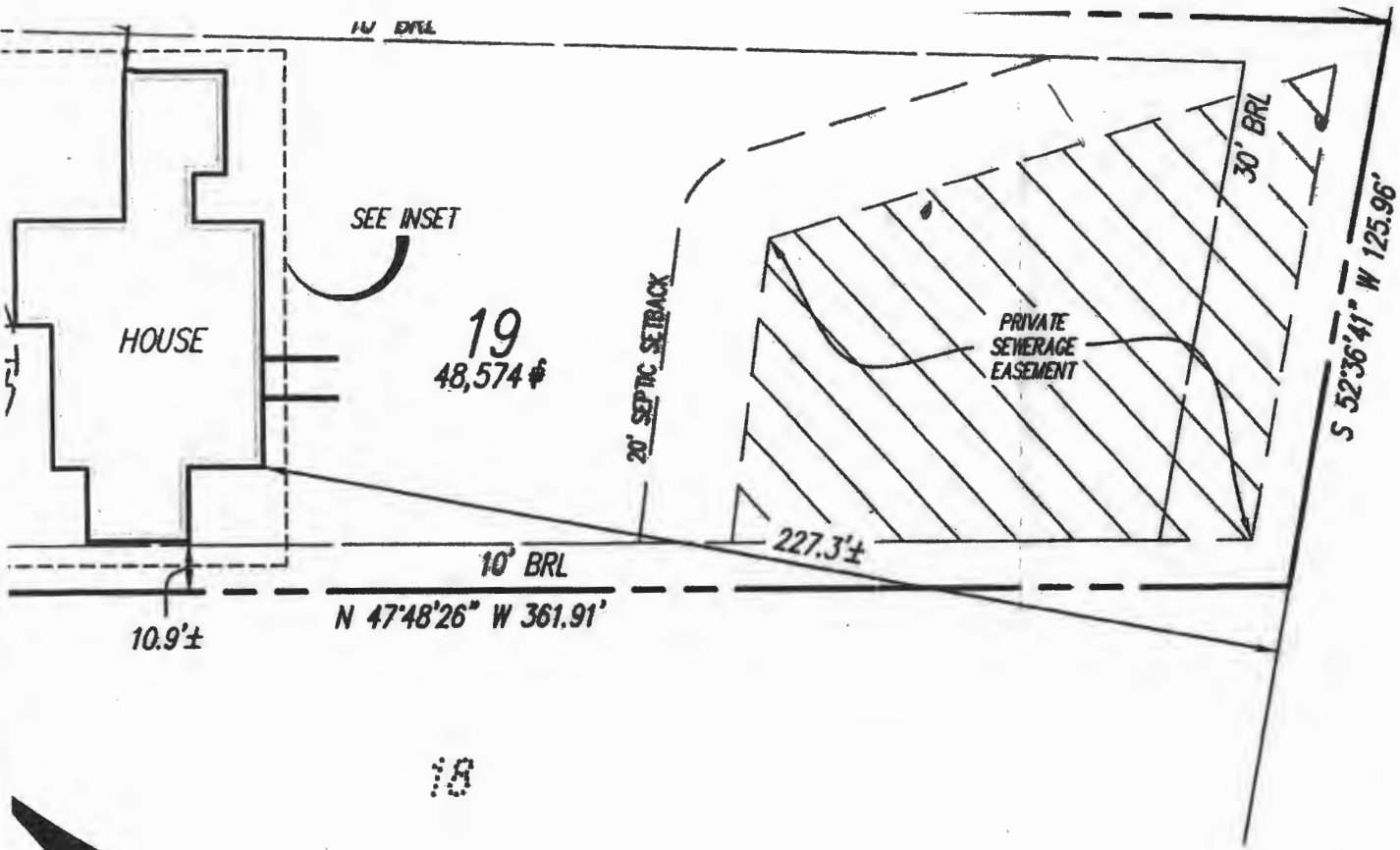
SEPTIC TANK DATA	
SEPTIC TANK 1 LEVEL	<u>YES</u>
MANUFACTURER	<u>BABYLON</u>
CAPACITY	<u>2000</u> GAL
SEAM LOC	<u>TOP</u>
TANK LID DEPTH	<u>2-2.5'</u>
BAFFLES	<u>YES</u>
BAFFLE FILTER	<u>YES</u>
MANHOLE LOC	<u>FRONT + REAR</u>
6" PORT LOC	<u>NONE</u>
WATERTIGHT TEST	<u>NO</u>
SLOTTED	<u>YES</u>
DATE ON LID	<u>12-25-18</u>
PUMP/SEPTIC TANK LEVEL	<u>YES</u>
MANUFACTURER	<u>BABYLON</u>
CAPACITY	<u>1500</u> GAL
SEAM LOC	<u>TOP</u>
TANK LID DEPTH	<u>2.5-3'</u>
BAFFLES	<u>NO</u>
BAFFLE FILTER	<u>NO</u>
MANHOLE LOC	<u>REAR</u>
6" PORT LOC	<u>NONE</u>
WATERTIGHT TEST	<u>NO</u>
SLOTTED	<u>NO</u>
DATE ON LID	<u>1-7-19</u>
Pump:	

**PRE-CONSTRUCTION:**

2/26/19 Met S. Carroll on site for layout. Tanks, SDA corners + trench staked. Shot contour, end of trench farther from house is 10" higher than start. Move far end down the hill - OK to not put bend in lateral pipe. (SC)

INSTALLATION: 2/28/19 Tanks set. Pipe laid from house to tanks, need house connection. 70' of 1.5" force main installed. Effluent filter installed in septic tank. (SC) 3/4/19 Trench installed, S. Carroll adding stone. 3' wide 8' bottom, 2' inlet. Using laser to check depths. (SC) 3/5/19 Trench has stone, lateral pipe installed but hole not drilled. Need to ask engineer about hole spacing shown on plan. Force main run to trench. (SC) [Plan redlined per Jeff Williams at HCHD.] 3/6/19 Holes drilled per revised spacings. Ran pump and only 1' of distal head at lateral turnups. OK to use 1/2 hp pump instead - check head at pump + alarm test. Need house connection. (SC) 3/13/19 House connection made. Need pump + alarm, and turf boxes over lateral turnups. (SC) 5/2/19 - onsite for P/A, alarm did not sound, and distal head at laterals cause overflow, no

FINAL INSPECTOR K. Wolf DATE OF APPROVAL 5/9/19  
 turf boxes, 2" laterals covered w/ 4" pvc cap. (RM) 5/13/19 - alarm works but pump has now stopped working. (RM)  
 5/9/19 Pump/Alarm worked working via contractor own phone (RM)



1" = 40'

2/21/19 - wall  
check okay  
H.O.

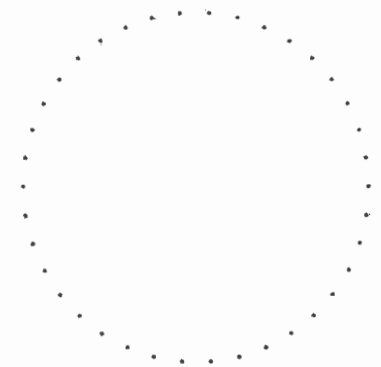
SURVEYOR'S CERTIFICATE

THIS IS TO CERTIFY TO:  
'NVR, INC.'

THAT TO THE BEST OF MY KNOWLEDGE, INFORMATION AND BELIEF,  
THE POSITION OF THIS BUILDING FOUNDATION  
HAS BEEN ESTABLISHED BY ACCEPTED FIELD PRACTICES.

*[Signature]* 2/5/2019  
For Gutschick, Little and Weber, P.A.:

Thomas C. O'Connor, Jr.,  
Professional Land Surveyor, No. 10954 (EXP. DATE: 07/03/2020)



PREPARED FOR:  
NVR, INC.  
9720 PATUXENT  
WOODS DRIVE  
COLUMBIA, MD 21046

B/SS

HOWARD C.  
DATE OF LA1



# LOW PRESSURE DISTRIBUTION SYSTEM CALCULATIONS

Per MDE BASIC LPD DESIGN - Draft Version 1 - Date July 3, 2014

ADDRESS: **13845 Mill Creek Court**  
 SUBDIVISION: **Crawford**  
 DATE: **September 2018**

LOT: 19

Number of Manifolds: **0** Design Flow: **750** gpd  
Pump Off Elevation: **442.72**  
Inv. Out of Pump Tank: **444.97**  
Pump Bottom Elevation: **441.55**

Type: Center-Feed

Trench **1** Elev: **456.9** Length: **87**  
 Trench Elev: Length:  
 Trench Elev: Length:

*0' Elev. Range, Single Manifold OK*

Manifold Length **0** ft Type: SCH 40  
 Hoiz. Force Main Length **167.0** ft Type: SCH 40

Trench	Trench Length (ft)	Feed	Pipe Inv. Elev (ft)	Head (ft)	Hole Diam. (in)	Hole Flow Rate (gpm)	Hole Spacing (ft)	Number of Holes	Trench Flow Rate (gpm)	Lateral Length (ft)	Flow (gpm) per LF Trench	Gal. per LF Trench	Lateral Diam. (in)*	Type
1	87	Center	456.9	2.0	5/16	1.63	5.12	17	27.68	81.88	0.318	1.437	1.5	SCH 40

Max/Min Flow Ratio (should be <1.10) : **1.00** \* Min. Per Figure 4.4

**Min. System Discharge Rate:** **27.7** gpm  
 Force Main Diam. **1.5** in Vel. **5.0** fps Friction Loss (Table 4.4) **4.538**  
 Minimum Dose: **125.0** gal (Vol. in FM, Man, 5x Lat. = 61.1 gal. < 1/6 Design Flow = 750/6 = 125 gal.)

**Calculate Total Design Head**

1. Friction Loss in FM & Mnfold: **7.7** ft  
 Friction Loss from Fittings: **22.5** ft X **4.538** = **1.0** ft

No.	Type	Equ. Length	No.	Type	Equ. Length
1	90 Deg. Std Ell	5.0	0	Gate Valve	1
3	45 Deg. Std Ell	3.0		Globe Valve	45
1	90 Deg. Side Tee	7.0		Angle Valve	22
1	Coupling or Str. Run of Tee	1.5			

Friction Loss from Laterals: **1.5** ft  
 2. Static Head: **14.18** ft  
 3. Min. Distal (discharge) head: **2** ft

**TDH= 26.4** ft

Note #1: The minimum dose is the greater value of either 1/6 the Design Flow or [(5 x lateral volume) + one volume the manifold + one volume of the force main]

## Collins, Sarah

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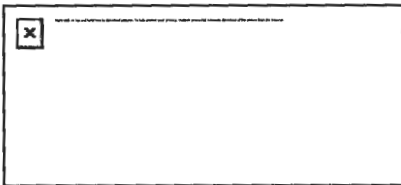
**From:** Kristy Pierce <kpierce@glwpa.com>  
**Sent:** Tuesday, February 26, 2019 9:03 AM  
**To:** Collins, Sarah  
**Subject:** Re: Mill Creek lot 20 septic plan  
**Attachments:** Crawford Lot 19-LPD Calcs (updated).pdf

[Note: This email originated from outside of the organization. Please only click on links or attachments if you know the sender.]

Hi Sarah,

The pump size selected for Lot 19 will not need to change. See attached updated calculations.

Thank you,  
Kristy Pierce



3909 National Drive, Suite 250 | Burtonsville, MD 20866  
PH: 301-421-4024 | PH (Baltimore): 410-880-1820  
PH (Northern VA): 301-989-2524 | FAX: 301-421-4186

Check out our new website: [WWW.GLWPA.COM](http://WWW.GLWPA.COM)

The information transmitted is intended only for the addressee shown above.

Any design information (calculations, drawings, etc.) included in this transmission is intended for the sole purpose agreed upon with Gutschick, Little & Weber, P.A. (GLW). If this information is to be used for any other purpose or transmitted to any other persons, prior consent must be received from GLW.

On Tue, Feb 26, 2019 at 7:57 AM Collins, Sarah <[SCollins@howardcountymd.gov](mailto:SCollins@howardcountymd.gov)> wrote:

Thanks, Kristy. I found the plan for lot 19 at Mill Creek and it looks like the force main will need 2x45 degree bends before entering the trench. Can you run the calculations and see if this changes the pump sizing?

Thank you,

Sarah

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**From:** Kristy Pierce <kpierce@glwpa.com>  
**Sent:** Monday, February 25, 2019 11:37 AM  
**To:** Collins, Sarah <[SCollins@howardcountymd.gov](mailto:SCollins@howardcountymd.gov)>

## Bernard, Dana

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**From:** Bernard, Dana  
**Sent:** Friday, December 21, 2018 2:56 PM  
**To:** Kristy Pierce (kpierce@glwpa.com)  
**Cc:** jim@decaturbuildingservices.com  
**Subject:** Lots 19 - 21-22

Hello All,

I think a few items may be lost in translation. And we might need to schedule a time for an engineer to come in. Please make sure we have a licensed engineer for the meeting. We can schedule you in the new year if needed. My first available will be January 3, 2018 at 10:00 if you would like to meet. Nevertheless, we have a few minor changes on your OSDS plans. The plans must be revised and resubmitted for review. Your building permits will not receive building permit approval until the OSDS plans have been approved. I have listed them in order of lot.

### Lot #19

1. The pipe invert on your septic trench detail should be at 2 feet. We are recommending using 2 feet to obtain the most efficient design. Please make calculation adjustments needed. This item was not change as recommended previous
2. There is a 45 degree bend at the end of your trench. Please show the perforations at this point in the trench detail. We don't want the perforation to be covered by the connection of the two pipes. This item was not changed as recommended previously.
3. We need to add an observation pipe at the end of your trench. Please show in trench detail on OSDS. This item was not changed as recommended previously.
4. Please recalculate and make sure calculations are correct.
5. Show the pump tank diagram information, labeling the pump in the tank and label the placement of its components with depth measurements.

### Lot #21

1. The pipe invert on your septic trench detail should be at 2 feet. We are recommending using 2 feet to obtain the most efficient design. Please make calculation adjustments needed. This item was not change as recommended previous
2. There is a 45 degree bend at the end of your trench. Please show the perforations at this point in the trench detail. We don't want the perforation to be covered by the connection of the two pipes. This item was not changed as recommended previously.
3. We need to add an observation pipe at the end of your trench. Please show in trench detail on OSDS. This item was not changed as recommended previously.
4. Please recalculate and make sure calculations are correct.
5. Show the pump tank diagram information, labeling the pump in the tank and label the placement of its components with depth measurements

### Lot #22

1. We need to add an observation pipe at the end of your trench. This request must be shown in lateral trench detail on OSDS. And not shown in a separate box in detail. This must be available to shown installers where the observation pipe should be placed.
2. Also we need to show the friction head loss for the union disconnect. This cannot be accounted for in other calculations
3. Please recalculate and make sure all calculations are correct in the low pressure distribution system calculations. The calculation presented on the last plan are also shown on the new plan. Please make a note when calculating make sure the column showing the "Flow per LF " is equal. The flow should be equal in each trench.
4. Please Label the Hoot Tank showing tank with levels. A pop box cannot be used. This is needed for the installers so they can have specific directions.

If you have any questions don't hesitate to email me.

Thanks

Dana Bernard, R.E.H.S./L.E.H.S.  
Environmental Specialist II  
Bureau of Environmental Health  
Well and Septic Program  
Phone (410) 313-2775  
E-mail: [DBernard@howardcountymd.gov](mailto:DBernard@howardcountymd.gov)



Kristy Pierce <[kpierce@glwpa.com](mailto:kpierce@glwpa.com)>

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## Crawford Subdivision (Mill Creek Court)

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Kristy Pierce <[kpierce@glwpa.com](mailto:kpierce@glwpa.com)>  
To: Kristy Pierce <[kpierce@glwpa.com](mailto:kpierce@glwpa.com)>

Tue, Dec 4, 2018 at 10:31 AM

----- Forwarded message -----

From: **Bernard, Dana** <[dbernard@howardcountymd.gov](mailto:dbernard@howardcountymd.gov)>  
Date: Mon, Dec 3, 2018 at 12:22 PM  
Subject: RE: Crawford Subdivision (Mill Creek Court)  
To: Kristy Pierce <[kpierce@glwpa.com](mailto:kpierce@glwpa.com)>

Hello Kristy everything looks good. However, we have a few minor changes on your OSDS plans. They must be revised and resubmitted for review. Your building permits will not receive building permit approval until the OSDS plans have been approved. I will list them in order of lot.

### Lot #19

1. The pipe invert on your septic trench detail should be at 2 feet. We are recommending using 2 feet to obtain the most efficient design. Please make calculation adjustments needed. Revised pipe invert to 2 feet. Updated Trench Detail, LPD Calculations, Profile & Plan accordingly.
2. There is a 45 degree bend at the end of your trench. Please show the perforations at this point in the trench detail. We don't want the perforation to be covered by the connection of the two pipes. Added a note to the typical trench detail "make sure holes in bends & fittings are not covered during assembly"
3. We need to add an observation pipe at the end of your trench. Please show in trench detail on OSDS. The observation pipes are shown in the typical trench detail. We added a turf box to detail.
4. Also we need to show the friction head loss for the union disconnect. This "coupling" is accounted for in the LPD Distribution System Calculations (highlighted on attached 11x17)
5. Please recalculate and make sure calculations are correct. Updated spreadsheets.
6. Please state the time dose setup for the pump tank . This number (6 doses at 125 gallon/dose) is shown in the Pump Chamber Volume Calculations (highlighted on the attached 11x17)

### Lot #21

1. The pipe invert on your septic trench detail should be at 2 feet. We are recommending using 2 feet to obtain the most efficient design. Please make calculation adjustments needed. Revised pipe invert to 2 feet. Updated Trench Detail, LPD Calculations, Profile & Plan accordingly.
2. There is a 45 degree bend at the end of your trench. Please show the perforations at this point in the trench detail. We don't want the perforation to be covered by the connection of the two pipes.

Added a note to the typical trench detail "make sure holes in bends & fittings are not covered during assembly"

3. We need to add an observation pipe at the end of your trench. Please show in trench detail on OSDS. The observation pipes are shown in the typical trench detail. We added a turf box to detail.
4. Also we need to show the friction head loss for the union disconnect. This "coupling" is accounted for in the LPD Distribution System Calculations (highlighted on attached 11x17)
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6. Please state the time dose setup for the pump tank. This number (6 doses at 125 gallon/dose) is shown in the Pump Chamber Volume Calculations (highlighted on the attached 11x17)

#### Lot #22

1. The pipe invert on your septic trench detail should be at 2 feet. We are recommending using 2 feet to obtain the most efficient design. Please make any calculation adjustments needed. Revised pipe invert to 2 feet. Updated Trench Detail, LPD Calculations, Profile & Plan accordingly.
2. We need to add an observation pipe at the end of your trench. Please show in trench detail on OSDS. The observation pipes are shown in the typical trench detail. We added a turf box to detail.
3. Also we need to show the friction head loss for the union disconnect. This "coupling" is accounted for in the LPD Distribution System Calculations (highlighted on attached 11x17)
4. Please recalculate and make sure all calculations are correct in the low pressure distribution system calculations. Updated spreadsheets.
5. Please state the time dose setup for the pump tank. This number (6 doses at 125 gallon/dose) is shown in the Pump Chamber Volume Calculations (highlighted on the attached 11x17)

If you have any questions don't hesitate to email me.

Thanks

Dana





Bureau of Environmental Health

8930 Stanford Boulevard, Columbia, MD 21045

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Twitter: HowardCoHealthDep

Maura J. Rossman, M.D., Health Officer

SEWAGE DISPOSAL SYSTEM SPECIFICATIONS WORKSHEET

Address: \_\_\_\_\_

Subdivision: Crawford and O'keefe Lot: 19

Initial system: Application rate: 1.2 Effective area beginning depth: 4.0 Bottom maximum depth: 8
1st Replacement: Application rate: 1.2 Effective area beginning depth: 5 Bottom maximum depth: 8
2nd Replacement: Application rate: 0.8 Effective area beginning depth: 5.5 Bottom maximum depth: 8

Design Flow = 150 gallons per day per bedroom

Design flow ÷ application rate = square footage of drainfield required

Linear length of trench required = drainfield square footage x sidewall reduction percentage ÷ trench width

Sidewall reduction credit formula:

(W + 2) / (W + 1 + 2D) x 100 = Percent of length of standard trench where W=trench width and D= depth between effective area beginning depth and trench bottom.

Standard design requirements:

- Trenches must be located to provide room for 3 systems in the disposal area
All trenches must be equal length unless low pressure dosed
All trenches must be on contour
Minimum trench spacing: 10' for all trenches utilizing sidewall reduction credit. Additional spacing may be necessary for any trench using over 3.5' of effective sidewall. In those cases, the spacing formula is 2D +W up to a maximum spacing of 18'.
Minimum trench spacing for trenches with no sidewall credit (bottom area only) is 6' for a 2' wide trench and 9' for a 3' wide trench (spacing is measured edge to edge)
Maximum trench length is 100'
Maximum pipe depth is 4'

Additional requirements:

Approved: Dana Bernard Date: 2-20-2018