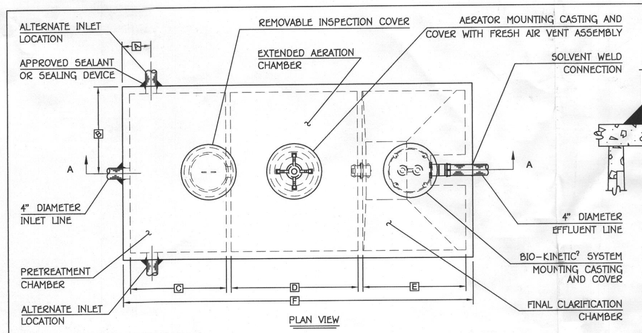
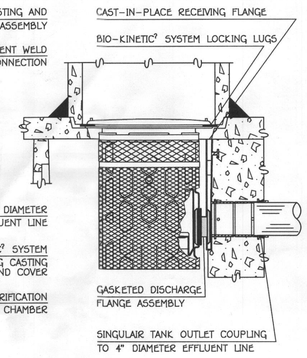


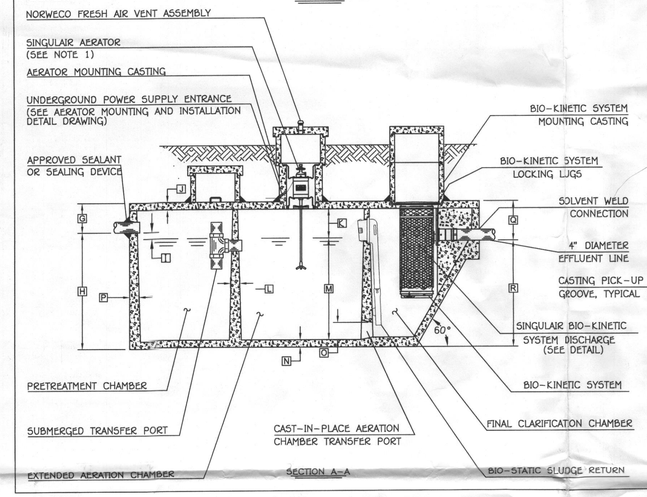
PLAN VIEW



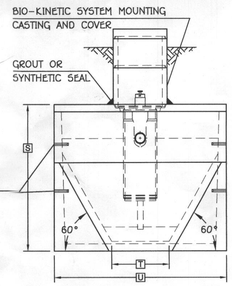
BIO-KINETIC SYSTEM DISCHARGE DETAIL

GENERAL NOTES:

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



SECTION A-A



OUTLET END VIEW

NOTE: TOTAL SYSTEM CAPACITY: 1,300 GALLONS
RATED CAPACITY: 500 GALLONS PER DAY

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

DATE:_____

NAME:_____

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

DATE:_____

NAME:_____

CRITICAL DIMENSIONS

A	1'- 0"	N	0'- 3"
B	3'- 0"	O	0'- 6"
C	3'- 4"	P	0'- 3"
D	4'- 5"	Q	1'- 4"
E	3'- 7"	R	3'- 8"
F	12'- 2"	S	5'- 0"
G	1'- 0"	T	2'- 0"
H	4'- 0"	U	6'- 0"
I	0'- 3"	V	
J	0'- 3"	W	
K	1'- 0"	X	
L	0'- 2"	Y	
M	3'- 6"	Z	

U.S. AND FOREIGN PATENTS PENDING

MMVII

norweco®

LOW-PROFILE SINGULAIR® BIO-KINETIC® WASTEWATER TREATMENT SYSTEM
MODEL TNTLP-500 OPD

DATE LAST REVISED 3-26-07	REVISION B
DRAWN BY BDS	
CHECKED BY JMM	
DATE 10-16-06	
SCALE NTS	
DWG. NO. PC-5-7091	

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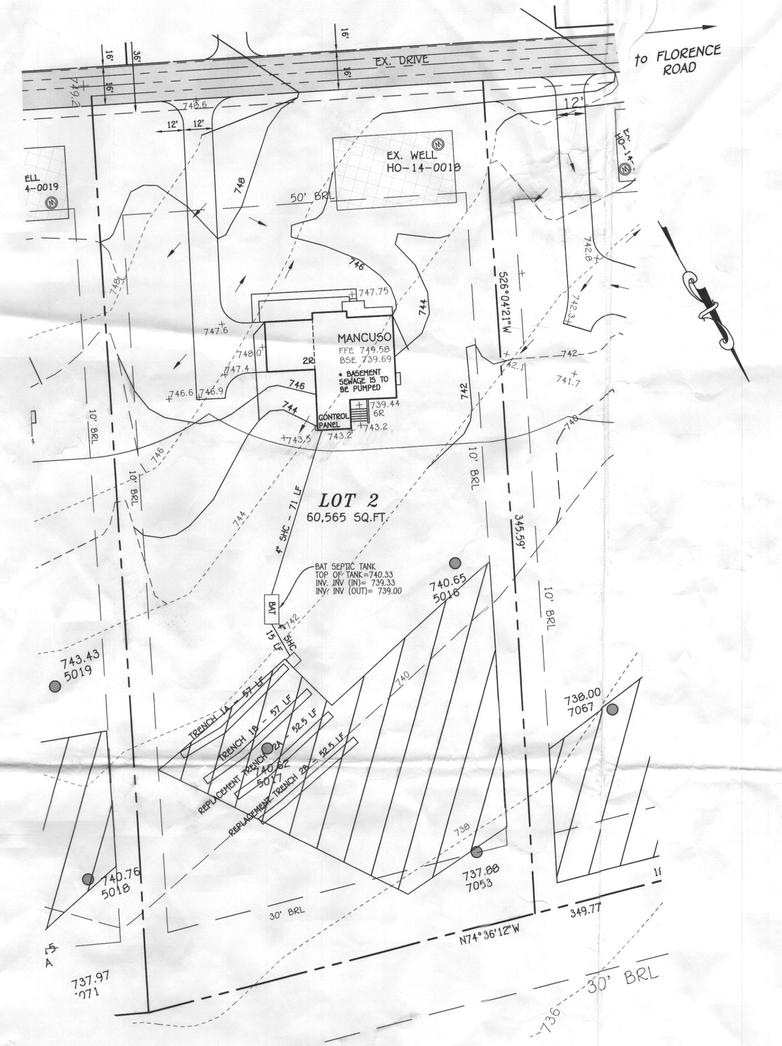
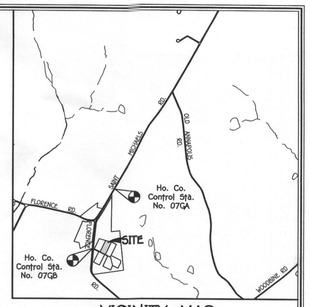




VICINITY MAP
SCALE: 1" = 2000'
ADC MAP NO. 8, GRIDS B-7 & B-8

GENERAL NOTES

1. SUBJECT PROPERTY ZONED: RC-DEO
2. TOTAL AREA OF PROPERTY: 60,565 SQ.FT.
3. SEPTIC EASEMENT SUBJECT TO HOWARD COUNTY HEALTH DEPARTMENT REVIEW.
4. LENGTH OF TRENCH TO BE DETERMINED AT TIME OF SEPTIC PERMIT ISSUANCE.
5. CONTRACTOR/BUILDER TO VERIFY ELEVATION IN THE FIELD BEFORE BEGINNING ANY CONSTRUCTION.
6. EXISTING TOPOGRAPHY SHOWN IS BASED ON A FIELD RUN SURVEY ALONG FLORENCE ROAD & SAINT MICHAELS ROAD WITH MAXIMUM TWO FOOT CONTOUR INTERVALS PREPARED BY FISHER, COLLINS & CARTER, INC. DATED AUGUST, 2014, SUPPLEMENTED WITH HOWARD COUNTY GIS TOPOGRAPHY ON-SITE AND OFF-SITE.
7. NO WETLANDS CURRENTLY EXIST ON THE PROPERTY.

BAT NOTES

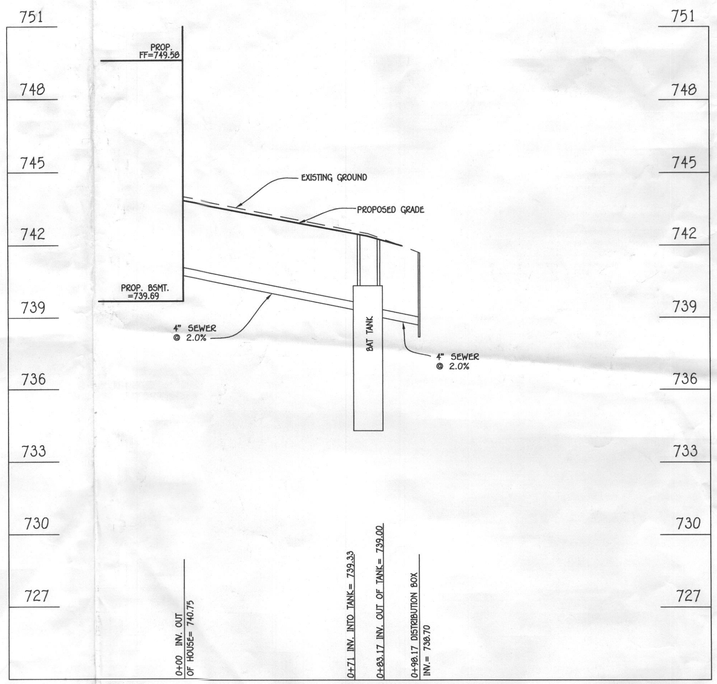
1. ANY CHANGE TO THE LOCATIONS OR DEPTHS TO ANY COMPONENTS MUST BE APPROVED BY THE ENGINEER AND THE HOWARD COUNTY HEALTH DEPARTMENT PRIOR TO INSTALLATION. A REVISED SITE PLAN MAY BE REQUIRED.
2. THE MAXIMUM COVER OVER THE BAT SHALL BE 3 FEET.
3. THE BAT SYSTEM SHALL BE MAINTAINED AND OPERATED FOR THE LIFE OF THE SYSTEM.
4. THE BAT SHALL BE OPERATED BY AND MAINTAINED BY A CERTIFIED SERVICE PROVIDER.
5. 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.
6. ANY ELECTRICAL WORK FOR THE BAT INSTALLATION MUST BE PERFORMED BY A LICENSED ELECTRICIAN.
7. AN AGREEMENT AND EASEMENT HAS BEEN COMPLETED AND SIGNED BY ALL APPLICABLE PARTIES, AND RECORDED IN THE LAND RECORDS OF HOWARD COUNTY, LIBER _____, FOLIO _____.
8. THE HEALTH DEPARTMENT REQUIRES DOCUMENTATION FOR THE START-UP CERTIFICATION FROM THE MANUFACTURER PRIOR TO FINAL APPROVAL OF THE INSTALLATION.
9. SURFACE RUNOFF SHALL BE DIRECTED AROUND THE BAT TANK.

SEPTIC SYSTEM DESIGN
4 BEDROOM HOUSE
LOADING RATE = 600 GPD
APPLICATION RATE = 0.8

INITIAL SYSTEM
EFFECTIVE SIDEWALL BEGINS AT 3 FEET
TRENCH DEPTH = 6.5 FEET
TRENCH WIDTH (W) = 3 FEET
EFFECTIVE DEPTH (D) = 3.5 FEET
COEFFICIENT OF REDUCTION OF TRENCH LENGTH = 0.455
(W+2) / (W+1+2D) = (3+2) / (3+1+(2x3.5)
SF OF DRAINFIELD = 600 GPD / 0.8 = 750 SF
TRENCH LENGTH = 750 SF x 0.455 / 3 = 113.75 FEET (USE 114 FEET)
TRENCH WIDTH = 2D+W = 2(3.5)+3 = 10

REPLACEMENT SYSTEM
EFFECTIVE SIDEWALL BEGINS AT 3 FEET
TRENCH DEPTH = 7 FEET
TRENCH WIDTH (W) = 3 FEET
EFFECTIVE DEPTH (D) = 4 FEET
COEFFICIENT OF REDUCTION OF TRENCH LENGTH = 0.417
(W+2) / (W+1+2D) = (3+2) / (3+1+(2x4)
SF OF DRAINFIELD = 600 GPD / 0.8 = 750 SF
TRENCH LENGTH = 750 SF x 0.417 / 3 = 104.25 FEET (USE 105 FEET)
TRENCH WIDTH = 2D+W = 2(4)+3 = 11

SEPTIC SYSTEM ELEVATIONS
FFE = 749.58
BSE = 739.69
INV. OUT OF HOUSE = 740.75
EX. GROUND AT BAT TANK = 742.5
PROP. GRADE AT BAT TANK = 742.4
TOP OF BAT TANK = 740.33
COVER OVER BAT TANK = 2.07 FT
INVERT INTO BAT TANK = 739.33
INVERT OUT OF BAT TANK = 739.00
EX. GRADE AT DIST BOX = 741.7
INVERT INTO DISTRIBUTION BOX = 738.70
INVERT OUT OF DISTRIBUTION BOX = 738.60
* BASEMENT SEWAGE IS TO BE PUMPED



SEPTIC SYSTEM PROFILE
SCALE: HORIZ. 1" = 30'
VERT. 1" = 3'

NOTE
THE EXISTING WELL SHOWN ON THIS PLAN, TAG NO. HO 14-0018 HAS BEEN FIELD LOCATED BY FISHER, COLLINS & CARTER, INC., PROFESSIONAL LAND SURVEYORS AND IS ACCURATELY SHOWN.

Approved Septic System Plan
Howard County Health Department
Hank Oswald 6/4/15
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. 38386, EXPIRATION DATE: 01/12/2016.

Stephanie Tuite 6/2/15
Signature Of Professional Engineer DATE

STATE OF MARYLAND STEPHANIE T. TUITE No. 38386 PROFESSIONAL ENGINEER

TRENCH DESIGN

TRENCH	GROUND ELEV.	TOP OF STONE ELEV.	INVERT INTO TRENCH	DEPTH TO STONE AT	DEPTH OF STONE (FT)	BOTTOM OF TRENCH ELEV.	EFFECTIVE DEPTH (FROM EX. GROUND)	EFFECTIVE DEPTH (D)	WIDTH OF TRENCHES (W)	TRENCH SPACING
T1A	741.6	738.85	738.60	2.75'	3.75'	735.1	3	3.5	3.0	10
T1B	741.1	737.35	738.10	2.75'	3.75'	734.6	3	3.5	3.0	10
RT2A	740.5	737.75	737.50	2.75'	4.25'	733.5	3	4	3.0	11
RT2B	739.9	737.15	736.90	2.75'	4.25'	732.9	3	4	3.0	11

FISHER, COLLINS & CARTER, INC.
CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS
CENTENNIAL SQUARE OFFICE PARK - 10272 BALTIMORE NATIONAL PIKE
ELLICOTT CITY, MARYLAND 21042
(410) 461 - 2855

SITE PLAN
FOR BAT SYSTEM INSTALLATION
LAYTON KNOLL
LOT 2
2775 FLORENCE ROAD
ZONED RC-DEO

TAX MAP NO.: 7 GRID NO.: 19 PARCEL NO.: 112
FOURTH ELECTION DISTRICT HOWARD COUNTY, MARYLAND
SCALE: 1" = 30' DATE: JUNE, 2015

SHEET 1 OF 1

K:\SDSKPROJ\60787 IDIOT'S DELIGHT\dwg\60787-6 Layton Knoll Site Plans\60787-6 BAT Plan Lot 2.dwg, 6/2/2015 2:00:28 PM, 1:1