

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
 Facebook: www.facebook.com/hocohealth

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

RECEIPT DATE: 8-15-17 **ONSITE SEWAGE DISPOSAL SYSTEM** P 50495

APPROVAL DATE: 10/10/17 (SEC) **PERMIT: CONSTRUCTION** A _____

PROPERTY ADDRESS: 719 Woodbine Crossing Road

SUBDIVISION: Woodbine Crossing LOT: 3 TAX ID: 04-374428

CONTRACTOR: WTC Contractors EMAIL: _____

CONTRACTOR ADDRESS: 3033 Salem Bottom Road, Westminster, MD 21157 PHONE: 410-458-7024

PROPERTY OWNER: LDG Inc. EMAIL: _____

OWNER ADDRESS: 8601 Georgia Avenue, Silver Spring, MD 20110 PHONE: 301-585-7000

SEPTIC TANK SIZE (GALLONS): 1250 TANK MANUFACTURER: _____

PUMP MODEL: WE03L PUMP SIZE: 1/3 PUMP TANK CAPACITY: 1500

DISTRIBUTION SYSTEM: GRAVITY PRESSURE DOSED BEDROOMS: 4 APPLICATION RATE: 0.8

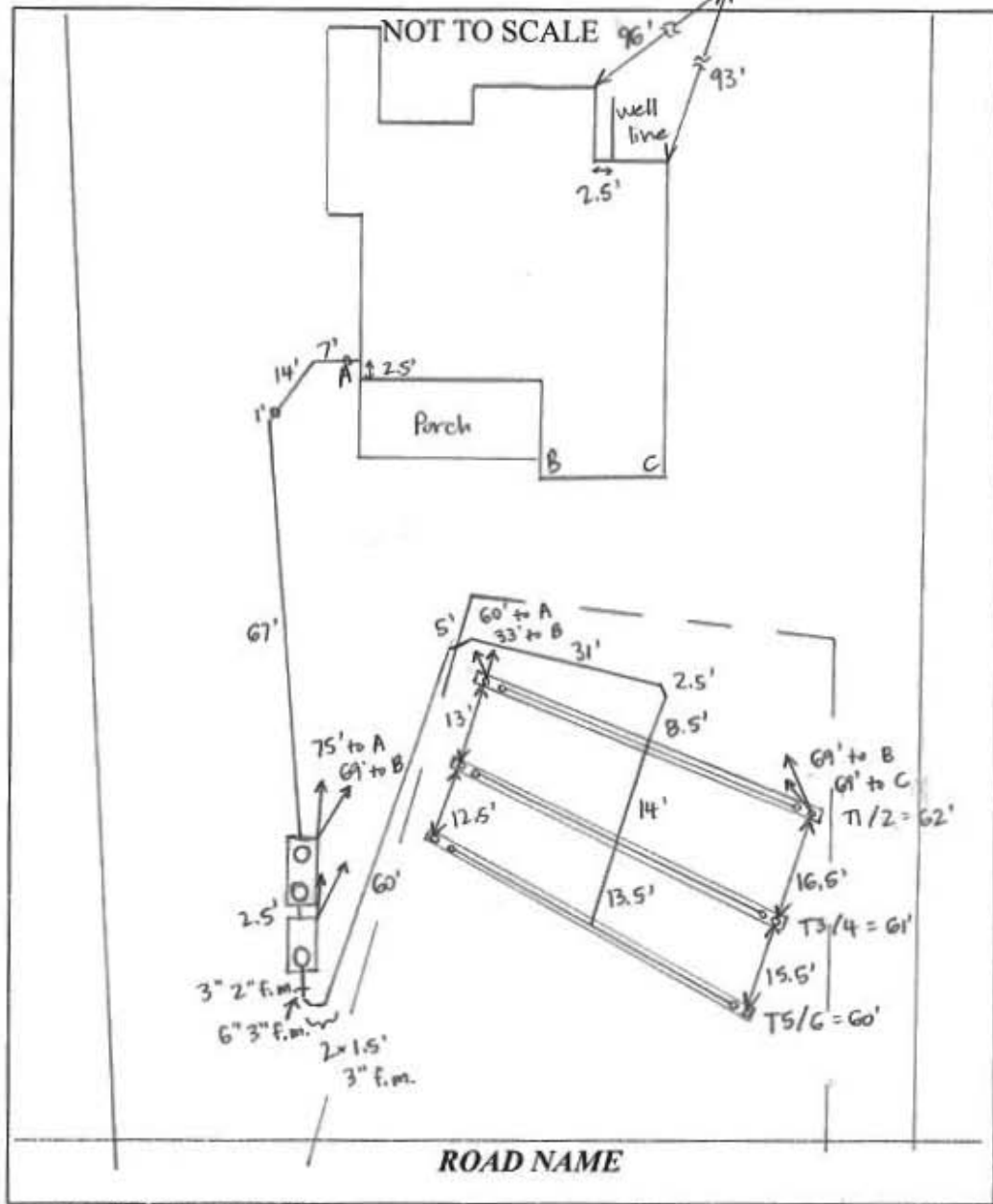
TRENCHES:	LINEAR FEET REQUIRED: <u>177.5</u>	INLET DEPTH: <u>4</u>
	TRENCH WIDTH: <u>3</u>	MAXIMUM BOTTOM DEPTH: <u>6</u>
	MINIMUM SPACE BETWEEN TRENCHES: <u>10</u>	EFFECTIVE AREA BEGINNING DEPTH: <u>4.5</u>
LOCATION:	PER APPROVED SITE PLAN. SEWAGE DISPOSAL AREA AND TANK LOCATIONS MUST BE STAKED BY LICENSED SURVEYOR PRIOR TO PRE-CONSTRUCTION INSPECTION.	
NOTES:		

ISSUED BY: Hank Oswald ISSUE DATE: 8-15-17 EXPIRATION DATE: 8-15-18

- 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 1700 2632
- 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.**

W HO-95-1066



TRENCH/DRAINFIELD DATA		
WIDTH	INLET	BOTTOM
3'	3.5-4.5'	6'
NUMBER OF TRENCHES		6
TOTAL LENGTH		183'
ABSORPTION AREA		549' + SIDEWALL
DISTRIBUTION BOX LEVEL		_____
DISTRIBUTION BOX BAFFLE		_____
DISTRIBUTION BOX PORT		_____

SEPTIC TANK DATA	
SEPTIC TANK 1 LEVEL	YES
MANUFACTURER	BABYLON
CAPACITY	1500 GAL
SEAM LOC	TOP
TANK LID DEPTH	2-2.5'
BAFFLES	YES
BAFFLE FILTER	NO
MANHOLE LOC	FRONT + REAR
6" PORT LOC	NONE
WATERTIGHT TEST	NO
SLOTTED	YES
DATE ON LID	7-23-17
PUMP/SEPTIC TANK LEVEL YES	
MANUFACTURER	BABYLON
CAPACITY	1250 GAL
SEAM LOC	TOP
TANK LID DEPTH	2'
BAFFLES	YES
BAFFLE FILTER	NO
MANHOLE LOC	FRONT + REAR
6" PORT LOC	NONE
WATERTIGHT TEST	NO
SLOTTED	NO
DATE ON LID	_____

Pump: Gould's WE0311M (1/2 hp)

PRE-CONSTRUCTION:

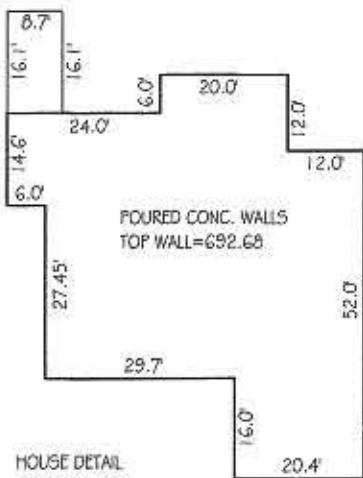
8/30/17 Met WTC on site for layout. SDA corner stakes, tank stakes, + trench stakes all present. Adjusted length to 30' each, shot contour + moved N ends downhill to keep even w/ S end. Dig T1/T2 first + set inlet to 4.5'; lower trenches to have inlet @ same elevation as T1/T2. (SC)

INSTALLATION:

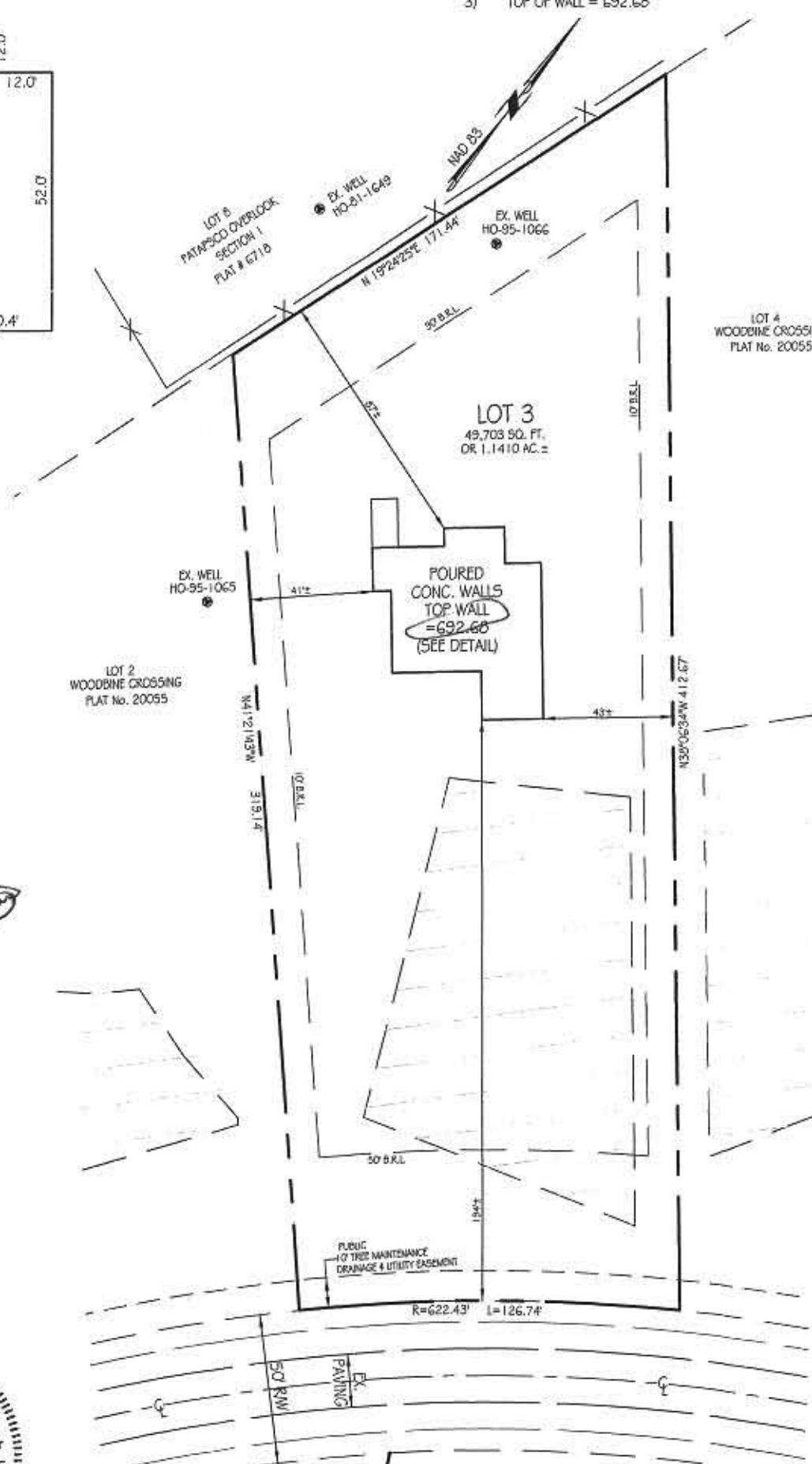
8/31/17 House connection made, tanks set. WTC digging force main up to SDA. Measured length of f.m. prior to backfilling. (SC) 8/31/17 T1/2 dug + stone added - 3' wide, 4.5' inlet. WTC left dirt under manifold/T1/2 laterals, dug down to 6' to make a continuous trench. On site while digging T3/4 - using laser to check depth. Saw measurements for holes of T1/2 laterals, all per plan. (SC) 9/1/17 All trenches complete, lateral pipes installed + left uncovered. Trenches 3' wide, 4' inlet for T3/4, 3.5' inlet for T5/6. Started up system off generator + measured 25-27" lateral head at all turn-ups, check valve open. Need alarm test once electric is connected. (SC) 10/10/17 Electric connected, alarm sounds. (SC)

FINAL INSPECTOR Sarah Collins DATE OF APPROVAL 10/10/17

- NOTES:
- 1) FOUNDATION AND FOOTINGS ARE IN PLACE AS SHOWN HEREON.
 - 2) BUILDING TIES ARE ±0.5' UNLESS OTHERWISE NOTED.
 - 3) TOP OF WALL = 692.68



HOUSE DETAIL
SCALE: 1" = 30'



*8/15/17
wall check
approved (initials)*



PROFESSIONAL CERTIFICATION:

I HEREBY CERTIFY THAT THIS DOCUMENT WAS PREPARED BY ME OR UNDER MY RESPONSIBLE CHARGE, AND THAT I AM A DULY LICENSED PROFESSIONAL LAND SURVEYOR UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 21237, EXPIRATION DATE JANUARY 15, 2019, IN ACCORDANCE WITH COMAR 09.13.06.12.

James A. Fleming
For VanMar Associates, Inc. Date: 6-16-2017
James Alden Fleming, Prof. Land Surveyor

WOODBINE CROSSING ROAD
50' RW

WALL CHECK DRAWING
LOT 3
WOODBINE CROSSING
PLAT No. 20055
719 WOODBINE CROSSING ROAD
FOURTH ELECTION DISTRICT
HOWARD COUNTY, MARYLAND
SCALE: 1" = 50' JUNE, 2017

I CERTIFY THIS PLAT TO BE CORRECT; IT IS THE RESULT OF AN ACTUAL FIELD SURVEY, BASED ON DATA FOUND AMONG THE LAND RECORDS OF HOWARD COUNTY, MARYLAND, AS REFERENCED HEREON.

REFERENCE	JOB NO.
PLAT NO. 20055	B4-5416

VANMAR ASSOCIATES, INC.
Engineers Surveyors Planners
310 South Main Street Mount Airy, Maryland 21771
(301) 829-2890 (301) 831-5015 (410) 549-2751
©Copyright, Latest Date Shown
vanmar.com

LETTER OF TRANSMITTAL

AGENCY CLIENT FILE ACCT. CORR. OTHER

VanMar Associates, Inc.

Engineers ~ Surveyors ~ Planners
310 South Main Street, P.O.Box 328, Mt. Airy, MD 21771
301-829-2890 301-831-5015 301-695-0600
410-549-2751 (FAX) 301-831-5603

TO: Howard County Department of
Environmental Health
8930 Stanford Blvd
Columbia, Maryland 21045

Attn: Hank Oswald, L.E.H.S.

DATE: April 27, 2017

PROJECT: Woodbine Crossing, Lot 6

VMA#: B45416

ENCLOSED:

COPIES	DATE	DESCRIPTION
1	4/25/17	Email and comment letter from Hank Oswald, L.E.H.S.
3	4/26/17	On Site Sewage Disposal System Design Plan Lot 3 Woodbine Crossing

REMARKS: Hi Hank, the plan has been revised to reflect your comments and submitted for your review and approval. Thank you!

COPIES TO (ADDRESS): Catonsville Homes, 11175 Stratfield Court, Marriottsville, Maryland 21104

SUBMITTED BY: dkv

G:Eng.5416 hd revised Sewage plan 4.27.17

Ron Thompson

From: Oswald, Hank <hoswald@howardcountymd.gov>
Sent: Tuesday, April 25, 2017 3:46 PM
To: Ron Thompson
Subject: LPD OSDS Plan_719 Woodbine Crossing Road
Attachments: LPD OSDS Design_719 Woodbine Crossing Road_4.25.17.pdf

Hi Ron:

Please see attached letter regarding the review of the LPD OSDS Plan for 719 Woodbine Crossing Road.

Should you have any questions or concerns, please don't hesitate to contact me.

Thanks,

Hank

Hank Oswald, L.E.H.S.
Howard County Health Department
Bureau of Environmental Health
Well & Septic Program
8930 Stanford Boulevard
Columbia, MD 21045
410.313.1786 (Office)
410.313.2648 (Fax)



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Twitter: HowardCoHealthDep

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

April 25, 2017

Vanmar Associates, INC.
310 South Main Street
Mount Airy, MD 21771
Attn: Ron Thompson

Sent via email to: ron@vanmar.com

RE:

OSDS Plan
719 Woodbine Crossing Road
Woodbine Crossing, Lot 3

Hi Ron:

The OSDS (LPD) Plan for *719 Woodbine Crossing Road* has been reviewed with the following comments:

- 1.) Use 6 (instead of 8) orifices/lateral (To Keep Pump Size Down)
- 2.) Orifice Spacing = 4.93
- 3.) Lateral Length = 27.15
- 4.) Trench Flow Rate = (11.94 X 6) 72 GPM
- 5.) Use 1.25 inch lateral diameter (Based on 5/16th perforation diameter chart in Sand Mound Manual)
- 6.) For a 3 In. Pipe, Volume should be 38.4 (Not 42.2)
- 7.) Minimum Dose = 107.43
- 8.) TDH of 8.5 @ 72 gpm (Trench Flow Rate) = 1/3 HP PUMP WE03L

Should you have any questions or concerns, please don't hesitate to contact me.

Respectfully,

Hank Oswald

Hank Oswald, L.E.H.S.
Bureau of Environmental Health
Well & Septic Program

Oswald, Hank

From: Oswald, Hank
Sent: Tuesday, April 25, 2017 3:46 PM
To: ron@vanmar.com
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Should you have any questions or concerns, please don't hesitate to contact me.

Thanks,

Hank

Hank Oswald, L.E.H.S.
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Maura J. Rossman, M.D., Health Officer

**OPERATION AND MAINTENANCE AGREEMENT
FOR AN ON-SITE SEWAGE DISPOSAL SYSTEM
HAVING AN ADVANCED PRE-TREATMENT SYSTEM**

THIS AGREEMENT is made this 28 day of May, 2014, among LDG, Inc., hereinafter collectively referred to as "Owner", and the Howard County Health Department hereinafter referred to as the "County".

WHEREAS, Owner is the owner or contract owner of a parcel of land located at 719 Woodbine Crossing, Woodbine, MD 21797 (Lot 3), in the 04 Election District of Howard County, Maryland, and the deed to same is recorded or shall be recorded among the Land Records of Howard County, Maryland in Liber 1988 Folio 258.

WHEREAS, The Lot is suitable for the installation of a conventional on-site sewage disposal system with an advanced pre-treatment system, utilizing best available technology to perform nitrogen reduction, in accordance with the Code of Maryland Regulations 26.04.02.07, effective January 1, 2013.

NOW, THEREFORE, the parties hereto agree as follows:

- A. Owner hereby grants to the County the right to enter upon the Lot at any reasonable time for access to the system to make periodic inspections and the Owner agrees to provide any information and data in Owner's possession reasonably requested and needed by the County to develop accurate and thorough test results.
- B. Owner acknowledges and agrees that neither the County nor any of its agents or employees, either officially or individually, underwrites the operation of any system approved by them.
- C. The Owner will devote reasonable care and effort to the operation and maintenance of the system in perpetuity or until a public sewer connection is made so that a system malfunction is not the result of poor maintenance, faulty operation, or neglect.
- D. The Owner agrees to enter into a contract reasonably acceptable to the Owner and the County with a private entity to operate and maintain on a regularly scheduled basis an approved advanced pre-treatment system. The owner shall supply a copy of the contract to the County when it is renewed or altered.
- E. This agreement shall run with the land and upon Owner's taking title to the Lot shall bind the Owner, their heirs, successors, and assigns to the provisions of the agreement as

long as the property is in existence and after installation of the system. Owner further agrees that they shall inform in writing any subsequent purchaser or lessee of the Lot that the system shall require maintenance or other attention. Upon taking title to the Lot, the Owner agrees to cause this agreement to be recorded in the Land Records of Howard County and assure that it becomes part of the Deed for the subject property in order that prospective buyers may be aware of the special conditions affecting this property.

F. This agreement shall not be construed to limit any authority of the County to protect the public health, safety or comfort or to issue any other orders to take any other action which is now or may hereafter be within its authority.

G. This agreement may be voided at any time at the discretion of the County.

H. This agreement contains the entire agreement and understanding between the County and the Owner. There are no additional terms other than as contained in this agreement. This agreement may not be modified, except in writing signed by each of the parties or by their authorized representatives.

I. The laws of the State of Maryland govern the provisions of all transactions pursuant to this agreement.

J. Owner acknowledges and agrees that interior renovations to increase the number of bedrooms or an increase in living space shall not be permitted without approval from the County.

IN WITNESS WHEREOF, the parties have signed and sealed this agreement on the date indicated above.

Owner

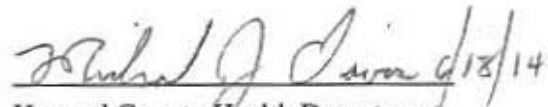
Date



Owner

6/9/14

Date



Howard County Health Department



305102918

Weighed At: Medford

1111 Medford Road

New Windsor, MD 21776

Location: 2305

Order: 53585

Dispatch:

Date: 08/31/2017

Ship To: 4115 - CHARLES L BOPST TRUCKING

AG:CMD 05 2017 VARIOUS

Instruct:

PO: WTC - WOODBINE CROSSING

Job #: LOT 3

Product: 4STONE - ASTM #4 LIMESTONE

Carrier: CHARLES LBOPST - CHARLES L BOPST TRUCKING

Vehicle: MD-6687

StateID#:

Qty: 21.78 ton

--- DRIVER ON AT TARE & GROSS ---

Weighmaster:

BLUEGRASS MATERIALS

Deputy Weighmaster:

Kathryn Baker

Scale: 2

In: 11:32 am

Out: 11:36 am

	lb	ton	tne
Gross:	69,820	34.91	31.67
Tare:	26,260	13.13	11.91
Net:	43,560	21.78	19.76

* Predetermined Tare

Today Loads:

5

Today Qty:

109.42 ton

BLUEGRASS MATERIALS COMPANY
STANDARD TERMS AND CONDITIONS
APPLY.

Signature of Receiving Agent

METRIC CONVERSION FORMULA: POUNDS DIVIDED BY 2204.623, ROUNDED TO 2 DECIMALS.
SEE REVERSE SIDE FOR PRODUCT LABEL INFORMATION

**BLUEGRASS*****305102880***

Weighed At: Medford

1111 Medford Road

New Windsor, MD 21776

Location: 2305

Order: 53585

Dispatch:

Date: 08/31/2017

Ship To: 4115 - CHARLES L BOPST TRUCKING

AG CMD 05 2017 VARIOUS

Instruct:

PO: WTC - WOODBINE CROSSING

Job #: LOT 3

Product: 4STONE - ASTM #4, LIMESTONE

Carrier: CHARLES L BOPST - CHARLES L BOPST TRUCKING

Vehicle: MD-6687

StateID#:

Qty: 21.69 ton

--- DRIVER ON AT TARE & GROSS ---

Weighmaster:

BLUEGRASS MATERIALS

Deputy Weighmaster:

Kathryn Baker

Scale: 2

In: 7:33 am

Out: 7:42 am

	lb	ton	tne
Gross:	69,640	34.82	31.59
Tare:	26,260	13.13	11.91
Net:	43,380	21.69	19.68

* Predetermined Tare

Today Loads:

Today Qty:

1

21.69 ton

BLUEGRASS MATERIALS COMPANY
STANDARD TERMS AND CONDITIONS
APPLY.

Signature of Receiving Agent

METRIC CONVERSION FORMULA: POUNDS DIVIDED BY 22.04623, ROUNDED TO 2 DECIMALS
SEE REVERSE SIDE FOR PRODUCT LABEL INFORMATION



305102903

Weighed At: Medford

1111 Medford Road

New Windsor, MD 21776

Location: 2305

Order: 53585

Dispatch:

Date: 08/31/2017

Ship To: 4115 - CHARLES L BOPST TRUCKING

AG CMD 05 2017 VARIOUS

Instruct:

PO: WTC - WOODBINE CROSSING

Job #: LOT 3

Product: 45STONE - ASTM_#4 LIMESTONE

Carrier: CHARLES L BOPST - CHARLES L BOPST TRUCKING

Vehicle: MD-6687

StateID#:

Qty: 21.80 ton

— DRIVER ON AT TARE & GROSS —

Weighmaster:

BLUEGRASS MATERIALS

Deputy Weighmaster:

Kathryn Baker

Scale: 2

In:

Out: 10.24 am

	lb	ton	tn
Gross:	69,860	34.93	31.69
Tare:	28,260	13.13	11.91
Net:	43,600	21.80	19.78

* Predetermined Tare

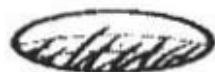
Today Loads: 3

Today Qty: 65.29 ton

BLUEGRASS MATERIALS COMPANY
STANDARD TERMS AND CONDITIONS
APPLY.

Signature of Receiving Agent

METRIC CONVERSION FORMULA: (POUNDS DIVIDED BY 2204.623) ROUNDED TO 3 DECIMALS
SEE REVERSE SIDE FOR PRODUCT LABEL INFORMATION

**BLUEGRASS*****305102893***

Weighed At: Medford
 1111 Medford Road
 New Windsor, MD 21776

Location: 2305

Order: 53585 **Dispatch:**
Ship To: 4115 - CHARLES L BOPST TRUCKING
 AG:CMD 05 2017 VARIOUS

Date: 08/31/2017**Instruct:**

PO: WTC - WOODBINE CROSSING
Job #: LOT 3
Product: 4STONE - ASTM #4, LIMESTONE
Carrier: CHARLES L BOPST - CHARLES L BOPST TRUCKING
Vehicle: MD-6687
StateID#:

Qty: 21.80 ton**--- DRIVER ON AT TARE & GROSS ---**

Weighmaster:
 BLUEGRASS MATERIALS

Deputy Weighmaster:
 Kathryn Baker

Scale: 2**In: 8 58 am****Out: 9 09 am**

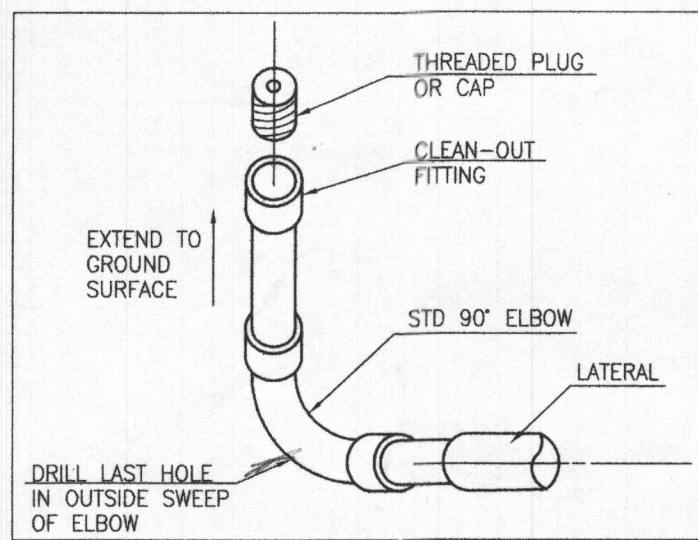
	lb	ton	tne
Gross:	69,860	34.93	31.69
Tare:	26,260	13.13	11.91
Net:	43,600	21.80	19.78

*** Predetermined Tare****Today Loads: 2****Today Qty: 43.49 ton**

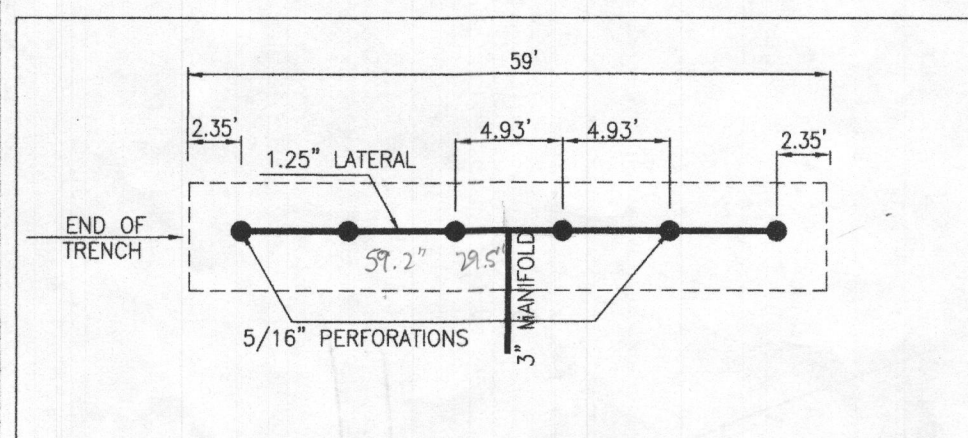
BLUEGRASS MATERIALS COMPANY
 STANDARD TERMS AND CONDITIONS
 APPLY

Signature of Receiving Agent

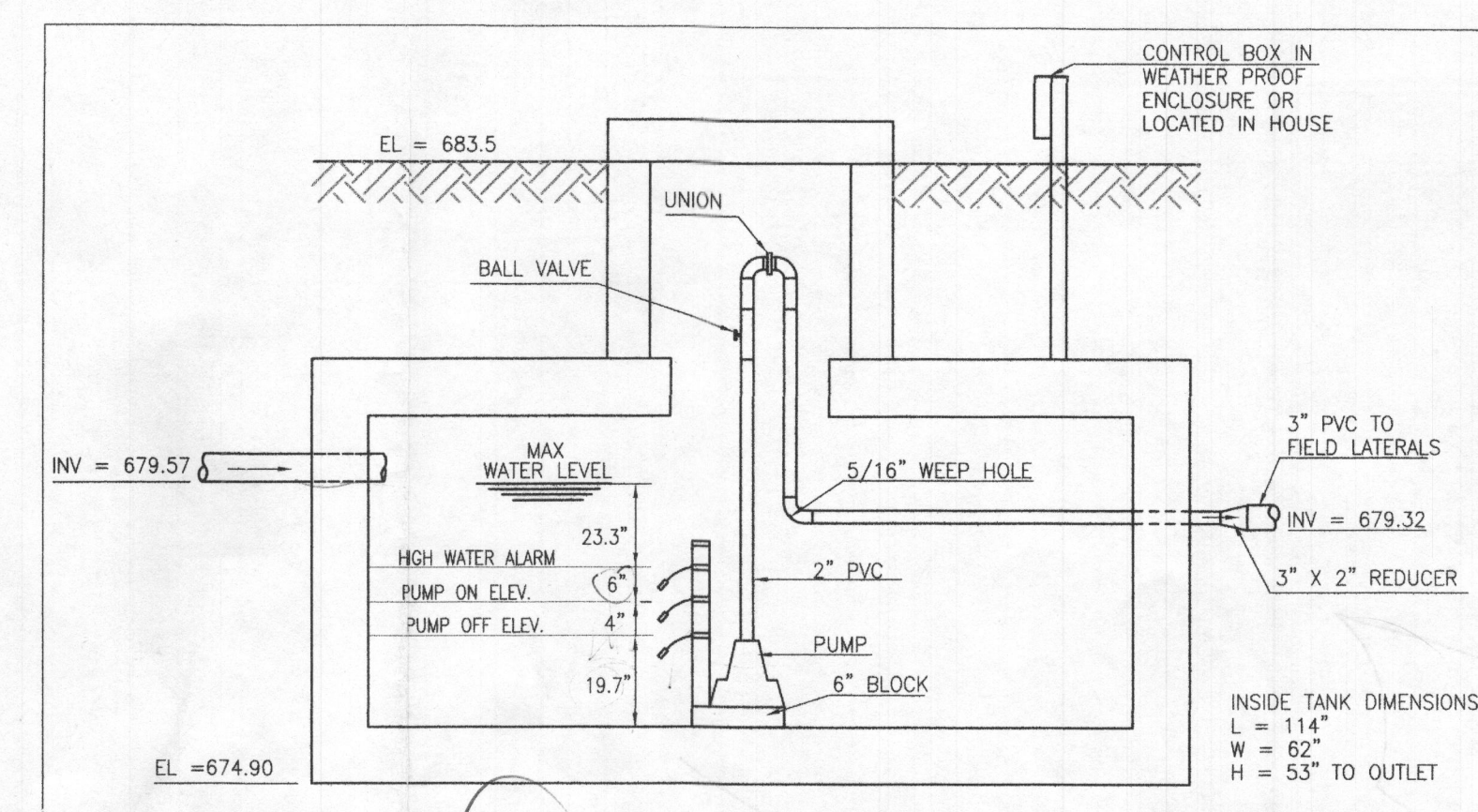
METRIC CONVERSION FORMULA: POUNDS DIVIDED BY 2204.623, ROUNDED TO 2 DECIMALS
SEE REVERSE SIDE FOR PRODUCT LABEL INFORMATION



LATERAL END TURN-UP
USE ON LATERAL FARTHEST FROM PUMP
AND ON LATERAL DIAGONALLY ACROSS BED
NOT TO SCALE



LATERAL DETAIL
NOT TO SCALE



**TOP SEAM
1250 GAL. PUMP CHAMBER**
NOT TO SCALE

LOW PRESSURED DOSE SYSTEM SPECIFICATIONS

- ALL PIPING TO BE SCHEDULE 40 PVC OF SIZES SHOWN.
- A SUBMERSIBLE PUMP TO REMOVE 72 GPM AGAINST 6.5 TDH TO BE PROVIDED. PUMP TO BE A GOULDS MODEL 3885-WE03L OR EQUAL.
- A TEST OF THE PUMP SYSTEM AND DISTRIBUTION PIPING IS REQUIRED PRIOR TO COVERING THE SYSTEM.
- THE HIGH WATER ALARM IS TO BE ON A SEPARATE CIRCUIT ALARM TO BE LOCATED IN THE HOUSE.

LOW PRESSURE DOSE SYSTEM DESIGN CRITERIA

DOSE VOLUME

- MINIMUM DOSE = (5 X LATERAL PIPE VOLUME) + (FORCE MAIN + MANIFOLD)
= (5 X 13.8) + 40
= 112 GALLONS
- 112 GALLONS IS MORE THAN 1/6 DESIGN FLOW (4 BORMS X 150 GALLONS) = 100 GALLONS USE 112 GALLONS DOSE
- RUNTIME = 112 GALLONS / 72 GPM = 1.6 MIN.

PIPE VOLUMES

- 125 LF (3" PIPE) X 36.4 GALLONS PER 100 LF = 45 GALLONS
- 163 LF (1.25" PIPE) X 7.8 GALLONS PER 100 LF = 12.7 GALLONS

FRICTION LOSS IN 3" PIPE FITTINGS

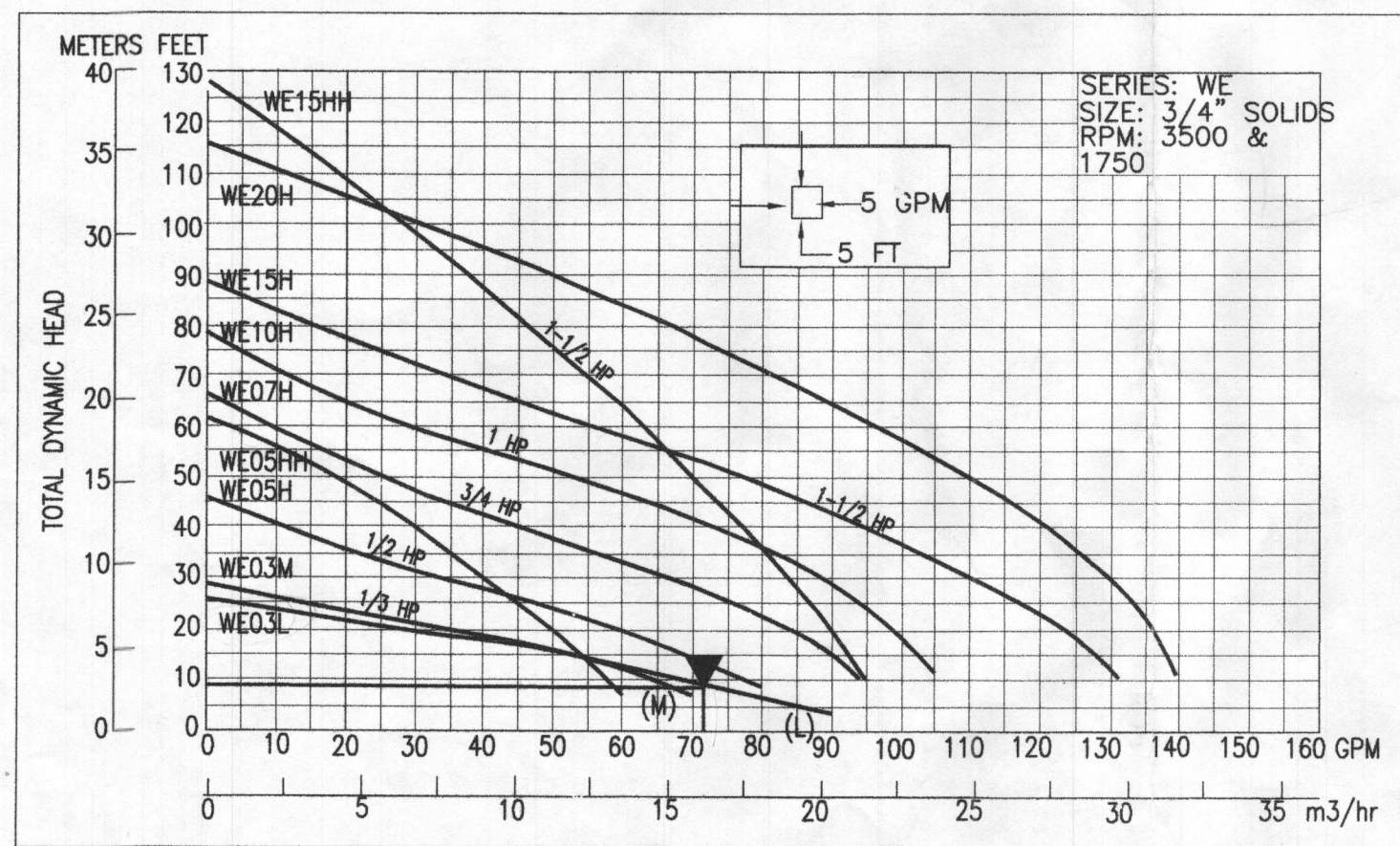
- 0 - 90° TEE X 1.5 FT PER FITTING = 0 EQUIVALENT FT OF PIPE
- 7 - 45° X 6 FT PER FITTING = 42 EQUIVALENT FT OF PIPE
- TOTAL EQUIVALENT FEET OF PIPE = 42 FEET
- TOTAL LINEAR FEET OF 3" PVC = 125 LF + 42 LF = 167 LF

FRICTION HEAD = 125' + 42' = 167' x 2.09 = 349.03 / 100 = 3.49'
STATIC HEAD = PUMP OFF TO UPPER TRENCH = 2.40'
TOTAL HEAD = 3.00'
TOTAL DYNAMIC HEAD (TDH) = 9.0 @ 72 GPM

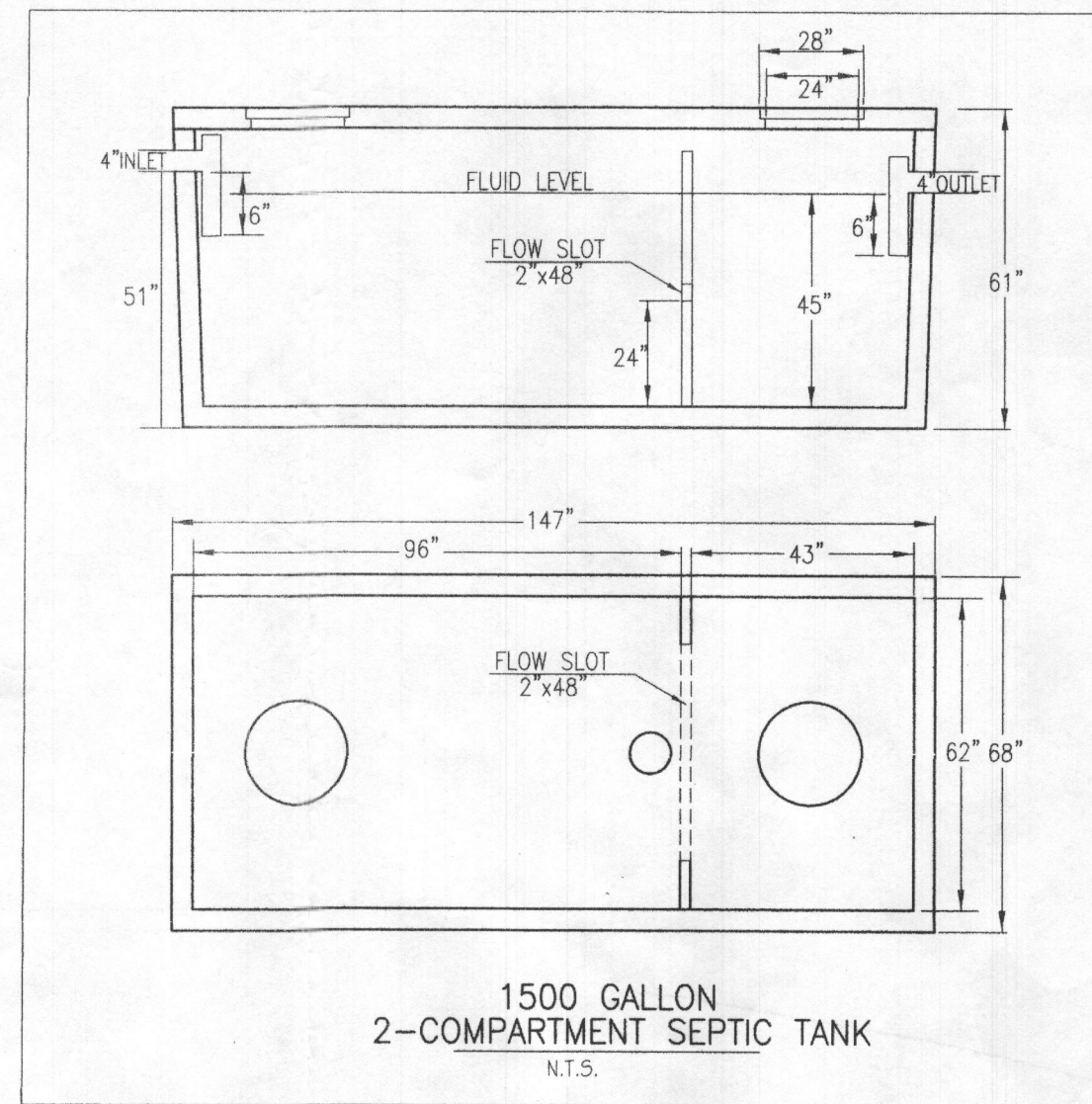
TRENCH	GROUND ELEV.	PIPE INVERT ELEV.	TRENCH LENGTH (FT)	2" LATERAL PIPE LENGTH (FT)	PERFORATION DIAMETER (IN)	HEAD (FT)	PERFORATION FLOW RATE (GPM)	PERFORATION SPACING (FT)	NUMBER OF ORIFICES	LATERAL FLOW RATE (GPM)
T-L1	686.3	681.8	29.5'	27.15'	5/16	3	1.99	4.93'	6	11.94
T-L2	686.3	681.8	29.5'	27.15'	5/16	3	1.99	4.93'	6	11.94
T-L3	685.8	681.8	29.5'	27.15'	5/16	3	1.99	4.93'	6	11.94
T-L4	685.8	681.8	29.5'	27.15'	5/16	3	1.99	4.93'	6	11.94
T-L5	685.3	681.8	29.5'	27.15'	5/16	3	1.99	4.93'	6	11.94
T-L6	685.3	681.8	29.5'	27.15'	5/16	3	1.99	4.93'	6	11.94

TRENCH FLOW RATE 72 GPM

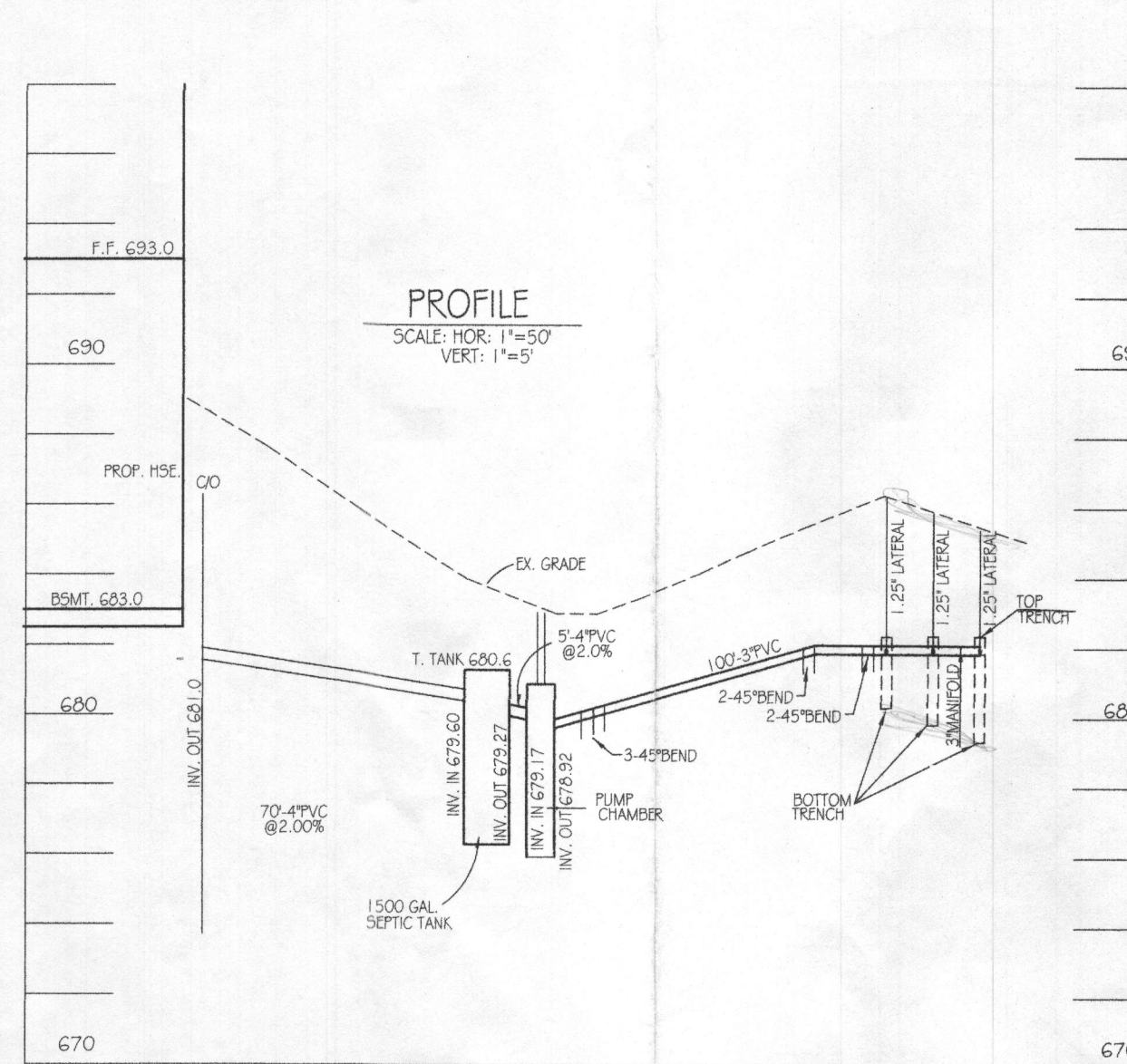
TRENCH	GROUND ELEV.	TOP OF STONE ELEV.	PIPE INVERT ELEV.	DEPTH OF STONE FROM GROUND	DEPTH OF STONE (FT)	BOTTOM OF TRENCH ELEV.	EFFECTIVE DEPTH BEGINS AT	EFFECTIVE DEPTH (D)	WIDTH OF TRENCHES (W)	TRENCH LENGTH (FT)
T-L1	686.3	682.3	681.8	4.0'	2.0'	680.3	681.8	1.5'	3.0'	10
T-L2	686.3	682.3	681.8	4.0'	2.0'	680.3	681.8	1.5'	3.0'	10
T-L3	685.8	682.3	681.8	3.5'	2.5'	679.8	681.3	1.5'	3.0'	10
T-L4	685.8	682.3	681.8	3.5'	2.5'	679.8	681.3	1.5'	3.0'	10
T-L5	685.3	682.3	681.8	3.0'	3.0'	679.3	680.8	1.5'	3.0'	10
T-L6	685.3	682.3	681.8	3.0'	3.0'	679.3	680.8	1.5'	3.0'	10



HYDRAULIC GRAPH



**1500 GALLON
2-COMPARTMENT SEPTIC TANK**
N.T.S.



GENERAL NOTES:

- TOPOGRAPHY & PLANIMETRIC FEATURES SHOWN HEREON TAKEN FROM COPYRIGHTED GIS DATA FROM HOWARD COUNTY, SUPPLEMENTED WITH FIELD LOCATIONS BY VANMAR ASSOCIATES, INC. CONTOUR INTERVAL IS 2 FEET. VERTICAL DATUM IS NAVD83.
- THE EXISTING WELLS SHOWN ON THIS PLAN HAVE BEEN FIELD LOCATED BY VANMAR ASSOCIATES OR TAKEN FROM AVAILABLE RECORDS AND ACCURATELY SHOWN.
- ZONING DISTRICT: RC-DEO
- LIMIT OF DISTURBANCE (LOD) = 19,800 SQ.FT.
- THERE ARE NO STREAMS, PONDS, FLOODPLAINS OR WETLANDS ON THIS LOT.
- STORM WATER MANAGEMENT FOR THIS LOT IS PROVIDED BY EXISTING WOODBINE CROSSING STORM WATER MANAGEMENT FACILITIES FOR AND CONSTRUCTED BY THE DEVELOPER UNDER PLAN F-07-103.

SEPTIC SYSTEM TRENCH DESIGN

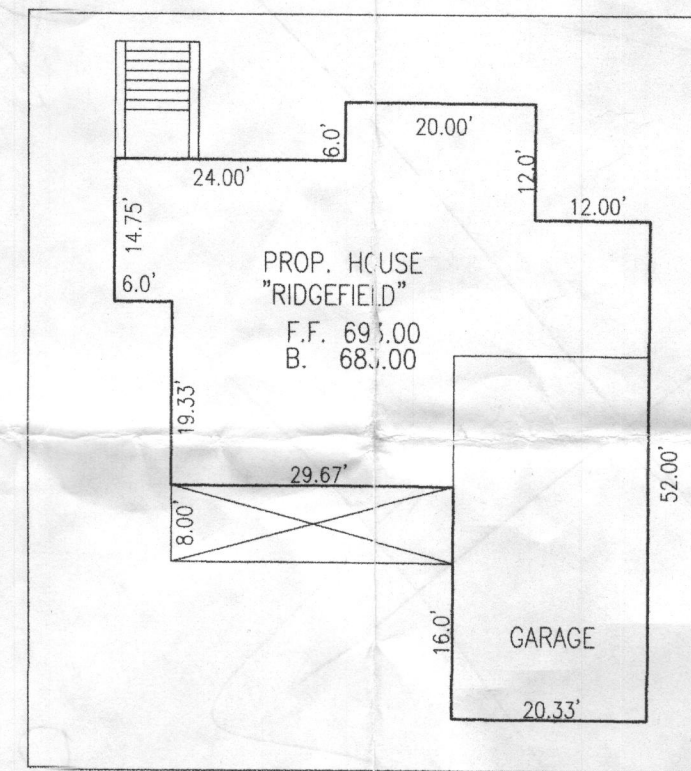
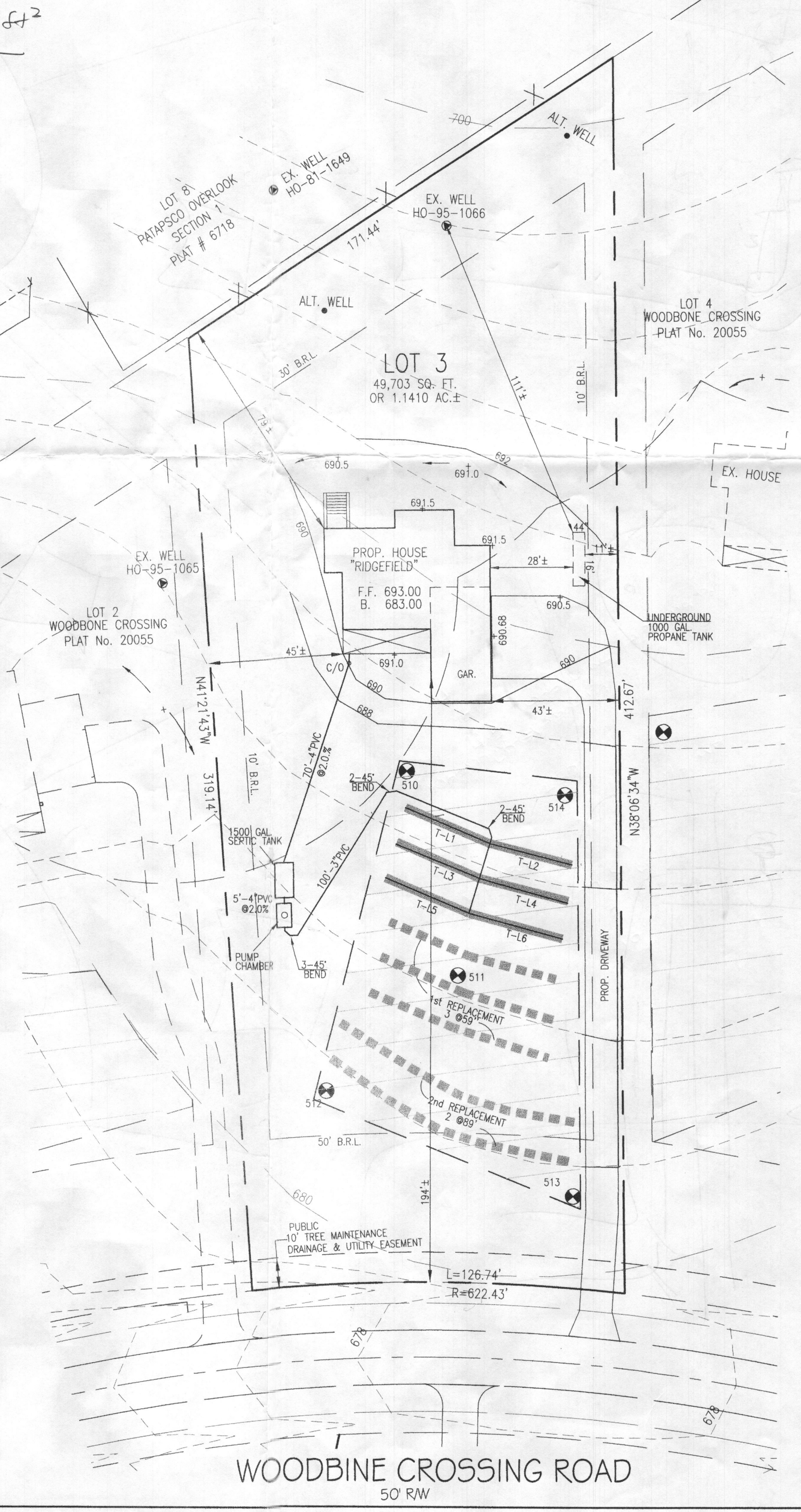
- INITIAL NUMBER OF BEDROOMS = 4
APPLICATION RATE = 0.8 GPD / sq.ft.
DESIGN FLOW: 150 GPD X 4 BEDROOMS = 600 GPD
600 GPD / 0.8 GPD/sq.ft. = 750 sq.ft.
750 sq.ft. / 3 ft. WIDE TRENCH = 250 LF TRENCH
250 LF TRENCH X 0.71 REDUCTION CREDIT = 177.5 LF TRENCH
- TRENCH 1 (T1) EX. GRD=686.3 - INV. TRENCH=681.8 - B. TRENCH=680.3
TRENCH 2 (T2) EX. GRD=685.8 - INV. TRENCH=681.8 - B. TRENCH=679.8
TRENCH 3 (T3) EX. GRD=685.3 - INV. TRENCH=681.8 - B. TRENCH=679.3

- 1st REPLACEMENT**
APPLICATION RATE = 0.8 GPD / sq.ft.
DESIGN FLOW: 150 GPD X 4 BEDROOMS = 600 GPD
600 GPD / 0.8 GPD/sq.ft. = 750 sq.ft.
750 sq.ft. / 3 ft. WIDE TRENCH = 250 LF TRENCH
250 LF TRENCH X 0.71 REDUCTION CREDIT = 177.5 LF TRENCH

- 2nd REPLACEMENT**
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DESIGN FLOW: 150 GPD X 4 BEDROOMS = 600 GPD
600 GPD / 0.8 GPD/sq.ft. = 750 sq.ft.
750 sq.ft. / 3 ft. WIDE TRENCH = 250 LF TRENCH
250 LF TRENCH X 0.71 REDUCTION CREDIT = 177.5 LF TRENCH

SITE PLAN NOTES:

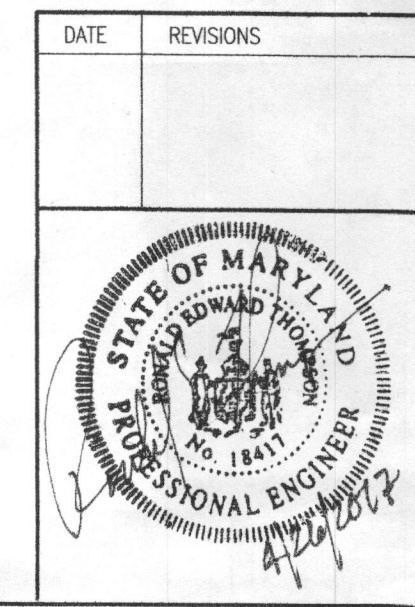
- ANY CHANGE TO THE LOCATIONS OR DEPTHS TO ANY COMPONENTS MUST BE APPROVED BY THE ENGINEER AND THE HOWARD COUNTY HEALTH DEPARTMENT PRIOR TO INSTALLATION. A REVISED SITE PLAN MAY BE REQUIRED.
- MAXIMUM COVER OVER THE TANK IS 3 FEET. GREATER DEPTH WILL REQUIRE A HEAVY LOAD BEARING TANK.
- ELECTRICAL WORK FOR THE INSTALLATION MUST BE PERFORMED BY A LICENSED ELECTRICIAN.
- THE WELL (TAG #HO-95-1066) HAS BEEN FIELD LOCATED AND IS ACCURATELY SHOWN.
- ALL WELLS AND SEPTIC SYSTEMS LOCATED WITHIN 100' OF THE PROPERTY BOUNDARIES AND 200' DOWN GRADIENT OF ANY WELLS AND OR SEPTIC SYSTEMS HAVE BEEN SHOWN.



HOUSE DETAIL
SCALE: 1" = 20'

Approved Septic System Plan
Howard County Health Department
Henk Oswald S.I. 17
Signature Date

PROFESSIONAL CERTIFICATION
I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland, License No. 18417, Expiration Date: 9-18-17.



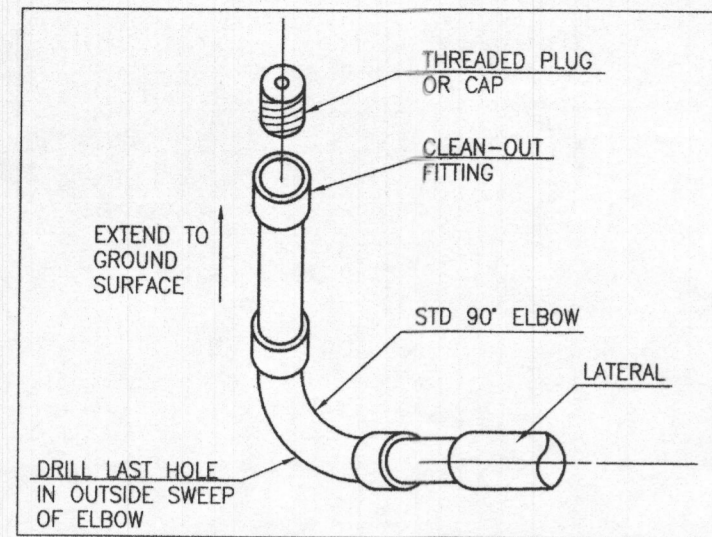
OWNER: LDC INC.
LPL PLAZA, SUITE 200
8601 GEORGIA AVENUE
SILVER SPRING, MD 20910
301-585-7000

DEVELOPER: CATONVILLE HOMES
11175 STRATFIELD CT.
MARRIOTTVILLE, MD 21104
410-442-2211

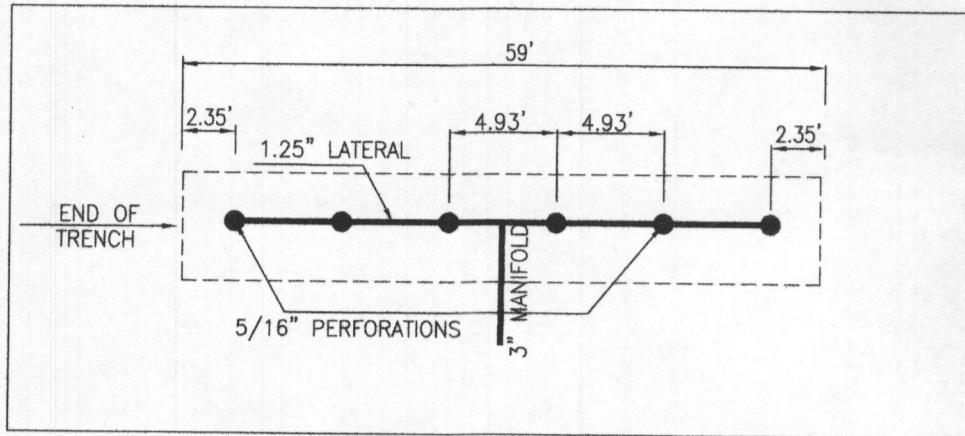
ON SITE SEWAGE DISPOSAL SYSTEM DESIGN PLAN

LOT 3
WOODBINE CROSSING
PLAT No. 20055
719 WOODBINE CROSSING ROAD
FOURTH ELECTION DISTRICT
HOWARD COUNTY, MARYLAND
SCALE: 1" = 30' APRIL, 2017

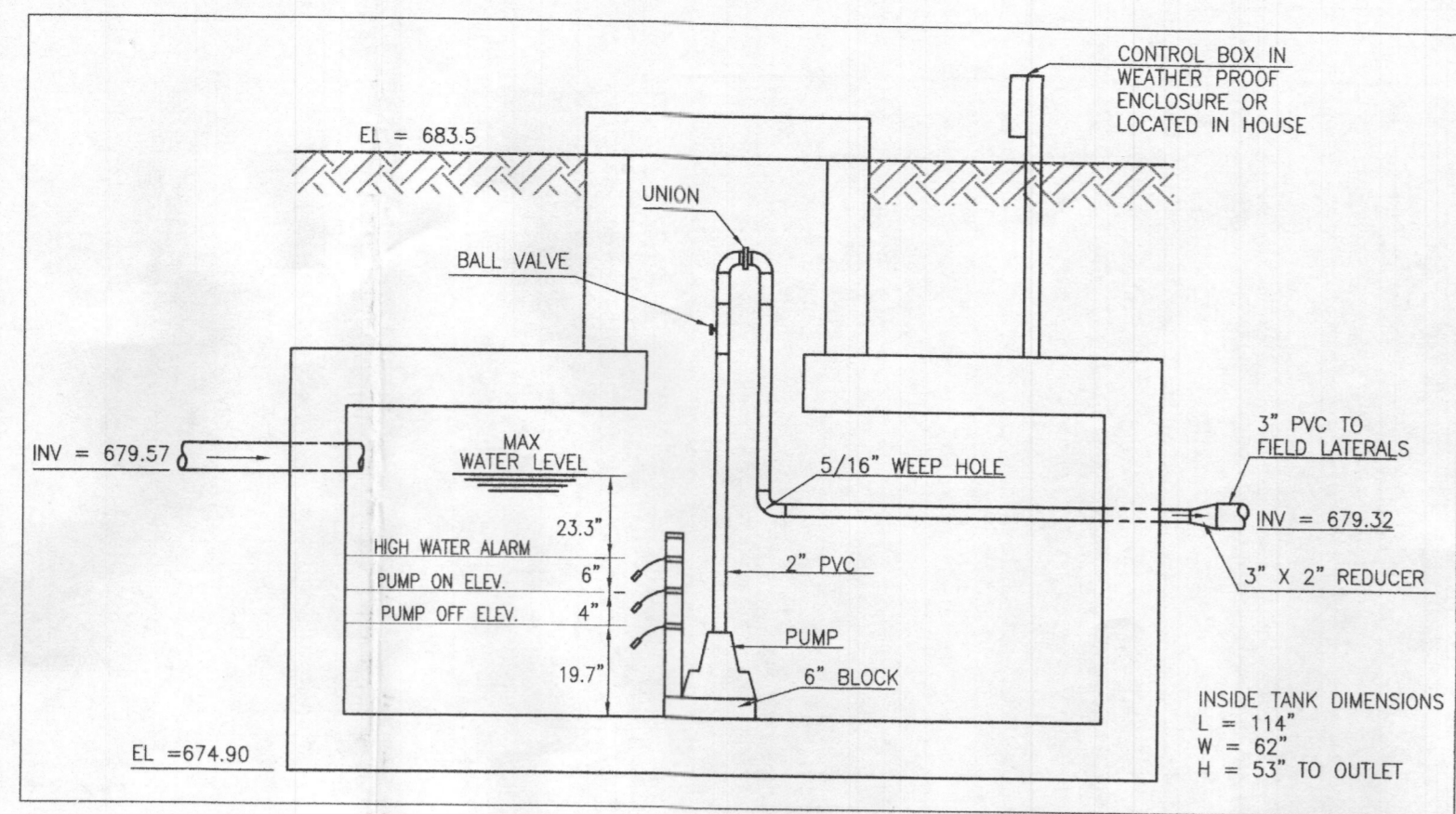
VANMAR ASSOCIATES, INC.
Engineers Surveyors Planners
310 South Main Street Mount Airy, Maryland 21771
(301) 829-2890 (301) 831-5015 (410) 549-2751
Fax (301) 831-5603 ©Copyright, Latest Date Shown



LATERAL END TURN-UP
 USE ON LATERAL FARTHEST FROM PUMP AND ON LATERAL DIAGONALLY ACROSS BED NOT TO SCALE



LATERAL DETAIL
 NOT TO SCALE



TOP SEAM 1250 GAL. PUMP CHAMBER
 NOT TO SCALE

LOW PRESSURED DOSE SYSTEM SPECIFICATIONS

- ALL PIPING TO BE SCHEDULE 40 PVC OF SIZES SHOWN.
- A SUBMERSIBLE PUMP TO REMOVE 72 GPM AGAINST 8.5 TDH TO BE PROVIDED. PUMP TO BE A GOULDS MODEL 3885-WEO3L OR EQUAL.
- A TEST OF THE PUMP SYSTEM AND DISTRIBUTION PIPING IS REQUIRED PRIOR TO COVERING THE SYSTEM.
- THE HIGH WATER ALARM IS TO BE ON A SEPARATE CIRCUIT ALARM TO BE LOCATED IN THE HOUSE.

LOW PRESSURE DOSE SYSTEM DESIGN CRITERIA

DOSE VOLUME

- MINIMUM DOSE = (5 X LATERAL PIPE VOLUME) + (FORCE MAIN # MANIFOLD) = (5 X 13.3) + 45 = 112 GALLONS
- 112 GALLONS IS MORE THAN 1/6 DESIGN FLOW (4 BEDRMS X 150 GALLONS) = 100 GALLONS USE 112 GALLONS DOSE
- RUNTIME = 112 GALLONS / 72 GPM = 1.6 MIN.

PIPE VOLUMES

- 125 LF (3" PIPE) X 38.4 GALLONS PER 100 LF = 48 GALLONS
- 163 LF (1.25" PIPE) X 7.8 GALLONS PER 100 LF = 12.7 GALLONS

FRICTION LOSSES IN 3" PIPE FITTINGS

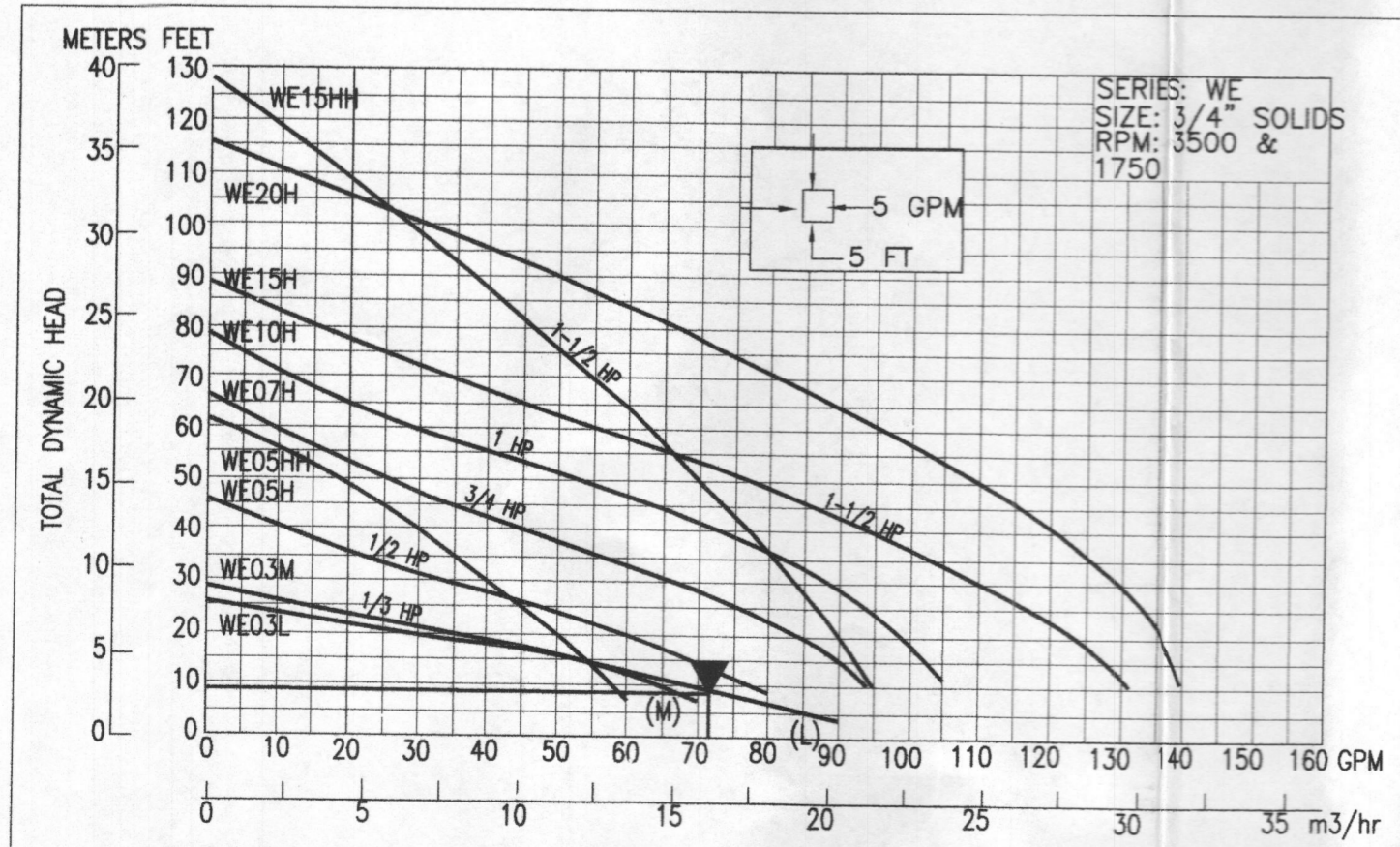
- 0-90° TEE X 1.5 FT PER FITTING = 0 EQUIVALENT FT OF PIPE
- 7-45° X 6 FT PER FITTING = 42 EQUIVALENT FT OF PIPE
- TOTAL EQUIVALENT FEET OF PIPE = 42 FEET
- TOTAL LINEAR FEET OF 3" PVC = 125 LF + 42 LF = 167 LF

FRICTION HEAD = 125' + 42' = 167' x 2.09 = 349.03 / 100 = 3.49'
STATIC HEAD = PUMP OFF TO UPPER TRENCH = 2.46'
DISTAL HEAD = 3.00'
TOTAL DYNAMIC HEAD (TDH) = 9.0' @ 72 GPM

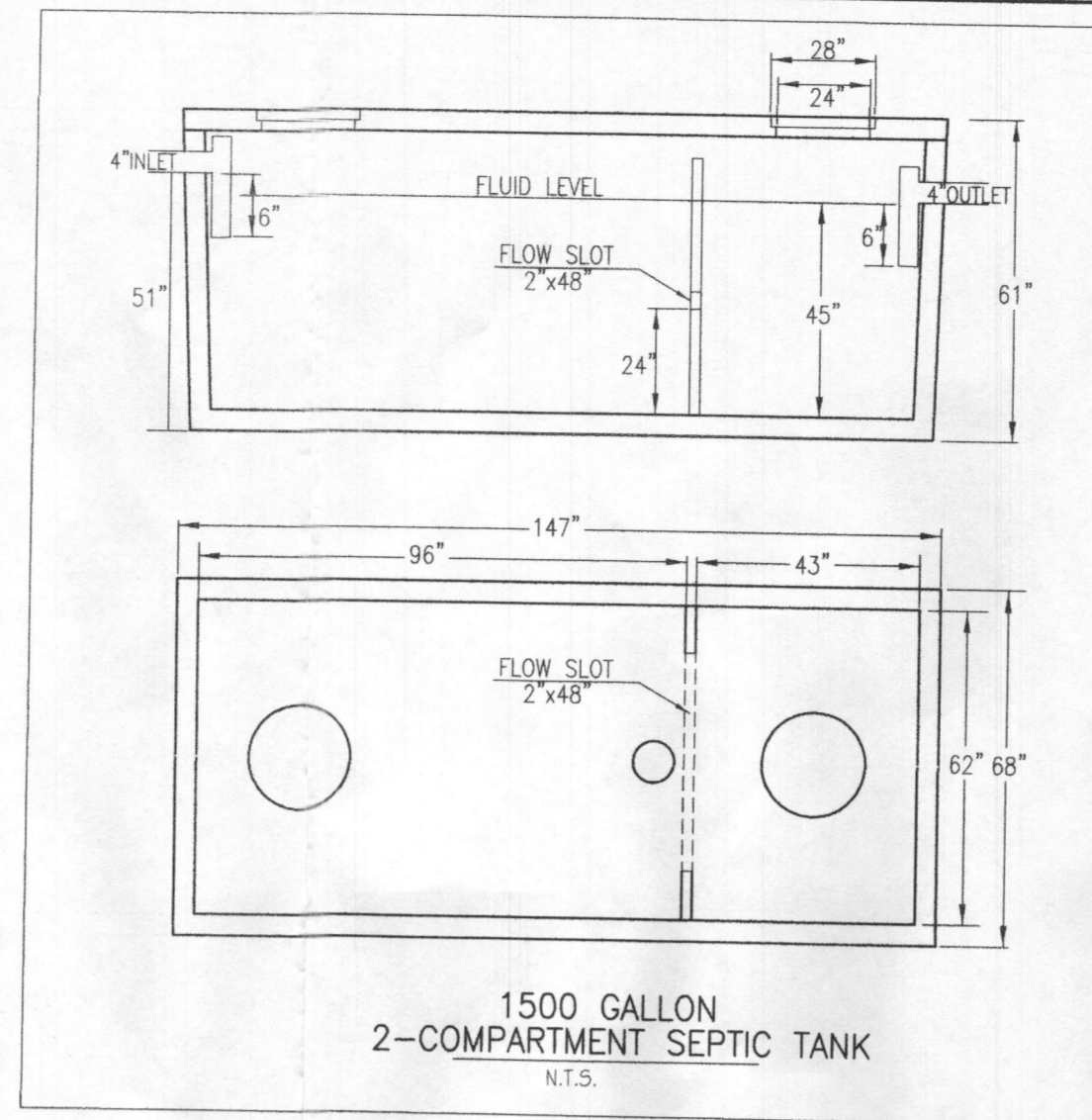
TRENCH	GROUND ELEV.	PIPE INVERT ELEV.	TRENCH LENGTH (FT)	2" LATERAL PIPE LENGTH (FT)	PERFORATION DIAMETER (IN)	HEAD (FT)	PERFORATION FLOW RATE (GPM)	PERFORATION SPACING (FT)	NUMBER OF ORIFICES	LATERAL FLOW RATE (GPM)
T-L1	686.3	681.8	29.6'	27.15'	5/16	3	1.99	4.93'	6	11.94
T-L2	686.3	681.8	29.6'	27.15'	5/16	3	1.99	4.93'	6	11.94
T-L3	685.8	681.8	29.6'	27.15'	5/16	3	1.99	4.93'	6	11.94
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T-L6	685.3	681.8	29.6'	27.15'	5/16	3	1.99	4.93'	6	11.94

TRENCH FLOW RATE 72 GPM

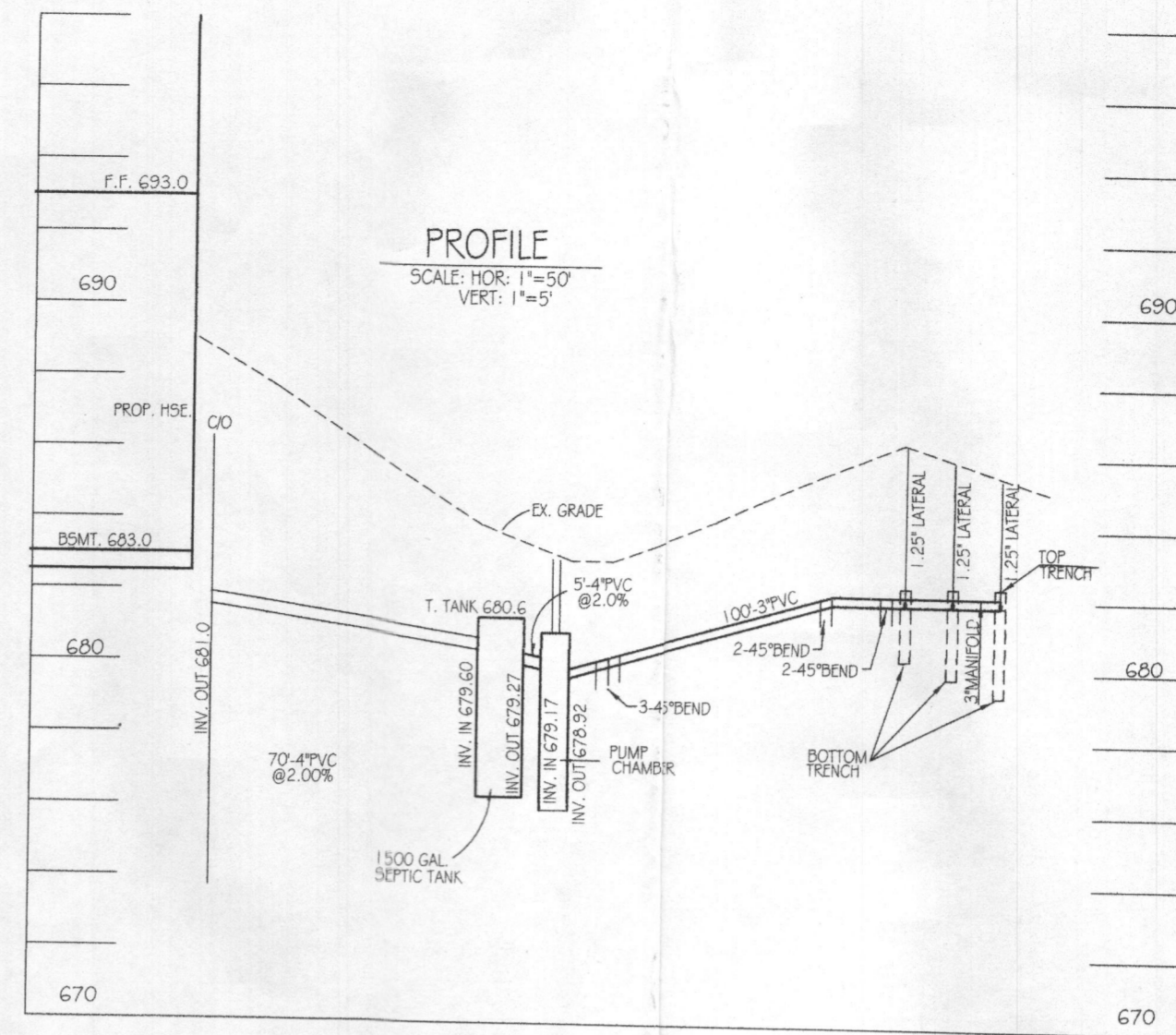
TRENCH	GROUND ELEV.	TOP OF STONE ELEV.	PIPE INVERT ELEV.	DEPTH OF STONE FROM GROUND	DEPTH OF STONE (FT)	BOTTOM OF TRENCH ELEV.	EFFECTIVE DEPTH BEGINS AT	EFFECTIVE DEPTH (D)	WIDTH OF TRENCHES (W)	TRENCH SPACING (FT)
T-L1	686.3	682.3	681.8	4.0'	2.0'	680.3	681.8	15'	3.0'	10
T-L2	686.3	682.3	681.8	4.0'	2.0'	680.3	681.8	15'	3.0'	10
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HYDRAULIC GRAPH



1500 GALLON 2-COMPARTMENT SEPTIC TANK
 N.T.S.



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SEPTIC SYSTEM TRENCH DESIGN

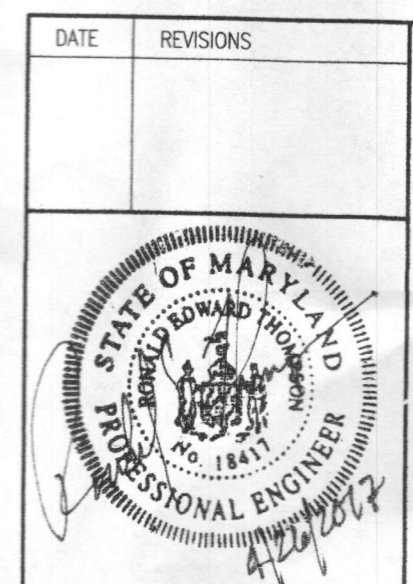
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Approved Septic System Plan
 Howard County Health Department
 Hank Coult 5/17
 Signature Date

PROFESSIONAL CERTIFICATION
 I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland, License No. 18412, Expiration Date: 9-18-17.

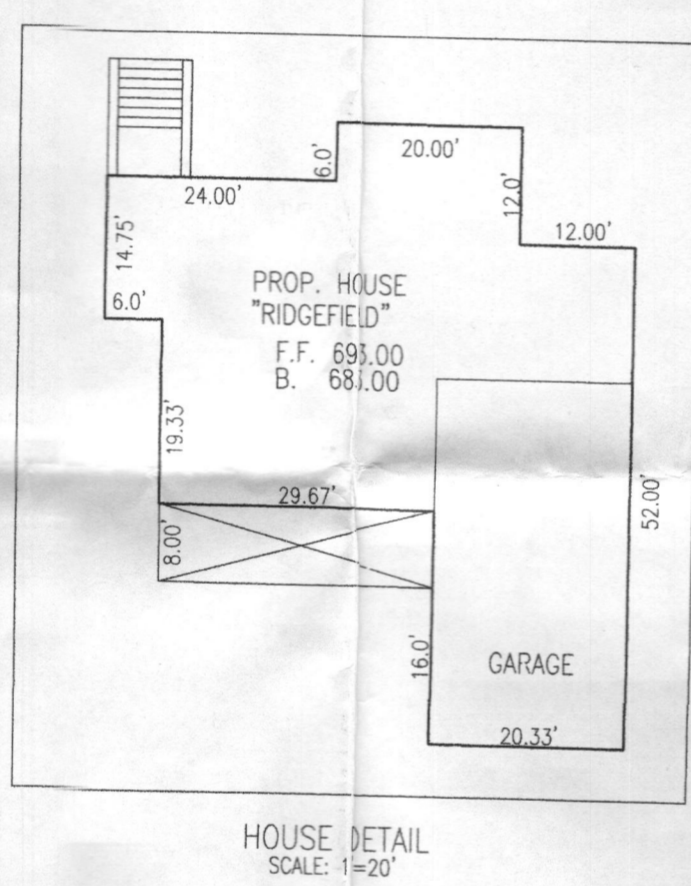
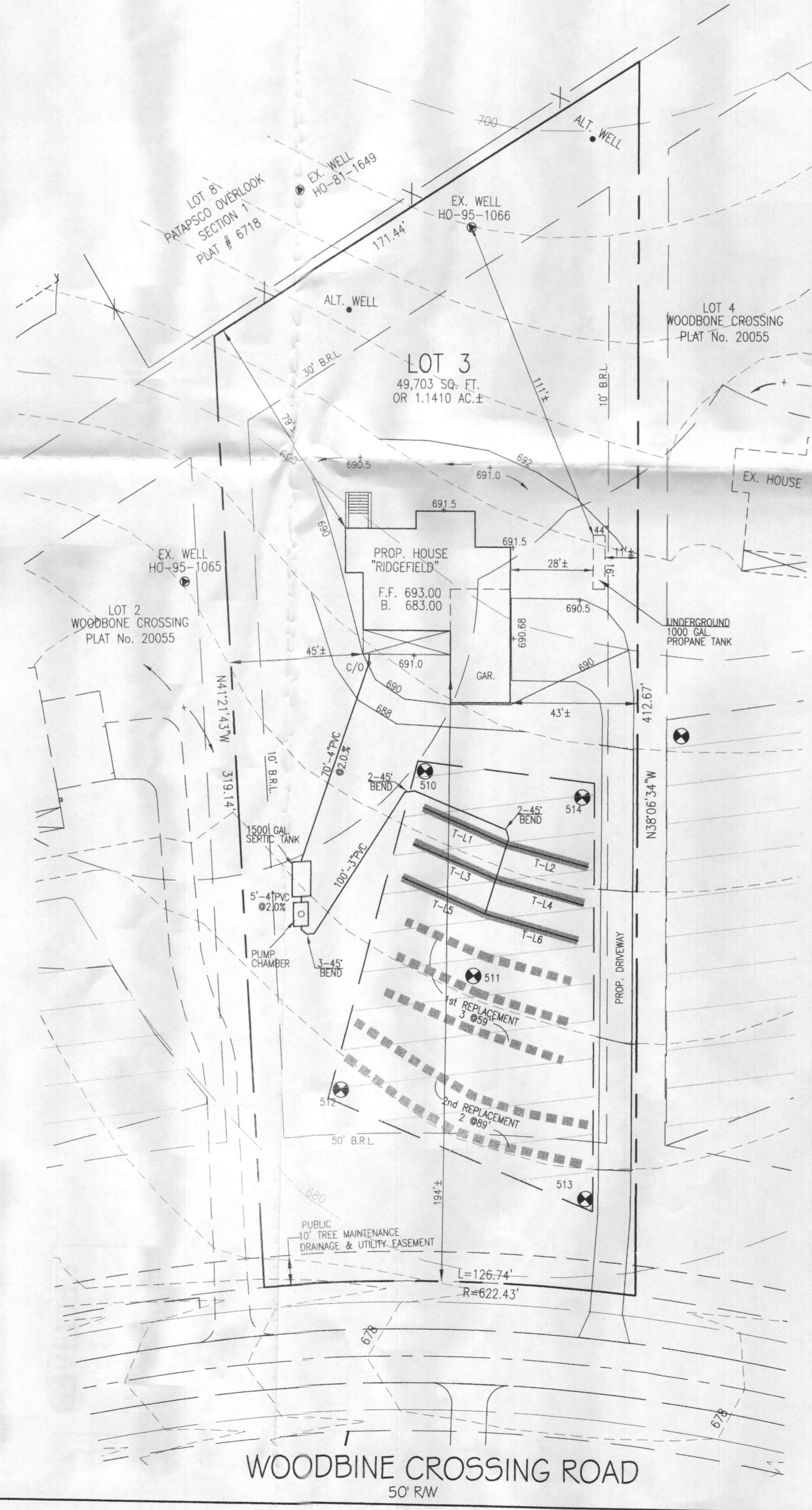


OWNER: LDG INC.
 LEE PLAZA, SUITE 200
 860 GEORGIA AVENUE
 SILVER SPRING, MD 20910
 301-585-7000

DEVELOPER: CATONVILLE HOMES
 11175 STRATFIELD CT.
 MARRIOTTVILLE, MD 21104
 410-442-2211

ON SITE SEWAGE DISPOSAL SYSTEM DESIGN PLAN
 LOT 3
WOODBINE CROSSING
 PLAT No. 20055
 719 WOODBINE CROSSING ROAD
 FOURTH ELECTION DISTRICT
 HOWARD COUNTY, MARYLAND
 SCALE: 1" = 30' APRIL, 2017

VANMAR ASSOCIATES, INC.
 Engineers Surveyors Planners
 310 South Main Street Mount Airy, Maryland 21771
 (301) 829-2890 (301) 831-5015 (410) 549-2751
 Fax (301) 831-5603 © Copyright, Latest Date Shown



WOODBINE CROSSING ROAD
 50' RW