

LEGEND:

- TP XX = TEST EXCAVATIONS
- = PERCOLATION HOLES
- - - - - = EXISTING CONTOUR
- - - - - = PROPOSED CONTOUR
- ⊕ = BENCHMARK LOCATION

SITE PLAN & DATA
 SCALE: 1" = 50'

LOT# 19 (WATERMAN ESTATES)
 AREA = +/- 3.0003 AC.
 TAX I.D.# 05-046978
 MAP#0040 GRID#0024 PARCEL#0250
 PLAT# 7483

**SITE PLAN DERIVED FROM RECORDED SUBDIVISION PLANS. PLAN IS NOT OF SURVEY ACCURACY AND IS INTENDED FOR USE IN SEPTIC SYSTEM INSTALLATION ONLY.

**OWNER OF RECORD:
 MR. CHARLES MISS
 12470 PETRILLO DRIVE
 HIGHLAND, MD 20777-9567

AGGREGATE DIMENSION - 105'-0"
LATERAL LENGTH - 97'-6"

OBSERVATION PORT (TYP.)
 4" PVC CLEANOUT SLEEVE (SEE DETAIL)
 1 1/2" SCH. 40 PVC SWEEP 90° EL.
 1 1/2" SCH. 40 PVC DELIVERY PIPE
 3/4" TO 2" WASHED RIVER GRAVEL FREE OF FINES MIN. 6" UNDER PIPE - 2" OVER PIPE 10" TOTAL DEPTH
 1 1/2" SCH. 40 PVC PIPE (LATERAL-TYP.)
 SPUN GEOTEXTILE FABRIC
 FINISHED GRADE
 MINIMUM EXCAVATION DEPTH - 10'-0"

15' X 105' ABSORPTION BED
 20 L.F. 1 1/2" SCH. 40 PVC DELIVERY LINE
 2000 GAL. DOSE TANK
 118 L.F. 4" SCH. 40 PVC BUILDING SEWER
 42 L.F. 4" SCH. 40 PVC BUILDING SEWER
 EXISTING PUMPING (TBA)
 NORWECO SINGLAIR MODEL TNT 750 GPD AEROBIC TANK
 4" PVC CAP TO GRADE

BENCHMARK - CORNER OF PITCH ELEVATION 100' (NOT ASSUMED)
 EXISTING PUMPING
 50' R
 10' A
 50' B
 10' C
 10' D
 10' E
 10' F
 10' G
 10' H
 10' I
 10' J
 10' K
 10' L
 10' M
 10' N
 10' O
 10' P
 10' Q
 10' R
 10' S
 10' T
 10' U
 10' V
 10' W
 10' X
 10' Y
 10' Z

Liberty Pumps

Flow (Liters Per Minute)

Head (Feet)

Head (Meters)

Flow (GPM)

CROSS SECTION - ABSORPTION AREA

NTS

4" PERFORATED SCH.40 PVC PIPE W/ REMOVABLE CAP (TYP.)

GEOTEXTILE SLEEVE OVER PIPE (TYP.)

NEW VEGETATION

TOPSOIL COVER

SPUN GEOTEXTILE FABRIC

ORIGINAL GRADE

3/4" TO 2" WASHED RIVER GRAVEL FREE OF FINES

AGGREGATE/SOIL INTERFACE

BOTTOM OF TRENCH

EXISTING SUBSURFACE SOIL

OBSERVATION PORT

NTS

SJE RHOMBUS EZ SERIES TITANIUM VISUAL AND AUDIBLE ALARM COUNTER & ELAPSED TIME MEASUREMENT A MINIMUM OF 36 INCHES ABOVE GRADE

42 L.F. 4" SCH. 40 PVC PIPE @ 0.0207 FT/FT

CLEANOUT TO BE PROVIDED (EITHER LOCATION)

TOP OF TANK ELEV. 93.27

LAST 10' OF BUILDING SEWER PIPING TO TREATMENT TANK SHALL NOT EXCEED (0.0208 FT./FT.) PER FOOT FALL

93.27 INV. AT BUILDING

SITE TESTING DATA			DESIGN PARAMETERS		
TEST PIT NUMBER	LIMITING ZONE	TYPE	BEDROOMS	6	
			PERCOLATION RATE	N/A	MPi
**SOIL EVALUATIONS CONDUCTED VIA HAND TURNED			PEAK GALLONS PER DAY	900	GAL.
AUGER BORINGS AS OBSERVED BY THE HCHD AND MDE.			AREA REQUIRED PER GALLON	1.67	SQ. FT.
			SOIL LOADING RATE	0.6	GAL./SQ.
			MIN. ABSORPTION AREA	1500	SQ. FT
			ABSORPTION AREA WIDTH	15	FEET
			ABSORPTION AREA LENGTH	105	FEET
			ABSORPTION AREA PROVIDED	1575	SQ. FT.
M=MOTTILING, R=ROCK, ISFV=INSUFFICIENT FINES TO FILL THE VOIDS, S=SEEPS					
CONSTRUCTION DATA					
CORNER ELEVATIONS		EXCAV. DEPTH	BED ELEVATIONS		
90.33	30	INCHES	BOTTOM OF BED	87.83	ELEV
90.33	30	INCHES	MAXIMUM DEPTH OF CUT	30.00	INCHES
89.26	17.36	INCHES	LATERAL INV. ELEVATION	88.33	ELEV
89.38	18.6	INCHES	TOP OF AGGREGATE	88.58	ELEV
			MIN. TOP OF BED ELEVATION	89.58	ELEV
SYSTEM COMPONENTS					
TREATMENT CAPACITY REQ'D	750	GPD	MIN. AVAIL. DOSE CAPACITY	600.00	GAL.
TREATMENT PROVIDED	750	GPD	PUMP TANK PROVIDED	2000	GAL.
TREATMENT TANK TYPE	BAT-AEROBIC		DOSE TANK PER IN. CAPACITY	45.00	GAL.
BAT MANUFACTURER	NORWECO		AVERAGE SEWAGE FLOW	600.00	GPD
BAT MODEL	SINGULAR MODEL TNT 750		PROPOSED DOSE VOLUME	186.28	GAL.
			DOSE CYCLES PER DAY	3.22	QUAN.
			PUMP RUN TIME PER CYCLE	2.60	MIN.
			DAILY RUN TIME (TOTAL)	8.37	MIN.
			PUMP REST TIME PER CYCLE	444.60	MIN.
			DAILY REST TIME (TOTAL)	1431.63	MIN.
HYDRAULIC CALCULATIONS					
SYSTEM CAPACITY			HEAD LOSSES		
DELIVERY LINE DIA.	1.5	INCHES	FRICTION LOSSES		
TOTAL DELIVERY LINE LENGTH	23.92	FEET	DELIVERY LINE LENGTH		
*TOTAL DELIVERY LINE INCLUDES PUMP TO OUTLET LENGTH			90 DEGREE EL	4	18.92
DELIVERY LINE CAPACITY	2.19	GAL.	45 DEGREE EL	0	0.00
MANIFOLD DIAMETER	1.50	INCHES	COUPLING	0	0.00
MANIFOLD LENGTH	11.25	FEET	TEE	1	8.62
MANIFOLD CAPACITY	1.03	GAL.	QUICK DISCONNECT	1	1.05
LATERAL DIAMETER	1.50	INCHES	CHECK VALVE	0	0.00
TOTAL LATERAL LENGTH	390.00	FEET	FITTINGS EQUIVALENT LENGTH		28.59
LATERAL CAPACITY	35.78	GAL.	TOTAL EQUIVALENT LENGTH		52.51
TOTAL CAPACITY	39.01	GAL.			
MINIMUM DOSE	186.26	GAL.	DESIGN FLOW	71.65	GPM
DISCHARGE HOLE DIA.	1/4	INCH	FRICTION LOSS	26.391	FT./100'
DISCHARGE HOLES PER LAT.	7.00	QUAN.	FRICTION LOSS	0.2619	PER FT.
TOTAL DISCHARGE HOLES	56.00	QUAN.	STATIC HEAD	4.42	FT.
DISCHARGE PER HOLE	1.28	GPM	HEAD TO BE MAINTAINED	3	FT.
TOTAL DISCHARGE	71.65	GAL.	TOTAL SYSTEM HEAD	21.17	FT.
PUMP SPECIFIED					
DELIVERS	71.65	GPM	@	21.17 FT.	
MANUFACTURER	LIBERTY	MODEL	#	FL60 (6/10 H.P.)	

ELEV. -90.33
INVERSION DEPTH -90.33

1 1/2" SCH. 40 PVC MANIFOLD

SCH. 40 PVC DELIVERY LINE

O.P. #1

1/4" DISCHARGE HOLE (TYPE)

1 1/2" SCH. 40 PVC LA

7.5' 7.5' 7.5' 7.5' 7.5' 7.5' 7.5'

GENERAL INSTALLATION NOTES:

1. VEGETATION OR ORGANIC LITTER SHALL BE RAKED AND REMOVED FROM THE ABSORPTION AND BERM AREAS.
2. BEFORE AND AFTER INSTALLATION, EQUIPMENT AND VEHICLES SHALL BE KEPT OFF THE PROPOSED ABSORPTION AREA, INCLUDING THE DOWNSLOPE AREA, TO PREVENT UNDUE COMPACTION OF THE SOIL. CARE SHALL BE EXERCISED DURING CONSTRUCTION TO PREVENT UNDUE COMPACTION AND TO PREVENT THE SURFACE OF THE DOWNSLOPE AREA. EXCAVATION SHALL BE DONE FROM OUTSIDE THE ABSORPTION AREA OR DONE USING A ULTRA LOW IMPACT RUBBER-TRACK MACHINE.
3. SOIL MOISTURE LEVELS DURING CONSTRUCTION OF THE ABSORPTION AREA SHALL BE SUCH THAT A SAMPLE OF NATURAL MINERAL SOIL TAKEN FROM THE LEVEL OF THE PROPOSED INSTALLATION WILL CRUMBLE IF COMPRESSED INTO A BALL.
4. IMMEDIATELY AFTER EXCAVATING, AGGREGATE SHALL BE PLACED OVER THE EXPOSED SURFACE TO A TOTAL DEPTH OF 10 INCHES (MIN. 6 INCHES BELOW 1 1/2 INCH PIPE AND 2 INCHES ABOVE). STONE SHALL BE PLACED FROM OUTSIDE OF THE BED USING ONLY LIGHTWEIGHT EQUIPMENT.
5. COARSE AGGREGATE USED IN THE DISTRIBUTION SYSTEM SHALL 3/4" TO 2" WASHED RIVER GRAVEL FRAGMENTS AND SHALL BE OF TYPE B QUALITY REQUIREMENTS. LIMESTONE AGGREGATE IS NOT ACCEPTABLE.
6. THE ABSORPTION AREA BOTTOM EXCAVATION AND AGGREGATE SHALL BE LEVEL TO A TOLERANCE OF ±2 INCHES PER 100 FEET.
7. THE ABSORPTION AREA BERM SHALL BE COVERED BY A MINIMUM OF ONE FOOT OF MINERAL SOIL AND BY A BERM EXTENDING AT LEAST FIVE FEET BEYOND THE EDGE OF THE ABSORPTION AND CONSISTING OF MINERAL SOIL CONTAINING LESS THAN 20% COARSE FRAGMENTS WITH NO COARSE FRAGMENTS MORE THAN 4 INCHES IN DIAMETER. MORE STABLE AND LESS PERMEABLE THAN THE SAND, AND LIGHTLY COMPACTED DURING CONSTRUCTION TO CONTAIN AND PROTECT THE SYSTEM INTERIOR. THE WIDTH OF THIS BERM SHALL BE A MINIMUM OF 5 FEET AT THE TOP OF THE AGGREGATE.
8. UPON COMPLETION, THE OUTSIDE SLOPE OF THE BERM MAY BE NO GREATER THAN 50% AND SHALL BE SEEDDED TO ASSURE THE STABILITY OF THE BERM. THE COVER OVER THE AGGREGATE SHALL BE A MINIMUM OF 1 FOOT OF SOIL SUITABLE FOR THE GROWTH OF VEGETATION.
9. NO EQUIPMENT MAY BE PERMITTED ON THE DOWNSLOPE SIDE OF THE SYSTEM WITH THE EXCEPT OF THE LIGNO-CELLULOSE FILTER. THAT IS USED TO FORM THE DOWNSLOPE BERM. TO THE GREATEST EXTENT POSSIBLE, AGGREGATE AND THE COVER MATERIAL SHALL BE PLACED FROM THE UPSLOPE SIDE OF THE SYSTEM OR ENDS OF THE TRENCHES.
10. THE AREA SURROUNDING THE SYSTEM AND THE COVER SOIL SHALL BE GRADED TO PROVIDE FOR DIVERSION OF SURFACE RUNOFF WATERS.
11. CONTRACTOR IS TO CONTACT SANTARIAN FOR A PRE-CONSTRUCTION MEETING ON SITE BEFORE ANY EXCAVATION. THE DESIGNER MUST ALSO BE PRESENT FOR THIS MEETING. A TEST PIT IS TO BE EXCAVATED AT THE SITE AT THE TIME OF THE MEETING. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE GREATEST EXTENT POSSIBLE, AGGREGATE AND THE COVER MATERIAL SHALL BE PLACED FROM THE UPSLOPE SIDE OF THE SYSTEM OR ENDS OF THE TRENCHES.
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14. ALL CONTRACTORS PROVIDING CONSTRUCTION SERVICES AT THIS SITE (OR SITE RELATED CONSTRUCTION) SHALL BE CERTIFIED BY THE MARYLAND DEPARTMENT OF THE ENVIRONMENT IN THE FIELD OF CONSTRUCTION SITE SPECIFIC SEAGE DISPOSAL SYSTEMS AND THE INSTALLATION OF AN AEROBIC TREATMENT PLANT. CONTRACTOR MUST ALSO BE RESPONSIBLE FOR CONFORMANCE WITH APPLICABLE OSHA (OCCUPATIONAL HEALTH AND SAFETY ADMINISTRATION) STANDARDS AND REGULATIONS. PENNS TRENCH ENVIRONMENTAL, LLC SHALL NOT BE RESPONSIBLE FOR ANY DAMAGES OR LIABILITY ARISING FROM THE FAILURE OF ANY PARTY TO CONFORM TO APPLICABLE OSHA STANDARDS AND REGULATIONS.
15. THE INFORMATION SHOWN ON THIS PLAN IS THE RESULT OF A PROFESSIONAL SERVICE RENDERED BY PENNS TRENCH ENVIRONMENTAL, LLC. THIS PLAN IS PREPARED SPECIFICALLY FOR THE CLIENT AND DOES NOT REPRESENT ANY GUARANTEE OR WARRANTY. PENNS TRENCH ENVIRONMENTAL, LLC HAS WRITTEN CONSENT OF PENNS TRENCH ENVIRONMENTAL, LLC IS PROHIBITED. COPYRIGHT 2017 PENNS TRENCH ENVIRONMENTAL, LLC. ALL RIGHTS RESERVED.
16. ANY VARIATIONS FOUND DURING INSTALLATION WHICH DIFFER FROM THE INFORMATION REPRESENTED HEREON, SHALL BE REPORTED TO PENNS TRENCH ENVIRONMENTAL, LLC SO OUR RECOMMENDATIONS CAN BE REVIEWED AND REVISED IF REQUIRED.
17. THIS DESIGN INCORPORATES BY REFERENCE ALL APPLICABLE RULES, REGULATIONS AND REQUIREMENTS OF THE TOWNSHIP AND LOCAL AGENCIES WITH JURISDICTION. THE INSTALLER AND OWNER ARE RESPONSIBLE FOR ASSURING COMPLIANCE, BEFORE DURING AND AFTER CONSTRUCTION OF THE SYSTEM.
18. ALL MANUFACTURES MANUALS AND SPECIFICATIONS ARE INCORPORATED HEREIN BY REFERENCE. IN THE EVENT SUBSTITUTION IS MADE CONTRACTOR AND OWNER SHALL ASSURE THAT THE REPLACEMENT EQUIPMENT MEETS OR EXCEEDS THE ORIGINALLY SPECIFIED MATERIALS.
19. NOTHING CONTAINED ON THIS PLAN SET OR ACCOMPANYING DOCUMENTATION SHALL BE

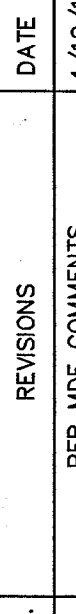
18. THE NORWECO BAT COMPONENT AND THE ON-SITE DISPOSAL FIELD REQUIRE A SERVICE CONTRACT TO BE MAINTAINED BETWEEN THE PROPERTY OWNER AND A CERTIFIED MAINTENANCE PROVIDER FOR THE LIFE OF THE SYSTEM.

FINAL GRADE ELEV.—90.33
30.00" EXCAVATION DEPTH
EXISTING ELEV.—90.33

LAST HOLE IN ELBOW

SLOPE 6:33

EXISTING ELEV.—89.38
18.60" EXCAVATION DEPTH
FINAL GRADE ELEV.—89.58

	INGROUND PRESSURE-DOSED BED SYSTEM DESIGN PLAN		PENN'S TRAIL ENVIRONMENTAL, LLC		CALL BEFORE YOU DIG! 1-800-257-7777 PROTECTION LAW THE UNDERGROUND UTILITY LINE CONTRACTORS MUST VERIFY LOCATIONS OF UNDERGROUND UTILITIES OR STRUCTURES PRIOR TO ANY EXCAVATION. CALL 1-800-257-7777 FOR SIZE, DEPTH OR HORIZONTAL LOCATION OF UNDERGROUND UTILITIES HEREON HAVE BEEN OBTAINED FROM THE UTILITY COMPANY RECORDS AND 1-800-257-7777. OWNERS THROUGH THE MISS UTILITY SYSTEM COMPLETENESS OR ACCURACY ATTENTION ALL EXCAVATION OF UNDERGROUND UTILITIES SHOWN EXCAVATION OF EXISTING UNDERGROUND UTILITIES. 
	PREPARED FOR 12470 PETRILLO DRIVE TRACT CLARKESVILLE, 5TH ELECTION DISTRICT		21 E. LINCOLN AVE. - SUITE 160 HATFIELD, PA 19440		
	HOWARD COUNTY, MD DATE: FEBRUARY 28, 2017 SCALE: AS NOTED		ph. (215) 362-4610 fax (215) 362-4620 email: staff@pennstrail.com		
	NO.		REVISIONS		
	1. PER MDE COMMENTS		4/12/17		
2. PER MDE COMMENTS		6/8/17			
3. PER HCHD COMMENTS		6/21/17			
4. PER MDE COMMENTS		9/12/17			
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