

Howard County Health Department

Bureau of Environmental Health, Columbia, MD 21045 - 410-313-1771

SEWAGE DISPOSAL PERMIT NO. A- _____ P- 569581

RESIDENTIAL PERMIT
(NUMBER OF BEDROOMS: _____)

COMMERCIAL PERMIT
(DESIGN FLOW: _____ GPD)

PERMITEE: Fodes Septic Clean Inc.

LOCATION: 13185 A Highland Road

****POST THIS CARD WHERE IT CAN BE SEEN FROM ROAD****

STOP ALL CONSTRUCTION ON SEWAGE DISPOSAL SYSTEM AND CONTACT HEALTH DEPARTMENT BEFORE CONTINUING

Inspector _____

Date _____

WORK IS SATISFACTORY, OK TO CONTINUE

Inspector _____

Date _____

COMMENTS: _____

FINAL INSPECTION MADE, OK TO COVER ALL WORK

Inspector _____

Date _____

Clerk of the Circuit Court for
Howard County
Land Records/Licensing

6095 Marshalee Drive
Suite 120
Elkridge, MD 21075
410-313-5850

=====
LR - Agreement Recording Fee
1x 20.00 20.00

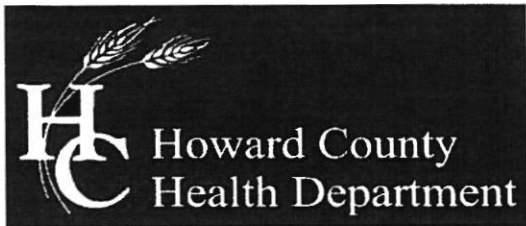
Name: Pinto
Ref: 76

LR - Agreement Surcharge
1x 40.00 40.00

=====
SubTotal: 60.00
Total: 60.00

=====
REV-Check-WFB 60.00
Number : 1003

04/30/2020 09:56 CC13-YW
#13645425/494/109
Thank you for visiting us today~



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

Twitter: HowardCoHealthDep

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 21ST day of APRIL, ²⁰²⁰ among ROBERT PINTO, 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 13185A HIGHLAND RD HIGHLAND 20777, in the 05 Election District of Howard County, Maryland, and the deed and subdivision plat of the property is recorded among the Land Records of Howard County, Maryland, Tax Map # 0034, Block # 0021, Parcel # 0237, Deed Reference # 18425/0085 and Tax Account # 05 368561 ("the Property").

WHEREAS, The Property 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. The pre-treatment device being installed is NORWECO TNTLP-500GPD

NOW, THEREFORE, the parties hereto agree as follows:

A. Owner hereby grants to the County the right to enter upon the Property at any reasonable time with prior notice 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.

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 Property 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 Property that the system shall require maintenance or other attention. Upon taking title to the Property, 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.

Bert Nifon 4/21/2020

Howard County Health Department

Robert Pinto 4/20/20

Owner #1 Signature Date

ROBERT PINTO

Owner #1 Print Name

Owner#2 Signature Date

Owner #2 Print Name

Buyer #1 Signature Date

Buyer #2 Signature Date

Buyer #1 Print Name

Buyer #2 Print Name

OPERATION AND MAINTENANCE SCHEDULE FOR (M-6) MICROBIORETENTION AREAS

1. ANNUAL MAINTENANCE OF PLANT MATERIAL, MULCH LAYER AND SOIL LAYER IS REQUIRED. MAINTENANCE OF MULCH AND SOIL IS LIMITED TO CORRECTING AREAS OF EROSION OR WASH OUT. ANY MULCH REPLACEMENT SHALL BE DONE IN THE SPRING. PLANT MATERIAL SHALL BE CHECKED FOR DISEASE AND INSECT INFESTATION AND MAINTENANCE WILL ADDRESS DEAD MATERIAL AND PRUNING. ACCEPTABLE REPLACEMENT PLANT MATERIAL IS LIMITED TO THE FOLLOWING: 2000 MARYLAND STORMWATER DESIGN MANUAL VOL. II, TABLE A.4.1 AND 2.
2. SCHEDULE OF PLANT INSPECTION WILL BE TWICE A YEAR IN SPRING AND FALL. THIS INSPECTION WILL INCLUDE REMOVAL OF DEAD AND DISEASED VEGETATION CONSIDERED BEYOND TREATMENT, TREATMENT OF ALL DISEASED TREES AND SHRUBS AND REPLACEMENT OF ALL DEFICIENT STAKES AND WIRES.
3. MULCH SHALL BE INSPECTED EACH SPRING. REMOVE PREVIOUS MULCH LAYER BEFORE APPLYING NEW LAYER ONCE EVERY 2 TO 3 YEARS.
4. SOIL EROSION TO BE ADDRESSED ON AN AS NEEDED BASIS WITH A MINIMUM OF ONCE PER MONTH AND AFTER HEAVY STORM EVENTS.

MICROBIORETENTION NOTES:

1. ONLY THE SIDES OF MICROBIORETENTION ARE TO BE WRAPPED IN FILTER FABRIC. FILTER FABRIC BETWEEN LAYER OR AT THE BOTTOM OF THE MICROBIORETENTION WILL CAUSE THE MBR TO FAIL, AND THEREFORE SHALL NOT BE INSTALLED.
2. WRAP THE PERFORATED MBR UNDERDRAIN PIPE WITH 1/4" MESH (4x4) OR SMALLER GALVANIZED HARDWARE CLOTH.
3. PROVIDE 5' MINIMUM SPACING BETWEEN UNDER DRAIN AND PERFORATED PIPE THROUGH STONE RESERVOIR OR SPACE PIPE EQUALLY ACROSS BOTTOM FOR SMALL BIOS. (SEE PLANS)

MICROBIORETENTION PLANTING SCHEDULE NOTES:

1. ALL PLANT MATERIALS SHALL BE FULL AND HEAVY, BE WELL FORMED AND SYMMETRICAL, CONFORM TO THE MOST CURRENT AAN SPECIFICATIONS AND BE INSTALLED IN ACCORDANCE WITH HOWARD COUNTY PLANTING SPECIFICATIONS.
2. CONTRACTOR SHALL VERIFY LOCATION OF ALL UNDERGROUND UTILITIES PRIOR TO DIGGING.
3. FINAL LOCATION OF PLANT MATERIAL MAY NEED TO VARY TO MEET FINAL FIELD CONDITIONS. TREES SHALL NOT BE PLANTED IN THE BOTTOM OF DRAINAGE SWALES.
4. CONTRACTOR SHALL VERIFY PLANT QUANTITIES PRIOR TO BIDDING. IF PLAN DIFFERS FROM LANDSCAPE SCHEDULE, THE PLAN SHALL GOVERN.
5. MICROBIORETENTION AREAS ARE TO BE PLANTED BASED ON A MINIMUM DENSITY OF 1000 STEMS PER PLANTED ACRE (.0229 STEMS PER SQUARE FOOT). ABOVE PLANTING RATIOS ARE TO BE APPLIED TO THE AREAS PROVIDED IN THE ESDv SUMMARY.
6. FILTER AREA SHALL BE 50% COVERED BY PLANTINGS AT FULL GROWTH



SPILL WAY ELEVATION = 490.00

MBR-2 DESIGN DETAIL (109 SF)

SCALE: 1"=30'

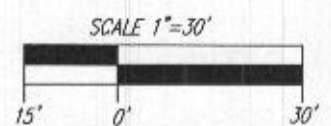
MICRO-BIORETENTION PLANTING SCHEDULE (MBR-2)				
	QTY	BOTANICAL NAME/COMMON NAME	SIZE	REMARKS
	2	LINDERA BENZOIN SPICEBUSH	3 GALLON	CONT
	1	ILEX GLABRA INKBERRY	3 GALLON	CONT

1. SF x 0.0229 STEMS PER SQUARE FOOT = PLANTS REQUIRED
2. PLANTINGS REQUIRED: 3

Appendix B.4. Construction Specifications for Environmental Site Design Practices

Table B.4.1 Materials Specifications for Micro-Bioretentation, Rain Gardens & Landscape Infiltration-

Material	Specification	Size	Notes
Plantings	see Appendix A, Table A.4	n/a	plantings are site-specific
Planting soil [2' to 4' deep]	loamy sand (60 - 65%) & compost (35 - 40%) or sandy loam (30%), course sand (30%) & compost (40%)	n/a	USDA soil types loamy sand or sandy loam; clay content < 5%
Organic content	Min. 10% by dry weight (ASTM D 2974)		
Mulch	shredded hardwood		aged 6 months, minimum; no pine or wood chips
Pea gravel diaphragm	pea gravel: ASTM-D-448	NO. 8 OR NO. 9 (1/8" TO 3/8")	
Curtain drain	ornamental stone: washed cobble	stone: 2" to 3"	
Geotextile		n/a	PE Type I nonwoven
Gravel (underdrains and infiltration berms)	AASHTO M-43	NO. 57 OR NO. 6 AGGREGATE (3/8" to 3/4")	
Underdrain piping	F 758, Type PS 28 or AASHTO M-278	4" to 6" rigid schedule 40 PVC or SDR35	Slotted or perforated pipe; 3/8" perf. @ 6" on center, 4 holes per row; minimum of 3" of gravel over pipes; not necessary underneath pipes. Perforated pipe shall be wrapped with 1/2-inch galvanized hardware cloth
Poured in place concrete (if required)	MSHA Mix No. 3; f'c = 3500 psi @ 28 days, normal weight, air-entrained; reinforcing to meet ASTM-615-60	n/a	on-site testing of poured-in-place concrete required: 28 day strength and slump test; all concrete design (cast-in-place or pre-cast) not using previously approved State or local standards requires design drawings sealed and approved by a professional structural engineer licensed in the State of Maryland - design to include meeting ACI Code 350.R/89; vertical loading [11-10 or 11-20]; allowable horizontal loading (based on soil pressures); and analysis of potential cracking
Sand	AASHTO-M 6 or ASTM-C-33	0.02" to 0.04"	Sand substitutions such as Diabase and Grystone (AASHTO) #10 are not acceptable. No calcium carbonated or dolomitic sand substitutions are acceptable. No "rock dust" can be used for sand.

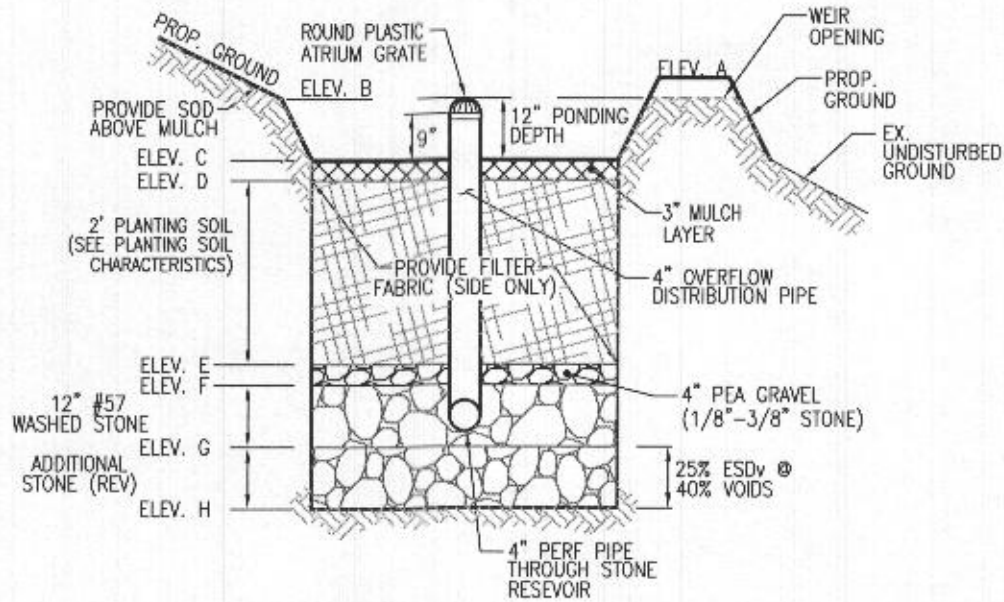


PLOT PLAN
PINTO-DUNBAR RESIDENCE
 PARCEL 3 OF THE SULLIVAN PROPERTY
 13185-A HIGHLAND ROAD
 HIGHLAND, MD 20777
 5.72 AC.

SCALE _____ AS SHOWN
 DRAWN BY _____ JMR
 CHECKED BY _____ RHV
 DATE _____ 09/24/20
 W. O. # _____ 15-00
 SHEET# _____ 4 OF 5

5TH ELECTION DISTRICT
 TAX MAP: 34 GRID: 21

PARCEL: 237
 ZONED: RR-DEO
 HOWARD COUNTY, MARYLAND



MICRO-BIORETENTION

(MBR-2)

W/ WEIR ONLY
NOT TO SCALE

MBR-2

D.A.=1,983 SF IMP=1,480 I=75
 $R_v = 0.05 + (0.009)(75) = .73$
 $ESD_v = (1,983)(1.2)(0.73) / 12 = 145$ CF
 AREA ABOVE MULCH = (145 CF)(0.75) = 109 SF
PROVIDED 109 SF

MICRO-BIORETENTION FACILITY ELEVATIONS (M-6)												
FACILITY	A	B	C	D	E	F	G	H	WEIR ELEV.	UNDERDRAIN INV. OUT	OUTFALL INV.	FACILITY SIZE
MBR-2*	490.30	490.00	489.00	488.75	486.75	486.42	485.42	484.59	490.00	-	-	109 SF

*PROVIDE AN IMPERVIOUS LINER WITH THIS FACILITY.

geotextile fabric (if required)	ASTM D-4833 (puncture strength - 125 lb.) ASTM D-4632 (Tensile Strength - 300 lb.)	0.08" thick equivalent opening size of #80 sieve	Must maintain 125 gpm per sq. ft. flow rate. Note: a 4" pea gravel layer may be substituted for geotextiles meant to "separate" sand filter layers.
impermeable liner (if required)	ASTM D-4833 (thickness) ASTM D-412 (tensile strength 1,100 lb., elongation 200%) ASTM D-624 (Tear resistance - 150 lb./in.) ASTM D 471 (water adsorption: +8 to 2% mass)	30 mil thickness	Liner to be ultraviolet resistant. A geotextile fabric should be used to protect the liner from puncture.

IMPERMEABLE LINER SPECIFICATIONS

SCALE AS SHOWN
 DRAWN BY JMR
 CHECKED BY RHV
 DATE 09/24/20
 W. O. # 15-00
 SHEET# 5 OF 5

5TH ELECTION DISTRICT
 TAX MAP: 34 GRID: 21

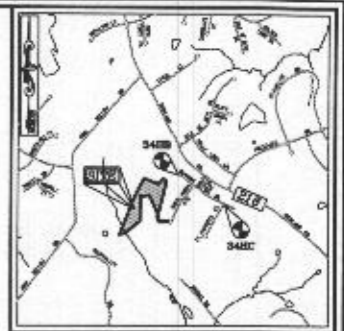
PLOT PLAN
PINTO-DUNBAR RESIDENCE
 PARCEL 3 OF THE SULLIVAN PROPERTY
 13185-A HIGHLAND ROAD
 HIGHLAND, MD 20777
 5.72 AC.

PARCEL: 237
 ZONED: RR-DEO
 HOWARD COUNTY, MARYLAND

GENERAL NOTES

- EXISTING TOPOGRAPHY 10'-00"
- PLAN REFERENCE: 200404
- DEED REFERENCES: L 441 F 871, L 9062 F 130, L 10643 F 330, L 10527 F 122, L 12015 F 252, L 12414 F 130
- SITE ANALYSIS DATA:
 - TOTAL AREA OF SITE 5.72 AC
 - EXISTING IMPROVEMENTS WHEN 0.00 AC
 - EXISTING GREEN WHEN 0.00 AC
 - EXISTING PAVED AREA 0.00 AC
 - EXISTING SITE USE VACANT
- AREA OF PLANNED IMPROVEMENTS 5.72 AC
 - LAND OF 2.00 AC
 - IMPROVED AREA WHEN 3.00 AC
 - UNIMPROVED AREA WHEN 2.72 AC
 - PROPOSED SITE USE 570 RESIDENTIAL
- AREA OF STREAM/BIOTOPIC 2.14 AC
 - AREA OF WETLANDS/BIOTOPIC 2.07 AC
 - AREA OF WETLANDS 0.00 AC
 - AREA OF STEEP SLOPES (20% OR GREATER) 0.06 AC
 - AREA OF FLUVED PLANS 0.00 AC
 - AREA OF DISRUPTIBLE SOILS 0.00 AC

STORMWATER MANAGEMENT PRACTICES			
LOT NUMBER	ADDRESS	DRY WELLS (NUMBER)	MICRO-BIOTOPIC (NUMBER)
3	13185-A HIGHLAND ROAD	1	0
-	POLE BARN	0	1
-	PRIVATE DRIVE	0	1



VICINITY MAP
SCALE: 1"=2000'
ADD MAP SCALE 30' GRID: 63

BENCHMARKS
HOWARD COUNTY BENCHMARK 349B (CONC. MON.)
N 55348.14 E 132024.25 ELEV. 349.09
LOCATION: BY #3178 DUNBAR DRIVE

HOWARD COUNTY BENCHMARK 349C (CONC. MON.)
N 552735.21 E 1321330.29 ELEV. 352.08
LOCATION: CORNER OF DUNBAR DRIVE AND ST. PATRICKS COURT

LEGEND:

- PROPERTY LINE
- EXISTING PROPERTY LINE
- EXISTING EDGE OF PAVEMENT
- STREAM CENTERLINE
- STREAM
- WETLANDS
- WETLAND BUFFER
- 20' BUFFER FOR BIODIVERSITY (FOR 100' OF LOTS 1-3 & PARCEL 10)
- PROPOSED CONSTRUCTION FOOTPRINT
- WETLAND BUFFER FOR 100' OF LOTS 1-3 & PARCEL 10
- 20' BUFFER FOR BIODIVERSITY (FOR 100' OF LOTS 1-3 & PARCEL 10)
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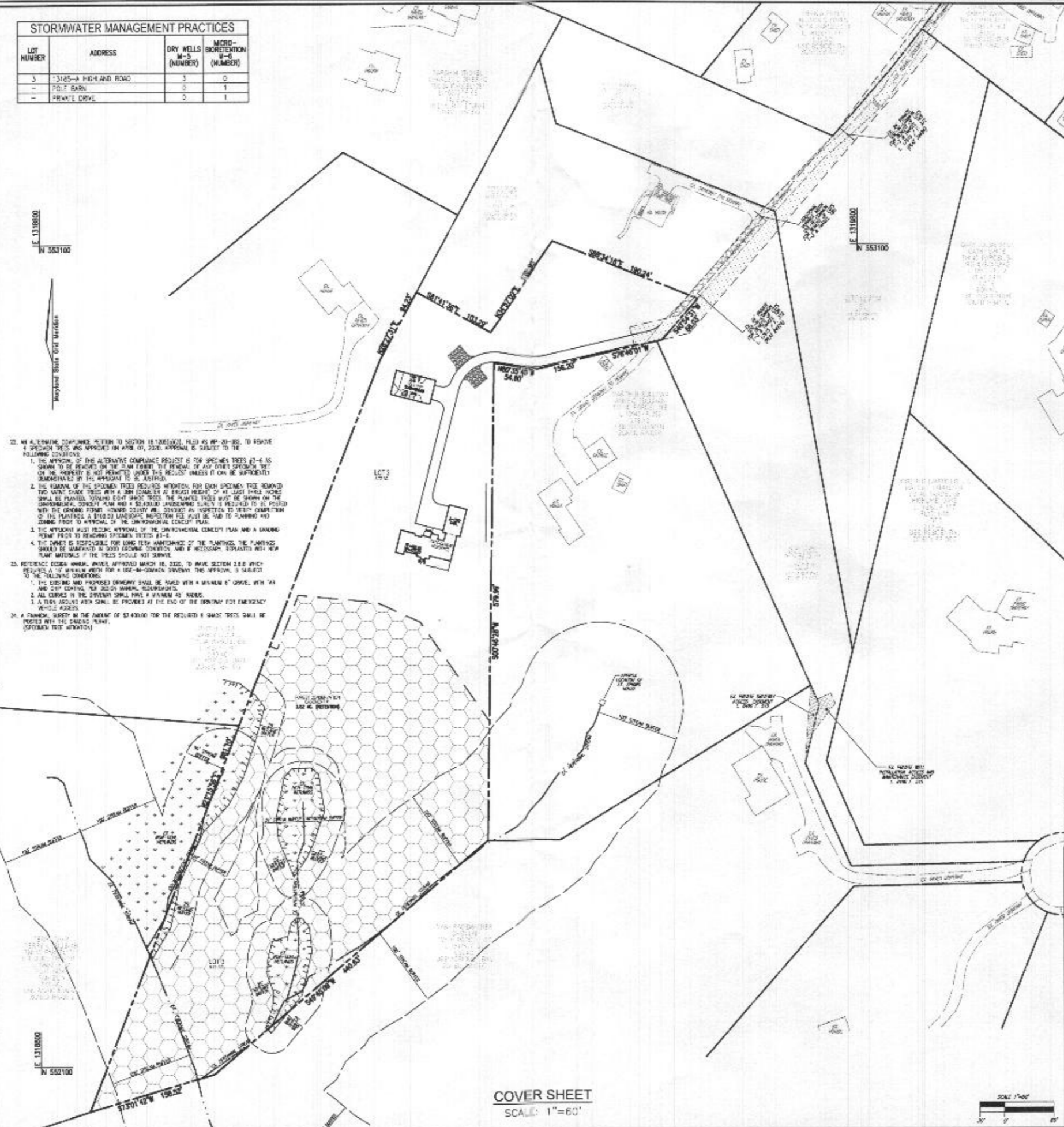
SHEET INDEX

DESCRIPTION	SHEET NO.
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SITE ANALYSIS PLAN AND LANDSCAPING	2 OF 6
SOILS MAP, DRAINAGE EVIDENCE AND SEWAGE CONTROL PLAN	3 OF 6
STORMWATER MANAGEMENT PLAN	4 OF 6
SEE NOTES AND DETAILS	5 OF 6
USE-IN-COMMON ACCESS CHART	6 OF 6

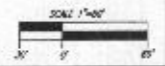
E 1318500
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N 553100



COVER SHEET
SCALE: 1"=60'



**SULLIVAN PROPERTY, PARCEL 3
SIMPLIFIED ENVIRONMENTAL CONCEPT PLAN**

INTRODUCTION

The subject property is located on the west side of Highland Road in Highland, Maryland, and is owned by the State of Maryland. The property was owned by the State of Maryland until 1991. The property is currently vacant and is being developed for residential use. The site is located adjacent to another previously developed parcel, and the site is situated in an existing undeveloped area and ultimately adjoins the Potomac River. The environmental features have been delineated by Geo-Science Professionals (John Carleton).

The subject property is proposed to be improved by residential structures, parking, driveway, and associated grading. The lot will utilize a private well for water and a private septic disposal area for sewage discharge. The proposed impervious cover is 10,907 sf.

The soils are predominantly Hagerstown and Chaptank soils which are classified as USDA "B" soils. The project is designed utilizing the Maryland Department of the Environment, Chapter 7 Environmental Site Design requirements.

The ESD is prepared for the disturbed area. The soils are classified as USDA "B" soils. There are various natural preservation areas which are utilized to verify that there is no risk of high groundwater which would impact the use of the dry wells. The proposed dry wells are located in the wetlands area. The proposed dry wells are located in the wetlands area. The proposed dry wells are located in the wetlands area.

There is a permanent driveway proposed on the east side of the driveway to provide access to the site. There is a grade on the east side of the driveway, which drains the non-impervious area across the house. There is a grade on the west side of the driveway to drain undeveloped non-impervious area from the proposed practices. A second access driveway is located to the west of the site.

CONCLUSION AND RECOMMENDATIONS

The proposed ESD is provided by a combination of these dry wells and a micro-biotopic facility. The proposed ESD practices and the proposed grading impact the existing drainage patterns. The 2011 Sedimentation Control Regulations will be utilized to protect the adjacent environmental areas.

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE _____

CHIEF, DIVISION OF LAND DEVELOPMENT DATE _____

OWNER
JAM DUNBAR REVOCABLE TRUST
& ROBERT PINTO
10845 PRICE MANOR PLACE, APT. 102
LAUREL, MD 20775
224-374-6754

**SIMPLIFIED ENVIRONMENTAL CONCEPT PLAN
COVER SHEET**

PINTO-DUNBAR RESIDENCE
LOT 3 OF THE SULLIVAN PROPERTY
13185-A HIGHLAND ROAD
HIGHLAND, MD 20777
5.72 AC.

L 10748 / E 108
EN 1400000000
SCALE: 1"=60'
DATE: MAY 2020

PROFESSIONAL DEVELOPER
DESIGN BY: _____
DRAWN BY: _____
CHECKED BY: _____
DATE: MAY 2020
SCALE: AS SHOWN
A.O. NO.: 15-08

I HEREBY CERTIFY THAT THESE IMPROVEMENTS WERE PREPARED OR SUPERVISED BY ME AND THAT I AM A duly licensed PROFESSIONAL ENGINEER in the State of MARYLAND. My license number is 15-08.

1 SHEET OF 6

ROBERT H. VOGEL, PE No. 17133

NO.	SIZE	TYPE	COMMON NAME	CONDITION	COMMENTS
ST 1	14"	DB	SPRUCE	FIR CONDITION, SOME TRUNK ROT	TO REMOVE
ST 2	20"	DB	RED OAK	GOOD CONDITION	TO BE RETAINED
ST 3	24"	DB	WHITE OAK	GOOD CONDITION	TO BE RETAINED
ST 4	42"	DB	WHITE OAK	GOOD CONDITION	TO BE RETAINED
ST 5	50"	DB	WHITE OAK	GOOD CONDITION	TO BE RETAINED
ST 6	60"	DB	WHITE OAK	GOOD CONDITION	TO BE RETAINED

GENERAL NOTES:

1. EXAMINE SURVEY IN THE AMOUNT OF \$2,500.00 FOR THE REQUIRED 3" SHANK, 1/2" DIA. ST. POSTED WITH THE SURVEY PERMIT. (SPECIMEN TREE MITIGATION)

LANDSCAPE NOTES:

- AT THE TIME OF PLANT INSTALLATION ALL SHOOTS AND ROOTS SHALL BE APPROPRIATE TO THE LANDSCAPE PLAN. SHALL COMPLY WITH THE PROPER (DBP) REQUIREMENTS AS APPROVED WITH THE HOWARD COUNTY LANDSCAPE MANUAL. IN ADDITION, SUBSTITUTION OF SPECIES OR PLANTINGS MAY BE MADE WITHOUT PRIOR REVIEW AND APPROVAL FROM THE DEPARTMENT OF PLANNING AND ZONING. ANY DEVIATION FROM THE APPROVED LANDSCAPE PLAN MAY RESULT IN DENIAL OR DELAY IN THE RELEASE OF LANDSCAPE SURVEY UNLESS SUCH TIME AS ALL REQUIRED MATERIALS ARE FURNISHED AND/OR WORKING AS MADE TO THE APPROVED PLAN.
- THE OWNER, TRUST AND/OR THEIR AGENTS SHALL BE RESPONSIBLE FOR MAINTENANCE OF THE PROPOSED LANDSCAPE INCLUDING BOTH PLANT MATERIALS AND DESIGN. TREES AND SHRUBS, ALL PLANT MATERIALS SHALL BE ARRANGED IN GOOD GROWING CONDITION, AND WHEN NECESSARY REPLACED WITH NEW MATERIALS TO CORRECT. CONTINUED COMPLIANCE WITH SPECIFIC REQUIREMENTS, ALL OTHER REQUIRED LANDSCAPING SHALL BE PERMANENTLY MAINTAINED IN GOOD CONDITION AND WHEN NECESSARY, REPLACED OR REPLANTED.
- SHALL ANY TREE DAMAGED OR PRESENTING FOR WHICH LANDSCAPE CREDIT IS OWED (BE ABLE TO SOLICIT 2" CROWN) THE OWNER WILL BE REQUIRED TO REPLACE THE TREE WITH THE SAME SPECIES OR WITH A TREE WHICH WILL EXCEED THE SAME TREE HEIGHT AND CROWN CHARACTERISTICS. THE REPLACEMENT TREE MUST BE A MINIMUM OF 3" CALIBER AND INSTALLED AS REQUIRED IN THE HOWARD COUNTY LANDSCAPE MANUAL.
- PLANTINGS SHOWN HEREON ARE THE RESPONSIBILITY OF THE CONTRACTOR TO BEHOLD DURING THE CONSTRUCTION OF THE FINAL PLAN.

LANDSCAPE SCHEDULE NOTE:

- ALL PLANT MATERIALS SHALL BE FULL AND HEAVY, BE WELL FORMED AND SYMMETRICAL, CONFORM TO THE MOST CURRENT AND SPECIFICATIONS AND BE INSTALLED IN ACCORDANCE WITH THE PLANTING SPECIFICATIONS.
- CONTRACTOR SHALL VERIFY LOCATION OF ALL UNDERGROUND UTILITIES PRIOR TO INSTALLATION.
- FINAL LOCATION OF PLANT MATERIALS MAY VARY TO MEET FINAL FIELD CONDITIONS. TREES SHALL NOT BE PLANTED IN THE BOTTOM OF DRAINAGE SWALES.
- CONTRACTOR SHALL VERIFY PLANT QUANTITIES PRIOR TO BEGINNING. PLAN OFFERS FROM LANDSCAPE SCHEDULE, THE PLAN SHALL CONTROL.

SYMBOL	KEY	QUAN.	BOTANICAL NAME	SIZE	REMARKS
QP	4	QUERCUS PHELLOS	ALLOW OAK	MINIMUM OF 3" CALIBER AT DBH	
AF	4	ACER RUBRUM 'AUTUMN FLAME'	AUTUMN FLAME RED MAPLE	MINIMUM OF 3" CALIBER AT DBH	A

A. BE ADVISED THAT THESE SPECIES SHOULD NOT BE PLANTED ALONG PRIVATE DRIVEWAYS BECAUSE THE WHITE LEAVES, TWIGS OR BRANCHES MAY BE TOXIC TO HORSES AND OTHER LIVESTOCK.

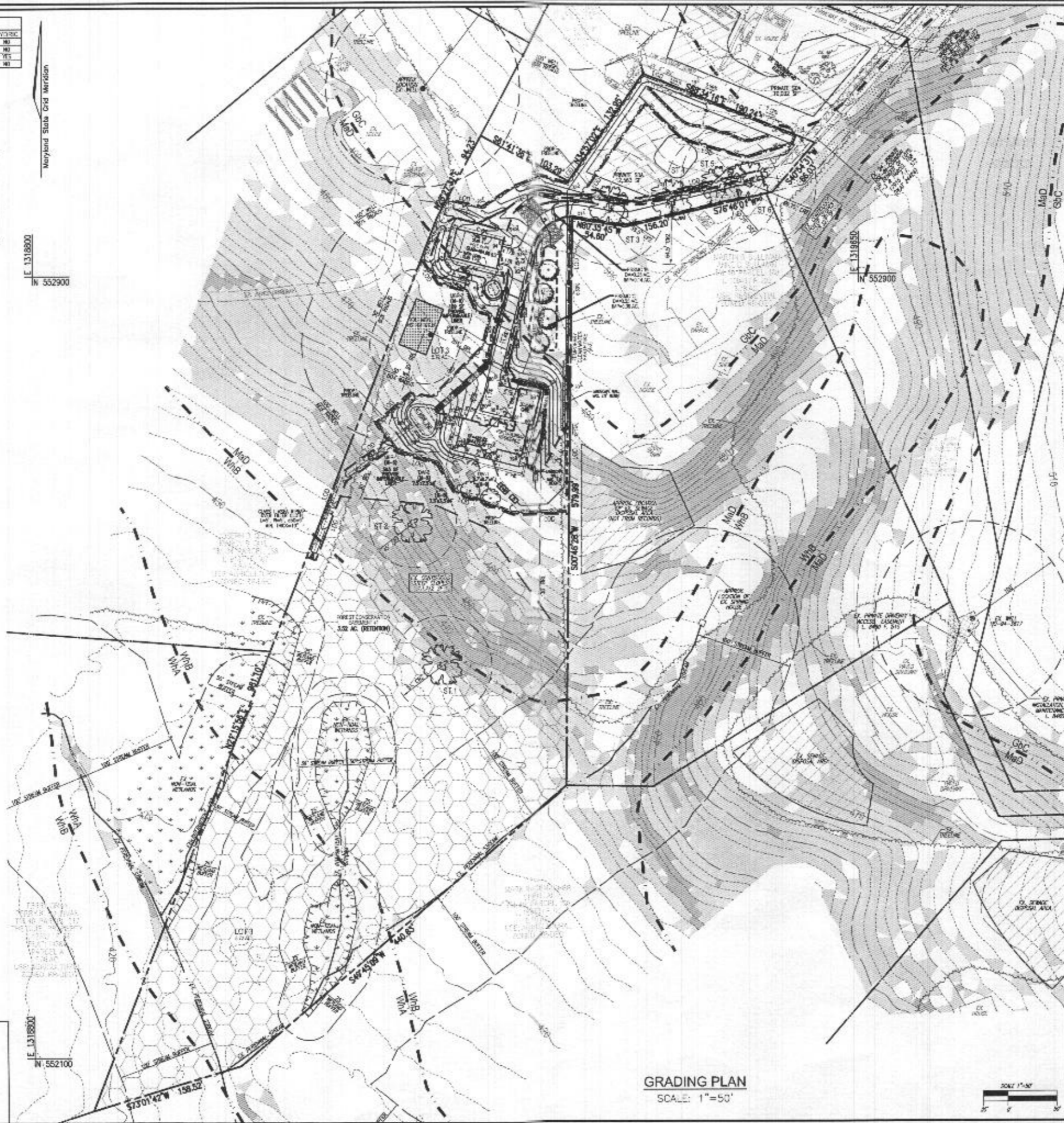
FOREST CONSERVATION WORKSHEET FOR PINTO DUNBAR

Item	Description	Value
A	Total Conservation Area	1,111
B	Area of Forest to be Retained	1,111
C	Area of Forest to be Removed	0
D	Area of Forest to be Replanted	0
E	Area of Forest to be Replanted (Minimum)	0
F	Area of Forest to be Replanted (Maximum)	0
G	Area of Forest to be Replanted (Average)	0
H	Area of Forest to be Replanted (Range)	0
I	Area of Forest to be Replanted (Standard Deviation)	0
J	Area of Forest to be Replanted (Coefficient of Variation)	0
K	Area of Forest to be Replanted (Skewness)	0
L	Area of Forest to be Replanted (Kurtosis)	0
M	Area of Forest to be Replanted (Total)	0
N	Area of Forest to be Replanted (Percentage)	0
O	Area of Forest to be Replanted (Ratio)	0
P	Area of Forest to be Replanted (Difference)	0
Q	Area of Forest to be Replanted (Sum)	0
R	Area of Forest to be Replanted (Product)	0
S	Area of Forest to be Replanted (Quotient)	0
T	Area of Forest to be Replanted (Power)	0
U	Area of Forest to be Replanted (Root)	0
V	Area of Forest to be Replanted (Log)	0
W	Area of Forest to be Replanted (Exp)	0
X	Area of Forest to be Replanted (Sin)	0
Y	Area of Forest to be Replanted (Cos)	0
Z	Area of Forest to be Replanted (Tan)	0
AA	Area of Forest to be Replanted (Cot)	0
AB	Area of Forest to be Replanted (Sec)	0
AC	Area of Forest to be Replanted (Csc)	0
AD	Area of Forest to be Replanted (Total)	0
AE	Area of Forest to be Replanted (Percentage)	0
AF	Area of Forest to be Replanted (Ratio)	0
AG	Area of Forest to be Replanted (Difference)	0
AH	Area of Forest to be Replanted (Sum)	0
AI	Area of Forest to be Replanted (Product)	0
AJ	Area of Forest to be Replanted (Quotient)	0
AK	Area of Forest to be Replanted (Power)	0
AL	Area of Forest to be Replanted (Root)	0
AM	Area of Forest to be Replanted (Log)	0
AN	Area of Forest to be Replanted (Exp)	0
AO	Area of Forest to be Replanted (Sin)	0
AP	Area of Forest to be Replanted (Cos)	0
AQ	Area of Forest to be Replanted (Tan)	0
AR	Area of Forest to be Replanted (Cot)	0
AS	Area of Forest to be Replanted (Sec)	0
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CV	Area of Forest to be Replanted (Total)	0
CV</		

SOILS LEGEND					
SYMBOL	NAME / DESCRIPTION	GROUP	K-FACTOR	ERODIBLE	HYDRO
OC	CLAYSTONE, SAND, S.S. TO 25 PERCENT SILT	B	30	NO	NO
MO	CLAYSTONE, SAND, S.S. TO 25 PERCENT SILT	B	30	YES	NO
NO	MULTIPLY S.S. TO 25 PERCENT SILT	C	30	NO	YES
NO	MULTIPLY S.S. TO 25 PERCENT SILT	C	30	YES	NO

SOILS INTERPOLATED FROM USGS MAP NO. 20, SARAWAY WREST
 HOWARD COUNTY SOILS MAP NUMBER 20 - CLASSIFIED ON
 4/1/85 BY SA Page 1/see Howard County Engineers - 7, FACTORS (SEE FIG.)
 NOTE:
 HEAVY TOXIC SOILS ARE THOSE WITH A SLOPE GREATER THAN 15 PERCENT
 OF THOSE SOILS WITH A SLOPE GREATER THAN 15 PERCENT
 A SLOPE GREATER THAN 5 PERCENT

NOTE:
 THIS PLAN IS FOR INFORMATIONAL
 PURPOSES ONLY. GRADING IS TO BE
 PERFORMED UNDER GP-19-099



LEGEND:	
[Symbol]	PROPERTY LINE
[Symbol]	EXISTING PROPERTY LINE
[Symbol]	EXISTING EDGE OF FINISH
[Symbol]	STREAM CENTER
[Symbol]	STREAM
[Symbol]	EXISTING FENCE
[Symbol]	PROPOSED FENCE
[Symbol]	RETAINING WALL
[Symbol]	RETAINING WALL
[Symbol]	EXISTING WELL LOCATION
[Symbol]	ALTERNATE WELL LOCATION
[Symbol]	APPROVED FRONT SETBACK
[Symbol]	APPROVED WELL SETBACK
[Symbol]	24" PRIVATE WELLS - COMMON TO THE FRONT OF LOTS 1-5 & MADE 100' (PLAT 2484)
[Symbol]	EXISTING CONCRETE DRIVEWAY (SEE PLAN #)
[Symbol]	PRIVATE EXISTING ACCESS DRIVEWAY (SEE PLAN #)
[Symbol]	PRIVATE WELLS - SOLAR PANEL ACCESS AND MAINTENANCE EASEMENT - SEE PLAN #
[Symbol]	EXISTING 12" CONTOUR
[Symbol]	EXISTING 2" CONTOUR
[Symbol]	EXISTING STEEP SLOPES (20% SLOPES OR GREATER)
[Symbol]	EXISTING MODERATE SLOPES (15% TO 20% SLOPES)
[Symbol]	SOIL
[Symbol]	PROPOSED 12" CONTOUR
[Symbol]	PROPOSED 2" CONTOUR
[Symbol]	LIMIT OF EROSION
[Symbol]	STABILIZED EROSION CONTROL CHANNEL
[Symbol]	SHARP SLOPE
[Symbol]	SLOPE
[Symbol]	DIVISION FENCE
[Symbol]	EARTH DIRT

OWNER
 JANI DUNBAR REVOCABLE TRUST
 & ROBERT PINO
 10945 PRICE MANOR WAY, APT. 182
 LAUREL, MD 20775
 224-374-6754

NO.	REVISION	DATE

SIMPLIFIED ENVIRONMENTAL CONCEPT PLAN
 SOILS MAP, GRADING, EROSION AND
 SEDIMENT CONTROL PLAN
 PINTO-DUNBAR RESIDENCE
 LOT 3 OF THE SULLIVAN PROPERTY
 13165-A HIGHLAND ROAD
 HIGHLAND, MD 20777
 5.72 AC.
 L 18248 / P. 100
 FOR ELECTION DISTRICT
 TAG MAP 34 08B-31
 PARCEL 207
 ZONING R-100
 HOWARD COUNTY, MARYLAND

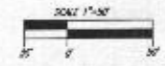
VOGEL ENGINEERING
 +
TIMMONS GROUP
 2108 NORTH RIDGE ROAD, SUITE 110, ELLEOTT CITY, MD 21843
 P: 410-461-7888 F: 410-461-8961 www.vogeleng.com

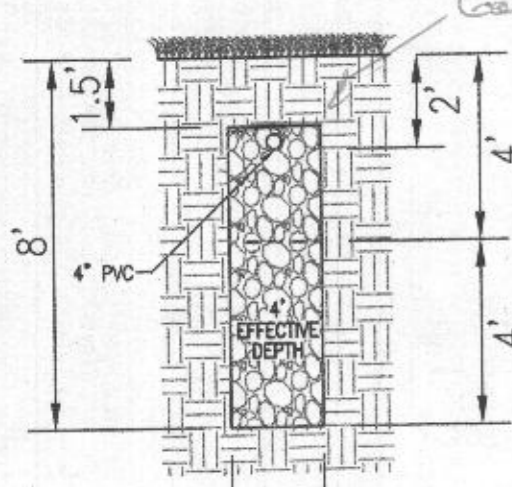
DESIGN BY: [Signature]
 DRAWN BY: [Signature]
 CHECKED BY: [Signature]
 DATE: MAY 2020
 SCALE: AS SHOWN
 P.L. NO.: 15-28

PROFESSIONAL SEAL
 I HEREBY CERTIFY THAT THESE DOCUMENTS
 WERE PREPARED BY ME OR UNDER MY
 SUPERVISION AND THAT I AM A LICENSED PROFESSIONAL ENGINEER
 IN THE STATE OF MARYLAND.
 EXPIRES DATE 05-01-2025

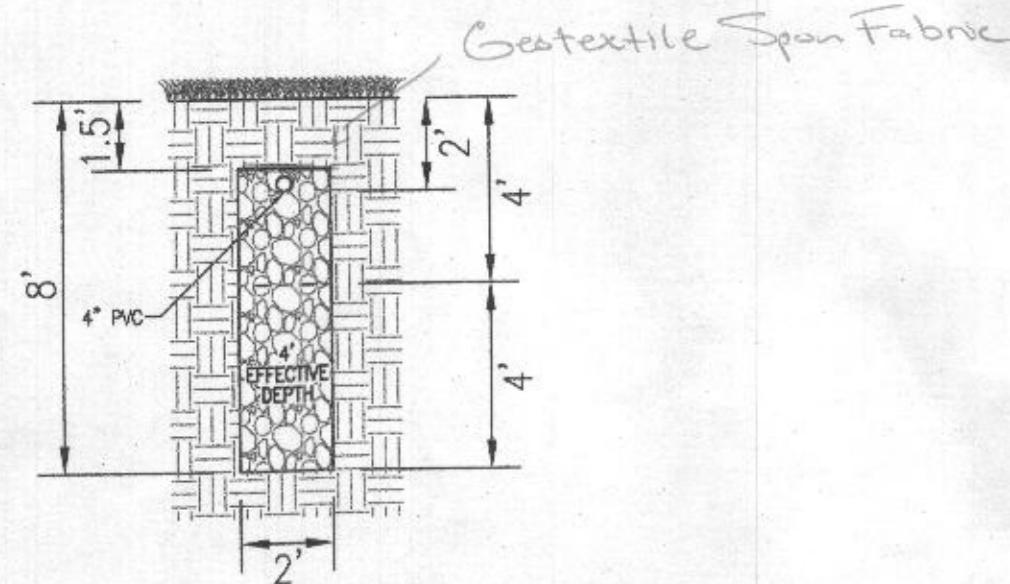
APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
 _____ DATE _____
 CHIEF, DEVELOPMENT ENGINEERING DIVISION
 _____ DATE _____
 CHIEF, DIVISION OF LAND DEVELOPMENT

GRADING PLAN
 SCALE: 1"=50'





INITIAL SYSTEM TRENCH DETAIL
NOT TO SCALE



FIRST & SECOND REPLACEMENT TRENCH DETAIL
NOT TO SCALE

TRENCH	TRENCH NO.	INFO	OF	EXISTING
1	68	512.23	506.23	514.23
2	68	512.21	506.21	514.21

E 1318800
IN 552800

SYSTEM CALCULATIONS:

INITIAL SYSTEM
4 BEDROOMS AT 600gpd / 0.8 ABSORPTION RATE = 750 SQ. FT.
750 SQ. FT. / 2 (TRENCH WIDTH) x .36 (SIDEWALL REDUCTION) = 135 LINEAR FEET
136 TOTAL LINEAR FEET OF TRENCH ARE PROVIDED WITH THE INITIAL SYSTEM.
(2 TRENCHES OF 68 FEET IN LENGTH)

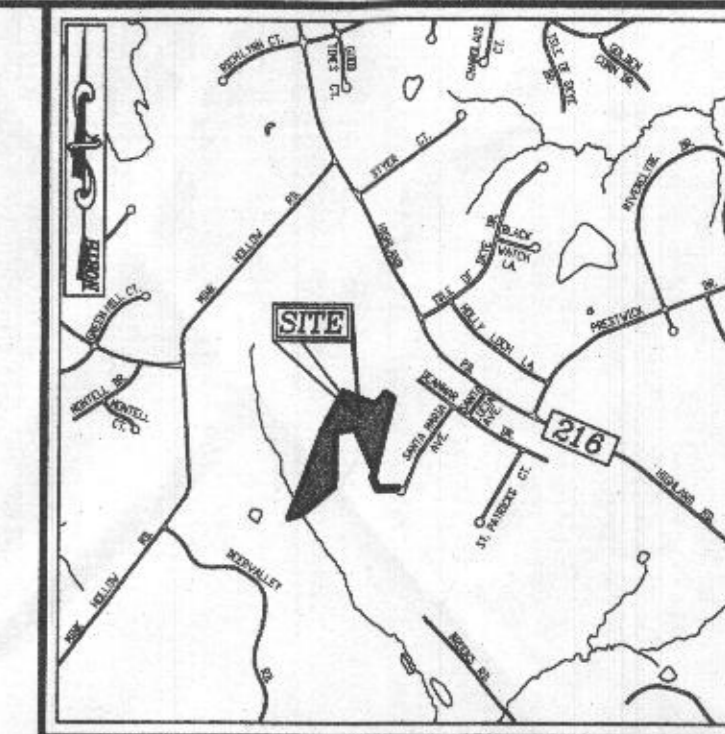
FIRST & SECOND REPLACEMENT SYSTEMS
4 BEDROOMS AT 600gpd / 0.8 ABSORPTION RATE = 750 SQ. FT.
750 SQ. FT. / 2 (TRENCH WIDTH) x .36 (SIDEWALL REDUCTION) = 135 LINEAR FEET
136 TOTAL LINEAR FEET OF TRENCH ARE PROVIDED WITH THE FIRST & SECOND REPLACEMENT SYSTEM.
(2 TRENCHES OF 68 FEET IN LENGTH FOR EACH SYSTEM)

WELL LOCATION CERTIFICATION:
THE EXISTING WELL SHOWN ON THIS PLAN (H0-17-0137)
HAS BEEN FIELD LOCATED AND IS ACCURATELY SHOWN



PLAN VIEW
SCALE: 1"=50'

THIS AREA DESIGNATES A PRIVATE SEWAGE AREA OF AT LEAST 10,000 SQUARE FEET AS REQUIRED BY THE MARYLAND STATE DEPARTMENT OF THE ENVIRONMENT FOR INDIVIDUAL SEWAGE DISPOSAL IMPROVEMENTS OF ANY NATURE IN THIS AREA ARE RESTRICTED UNTIL PUBLIC SEWERAGE IS AVAILABLE. THESE AREAS 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 SEWAGE AREA. RECORDATION OF A MODIFIED SEWAGE AREA SHALL NOT BE NECESSARY.



VICINITY MAP
SCALE: 1"=2000'
ADC MAP: PAGE: 30 GRID: F5

LEGEND:

- PROPERTY LINE
- EXISTING RIGHT-OF-WAY LINE
- ADJACENT PROPERTY LINE
- EXISTING EDGE OF PAVING
- EXISTING TREELINE
- EXISTING 10' CONTOUR
- EXISTING 2' CONTOUR
- EXISTING STEEP SLOPES (25% SLOPES OR GREATER)
- EXISTING MODERATE SLOPES (15% TO 24.99% SLOPES)
- EXISTING WELL LOCATION
- ALTERNATE WELL LOCATION
- PASSED PERIC. TEST
- FAILED PERIC. TEST
- APPROVED PRIVATE SDA
- PROPOSED WELL BOX

GENERAL NOTES:

1. THE EXISTING TOPOGRAPHY SHOWN HEREON IS TAKEN FROM CURRENT HOWARD COUNTY GIS DATA AND WAS FIELD VERIFIED BY ROBERT H. VOGEL ENGINEERING, INC. TO BE ACCURATE.
2. ANY CHANGES TO A PRIVATE SEWAGE AREA SHALL REQUIRE A REVISED PERCOLATION CERTIFICATION PLAN.
3. EXISTING WELLS, SEPTIC SYSTEMS, AND SEWAGE DISPOSAL AREAS WITHIN 100' OF THE PROPERTY AND THOSE WELLS WITHIN 200' DOWN GRADIENT OF EXISTING OR PROPOSED SEPTIC SYSTEMS OR SEWAGE DISPOSAL AREAS HAVE BEEN SHOWN USING ALL REASONABLE EFFORTS.
4. THE LOT SHOWN HEREON COMPLIES WITH THE MINIMUM OWNERSHIP, WIDTH, AND LOT AREA AS REQUIRED BY THE MARYLAND STATE DEPARTMENT OF THE ENVIRONMENT.
5. 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.
6. THE MAXIMUM DEPTH OF THE BAT PER THE MANUFACTURER'S SPECIFICATION IS THREE FEET. GREATER EARTH COVER WILL REQUIRE A HEAVY LOAD BEARING TANK.
7. NO BLOWER IS REQUIRED. THE HOST WASTEWATER TREATMENT SYSTEM HAS AN AERATOR MOUNTED IN THE TANK.
8. THE BAT SYSTEM SHALL BE MAINTAINED AND OPERATED FOR THE LIFE OF THE SYSTEM.
9. THE BAT SHALL BE OPERATED BY AND MAINTAINED BY A CERTIFIED SERVICE PROVIDER.
10. WITHIN ONE MONTH OF INSTALLATION, A PERSON INSTALLING THE BAT SYSTEM SHALL REPORT TO THE MARYLAND DEPARTMENT OF THE ENVIRONMENT (MDE) IN A MANNER ACCEPTABLE TO MDE, THE ADDRESS AND DATE OF COMPLETION OF THE BAT INSTALLATION AND THE TYPE OF BAT INSTALLED.
11. ELECTRICAL WORK FOR THE BAT INSTALLATION MUST BE PERFORMED BY A LICENSED ELECTRICIAN.
12. AN AGREEMENT AND EASEMENT MUST BE COMPLETED AND SIGNED BY ALL APPLICABLE PARTIES, AND RECORDED IN LAND RECORDS OF HOWARD COUNTY.
13. THE HEALTH DEPARTMENT REQUIRES DOCUMENTATION FOR THE START-UP CERTIFICATION FROM THE MANUFACTURER PRIOR TO FINAL APPROVAL OF THE INSTALLATION.

Approved Septic System Plan Part 1
Howard County Health Department
Signature: *Robert H. Vogel* Date: 2/18/2020

OWNER
JAMI DUNBAR REVOCABLE TRUST
& ROBERT PINTO
10945 PRICE MANOR WAY, APT. 162
LAUREL, MD 20723
224-374-6754

SITE PLAN FOR BAT INSTALLATION

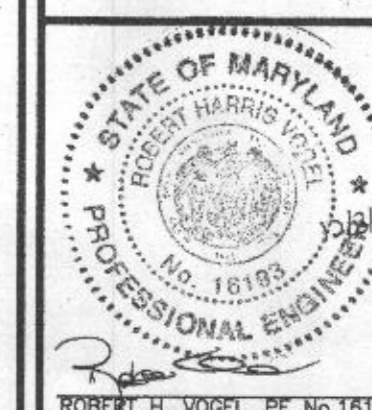
PINTO-DUNBAR RESIDENCE
PARCEL 3 OF THE SULLIVAN PROPERTY
13185-A HIGHLAND ROAD
HIGHLAND, MD 20777
5.72 AC.

L 18746 / F. 109
5TH ELECTION DISTRICT
TAX MAP: 34 GRID: 21
PARCEL: 237
ZONED: RR-DEO
HOWARD COUNTY, MARYLAND

VOGEL ENGINEERING

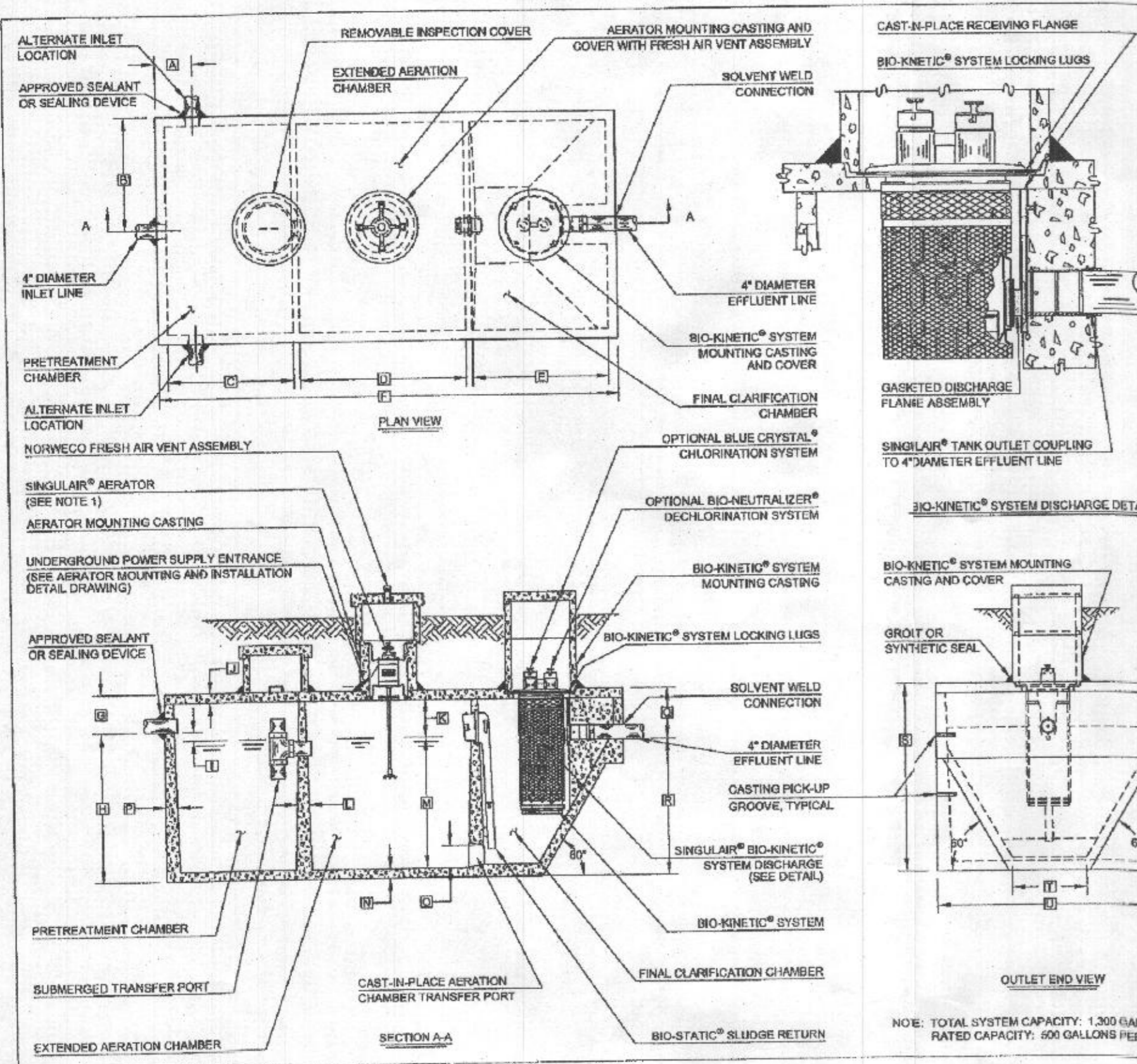
TIMMONS GROUP

3300 NORTH RIDGE ROAD, SUITE 110, ELLICOTT CITY, MD 21043
P: 410.461.7666 F: 410.461.8961 www.timmons.com



DESIGN BY: RHV
DRAWN BY: JMR
CHECKED BY: RHV
DATE: DECEMBER 2019
SCALE: AS SHOWN
W.O. NO.: 15-00

PROFESSIONAL CERTIFICATE
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. 16783
EXPIRATION DATE: 08-27-2020



GENERAL NOTES:

- SINGULAR® AERATOR, AS TESTED AND ACCEPTED BY NSF, OPERATING 60 MINUTES ON 60 MINUTES OFF.
- HALL THROUGH SINGULAR® PLANT FROM INLET INVERT TO OUTLET INVERT IS FOUR INCHES. INLET INVERT IS TWELVE INCHES BELOW TANK TOP.
- ON DEEPER INSTALLATIONS, PRECAST RIBBERS MUST BE USED TO EXTEND AERATOR MOUNTING CASTING AND BIO-KINETIC SYSTEM MOUNTING CASTING TO GRADE.
- TANK REINFORCED PER ACI STD. 318-05.
- REMOVABLE COVERS ON RIBBERS WEIGH IN EXCESS OF SEVENTY-FIVE POUNDS EACH TO PREVENT UNAUTHORIZED ACCESS.
- CONTACT THE LOCAL LICENSED SINGULAR® DISTRIBUTOR FOR ELECTRICAL REQUIREMENTS.

PROJECT ENGINEER'S APPROVAL (LWE) HEREBY CERTIFY THAT THIS DRAWING HAS BEEN CHECKED AND IS APPROVED FOR USE IN CONFORMITY WITH THE CONTRACT DOCUMENTS.

DATE: _____ NAME: _____

CONTRACTOR'S CERTIFICATION (LWE) HEREBY CERTIFY THAT THIS DRAWING HAS BEEN CHECKED AND IS APPROVED FOR USE IN CONFORMITY WITH THE CONTRACT DOCUMENTS.

DATE: _____ NAME: _____

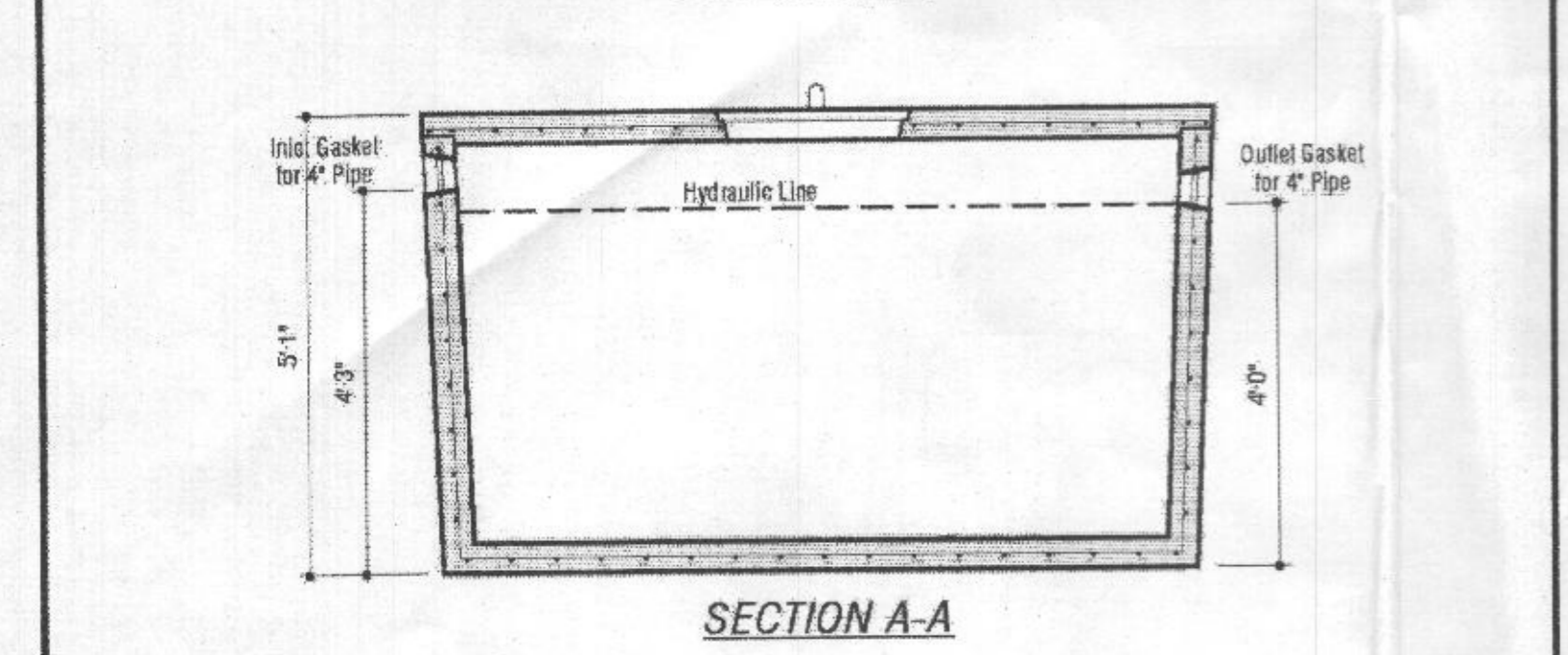
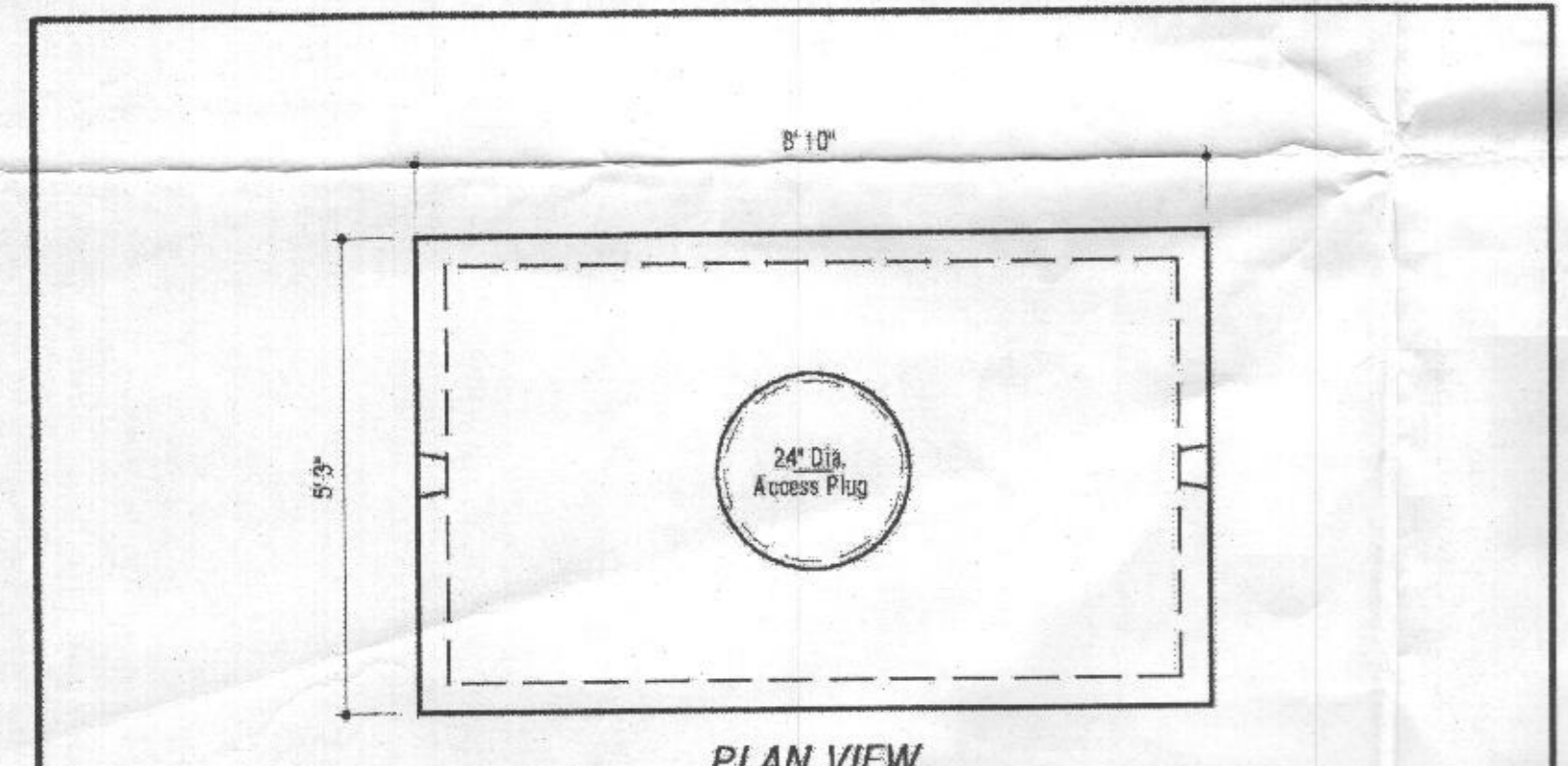
CRITICAL DIMENSIONS			
11'-6"	11'-3"	11'-3"	11'-3"
2'-6"	2'-6"	2'-6"	2'-6"
3'-4"	3'-3"	3'-3"	3'-3"
4'-9"	4'-8"	4'-8"	4'-8"
5'-7"	5'-6"	5'-6"	5'-6"
12'-3"	12'-3"	12'-3"	12'-3"
1'-9"	1'-9"	1'-9"	1'-9"
4'-8"	4'-8"	4'-8"	4'-8"
1'-2"	1'-2"	1'-2"	1'-2"
0'-2"	0'-2"	0'-2"	0'-2"
1'-0"	1'-0"	1'-0"	1'-0"
1'-0"	1'-0"	1'-0"	1'-0"
2'-0"	2'-0"	2'-0"	2'-0"

notweco

U.S. PATENT OFFICE

MODEL PFL-06-02

PS-37001



DESIGN DATA & GENERAL NOTES:

- Concrete strength is 4,000 p.s.i. @ 28 days. Density = 150 pcf.
- Concrete - Portland Type I/II per ASTM C 150-92.
- Admixtures & plasticizers per ASTM C 260-88 & C 494-92.
- Reinforcing per ASTM A108. Min. 1-1/2" cover.
- Top slab sealed with butyl rope mastic.
- 4" wall, base, & top thickness.

Mayer Bros., Inc. 6264 Race Road, Elkridge, Maryland 21075, Tel. 410.796.1434, Fax. 410.796.1438, www.mayerbrosprecast.com

1,000 GALLON PUMP TANK 1-Compartment Stock Item

Dwg. No. 1000-P No Scale Jan, 2000

Wastewater

APPLICATIONS
Specifically designed for the following uses:
• Homes, Farms, Trailer Courts, Motels, Schools, Hospitals, Industry, Effluent Systems

SPECIFICATIONS

Pump

- Solids handling capabilities: 3/4" maximum
- Discharge size: 2" NPT
- Capacities: up to 140 GPM
- Total head: up to 128 feet TDH
- Temperature: 104°F (40°C) continuous, 140°F (60°C) intermittent.
- See order numbers on reverse side for specific HP, voltage, phase and RPM's available.

MOTORS

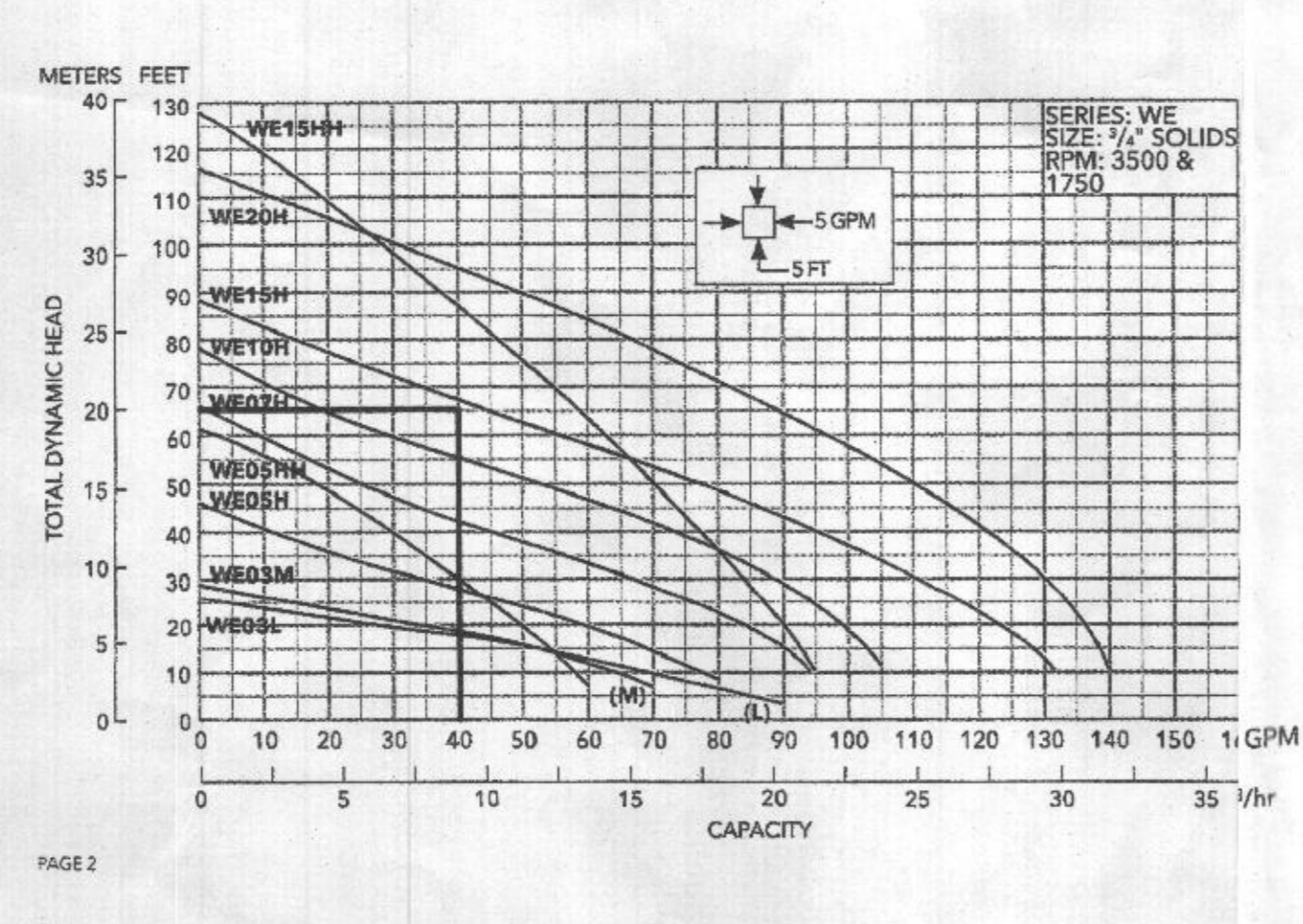
- Fully submerged in high-grade turbine oil for lubrication and efficient heat transfer.
- Class B insulation on 1/2 - 1 1/2 HP models.
- Class F insulation on 2 HP models.

Single phase (60 Hz):

- Capacitor start motors for maximum starting torque.
- Built-in overload with automatic reset.

AGENCY LISTINGS

Tested to UL 778 and CSA 22.2 108 Standards By Canadian Standards Association File #LR38549



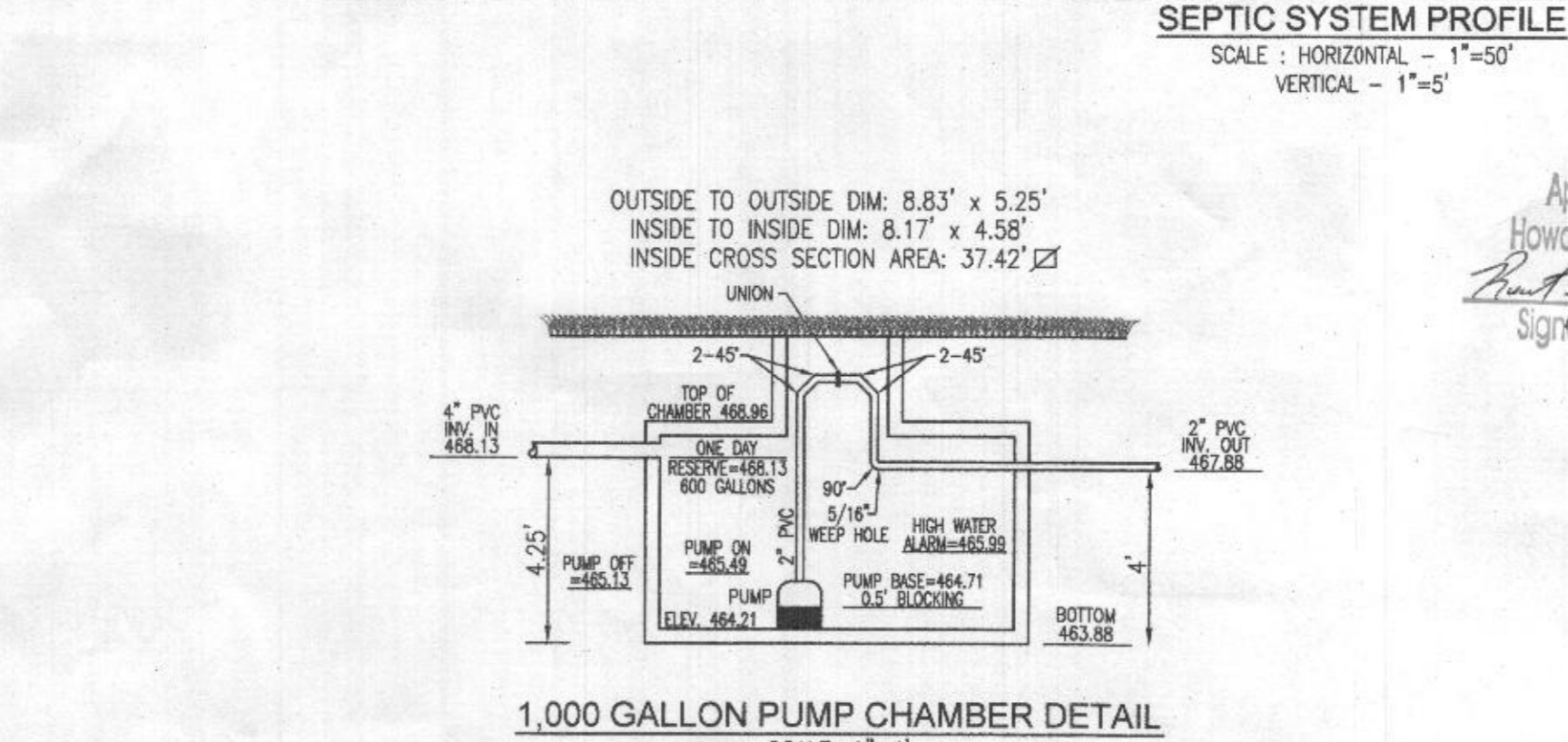
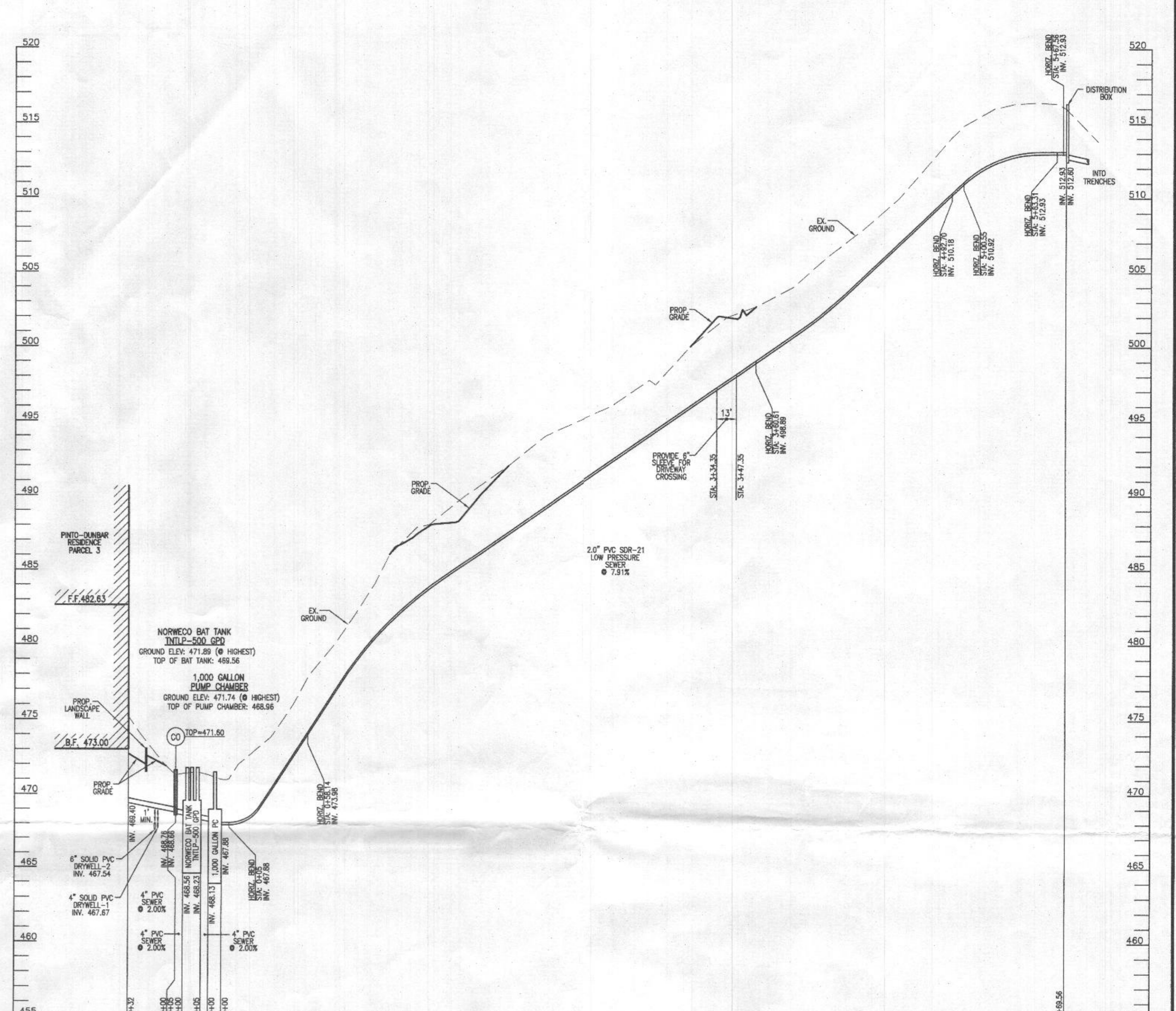
Goolds Water Technology

Wastewater

- SJTOW or STOW severe duty oil and water resistant power cords.
- 1/2 - 1 HP models have NEMA three prong grounding plugs.
- 1 1/2 HP and larger units have bare lead cord ends.

Three phase (60 Hz):

- Class 10 overload protection must be provided separately ordered starter unit.
- STOW power cords all have bare lead cord ends.
- Designed for Continuous Operation: Pump ratings are within the motor manufacturer's recommended working limits, can be operated continuously without damage when fully submerged.
- Bearings: Upper and lower heavy duty ball bearing construction.
- Power Cable: Severe duty rated, oil and water resistant. Epoxy seal on motor and provides secondary moisture barrier in case of outer jacket damage and to prevent oil wicking. Standard cord is 20'. Optional lengths are available.
- O-ring: Assures positive sealing against contaminants and oil leakage.



NO. BEDROOMS = 4
DESIGN FLOW = 4(150 GPD) = 600 GPD
DOSE: 1/6 DESIGN FLOW = 100 GPD
100 GALLONS/7.48 FT³/GAL. = 13.37 FT³
13.37 FT³/37.42 SF = 0.36'
ONE DAY RESERVE: 600 GALLONS/7.48 FT³/GAL. = 80.21 FT³
80.21 FT³/37.42 SF = 2.14 FT

TDH (FRICTION + STATIC)
FRICTION FITTINGS: UNION: 1x2 = 2
45° ELBOW (H+W): 12x8 = 96
90° ELBOW: 1x7 = 7
FITTING EQ. LENGTH: 105.0 LF
PIPE LENGTH: 588.6 LF
TOTAL LENGTH: 674.9 LF

FRICTION LOSS (40 GPM): (2.62)(674.6)/100 = 17.67
STATIC: 512.93-465.13 (PUMP OFF) = 47.80'
TDH: 47.80+17.67 = 65.47'
USE GOULDS WE15H (OR EQUIVALENT)

Approved Septic System Plan Part 2
Howard County Health Department
Signature: [Signature] Date: 1/18/2020

OWNER
JAMI DUNBAR REVOCABLE TRUST & ROBERT PINTO
10945 PRICE MANOR WAY, APT. 162
LAUREL, MD 20723
224-374-6754

SITE PLAN FOR BAT INSTALLATION

PINTO-DUNBAR RESIDENCE
PARCEL 3 OF THE SULLIVAN PROPERTY
13185-A HIGHLAND ROAD
HIGHLAND, MD 20777
5.72 AC.

L. 16746 / F. 109
5TH ELECTION DISTRICT
TAX MAP: 34 GRID: 21

PARCEL: 237
ZONE: R100
HOWARD COUNTY, MARYLAND

VOGEL ENGINEERING
TIMMONS GROUP
3300 NORTH RIDGE ROAD, SUITE 110, ELLICOTT CITY, MD 21043
P: 410.461.7666 F: 410.461.8961 www.timmons.com

DESIGN BY: RHV
DRAWN BY: JMR
CHECKED BY: RHV
DATE: DECEMBER 2019
SCALE: AS SHOWN
W.O. NO.: 15-00

PROFESSIONAL CERTIFICATE
I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME AND THAT I AM A FULLY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 161813 EXPIRATION DATE: 06-27-2020

ROBERT H. VOGEL, PE No. 161813

2 SHEET OF 2