

Environmental Services - Water Quality
Onsite Wastewater Scan Data Entry Form

PERMIT #: 0043243

PIN #: 0770616610

OP DATE: 0112212009

SYSTEM USE:
☒ House
☐ Mobile Home
☐ Business
☐ Other

SEWAGE TYPE:
☒ Domestic
☐ Industrial

PUMP/SIPHON?:
☒ Yes
☐ No

PRESSURE MANIFOLD:
☒ Yes
☐ No

SYSTEM TYPE:
☐ I
☐ II
☒ III
☐ IV
☐ V
☐ VI
☐ Other

SUB TYPE:
☐ A
☒ B
☐ C
☐ D
☐ E
☐ F
☐ G

NBR BEDROOMS:
☐ 1
☐ 2
☐ 3
☒ 4
☐ 5
☐ 6
☐ Other

MAINT. SCHEDULE:
☐ Yes
☒ No

CERT. OPERATOR
☐ Yes
☒ No

GT	ST	PT	SIZE
☐	☐		750
☐	☐	☐	900
☐	☐	☐	1,000
☐	☐	☐	1,200
☐	☒	☒	1,500
☐	☐	☐	1,800
☐	☐	☐	2,100
☐	☐	☐	2,500
☐	☐	☐	3,000
☐	☐	☐	4,000
☐	☐	☐	5,000
☐	☐	☐	8,000
☐	☐	☐	10,000
☐	☐	☐	Other
☒		☐	None/NA GT or PT

DRAINFIELD SIZE(SQ. FT.)

00945

DRAIN TYPE:

☐ Stone
☒ EZ Flow
☐ Infiltrator
☐ Biodiffuser
☐ Cultec
☐ Drip
☐ Hancor
☐ Large Dia. Pipe
☐ Multi-Pipe
☐ Other

MAX DEPTH (IN.):

☐ 12 in. or less
☒ 18 in. or less
☐ 24 in. or less
☐ 26 in. or less
☐ 28 in. or less
☐ 30 in. or less
☐ 32 in. or less
☐ 36 in. or less
☐ Other

STONE DEPTH (IN.):

☐ 8 in. or less
☐ 12 in. or less
☐ 18 in. or less
☐ 24 in. or less
☒ Other

TRENCHES:

☒ Individual
☐ Bed

TRENCH WIDTH (IN.):

☐ 12 in. or less
☐ 18 in.
☐ 24 in.
☒ 36 in.
☐ 6 ft. or less
☐ 9 ft. or less
☐ Other

WAKE COUNTY DEPARTMENT OF ENVIRONMENTAL SERVICES WELL AND SEWAGE SITE LOCATION PERMIT

NO PERMIT(S) FOR CONSTRUCTION, LOCATION OR RELOCATION ACTIVITY SHALL BE ISSUED
UNTIL AN AUTHORIZATION FOR WASTEWATER SYSTEM CONSTRUCTION HAS BEEN ISSUED

PERMIT VOID IF NOT IN COMPLIANCE WITH ZONING REGULATIONS AND/ OR IF SITE IS ALTERED OR INTENDED USE CHANGED

PERMIT#: D043243 STATUS: A

APP. DATE: 11/07/2008

BLDG. PERMIT#: 0091094

PIN: 0770.04 61 6610 000

TAX MAP: 0

RECORDED: Y ORIG. PERMIT#:

TOWNSHIP: 18 SWIFT CREEK

JURISDICTION: WC

ZONING: R-30 SW DEVICE: N S#:

APPLICANT: RICHARD WATERMAN
3712 HIGHLAND CREEK DR
APEX, NC 27539
(732) 267-1554

USE: HD USE: 433 ADD/ALT-HSEKEEPING MORE U
EXIST USE: 436D RESIDENTIAL DETACHED GARA

LTAR: 0.30 0.30 BEDROOMS: 1 BASEMENT: N #EMPLOYEES: 0

SITE: ADDRESS: 3712 HIGHLAND CREEK DR

SUBDIVISION: HIGHLAND CREEK LOT: 21

ACRES: 3.39 EASEMENT: N LOC: SYS:

DIRECTION: 1 SO TO WALNUT ST TL ON WALNUT ST CONT. ON

H. SPG RD TL ON 1010 RD TR ON BELLS LAKE TL

HIGHLAND CRK

Well System: WATER: COMMUNITY

TYPE: EXISTING

WELL LOG INFORMATION: DEPTH: _____ CASING DEPTH: _____ YIELD: _____ STATIC LEVEL: _____

WELL CONTRACTOR: _____ REG.# _____ PUMP CONTRACTOR: _____ REG.# _____

Construction Compliance GROUT APPROVED ☐ DATE _____ EHS _____

WELLHEAD APPROVED ☐ DATE _____ EHS _____

SYSTEM FINALIZED ☐ DATE _____ EHS _____

COMMENTS:

DESIGN FLOW: 38.27 gal./min. ACTUAL FLOW: 36.2 Operation Permit

INNOVATIVE LETTER:

INSTALLED BY: Jay Adcock

INSTALLATION APPROVED BY: Woodward

PROPRIETARY SYSTEM: E-Z LAY PIPE

FILTER NO: _____

COMMENTS:

OPERATIONS PERMIT ISSUED? yes

OP DATE: 1/22/09

BY: Woodward

This permit is based in part on information provided by the homeowner or his/her representative in the application submitted for this permit. The Environmental Health Specialist is not responsible for false or misleading information contained in the application. The Environmental Health Specialist is also not responsible for concealed conditions on the property or for statements in this report that may have resulted from false or misleading statements provided to him in the application. Neither Wake County nor the Environmental Health Specialist warrants that the septic tank system will continue to function satisfactorily in the future or that the water supply will remain potable.

As Built Information:

Date: _____ Benchmark: _____ Rod reading: _____ Distance to Structure: _____

ST: _____ gals ID#: _____ D.O.M.: _____ Elev.: _____ Distance to Well: _____

PT: _____ gals ID#: _____ D.O.M.: _____ Elev.: _____

D-box/FD/PM elev.: _____ Supply Line: _____ ft. Pump/Control Panel: _____

Line 1: _____ Date: _____ Line 6: _____ Date: _____

Line 2: _____ Date: _____ Line 7: _____ Date: _____

Line 3: _____ Date: _____ Line 8: _____ Date: _____

Line 4: _____ Date: _____ Line 9: _____ Date: _____

Line 5: _____ Date: _____ Line 10: _____ Date: _____

Distance to P/L: _____ Notes: _____

File

WAKE COUNTY DEPARTMENT OF ENVIRONMENTAL SERVICES WELL AND SEWAGE SITE LOCATION PERMIT
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UNTIL AN AUTHORIZATION FOR WASTEWATER SYSTEM CONSTRUCTION HAS BEEN ISSUED

PERMIT VOID IF NOT IN COMPLIANCE WITH ZONING REGULATIONS AND/ OR IF SITE IS ALTERED OR INTENDED USE CHANGED

PERMIT#: D043243 STATUS: A APP. DATE: 11/07/2008 BLDG. PERMIT#: 0091094
PIN: 0770.04 61 6610 000 TAX MAP: 0 RECORDED: Y ORIG. PERMIT#:
TOWNSHIP: 18 SWIFT CREEK JURISDICTION: WC ZONING: R-30 SW DEVICE: N S#:
APPLICANT: RICHARD WATERMAN
3712 HIGHLAND CREEK DR
APEX, NC 27539
(732) 267-1554
USE: HD USE: 433 ADD/ALT-HSEKEEPING MORE U
EXIST USE: 436D RESIDENTIAL DETACHED GARA
LTAR: 0.30 0.30 BEDROOMS: 1 BASEMENT: N #EMPLOYEES: 0 FOUNDATION DRAIN: Y
SITE: ADDRESS: 3712 HIGHLAND CREEK DR
SUBDIVISION: HIGHLAND CREEK LOT: 21 ACRES: 3.39 EASEMENT: N LOC: SYS:
DIRECTION: 1 SO TO WALNUT ST TL ON WALNUT ST CONT. ON
H. SPG RD TL ON 1010 RD TR ON BELLS LAKE TL
HIGHLAND CRK

IMPROVEMENT PERMIT

TANK SIZE: 1500 gal. PUMP Tank: 1500 gal. SQ FT: 945 INNOVATIVE MAX DEPTH LINE: 18 in.
WASTEWATER: INDIVIDUAL SEWAGE: DOMESTIC TYPE SYSTEM: III G PUMP: Y P/M: Y
DAILY FLOW: 600 gal/day DESIGN FEE REQ?: Y PAID?: Y WATER: COMMUNITY

COMMENTS:

IP ISSUED? Y DATE: 12/08/2008 BY: (TAH) *Travis A Howard (by ELC)* PHONE#: 369-5974

AUTHORIZATION FOR WASTEWATER/WATER SYSTEM CONSTRUCTION

VOID SIXTY (60) MONTHS FROM DATE OF ISSUANCE

AUTHORIZATION CONDITIONS:

Contractors shall install system on contours, see attached site plan for wastewater system design and well location. No underground utilities, water lines or sprinkler systems may be located in the original system or repair areas. A septic tank filter with a riser for access is required. The wastewater system shall not be covered or placed into use until inspected by the Wake County Department of Environmental Services and an Operation Permit issued. An Accepted Status System may be used in place of conventional system, if it can be placed in the permitted/authorized trench footprint (except reduction in line length and/or number as allowed for in approval) and the installation is in accordance with the accepted system approval, without unauthorized product alteration. If permit required use of an Accepted Status System, substitution with another accepted status system may be made, as long as no changes are necessary in the location of each nitrification line (including any increase in line length), trench depth or effluent distribution method. If changes are necessary, prior approval by this office is required before system installation. **OTHER**

CONDITIONS:

PLEASE SEE DESIGN PLAN BY MARK ALLEN (REV. 12-09-08 BY ELC) FOR INSTALLATION INFORMATION. INITIAL SYSTEM IS A VARIED LENGTH ACCEPTED STATUS PRESS. MAN. WITH 18" DEEP TRENCH BOTTOMS. WHEN INSTALLING DRAINLINES, PLEASE MAINTAIN ALL REQUIRED SETBACKS. REPAIR SYSTEM IS A VARIED LENGTH LINE ACCEPTED STATUS PRESS. MAN. WITH 18" DEEP TRENCH BOTTOMS. DO NOT DISTURB OR REMOVE ANY SOIL FROM EITHER THE INITIAL OR REPAIR AREA. A NEMA 4X CONTROL PANEL WITH TWO BREAKERS, TWO POWER SUPPLIES, ELAPSED TIME METER, AND CYCLE COUNTER ARE REQUIRED. INSTALL TRENCHES ON CONTOUR AND MINIMUM 9FT ON CENTER. PLEASE CALL ENVIRONMENTAL SERVICES IF ANY QUESTIONS OR PROBLEMS ARISE. IF FLAGS ARE REMOVED CALL CONSULTANT FOR RE-FLAGGING. NOTE THAT LINE 5 OF THE LAY-OUT (TOP LINE OF REPAIR SYSTEM) IS TO BE INSTALLED ALONG WITH LINES 4 AND 6, BUT IS NOT TO BE CONNECTED TO THE MANIFOLD. IT WILL BE CONNECTED TO THE REPAIR MANIFOLD WHEN THE REMAINDER OF THE REPAIR IS INSTALLED.

CA

TANK SIZE: 1500 gal. PUMP TANK: 1500 gal. SQ FT: 945 INNOVATIVE MAX DEPTH LINE: 18 in.
MAINT: N OPER: N L/O: P TRENCH#: 3 LENGTH: 315 ft. WIDTH: 36 in. DESIGNER: MARK ALLEN
SUBFIELDS: ___ DESIGN HEAD PRESSURE: 2 DESIGN FLOW: 38.27 gal/min DOSE VOLUME: 280 gal.

CA ISSUED? Y DATE: 12/09/2008 BY: (ELC) *Everett L. Coates* PHONE#: 856-5380

5-BEDROOM INNOV. PRESSURE MANIFOLD SYSTEM
LINES 1-4, 6 0.3 LTAR; EZ-FLOW
5-BEDROOM INNOV. PRESSURE MANIFOLD REPAIR
LINES 5, 7-12 0.3 LTAR; EZ-FLOW

C.A. Part B

As Built

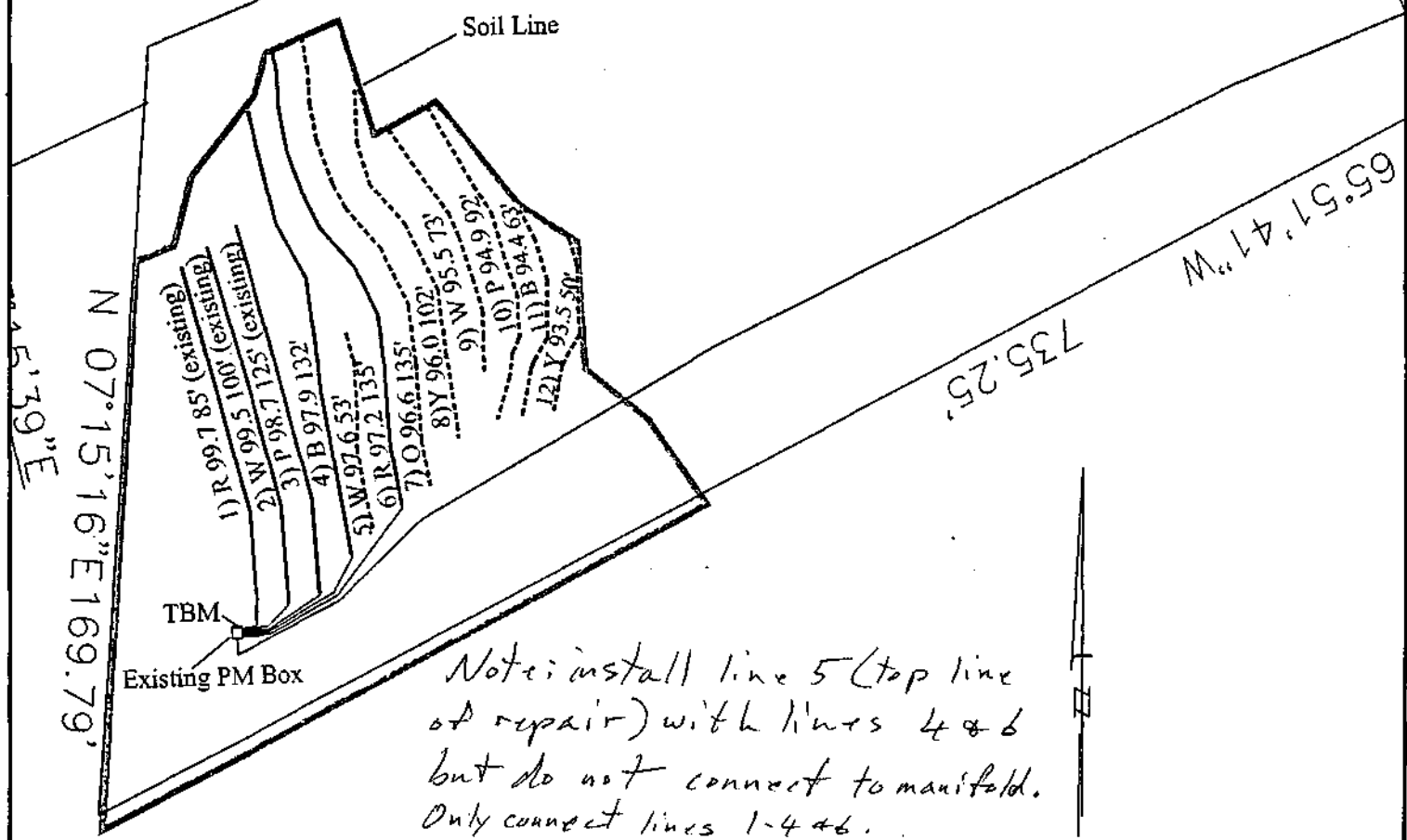
SEMENT

DRAIN

FOUNDATION DRAINS ALLOWED

3712 Highland Creek

*EXISTING SEPTIC AND PUMPTANKS TO BE CRUSHED



—	SYSTEM LINE
- - -	REPAIR LINE
---	UNUSED LINE

GRAPHIC SCALE
1" = 50'



PROJECT NO. 11,120.S2	SCALE 1" = 50'	SHEET TITLE: SEPTIC SYSTEM LAYOUT
PROJECT MGR. MA	FIELD WORK MA, DS	PROJECT NAME: BRUCE RAYMOND - 3712 HIGHLAND CREEK DR - WAKE COUNTY, NORTH CAROLINA SEPTEMBER 2008
DRAWN BY MA		
11,120.S2\MA\CAD\3712 HIGHLAND CREEK DR		



Soil & Environmental Consultants, PA
19016 James Ridge Road • Raleigh, North Carolina 27614 • Phone: (919) 846-9900 • Fax: (919) 846-9407
www.seconline.com

7B

File

C.A. Part C



Soil & Environmental Consultants, PA

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www.SandEC.com

December 5, 2008

Attached is a proposed design for a Pressure Manifold Septic System for a five bedroom residence located at 3712 Highland Creek, Wake County, NC

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☐ APPROVED ☒ APPROVED AS NOTED ☐ DISAPPROVED	
Pump Tank Diagram-----	9
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Nitrification Trench Detail -----	11
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Pump Specifications-----	14 – 15
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S&EC PROJECT #11120.s3
DESIGN – M. Allen
PROJECT MGR – M. Allen

**3712 Highland Creek
Project No. 11120.s3
PRESSURE MANIFOLD SYSTEM
FOR WASTEWATER TREATMENT**

Owner: Richard Waterman
Attn:
Address: 3712 Highland Creek Drive
Cary, NC 27513
Phone: 732-267-1554
County: Wake
Location:

Source of Wastewater Flow: 5 Bedroom Residence
Estimated Daily Wastewater Production: 600 gpd
System Flow: 38.27 gpm

Design Specifications

Number of Drain Lines: 5 *+ 1 (line 5 or top of repair)*
Drainfield Size: 575 ft
Loading Rate: 0.30 gpd/sq ft
Distribution Method: EZ-Flow
Gravel Size (if applicable): NA
Trench Depth: 18 in
Trench Width: 36 in
Septic Tank: 1500 gal
Pump Tank: 1500 gal
Grease Trap: NA -
Estimated Supply Line Length: 474 ft
Supply Line Diameter: 2.0 in. SCH 40 PVC
Supply Line Volume: 82.48 gal
Supply Manifold: 4 in. SCH 80 PVC
Supply Manifold Length: 4.0 ft (minimum)
Supply Manifold Volume: NA
Threaded Union: In Tank
Gate Valves: 1 in Pump Tank
1 at Pressure Manifold
Check Valves: 1 in Pump Tank
Anti-Siphon Hole: 1 in Pump Tank
Solenoid Valve: NA
Air Release/Vacuum Break Valve: NA

Recommended Float Controls: SJE Sensor Float Control Switches as Required
for Control Panel or County Approved Equivalent
Recommended Control Panel: SJE-Rhombus Model 112 (NEMA 4x) Control
Panel or County Approved Control Panel.
Recommended Pump: Myers ME 50 or County Approved Equivalent
TDH Capacity: 35.2715 ft
Flow Capacity: 38.27 gpm

Additional Comments: Soil suitability was performed by the
Wake County Health Department.

**3712 Highland Creek
Project No. 11120.s3
DESIGN CALCULATIONS**

Supply line length	474	ft
2.0 in. SCH 40 PVC	0.174	gal/ft
Supply line Volume	82.476	gal
Total drain field length	575	ft
4" pipe	0.65079	gal/ft
Total drain field volume	374.20	gal
Percent of dose volume	75%	
Dose Volume	280.7	gal ✓
Dose volume	280.65	gal
Pump tank	30.65	gal/in
Pump tank Drawdown	9.2	in ✓
Ground Elevation at Pump Tank	91.7	ft
Pump Tank Installation Depth	3	ft
Pump Tank Elevation	88.7	ft
Pump Elev. Difference	5.4	ft
Pump Elevation	83.3	ft
Manifold Elevation	100.7	ft
	17.4	ft
Elevation Head	17.4	ft ✓
System flow	38.27	gal/minute
Friction Factor*	2.79	f/100ft
Supply Line Length	474	ft
Friction Adjustment for Fittings**	568.8	ft
Friction Head	15.9	ft ✓
Pressure Head	2.0	ft ✓
(TDH) Total Dynamic Head	35.3	ft ✓
Daily flow	600	gal/day
LTAR	0.30	sqft/day
Trench width	3	ft
Required drain field length (gravel)	667	ft
Required drain field length (ezflow)	500	ft

* Computed by Hazen Williams Formula, assuming C=140

**If supply line is greater than 350ft, then 20% is added to account for fittings. If supply line is less than 350ft, then 70ft is added to account for fittings.

**3712 Highland Creek
Project No. 11120.s3
SYSTEM TAP CHART**

Line #	Color	Field Elev. (ft)	Length (ft)	Hole Size (in)	Flow/Tap (gpm)	gpd	Trench Area (sq ft)	Line LTAR (gpd/sq ft)
1	RED	99.70	85	1/2" SCH. 80	5.48	85.92	255	0.337
2	WHITE	99.50	100	1/2" SCH. 80	5.48	85.92	300	0.286
3	PINK	98.70	125	1/2" SCH. 40	7.11	111.47	375	0.297
4	BLUE	97.90	130	3/4" SCH. 80	10.1	158.35	390	0.406
6	RED	97.20	135	3/4" SCH. 80	10.1	158.35	405	0.391

total feet = 575 gal/min = 38.27

Des. Flow	600	gpd
Pump Run=	15.68	min
soil LTAR	0.30	gpd/sq ft
(ltar +5%)	0.315	gpd/sq ft
INNOV. Product Reduction	25%	
LTAR with INNOV.	0.4	gpd/sq ft
LTAR with INNOV. + 5%	0.42	gpd/sq ft
100% Dose Volume	374.19	gal
Percent Dose Volume	75%	
Total	280.64	gal
Pump Run Time	7.33	min

3712 Highland Creek
Project No. 11120.s3
REPAIR TAP CHART

Line #	Color	Field Elev. (ft)	Length (ft)	Hole Size (in)	Flow/Tap (gpm)	gpd	Trench Area (sq ft)	Line LTAR (gpd/sq ft)
5	WHITE	97.60	50	1/2" SCH. 80	5.48	60.20	150	0.401
7	ORANGE	96.60	135	3/4" SCH. 40	12.5	137.31	405	0.339
8	YELLOW	96.00	100	3/4" SCH. 80	10.1	110.95	300	0.370
9	WHITE	95.50	70	1/2" SCH. 80	5.48	60.20	210	0.287
10	PINK	94.90	90	3/4" SCH. 80	10.1	110.95	270	0.411
11	BLUE	94.40	60	1/2" SCH. 80	5.48	60.20	180	0.334
12	YELLOW	93.50	50	1/2" SCH. 80	5.48	60.20	150	0.401

total feet = 555 gal/min = 54.62

Des. Flow	600	gpd
Pump Run=	10.98	min
soil LTAR	0.30	gpd/sq ft
(ltar +5%)	0.315	gpd/sq ft
INNOV. Product Reduction	25%	
LTAR with INNOV.	0.4	gpd/sq ft
LTAR with INNOV. + 5%	0.42	gpd/sq ft

100% Dose Volume	361.17	gal
Percent Dose Volume	80%	
Total	288.94	gal

Pump Run Time 5.29 min