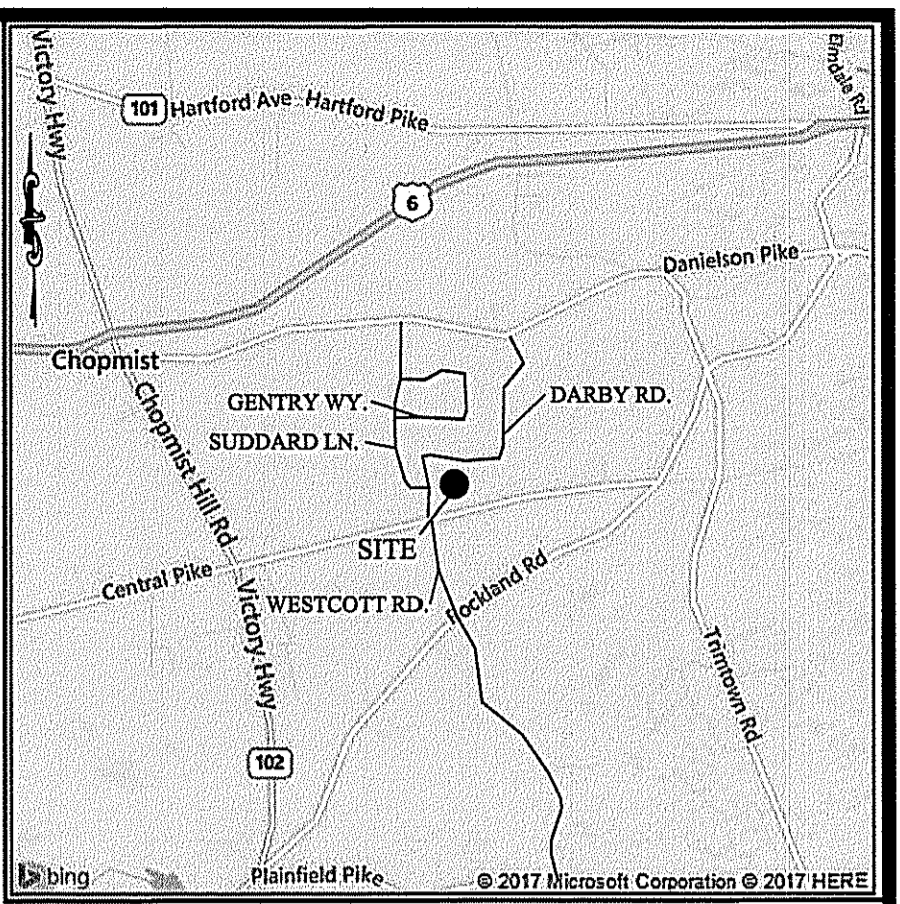


Kindly be advised that this Permit is not equivalent to a verification of the type or extent of freshwater wetlands on site.

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**BOTTOMLESS SAND FILTER DESIGN**

GIVEN:

SOIL CATEGORY: 8m

LOADING RATE: 1.90 GAL/SF/DAY

STRUCTURE: 3 BEDROOMS

DESIGN FLOW: 115 GAL/DAY/BEDROOM

**TOTAL DAILY FLOW:**

345 GAL/DAY / 1.90 GAL/SF/DAY = 181.6 SF REQ'D

**FILTER PROVIDED:**

20' LONG x 10' WIDE = 200.0 SF PROVIDED

**QPA SIZING CALCULATION**

HOUSE:

TOTAL ROOF AREA: 1,776 S.F.

HALF OF ROOF TO EACH QPA: 888 S.F.

LENGTH = 888 S.F./13.3: 67'

WIDTH = 36'

MAX. SLOPE = 6%

QPA MIN. 28' FROM OWTS

QPA OUTSIDE OF WETLAND AND RIVERBANK BUT WITHIN UPLAND BUFFER ZONE, PERIMETER WETLAND AND RIVERBANK PROVIDE SPLASH BLOCK AT EACH DOWNSPOUT

**GARAGE:**

TOTAL ROOF AREA: 784 S.F.

HALF OF ROOF TO EACH QPA: 392 S.F.

LENGTH = 392 S.F./13.3: 30'

WIDTH = 28'

MAX. SLOPE = 6%

QPA MIN. 28' FROM OWTS

QPA OUTSIDE OF WETLAND AND RIVERBANK BUT WITHIN UPLAND BUFFER ZONE, PERIMETER WETLAND AND RIVERBANK PROVIDE SPLASH BLOCK AT EACH DOWNSPOUT

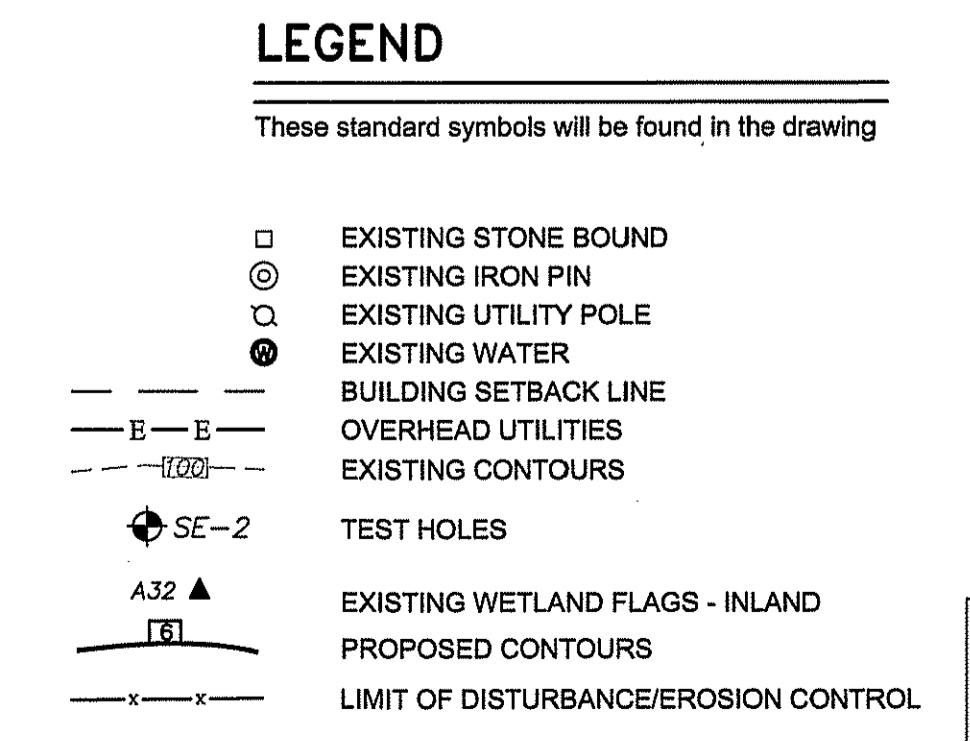
- PROPOSED OWTS COMPONENTS**
- 4" DIA. SCHEDULE 40 PVC BUILDING SEWER, LENGTH = 28' FROM HOUSE
  - PROPOSED 1500 GAL. 2-COMPARTMENT SEPTIC / RECIRCULATION TANK W/ ADVANTECH AX-20 UNITS. COVERS TO FINISHED GRADE. TANK AND AX-20 UNIT ARE TO HAVE 6" x 6" PRESSURE TREATED LANDSCAPE TIMBER ENCLOSURE, AS NOTED ON SITE PLAN. TOP OF TIMBER = EL. 99.42. SEE SEPARATE DETAILS ON SHEET 2.
  - PROPOSED 24" DIA. PVC PUMP CHAMBER. ENSURE DRAINBACK OF PRESSURE LINE TO BSF. SEE SEPARATE DETAILS ON SHEET 2.
  - PROPOSED 1.5" DIA. SCHEDULE 40 PVC PRESSURE LINE TO BSF, LENGTH = 20' FROM PUMP CHAMBER TO BSF.
  - PROPOSED BSF LEACH FIELD, 20' x 10'. SEE SEPARATE DETAILS ON SHEET 2.
  - PROPOSED CONTROL PANEL TO BE MOUNTED MINIMUM 36" ABOVE GRADE ON POST OR APPROVED EQUIVALENT.

**QPA MAINTENANCE:**

QPA SHALL BE INSPECTED AND MAINTAINED AT LEAST YEARLY TO REMOVE DEPOSITED SEDIMENT AND ADDRESS ANY PONDING OR EROSION AND REPLACEMENT OF VEGETATION WITHIN THE QPA THAT HAS DIED.

**PERVIOUS DRIVE:**

CRUSHED STONE SHALL BE 3/4 INCH TO 1 1/2 INCH DIAMETER, WASHED, ANGULAR CRUSHED STONE INSTALLED TO A MINIMUM DEPTH OF 3 INCHES. THE GRADE OF THE FINISHED DRIVE SHALL NOT BE ANY HIGHER THAN THE ADJACENT GROUND ELEVATION.



**SCHEDULE OF INVERTS**

INVERT No.	LOCATION OF INVERT	INVERT ELEV.
1	BUILDING SEWER	96.08
2	SEPTIC TANK - IN	95.50
3	RSV - OUT	96.58
4	PUMP CHAMBER - IN	96.40
5	PUMP CHAMBER - OUT	96.92
6	PEASTONE/SAND INTERFACE	100.75
7	BSF MANIFOLD	101.00
8	TOP OF BSF	101.42

**VARIANCES REQUESTED:**

RULE 32.4: TWO TEST HOLES WITH A MINIMUM OF 24" GROUNDWATER TABLE AND ALL TEST HOLES WITHIN 25' WITH A MINIMUM OF 24" GROUNDWATER

RULE 22 TABLE 22.2: OWTS < 5,000 GPD, 100' MINIMUM BETWEEN OWTS COMPONENTS AND TRIBUTARY WETLANDS, 64.5' PROVIDED

**SOIL NOTES:**

FEBRUARY 23, 2017 BY SAMUEL R. SUORSA

TEST HOLE #1 (Elev. 97.50)

0-8" Ap, 10YR2/2, sl, 1fgr, fr

8-26" Bw, 10YR5/3, sl, 1msbk, vfr

26-96" Cd, 10YR6/3, gcbctts, 0-m, fl

DEPTH TO GROUNDWATER TABLE = 15" GROUNDWATER ELEV. = 96.25

TEST HOLE #2 (Elev. 98.5)

0-5" Ap, 10YR2/2, sl, 1fgr, fr

5-24" Bw, 10YR5/3, sl, 1-mbsk, vfr

24-96" Cd, 10YR6/3, gcbctts, 0-m, fl

DEPTH TO GROUNDWATER TABLE = 15" GROUNDWATER ELEV. = 97.25

**CALCULATION OF WATER TABLE ELEVATIONS:**

GRADE AT TEST PIT "SE-1" = 97.50

GROUND WATER DEPTH = 1.25

WATER TABLE ELEVATION = 96.25

GRADE AT TEST PIT "SE-2" = 98.50

GROUND WATER DEPTH = 1.25

WATER TABLE ELEVATION = 97.25

MAXIMUM GRADE IN THE AREA = 98.00

OF THE PROPOSED LF = 1.25

GROUND WATER DEPTH = 1.25

DESIGN WATER TABLE ELEV. = 96.75

DEPARTMENT OF ENVIRONMENTAL MANAGEMENT  
OFFICE OF WATER RESOURCES  
FRESHWATER WETLANDS PROGRAM  
APPROVED WITH CONDITIONS  
AS SPECIFIED IN THE LETTER OF APPROVAL  
DATED JUN 02 2017 FILE # 17-0100  
NO CHANGES ALLOWED WITHOUT PRIOR APPROVAL  
APPROVED PLANS MUST BE AT CONSTRUCTION SITE

**CONTRACTOR SHALL PROVIDE THE FOLLOWING TO CJ DOYLE, P.E.:**

PRODUCT SPECIFICATION SHEETS FOR PRODUCTS USED IF DIFFERENT THAN SPECIFIED ON THE PLANS. CONTRACTOR SHALL OBTAIN PRIOR APPROVAL FROM CJ DOYLE, P.E. FOR ANY ITEM THAT IS DIFFERENT THAN SHOWN ON APPROVED DESIGN PLANS. THIS WOULD INCLUDE DIFFERENT MANUFACTURERS THAN SPECIFIED BY CJ DOYLE, P.E.

COPY OF DELIVERY SLIPS FOR ALL MATERIALS DELIVERED TO SITE.

COPY OF CURRENT SIEVE ANALYSIS FOR BOTTOMLESS SAND FILTER MEDIA MEETING ALL REQUIREMENTS AS SPECIFIED ON FIGURE 9 OF THE MOST RECENTLY PUBLISHED R.I.D.E.M. GUIDELINES FOR THE DESIGN AND USE OF BOTTOMLESS SAND FILTERS. THIS ANALYSIS HAS TO BE PRESENTED TO CJ DOYLE, P.E. BEFORE BEING PLACED IN THE BSF.

**SCHEDULE OF INSPECTIONS:**

- 3-BUSINESS DAYS NOTICE SHALL BE GIVEN TO CJ DOYLE, P.E. PRIOR TO THE START OF CONSTRUCTION.
- ALL INSPECTIONS SHALL REQUIRE AT LEAST 1 BUSINESS DAYS NOTICE TO CJ DOYLE, P.E.

THE FOLLOWING INSPECTIONS ARE REQUIRED BY CJ DOYLE, P.E.:

- BOTTOM OF EXCAVATION FOR LEACH FIELD.
- PRIOR TO COVERING ANY COMPONENT OR PIPING.
- PRIOR TO COVERING THE WATERLINE FROM THE WELL OR THE MUNICIPAL WATER SERVICE. THE LINE MUST BE COMPLETELY INSTALLED AND EXPOSED FROM SOURCE TO FINAL DESTINATION.
- FINAL GRADING AND 5' FILL PERIMETERS.
- SUPPLIER OF CRENCO PRODUCTS TO PERFORM THE START-UP.

**SURVEYOR'S CERTIFICATION**

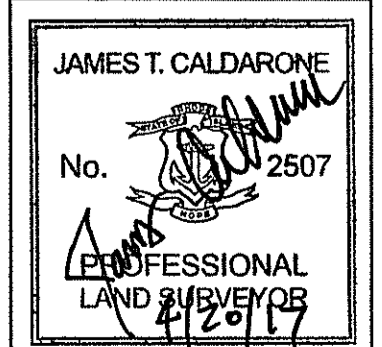
THIS SURVEY HAS BEEN CONDUCTED AND THE PLAN PREPARED PURSUANT TO SECTION 9 OF THE RULES AND REGULATIONS ADOPTED BY THE RHODE ISLAND STATE BOARD OF REGISTRATION FOR PROFESSIONAL LAND SURVEYORS ON NOVEMBER 25, 2015, AS FOLLOWS:

**TYPE OF BOUNDARY SURVEY:** MEASUREMENT SPECIFICATION:  
NOT A BOUNDARY SURVEY N/A  
DATA ACCUMULATION CLASS III

**STATEMENT OF PURPOSE:**  
TO SHOW EXISTING CONDITIONS AND TOPOGRAPHY AT THE SITE.

THE PURPOSE FOR THE CONDUCT OF THE SURVEY AND FOR THE PREPARATION OF THE PLAN IS AS FOLLOWS:  
TO SHOW EXISTING CONDITIONS AND TOPOGRAPHY AT THE SITE.

BY: *Sam Calderone*  
JAMES T. CALDARONE, PLS NO. 2507  
CJA NO. 722



**CJ DOYLE, P.E.**  
CIVIL ENGINEERING  
MAILING ADDRESS:  
P.O. BOX 1161, HOPE VALLEY, RI  
OFFICE LOCATION:  
1122 MAIN STREET,  
WYOMING, RI  
PHONE (401) 491-9530  
cjdoyle@cox.net

NO.	DATE	DESCRIPTION	BY
DRAWING TITLED:			
PLAN OF PROPOSED DWELLING & ONSITE WASTEWATER TREATMENT SYSTEM			
LOCATED ON:			
LOT 2	PLAT 34		
OWNED BY:			
DUSTIN TORTOLANO			
ADDRESS:			
DARBY ROAD			
IN THE TOWN OF SCITUATE, RI			
APRIL 10, 2017			
DESIGNED BY: CAROLYN J. DOYLE, P.E.			
SCALE: 1" = 30'			
DRAWN BY: CJD	CHECKED BY: CJD		
DRAWING NO. SHEET 1 OF 2			
			CAROLYN J. DOYLE No. 5078 REGISTERED PROFESSIONAL ENGINEER

