

WAKE COUNTY DEPARTMENT OF ENVIRONMENTAL SERVICES WASTEWATER PERMIT

NO PERMIT(S) FOR CONSTRUCTION, LOCATION OR RELOCATION ACTIVITY SHALL BE ISSUED UNTIL AN
AUTHORIZATION FOR WASTEWATER SYSTEM CONSTRUCTION AUTHORIZATION HAS BEEN ISSUED
***PERMIT VOID IF NOT IN COMPLIANCE WITH ZONING REGULATIONS AND/OR IF SITE IS ALTERED OR
INTENDED USE CHANGED***

OPERATIONS PERMIT

PERMIT # HWP-113122-2023 **APPLICATION DATE:** 11/01/2023 **BLDG. PERMIT#:** RABS-117405-2024
PIN: 1822086935 **RECORDED:**
TOWNSHIP: 14 - New Light **JURISDICTION:** Wake County **ZONING:** R-40W
APPLICANT: Raleigh Custom Homes Inc
Kyle Johnson
7708 Harps Mill RD **BUSINESS PHONE:** (919) 847-2664
HOME PHONE:
MOBILE PHONE: (918) 530-0197
HD USE: **EXISTING USE:**
SITE ADDRESS: 8916 GRAND HIGHLAND WAY
SUBDIVISION: GRAND HIGHLAND ESTATES PH 1 **LOT:** 64 **ACRES:**
DIRECTIONS: 0

Systems defined as either type III-b, III-g with a pump, IV, V or VI, in accordance with the North Carolina administrative code 15A NCAC 18a .1961, table V as adopted by reference in the "Regulations Governing Wastewater Treatment Dispersal Systems in Wake County", requires Wake County Environmental Services to conduct periodic inspections of the system type pursuant to 15A NCAC 18a. 1961 (j). Fees for these inspections will be charged as per the approved Fee Schedule. In addition, all systems are to be operated and maintained as specified in 15A NCAC 18A .1961. This permit is based in part on information provided by the homeowner and/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/her 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.

OPERATION PERMIT VALID FOR: No Expiration

INSTALLED BY: BRANTLEY, CORY - 1036 - IV

PROPRIETARY SYSTEM: EZ1203HG - EZFlow EZ 1203H Geo **PRETREATMENT SYSTEM:**

SYSTEM TYPE INSTALLED: III B

OPERATION PERMIT: STATUS: Issued

ISSUED BY: Noah Greenway

ISSUED DATE: 04/09/2024

SEPTIC TANK: David Brantley & Sons - STB-323 - 1250 gallons **DATE OF MANUFACTURE:** 10/09/2023 **FILTER:** GAG SIM/TECH - STF-110

GREASE TRAP: **DATE OF MANUFACTURE:** **FILTER:**

DOSING PUMP TANK: Brantley - PT-2124 - 1312 gal - 21.5 gal/in **DATE OF MANUFACTURE:** 01/28/2024 **FILTER:**

CC1: 999,806 **ETM1:** 102 **CC2:** **ETM2:**

RECIRCULATION TANK: **DATE OF MANUFACTURE:**

CC1: **ETM1:** **CC2:** **ETM2:**

SEPTIC TANK ELEVATION: 13.30

GREASE TRAP ELEVATION:

DOSING PUMP TANK ELEVATION: 13.60

RECIRCULATION TANK ELEVATION:

DISTRIBUTION DEVICE ELEVATION: 3

INSTALLED TRENCH DEPTH	INSTALLED AGGREGATE DEPTH	INSTALLED TRENCH LENGTH	INSTALLED TRENCH BOTTOM ELEVATION
24	12	50	6.1
24	12	70	6.5
24	12	80	6.11
24	12	110	7.4
24	12	125	8.2

ACTUAL PRESSURE HEAD: 2

ACTUAL FLOW RATE: 43

ACTUAL DOSE VOLUME: 204

SPECIFIC OPERATION REQUIREMENTS:

- System designed for 4 bedrooms (480 GPD)
- Repair is a IIB 25% reduction system with a max trench depth of 30" and a 0.3 LTAR
- Site serviced by on site private well water

ISSUED BY:



DATE: 04/09/2024

CONSTRUCTION AUTHORIZATION FOR G.S. 130A-335(a2)

County: Wake
 PIN/Lot Identifier: 1822086935
 Issued To: Raleigh Custom Homes
 Property Location: 8916 Grand Highland Way, Wake Forest, NC
 AOWE/PE Plans/Evaluations Provided: Yes ☒ No ☐ If yes, name and license number of AOWE/PE: Jason Hall, AOWE #10004E
 Facility Type: Single Family, 4-Bedroom
☒ New ☐ Expansion ☐ Repair ☐ System Relocation ☐ Change of Use
 Basement? ☐ Yes ☒ No Basement Fixtures? ☐ Yes ☐ No
 Type of Wastewater System* IIIB, Pressure Manifold (Initial) IIIB, Pressure Manifold (Repair)

**Please include system classification for proposed wastewater system types in accordance with 15A NCAC 18A .1961 Table V(a)*

Design Daily Flow: 480 GPD Wastewater Strength: ☒ domestic ☐ high strength ☐ industrial process

Session Law 2014-120 Section 53, Engineering Design Utilizing Low-flow Fixtures and Low-flow Technologies? ☐ Yes ☒ No
 (if yes, please provide engineering documentation)

Installation Requirements/Conditions

Septic Tank Size: 1200 gallons Total Trench/Bed Length: 435 feet Trench/Bed Spacing: 9 feet on center
 Trench/Bed Width: 36 inches LTAR .3 gpd/ft²
 Additional Soil Cover: inches Slope Corrected Maximum Trench/Bed Depth[±]: 30 inches *** Measured on the downhill side of the trench**
 Aggregate Depth: inches above pipe inches below pipe inches total
 Pump Tank Size (if applicable): 1200 gallons Requires more than 1 pump? ☐ Yes ☒ No
 Pump Requirements: 30.1 ft. TDH vs. 42.3 GPM Grease Trap Size (if applicable): gallons
 Distribution Method: ☐ Serial ☐ D-Box or Parallel ☒ Pressure Manifold(s) ☐ LPP ☐ Other:
 Artificial Drainage Required: Yes ☐ No ☒ If yes, please specify details:
Legal Agreements (If the answer is "Yes" to any type of legal agreements, please attach a copy of the agreement.)
 Multi-party Agreement Required [.1937(h)]: ☐ Yes ☒ No
 Easement, Right-of-Way, or Encroachment Agreement Required [.1938(j)]: ☐ Yes ☒ No
 Declaration of Restrictive Covenants: ☐ Yes ☒ No
 Pre-Construction Conference Required: Yes ☐ No ☒
 Conditions: Fence off septic areas.

The construction and installation requirements of Rules .1950, .1952, .1954, .1955, .1956, .1957, .1958, and .1959 are incorporated by reference into this permit and shall be met. Systems shall be installed in accordance with the attached system layout.

AOWE/PE Print Name: Jason Hall Expiration Date: 12/31/2023
 AOWE/PE Signature:  Date: 11/1/2028

This AOWE/PE submittal is pursuant to and meets the requirements of G.S. 130A-335(a2) and (a5).

See attached site sketch



This Section for Local Health Department Use Only

Initial submittal received: 11/1/23 by jjk
Date Initials

G.S. 130A-335(a5) states the following:

When an applicant for a Construction Authorization, or an Improvement Permit and Construction Authorization together, submits a Construction Authorization, or an Improvement Permit and Construction Authorization application together, the permit fee charged by the local health department, the common form developed by the Department, and any necessary signed and sealed plans or evaluations conducted by a person licensed pursuant to Chapter 89C of the General Statutes as a licensed engineer or a person certified pursuant to Article 5 of Chapter 90A of the General Statutes as an Authorized On-Site Wastewater Evaluator, the local health department shall, within five business days of receiving the application, conduct a completeness review of the submittal. A determination of completeness means that the Construction Authorization or Improvement Permit and Construction Authorization includes all of the required components. If the local health department determines that the Construction Authorization or Improvement Permit and Construction Authorization is incomplete, the local health department shall notify the applicant of the components needed to complete the Construction Authorization or Improvement Permit and Construction Authorization. The applicant may submit additional information to the local health department to cure the deficiencies in the Construction Authorization or Improvement Permit and Construction Authorization. The local health department shall make a final determination as to whether the Construction Authorization or Improvement Permit and Construction Authorization is complete within five business days after the local health department receives the additional information from the applicant. If the local health department fails to act within any period set out in this subsection, the applicant may treat the failure to act as a determination of completeness. The applicant may apply for the building permit for the project upon the decision of completeness of the Construction Authorization or Improvement Permit and Construction Authorization by the local health department or if the local health department fails to act within five business days. The Authorized On-Site Wastewater Evaluator or licensed engineer submitting the evaluation pursuant to this subsection may request that the local health department revoke or suspend the Construction Authorization or Improvement Permit and Construction Authorization for cause. Upon written request of the Authorized On-Site Wastewater Evaluator or licensed engineer, the local health department shall suspend or revoke the Construction Authorization or Improvement Permit and Construction Authorization pursuant to G.S. 130A-23. The Department shall develop a common form for use as the Construction Authorization.

The review for completeness of this Construction Authorization was conducted in accordance with G.S. 130A-335(a5). This

Construction Authorization is determined to be:

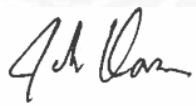
☐ Incomplete (If box is checked, information in this section is required.)

The following items are missing: _____

Copies of this were sent to the AOWE/PE and the Applicant on _____
Date

State Authorized Agent: _____ Date: _____

☒ Complete

State Authorized Agent: John Kase  Date of Issuance: 11/7/2023

This Construction Authorization is issued pursuant to G.S. 130A-335(a2) and (a5) using the signed and sealed plans or evaluations attached here. This Construction Authorization is subject to revocation if the site plan, plat, or the intended use changes. The Construction Authorization shall not be affected by a change in ownership of the site. This Construction Authorization is subject to compliance with the provisions of the Laws and Rules for Sewage Treatment and Disposal and to the conditions of this permit.

The Department, the Department's authorized agents, and the local health departments shall be discharged and released from any liabilities, duties, and responsibilities imposed by statute or in common law from any claim arising out of or attributed to plans, evaluations, preconstruction conference findings, submittals, or actions from a person licensed pursuant to Chapter 89C of the General Statutes as a licensed engineer or a person certified pursuant to Article 5 of Chapter 90A of the General Statutes as an Authorized On-Site Wastewater Evaluator in GS 130A-335(a2), (a5), and (a7). The Department, the Department's authorized agents, and the local health departments shall be responsible and bear liability for their actions and evaluations and other obligations under State law or rule, including the issuance of the operations permit pursuant to GS 130A-337.

Construction Authorization Expiration Date: 11/7/2028

See attached site sketch

Re-submittal of Construction Authorization

LHD USE ONLY: This CA resubmittal received: _____ by _____
Date Initials

The following items are being resubmitted pursuant to G.S. 130A-335(a5) for issuance of the Construction Authorization:

I, _____ hereby attest that the information required to be included with this re-submittal
Authorized Onsite Wastewater Evaluator (Print Name)
is accurate and complete to the best of my knowledge and that the proposed Construction Authorization meets all applicable federal, State, and local laws, regulations, rules, and ordinances.

Signature of Authorized On-Site Wastewater Evaluator

Date

The section below is for Local Health Department use after submittal of items noted as missing above.

LHD Follow-up Completeness Review of Construction Authorization

The review for completeness of this Construction Authorization re-submittal was conducted in accordance with G.S. 130A-335(a5). This Construction Authorization is determined to be:

☐ Incomplete (If box is checked, information in this section is required.)

The following items are missing:

Copies of this were sent to the AOWE/PE and the Applicant on _____
Date

State Authorized Agent: _____

Date: _____

☐ Complete

State Authorized Agent: _____

Date: _____

Pressure Manifold
Septic System Design

for

Grand Highland Estates S/D, Lot 64
Wake County, North Carolina

Designed by:

Aaron Holder
Central Carolina Soil Consulting, PLLC
Wake Forest, North Carolina

10/25/2023

Grand Highland Estates S/D, Lot 64
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Grand Highland Estates S/D, Lot 64
Contact Information

Client: Raleigh Custom Homes
Attn:
Street Address:

Phone:
Fax:

Designer: Central Carolina Soil Consulting, PLLC
Attn: Jason Hall
Designed By: Aaron Holder
Street Address: 1900 Main Street Suite 110
Wake Forest, NC 27587
Office Phone: 919-569-6704
Cell Phone: 919-537-1139
Fax: 919-569-5703
Email: jrice@centralcarolinasoil.com

Grand Highland Estates S/D, Lot 64
Layout/Design Specifications

Facility Type:	Single Family Home
# of Bedrooms:	4
Daily Flow:	480 gal/day
L.T.A.R.:	0.3 gal/day/sq.ft
Trench Depth:	30 in
Trench Width:	36 in
Stone Depth:	EZ-FLOW in
Manifold Length:	48 in
Manifold Diameter:	4 in sch 80pvc
Supply Line Length:	242 ft
Supply Line Diameter:	2 in sch 40pvc
Supply Line Volume:	42.11 gallons
Friction Loss + Fitting Loss:	12.30 ft(supply line length + 70' for fittings in pump tank)
Design Head:	2 ft
Elevation Head:	15.80 ft
Total Head:	30.10 ft
Dose Volume:	206.41 gals
% of Pipe Vol.	.73
Drawdown:	10.50 in @ 19.65 gal/in
Pump Run Time:	4.88 Mins
Control Panel:	SJE Rhombus Model112 control panel (or approved equivalent)
Pump:	Zoeller M140 Flow-Mate (or approved equivalent)
Septic Tank Effluent Filter:	Zoeller 170-0078 residential effluent filter (or approved equivalent)
Septic Tank:	Brantley 1,250 Gallon ST 323
Pump Tank:	Brantley 1,200 Gallon PT 463

Grand Highland Estates S/D Lot 64

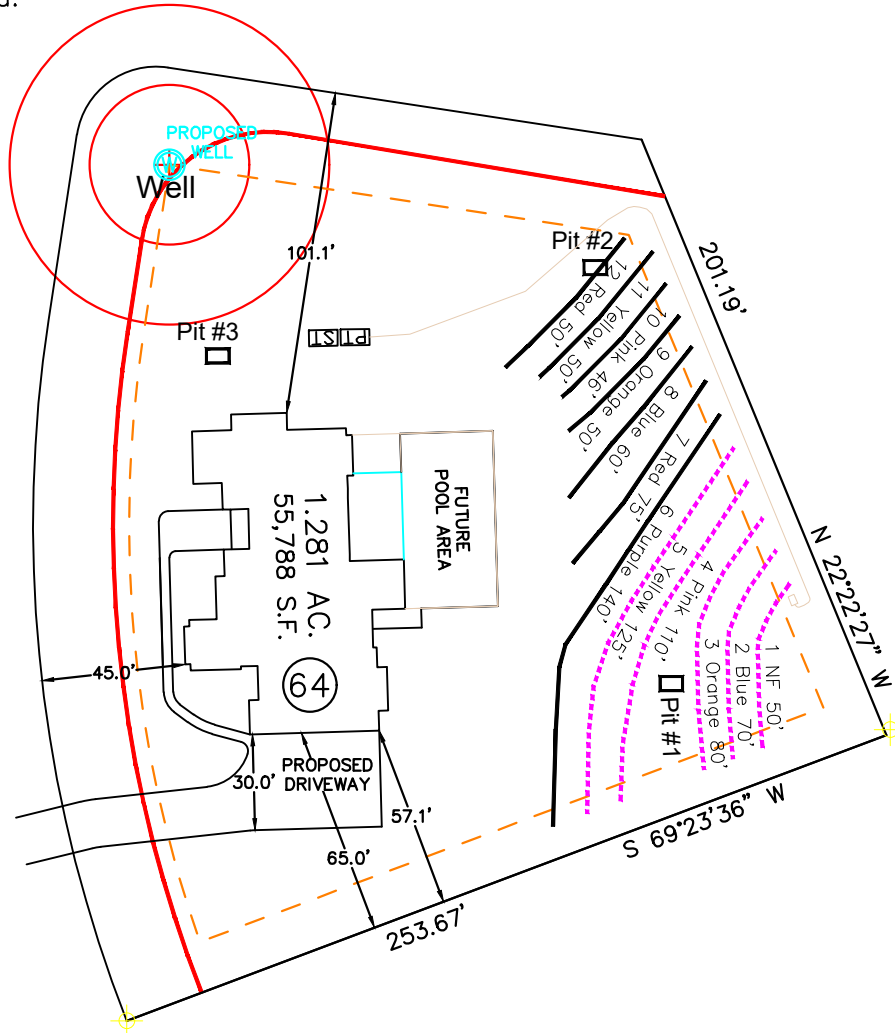
Initial System TAP CHART

Bench Mark;								Elevation Head:	15.80
Pump tank elev.		13.00	87.00	Pump elev.	81.60	Manifold elevation:			97.40
line	color	rod read	Elevation	length	hole size	flow/tap	gal/day	trench area	LINE LTAR
1	NF	3.60	96.40	50	1/2in SCH 80	5.48	62.18	150	0.4146
2	Blue	4.00	96.00	70	1/2in SCH 40	7.11	80.68	210	0.3842
3	Orange	4.40	95.60	80	1/2in SCH 40	7.11	80.68	240	0.3362
4	Pink	5.00	95.00	110	3/4 in SCH 80	10.1	114.61	330	0.3473
5	Yellow	5.40	94.60	125	3/4in SCH 40	12.5	141.84	375	0.3783
		total	feet =	435	gal/min =	42.3			
								<u>LTAR =</u>	0.3000
								<u>LTAR + %5</u>	0.3150
% of Dose Vol.	73			<u>Des. Flow</u>	480			(ltar W/ INOV)	0.4000
Dose Volume	206.41			Pump Run=	11.35			(ltar W/ INOV + 5%)	0.4200
Dose Pump Time	4.88			Tank Gal/IN	19.65				
Drawdown in Inches	10.50								

Grand Highland Estates S/D Lot 64 Repair System TAP CHART

Bench Mark:								Elevation Head:	13.50
Pump tank elev.		13.00	87.00	Pump elev.		81.60	Manifold elevation:		95.10
line	color	rod read	Elevation	length	hole size	flow/tap	gal/day	trench area	LINE LTAR
6	Purple	5.90	94.10	140	(2) 1/2in SCH 40	14.22	135.54	420	0.3227
7	Red	6.40	93.60	75	1/2in SCH 40	7.11	67.77	225	0.3012
8	Blue	7.10	92.90	60	1/2in SCH 40	7.11	67.77	180	0.3765
9	Orange	8.00	92.00	50	1/2in SCH 80	5.48	52.23	150	0.3482
10	Pink	8.80	91.20	46	1/2in SCH 80	5.48	52.23	138	0.3785
11	Yellow	9.50	90.50	50	1/2in SCH 80	5.48	52.23	150	0.3482
12	Red	10.00	90.00	50	1/2in SCH 80	5.48	52.23	150	0.3482
		total	feet =	471	gal/min =	50.36	LTAR =		0.2750
						LTAR + %5		0.2888	
% of Dose Vol.	75	Des. Flow		480	(ltar W/ INOV)		0.3667		
Dose Volume	229.61	Pump Run=		9.53	(ltar W/ INOV + 5%)		0.3850		
Dose Pump Time	4.56	Tank Gal/IN		19.65					
Drawdown in Inches	11.69								

- *Keep tanks and drain lines 10' from property lines.
- *Not a survey.
- *Not a guarantee of a septic permit.
- *Keep supply lines >5' from property lines.
- *Some lines are flagged longer in the field than lengths indicate.
- *No grading septic area.



System: - - - - -
 Repair: ————
 Soil Line: ————

System: Pressure Manifold
 Lines: 1–5, (435')
 Accepted Status System
 0.3 Soil LTAR
 30" Trench Bottom

Repair: Pressure Manifold
 Lines: 6–12, (471')
 Accepted Status System
 0.275 Soil LTAR
 30" Trench Bottom

GRAPHIC SCALE
 1" = 60'



Central Carolina Soil Consulting, PLLC
 1900 South Main Street, Suite 110
 Wake Forest, North Carolina 27587
 Phone (919)569-6704 Fax (919)569-6703

4-Bedroom Septic Layout
 Lot 64, Grand Highland Estates Subdivision
 Wake County, North Carolina

Job# : 4736
 Drawn By : AH
 Date : 10/25/2023
 Revision:

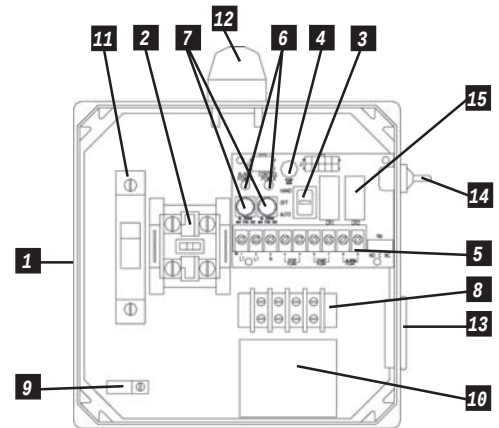
MODEL 112 Control Panel

Single phase, simplex motor contactor control.

The Model 112 control panel provides a reliable means of controlling one 120, 208, or 240 VAC single phase pump in pump chambers, sump pump basins, irrigation systems and lift stations. Two control switches activate a magnetic motor contactor to turn the pump on and off. If an alarm condition occurs, an additional alarm switch activates the audio/visual alarm system.

PANEL COMPONENTS

1. **Enclosure** measures 8 x 8 x 4 inches (20.32 X 20.32 X 10.16 cm). Choice of NEMA 1 (steel for indoor use), or NEMA 4X (ultraviolet stabilized thermoplastic with removable flanges for outdoor or indoor use).
* Options selected may increase enclosure size and change component layout.
2. **Magnetic Motor Contactor** controls pump by switching electrical lines.
3. **HOA Switch** for manual pump control (mounted on circuit board).
4. **Green Pump Run Indicator Light** (mounted on circuit board).
5. **Float Switch Terminal Block** (mounted on circuit board).
6. **Alarm and Control Fuses** (mounted on circuit board).
7. **Alarm and Control Power Indicators** (mounted on circuit board).
8. **Pump Input Power and Pump Connection Terminal Block**
9. **Ground Lug**
10. **Terminal Block Installation Label**
11. **Circuit Breaker** (optional) provides pump disconnect and branch circuit protection.



Model Shown 1121W914X

STANDARD ALARM PACKAGE

12. **Red Alarm Beacon** provides 360° visual check of alarm condition.
Note: NEMA 1 style utilizes a door mounted indicator in lieu of a beacon.
13. **Alarm Horn** provides audio warning of alarm condition (83 to 85 decibel rating).
Note: NEMA 1 style utilizes an internally mounted buzzer in lieu of horn.
14. **Exterior Alarm Test/Normal/Silence Switch** allows horn and light to be tested and horn to be silenced in an alarm condition. Alarm automatically resets once alarm condition has been cleared.
15. **Horn Silence Relay** (mounted on circuit board).

NOTE: other options available.

FEATURES

- Entire control system (panel and switches) is UL Listed to meet and/or exceed industry safety standards
- Dual safety certification for the United States and Canada
- Standard package includes three 20' Sensor Float® control switches
- Complete with step-by-step installation instructions
- Three-year limited warranty



SJE
Rhombus
CONTROLS

PO Box 1708, Detroit Lakes, MN 56502

1-888-DIAL-SJE • 1-218-847-1317

1-218-847-4617 Fax

email: sje@sjerhombus.com

www.sjerhombus.com

SEE BACKSIDE FOR COMPLETE LISTING OF AVAILABLE OPTIONS.

112**1****W****1****2****4****H****3A, 8A, 8C, 15A****MODEL 112****ALARMPACKAGE**

0 = select options or no alarm package

1 = alarm package (includes test/normal/silence switch, fuse, red light, horn & float)

ENCLOSURE RATING

I = Indoor, NEMA 1 (metal)

W = Weatherproof, NEMA 4X (engineered thermoplastic)

STARTING DEVICE

1 = magnetic motor contactor 120/208/240V

9 = magnetic motor contactor 120V only

PUMP FULL LOAD AMPS

0 = 0-7 FLA

1 = 7-15 FLA

2 = 15-20 FLA

3 = 20-30 FLA

PUMP DISCONNECTS

0 = no pump disconnect

1 = pull-out with safety deadfront in a 10"x8" enclosure

4 = circuit breaker 120V (select STARTING DEVICE option 9 above)

120/208/240V (select STARTING DEVICE option 1 above)

FLOAT SWITCH APPLICATION

H or L = pump down or pump up

X = no floats

WITH alarm package

WITHOUT alarm package

OPTIONS *Listed below*

ENCLOSURE UPSIZE - If you selected 3 or more of the ★ options, or one ★★ option, a one-time enclosure upsize fee would apply.

If additional features are required, call the factory for a quote on either a SJE-Rhombus Pro-Line or Engineered Custom control panel.**CODE DESCRIPTION**

- ☐ 1A Red beacon only / no audio
(must select 1E if floats included)
- ☐ 1C Horn only / no visual
(must select 1E if floats included)
- ☐ 1E Alarm float
- ☒ 3A Alarm flasher
- ☐ ★ 3B Manual alarm reset
- ☐ ★ 4A Low level cutout
(select option 4D if floats included)
- ☐ ★ 4B Red low-level indicator & alarm
(must select 4A also)
- ☐ 4D Low-level float
- ☐ ★ 5A Thermal cutout/heat sensor auto
reset (for pumps w/thermal switch leads)
- ☐ ★★ 5E Seal failure circuit & red indicator (2 wire)
- ☐ 6A Auxiliary alarm contact, form C type
- ☒ ★ 8A Elapsed time meter
- ☒ ★ 8C Event (cycle) counter
- ☐ ★★ 9_A Pump overload
specify amperage after number 9 followed by letter "A".
Example: 912A = 12 amp pump.
- ★★ ☐ 0-25 FLA
- ★★ ☐ 25-30 FLA
- ☐ 10E Lockable latch - NEMA 4X
- ☐ 10E Lockable latch - NEMA 1
- ☐ ★ 10F Lightning arrester
- ☐ ★ 10K Anti-condensation heater

CODE DESCRIPTION

- ☐ 11C NEMA 1 alarm panel *must select option 6A*
- ☐ 11D NEMA 4X alarm panel *must select option 6A*
- ☐ ★★ 14B Main disconnect (rotary style, mounted through door)
non-fused
- ★★ ☐ 0-20 FLA (total of both pumps)
- ★★ ☐ 20-30 FLA (total of both pumps)
- ☒ 15A Control / alarm circuit breaker
Does not include the circuit board as in standard.
- ☐ 16A 10' cord in lieu of 20' (per float)
- ☐ 16B 15' cord in lieu of 20' (per float)
- ☐ 16C 30' cord in lieu of 20' (per float)
- ☐ 16D 40' cord in lieu of 20' (per float)
- ☐ 17A SJE SignalMaster® / mounting strap ● (per float)
- ☐ 17B SJE SignalMaster® / externally weighted ● (per float)
- ☐ 17C Sensor Float® / internally weighted ▲ (per float)
- ☐ 17D Sensor Float® / externally weighted ▲ (per float)
- ☐ 17E Sensor Float® Mini / pipe clamp ▲ (per float)
- ☐ 17F Sensor Float® Mini / externally weighted ▲ (per float)
- ☐ 19T TOA (Test/Off/Automatic) switch and pump run light through
door mounted
- ☐ 19U HOA (Hand/Off/Automatic) switch and pump run light through
door mounted
- ☐ 19X Door mounted pump run indicator
- ☐ 21A SJE PumpMaster® in lieu of on/off switches ●
- ☐ 21B SJE PumpMaster® Plus in lieu of on/off switches ●
- ☐ 21C Super Single® in lieu of on/off switches ▲
- ☐ 21D Double Float® in lieu of on/off switches ▲

● Mechanically-activated ▲ Mercury-activated

SAMPLE**MODEL****112****1****W****9****1****4****H****3A 8A**

Alarm Package

Enclosure Rating

Starting Device

Pump Full Load Amps

Pump Disconnect

Float Switch Application

Options: Flasher, Elapsed Time Meter

TECHNICAL DATA SHEET FLOW-MATE SERIES

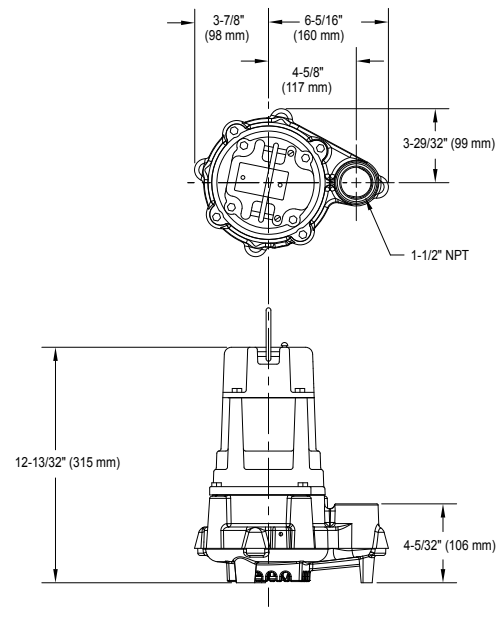
Models 140/4140, 145/4145 Effluent / Dewatering Pumps

PRODUCT SPECIFICATIONS

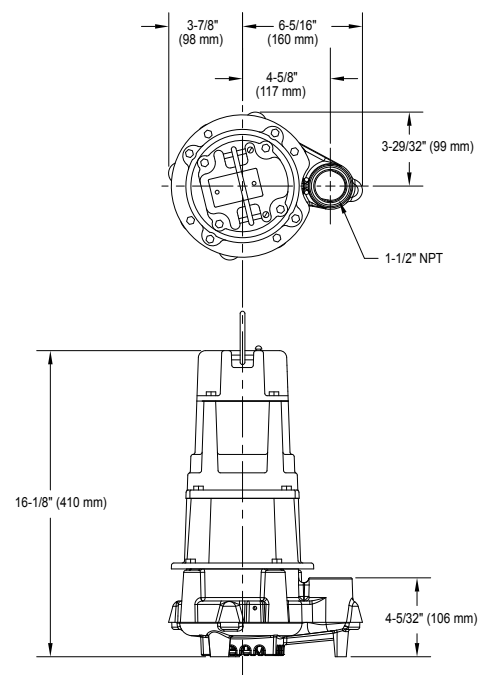
MOTOR	Horse Power	3/4 - 1
	Voltage	115 or 230
	Phase	1 Ph
	Hertz	60 Hz
	RPM	3450
	Type	Permanent split capacitor
	Insulation	Class B
	Amps	6.0 - 13.0
PUMP	Operation	Automatic or nonautomatic
	Discharge Size	1-1/2" NPT
	Solids Handling	1/2" (12 mm), 3/4" (19 mm) spherical solids
	Cord Length	20' (6 m)
	Cord Type	UL listed, neoprene cord
	Max. Head	50' (15.2 m) or 74' (22.6 m)
	Max. Flow Rate	86 GPM (326 LPM) or 61 GPM (232 LPM)
	Max. Operating Temp.	130 °F (54 °C)
	Cooling	Oil filled
	Motor Protection	Auto reset thermal overload
MATERIALS	Cap	Cast iron
	Motor Housing	Cast iron
	Pump Housing	Cast iron
	Base	Cast iron
	Upper Bearing	Sleeve bearing
	Lower Bearing	Ball bearing
	Mechanical Seals	Carbon and ceramic
	Impeller Type	Single vane (145) or non-clogging vortex (140)
	Impeller	Engineered thermoplastic
	Hardware	Stainless steel
	Motor Shaft	JIS S45C steel
	Gasket	Neoprene

NOTE: See model comparison chart for specific details.

SINGLE SEAL



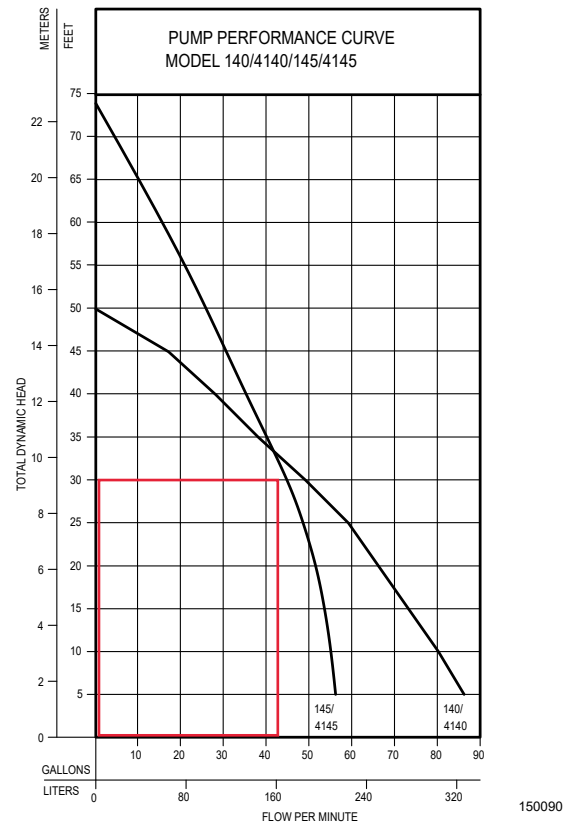
DOUBLE SEAL



SK1524

TOTAL DYNAMIC HEAD FLOW PER MINUTE

MODEL		140/4140		145/4145	
Feet	Meters	Gal.	Liters	Gal.	Liters
5	1.5	86	326	56	212
10	3.0	80	303	55	208
15	4.6	73	276	53	200
20	6.1	66	250	51	193
25	7.6	59	223	48	182
30	9.1	49	185	45	170
40	12.2	28	106	35	132
50	15.2	--	--	26	98
60	18.3	--	--	16	61



Model	MODEL COMPARISON										
	Seal	Mode	Volts	Ph	Amps	HP	Hz	Lbs	Kg	Simplex	Duplex
N140	Single	Non	115	1	12.0	1	60	46	21	1 or 2	3
E140	Single	Non	230	1	6.0	1	60	46	21	1 or 2	3
BN140	Single	Auto	115	1	12.0	1	60	47	21	*	---
BE140	Single	Auto	230	1	6.0	1	60	47	21	*	---
E145	Single	Non	230	1	6.0	3/4	60	46	21	1 or 2	3
N145	Single	Non	115	1	13.0	3/4	60	46	21	1 or 2	3
BN145	Single	Auto	115	1	13.0	3/4	60	48	22	*	---
N4140	Double	Non	115	1	12.0	1	60	65	29	*	---
E4140	Double	Non	230	1	6.0	1	60	65	29	1 or 2	3
BN4140	Double	Auto	115	1	12.0	1	60	66	30	*	---
BE4140	Double	Auto	230	1	6.0	1	60	66	30	*	---
N4145	Double	Non	115	1	13.0	3/4	60	64	29	1 or 2	3
BN4145	Double	Auto	115	1	13.0	3/4	60	64	29	*	---

* Single piggyback switch included.

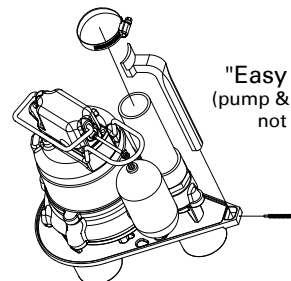
BN and BE models include a 20' (6 m) piggyback variable level pump switch. Additional cord lengths are available in 15' (5 m), 25' (8 m), 35' (11 m) and 50' (15 m). 50' (15 m) cord length is for 230 V only.

SELECTION GUIDE

- For automatic, use single piggyback variable level float switch or double piggyback variable level float switch. Refer to FM0477.
- See FM1228 for correct model of simplex control panel.
- See FM0712 for correct model of duplex control panel.

OPTIONAL PUMP STAND P/N 10-2421

- Reduces potential clogging by debris
 - Replaces rocks or bricks under the pump
 - Made of durable, noncorrosive ABS
 - Raises pump 2" (5 cm) off bottom of basin
 - Provides the ability to raise intake by adding sections of 1-1/2" or 2" (DN40 or DN50) PVC piping
 - Attaches securely to pump
 - Accommodates sump, dewatering and effluent applications
- NOTE: Make sure float is free from obstruction.



"Easy assembly"
(pump & discharge pipe
not included.)



All installation of controls, protection devices and wiring should be done by a qualified licensed electrician. All electrical and safety codes should be followed including the most recent National Electrical Code (NEC) and the Occupational Safety and Health Act (OSHA).

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502-778-2731 | 800-928-7867 | 3649 Cane Run Road | Louisville, KY 40211-1961 | zoellerpump.com

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Product information presented here reflects conditions at time of publication. Consult factory regarding discrepancies or inconsistencies.

Register your
Zoeller Pump Company Product
on our website:
<http://reg.zoellerpumps.com/>



SECTION: C2.10.130

CL0040

0421

Supersedes

0318

MAIL TO: P.O. BOX 16347 • Louisville, KY 40256-0347
SHIP TO: 3649 Cane Run Road • Louisville, KY 40211-1961
TEL: (502) 778-2731 • 1 (800) 928-PUMP • FAX: (502) 774-3624

Visit our website:
zoellerpumps.com

WW1 Effluent Filter, P/N 170-0078

OWNER'S MANUAL

Application: Single family homes.

Filter Area: 132 Linear Feet of 1/16" filtration.

Flow Rate: 1,500 GPD. Two or more filters may be connected with a manifold for higher flow applications.

Material: All materials are non corrodible in the septic tank environment. Sleeve is PVC, primary filter is polypropylene, and filter connection element is neoprene.

Easy To Install Or Retrofit: The WW1 Filter fits inside any 4" sanitary tee. To install, slide the cartridge into the sleeve and rotate clockwise to lock. Insert the assembled cartridge and sleeve into the sanitary tee at the tank's outlet. Ensure the white vertical locking tab is pointing toward the outlet of the septic tank before installation. Firmly press the filter down into the sanitary tee until the vertical locking tab snaps into place, then rotate clockwise until the bypass screen no longer rotates. When installed correctly, the cartridge should be capable of rotating within the sleeve to the locked and unlocked position. If the cartridge hangs or will not rotate to the unlocked position, check to make sure the sleeve is installed with the vertical locking tab extending freely into the septic tank's outlet pipe. For an optional high water alarm assembly, order the high water alarm bracket (5090-0014), an alarm box (10-3067) and a float switch (sold separately).

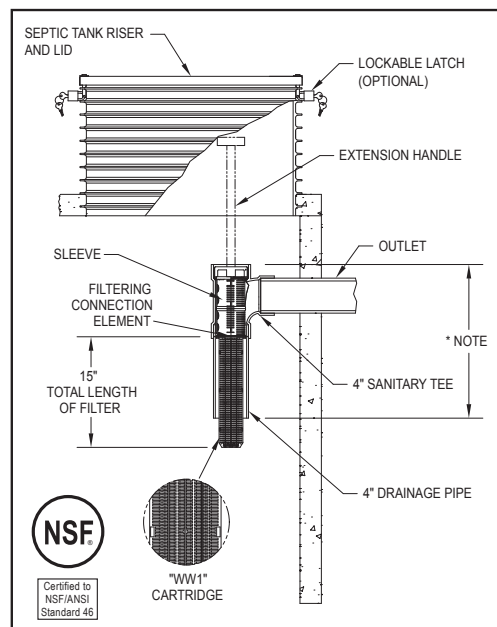
Adding An Extension Handle: A 1/2" PVC pipe can be attached to the top of the filter with a stainless steel screw. Cut off to appropriate length below the lid.

Easy To Maintain: The cartridge can be removed for maintenance by rotating the handle counterclockwise and then pulling the unit up out of the sleeve. The sleeve should remain in the sanitary tee while cleaning the cartridge. To clean, hold cartridge over septic tank opening and rinse with tap water until clean, washing filtered solids back into the septic tank. In addition, spray off any solids that have accumulated on the inside of the sleeve. The WW1 Filter should be cleaned each time the septic tank is pumped or when the need is indicated by a high water level in the tank or slow flows from the house. The secondary filter sleeve should be cleaned whenever the tank is pumped. For installations that exceed the design flow rate of the filter or in applications where the septic tank is undersized, more frequent cleanings may be required. It is recommended that the filter be inspected and serviced as part of a regular septic tank maintenance routine.

Troubleshooting, repair, and replacement: Follow the installation and maintenance instructions above. For replacement components, call 1-800-928-7867.

Lifetime Warranty: Every Zoeller Pump Company filter is guaranteed to be free from defects in materials and workmanship for the lifetime of the homeowner/purchaser. Free repair or replacement, excluding labor, will be made on return of the filter prepaid to the factory. This warranty is limited to product proven to be free from abuse or improper installation.

ALL ZOELLER PUMP COMPANY PRODUCTS MUST BE INSTALLED IN ACCORDANCE WITH PLUMBING AND HEALTH DEPARTMENT CODES.



NOTE: State and local plumbing codes may require a specific liquid penetration. For example, 25% - 45% into the liquid depth or 9" off the tank bottom.

Product information presented here reflects conditions at time of publication. Consult factory regarding discrepancies or inconsistencies.

WW1 Effluent Filter

Protects Drainfield Components By Screening
Effluent In Residential Applications With Flows Up
To 1,500 Gpd (5.7 M³/Day)



Help prolong the life of an onsite system in residential applications. The deep pleated filter design offers highly effective screening and solids retention.

Features

- Rated for flows up to 1,500 gpd (5.7 m³/day)
- 132 linear feet of 1/16" filtration
- Fits 4" sanitary tees or DWV Tees
- Easy to install and maintain
- Integral bypass protection screen
- High water alarm bracket available
- Lifetime warranty

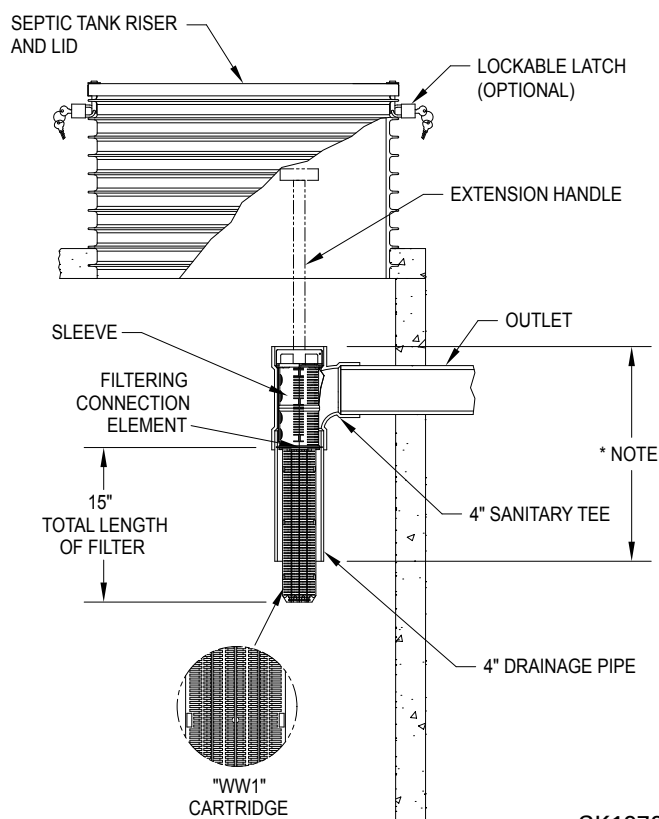
Alarm bracket sold separately
Float switch sold separately



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zoellerpumps.com 800-928-7867
3649 Cane Run Road, Louisville, KY 40211 USA

3.20.052
CL0038
0121
Supersedes
0119

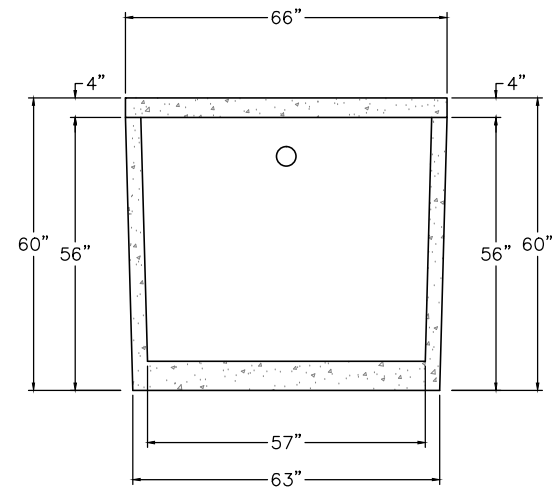
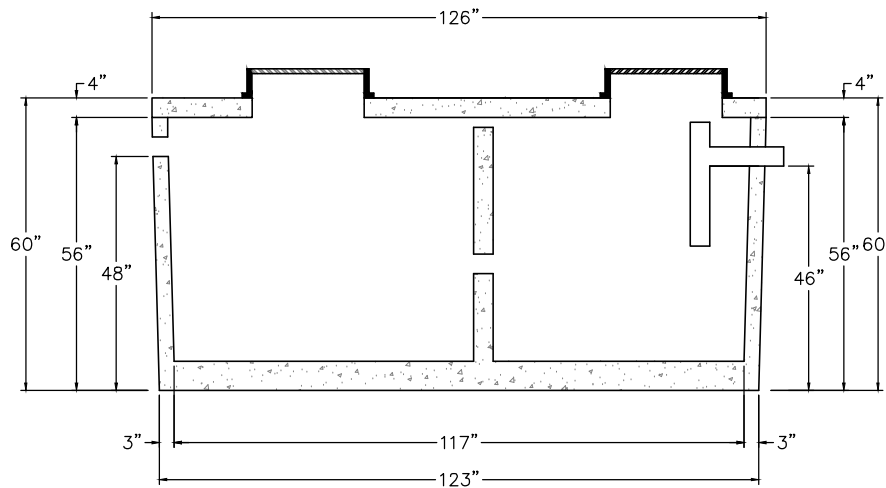


Zoeller Pump Company septic tank effluent filters are designed to protect all downstream components from solids. Every filter comes standard with bypass protection which keeps the filter working, even during cleaning!

SK1972

WW1 Effluent Filter (1,500 GPD)	
Part Number	Description
170-0078	WW1 Effluent Filter
170-0079	WW1 Effluent Filter (10 pk)
170-0144	WW1 Effluent Filter with 4" sanitary tee
170-0145	WW1 Effluent Filter with 4" sanitary tee (10 pk)
5090-0014	Alarm bracket assembly
10-3067	C-Pak Alarm, touch pad without float
013216	Replacement filter cartridge (without bypass screen)
013218	Rubber alignment gasket
Container Assembly	
Part Number	Description
31-1473	12" Riser extension with hardware and gasket
31-1476	6" Riser extension with hardware and gasket
170-0078	WW1 Effluent Filter
170-0144	WW1 Effluent Filter with 4" sanitary tee
5090-0001	Container assembly with 12" riser and lid





1,250 ST 323
NTS

NON TRAFFIC BEARING

DAVID BRANTLEY & SONS
37 Pine Ridge Rd.
Zebulon, NC 27597
Office 252-478-3721
Fax 919-573-0443
1nsta1ler@gmail.com

PREPARED FOR : David Brantley & Sons
37 Pine Ridge Rd.
Zebulon, NC 27597

DATE : April 11, 2014

CONTACT:
CORY BRANTLEY

REVISION NO.
Original Submitted

Revision 1

Revision 2

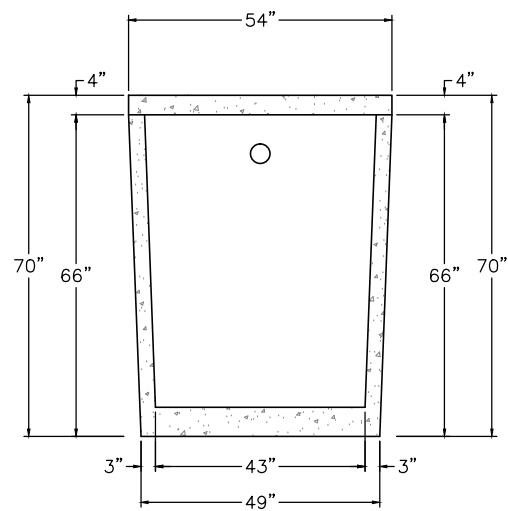
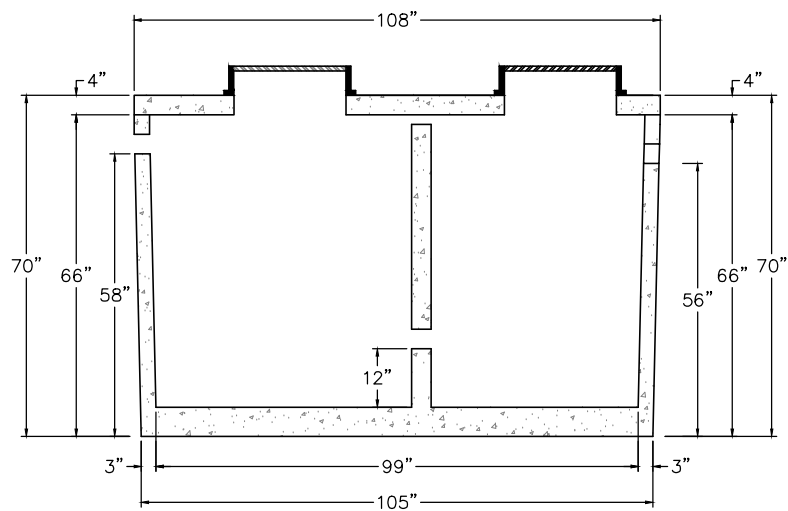
Revision 3

Master Set

DATE
April 11, 2014

BRANTLEY TASK MODEL
1,250 ST 323

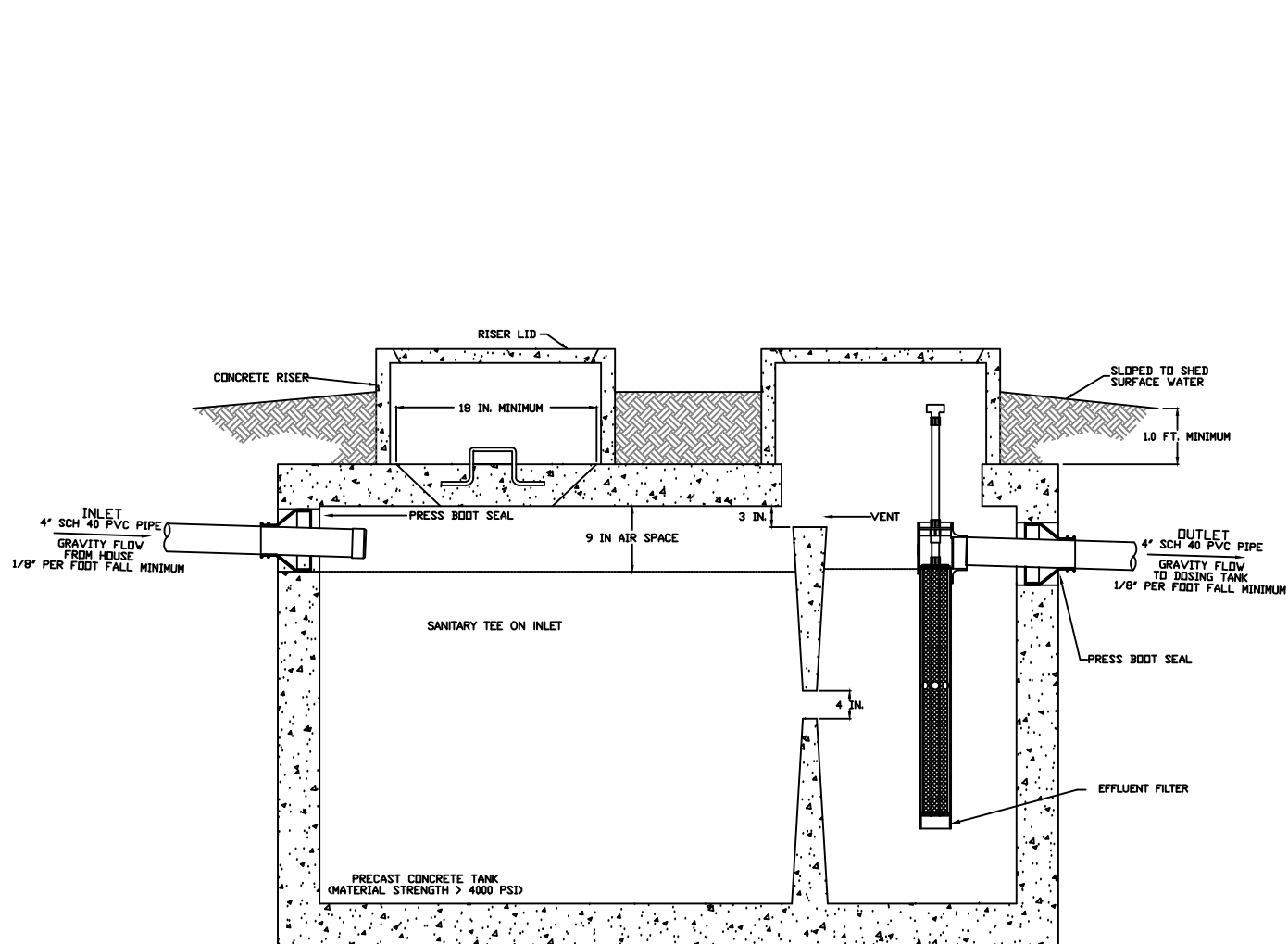
SHEET NUMBER
1 of 1



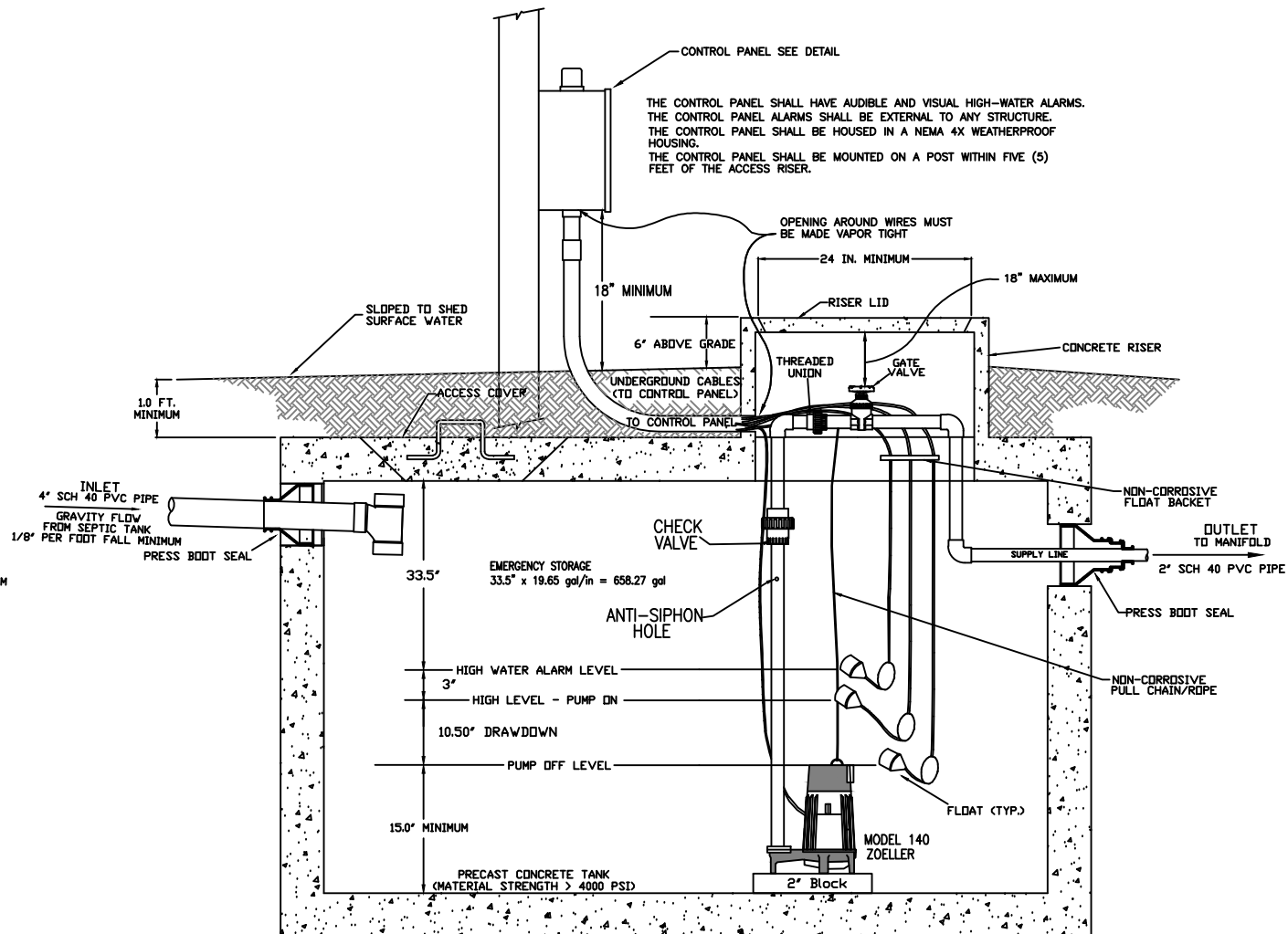
1,200 PT 463
NTS

NON TRAFFIC BEARING

BRANTLEY TASK MODEL 1,200 PT 463		DATE April 11, 2014
REVISION NO. Original Submitted Revision 1 Revision 2 Revision 3 Master Set	DATE April 11, 2014 	SHEET NUMBER 1 of 1
PREPARED FOR : David Brantley & Sons 37 Pine Ridge Rd. Zebulon, NC 27597 DATE : April 11, 2014 CONTACT: CORY BRANTLEY 1n1staller@gmail.com		



1250 GAL SEPTIC TANK SCHEMATIC
NOT TO SCALE



1200 GAL PUMP TANK SCHEMATIC
NOT TO SCALE

NOTES

1. ALL TANKS SHALL BE LEAK TESTED SUCH THAT EXFILTRATION OCCURS AT A RATE WHICH DOES NOT EXCEED TEN GALLONS PER TWENTY-FOUR HOURS PER 1,000 GALLONS OF TANK CAPACITY
2. ALL TANKS SHALL REST ON A BED OF #57 WASHED GRAVEL. THE MINIMUM THICKNESS OF THE GRAVEL BED IS 6 INCHES.
3. ALL TANKS MUST BE APPROVED FOR USE BY THE NORTH CAROLINA DEPARTMENT OF ENVIRONMENTAL HEALTH (DEH).
4. INVERTS SHOWN ARE APPROXIMATE. THE INSTALLER SHALL FIELD CONFIRM PRIOR TO CONSTRUCTION.
5. ALL HARDWARE INSTALLED INSIDE OF TANKS SHALL BE OF STAINLESS STEEL.
6. TANK DIMENSIONS VARY BY MANUFACTURER.
7. DRAWDOWN WILL VARY WITH TANK DIMENSIONS.
8. NO ELECTRICAL SPLICES SHALL BE MADE INSIDE THE PUMP TANK.

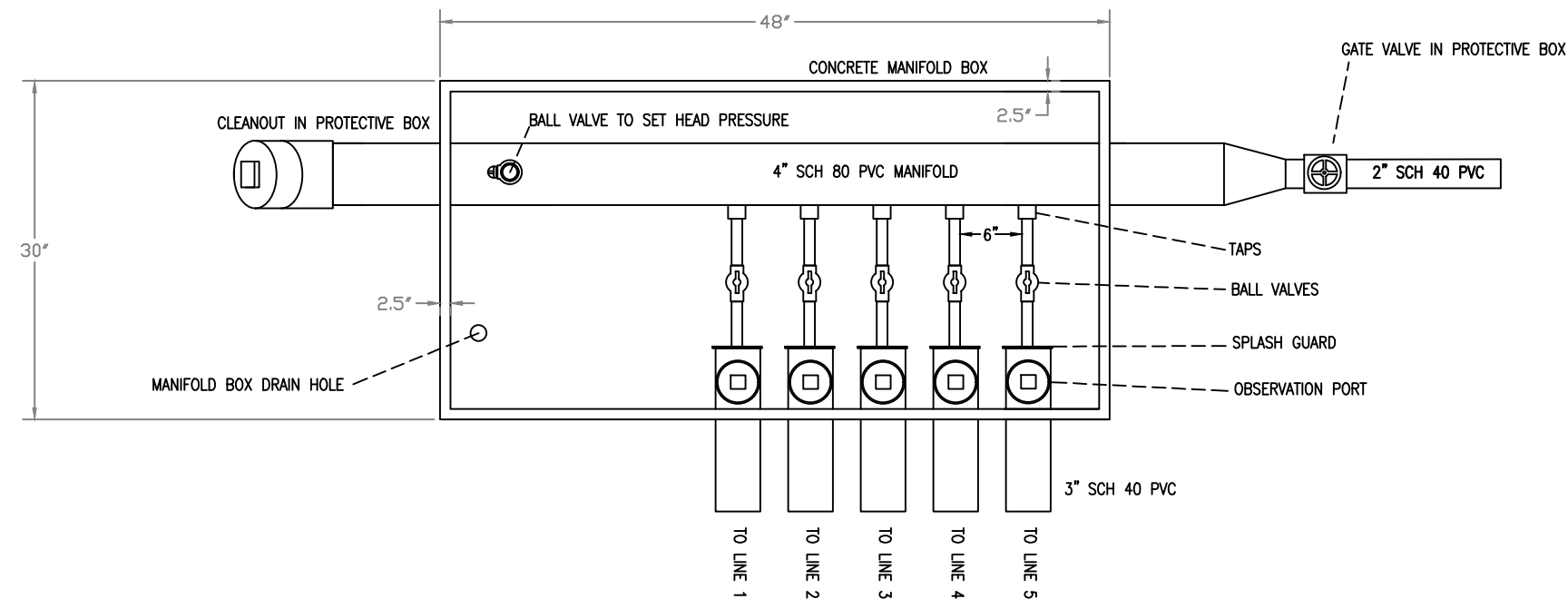


Central Carolina Soil Consulting, PLLC
1900 South Main Street, Suite 110
Wake Forest, North Carolina 27587
Phone (919)569-6704 Fax (919)569-6703

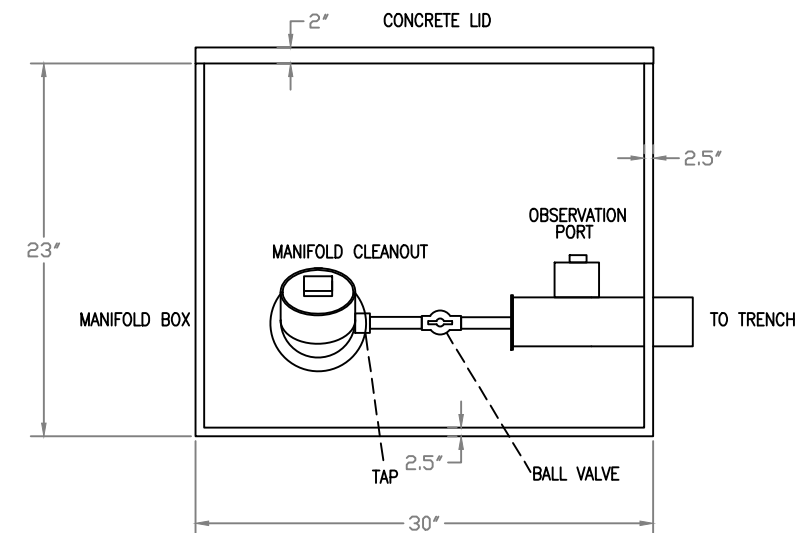
Septic and Pump Tank Details
Grand Highland Estates S/D, Lot 64
Wake County, North Carolina

Job# : 4736
Drawn By : AH
Date : 10/25/2023
Revision : 00/00/0000

PRESSURE MANIFOLD DETAILS
TOP VIEW



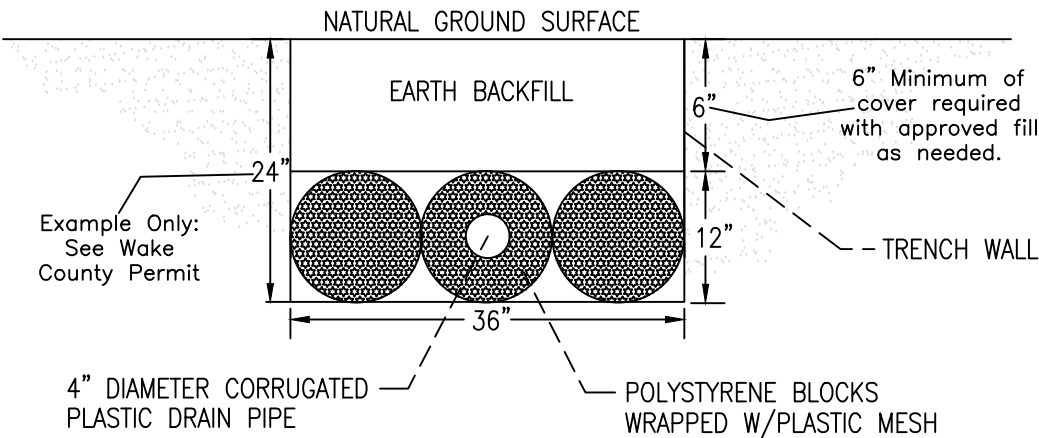
PRESSURE MANIFOLD DETAILS
END VIEW



TAP SCHEDULE	
LINE #	TAP
1	1/2" SCH 80
2	1/2" SCH 40
3	1/2" SCH 40
4	3/4" SCH 80
5	3/4" SCH 40

EZ-FLOW DETAILS

Example only: Installed trench bottom should match design.



NOTE :

1. EZ-FLOW INSTALLATION SHALL MEET THE REQUIREMENTS INCLUDED IN ITS INNOVATIVE APPROVAL
2. TRENCH BOTTOM SHALL BE AT LEAST 12" FROM ANY RESTRICTIVE SOIL LAYER
3. END CAP SHALL BE PROVIDED AT END OF ALL CORRUGATED PLASTIC PIPE LINES AND TRENCH BOTTOMS SHALL BE LEVEL
4. THIS IS A GENERIC TRENCH PROFILE SEE COUNTY PERMIT FOR TRENCH DEPTH.



Central Carolina Soil Consulting, PLLC
1900 South Main Street, Suite 110
Wake Forest, North Carolina 27587
Phone (919)569-6704 Fax (919)569-6703

Manifold and Trench Details
Grand Highland Estates S/D, Lot 64
Wake County, North Carolina

Job# : 4736
Drawn By : AH
Date : 10/25/2023
Revision : 00/00/0000



Central Carolina Soil Consulting, PLLC

1900 South Main Street, Suite 110

Wake Forest, NC 27587

919-569-6704

Acknowledgment of Subsurface wastewater evaluation and septic design by Central Carolina Soil Consulting, PLLC. for Grand Highland S/D, Lot 64, for issuance of an IP and CA.

For Improvement Permit (IP) issuance:

“The LSS/LG evaluation(s) attached to this application is to be used to issue an Improvement Permit in accordance with G.S. 130A-335(a2) and (a3).”

For Construction Authorization (CA) issuance:

“The plans or evaluations attached to this application are to be used to issue a Construction Authorization in accordance with G.S. 130A-335(a2), (a5) and (a6).”

The LSS evaluation attached to this application was used to produce and design a subsurface wastewater septic system for permitting to obtain an IP and CA in accordance G.S. 130A-335(a2), (a3), (a5) and (a6).

Owner: _____

Owner's representative: _____

Date: _____



NC DEPARTMENT OF
**HEALTH AND
HUMAN SERVICES**

ROY COOPER • Governor

KODY H. KINSLEY • Secretary

MARK BENTON • Deputy Secretary for Health

SUSAN KANSAGRA • Assistant Secretary for Public Health

Division of Public Health

Submittal Includes: ☒ (a2) Improvement Permit ☒ (a2) Construction Authorization ☐ Fee \$ 204.00

IMPROVEMENT PERMIT FOR G.S. 130A-335(a2)

County: Wake

PIN/Lot Identifier: 1822086935

Issued To: Raleigh Custom Homes

Property Location: 8916 Grand Highland Way, Wake Forest, NC

Subdivision (if applicable) Grand Highland Estates Lot #: 64 Block: Section:

LSS Report Provided: Yes ☒ No ☐

If yes, name and license number of LSS: Jason Hall, NC LSS #1248

New ☒

Expansion ☐

System Relocation ☐

Change of Use ☐

Proposed Structure: Single Family, 4-Bedroom

Number of bedrooms: 4 Number of Occupants: ≤8 Other:

Design Wastewater Strength: ☒ domestic ☐ high strength ☐ industrial process

Proposed Design Daily Flow: 480 GPD Proposed LTAR (Initial): Proposed LTAR (Repair):

Proposed Wastewater System Type*: IIIB, Pressure Manifold (Initial) Pump Required: ☒ Yes ☐ No ☐ May be required

Proposed Wastewater System Type*: IIIB, Pressure Manifold (Repair) Pump Required: ☒ Yes ☐ No ☐ May be required

**Please include system classification for proposed wastewater system types in accordance with 15A NCAC 18A .1961 Table V(a)*

Saprolite System (initial): ☐ Yes ☒ No Saprolite System (repair): ☐ Yes ☒ No

Fill System (Initial): ☐ Yes ☒ No If yes, specify: ☐ New ☐ Existing (when adding more than 6 inches of fill to system area provide a fill plan)

Fill System (repair): ☐ Yes ☒ No If yes, specify: ☐ New ☐ Existing (when adding more than 6 inches of fill to system area provide a fill plan)

Usable Soil Depth (Initial): 48" Usable Soil Depth (Repair): 48"

Max. Trench Depth (Initial)*: 30" Max. Trench Depth (Repair)*: 30" ** Measured on the downhill side of the trench*

Artificial Drainage Required: ☐ Yes ☒ No If yes, please specify details:

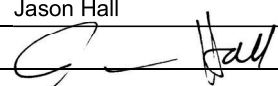
Type of Water Supply: ☐ Private well ☒ Public well ☐ Shared well ☐ Municipal Supply ☐ Spring ☐ Other:

Drainfield location meets requirements of Rule .1945: Yes ☒ No ☐ Drainfield location meets requirements of Rule .1950: Yes ☒ No ☐

Permit valid for: ☒ Five years [site plan submitted pursuant to GS 130A-334(13a)] ☐ No expiration [plat submitted pursuant to GS 130A-334(7a)]

Permit conditions:

Licensed Soil Scientist Print Name: Jason Hall

Licensed Soil Scientist Signature:  Date:

The LSS evaluation is being submitted pursuant to and meets the requirements of G.S. 130A-335(a2).

See attached site sketch

NC DEPARTMENT OF HEALTH AND HUMAN SERVICES • DIVISION OF PUBLIC HEALTH

LOCATION: 5605 Six Forks Road, Building 3, Raleigh, NC 27609

MAILING ADDRESS: 1632 Mail Service Center, Raleigh, NC 27699-1632

www.ncdhhs.gov • TEL: 919-707-5854 • FAX: 919-845-3972

AN EQUAL OPPORTUNITY / AFFIRMATIVE ACTION EMPLOYER



This Section for Local Health Department Use Only

Initial submittal received: 11/1/23 by jjk
Date *Initials*

G.S. 130A-335(a3) states the following:

When an applicant for an Improvement Permit submits to a local health department an Improvement Permit application, the permit fee charged by the local health department, the common form developed by the Department, and a soil evaluation pursuant to subsection (a2) of this section, the local health department shall, within five business days of receiving the application, conduct a completeness review of the submittal. A determination of completeness means that the Improvement Permit includes all of the required components. If the local health department determines that the Improvement Permit is incomplete, the local health department shall notify the applicant of the components needed to complete the Improvement Permit. The applicant may submit additional information to the local health department to cure the deficiencies in the Improvement Permit. The local health department shall make a final determination as to whether the Improvement Permit is complete within five business days after the local health department receives the additional information from the applicant. If the local health department fails to act within any period set out in this subsection, the applicant may treat the failure to act as a determination of completeness. The Department shall develop a common form for use as the Improvement Permit.

The review for completeness of this Improvement Permit was conducted in accordance with G.S. 130A-335(a3). This Improvement Permit is determined to be:

☐ Incomplete (If box is checked, information in this section is required.)

The following items are missing:

Copies of this were sent to the LSS and the Applicant on _____
Date

State Authorized Agent: _____ Date: _____

☒ Complete

State Authorized Agent: John Kase  _____ Date: 11/7/2023

This Improvement Permit is issued pursuant to G.S. 130A-335 (a2) and (a3) using the signed and sealed LSS/LG evaluation(s) attached here. The issuance of this permit by the Health Department in no way guarantees the issuance of other permits. The permit holder is responsible for checking with appropriate governing bodies in meeting their requirements. This permit is subject to revocation if the site plan, plat, or the intended use changes. The Improvement Permit shall not be affected by a change in ownership of the site. This permit is subject to compliance with the provisions of the Laws and Rules for Sewage Treatment and Disposal and to the conditions of this permit.

The Department, the Department's authorized agents, and the local health departments shall be discharged and released from any liabilities, duties, and responsibilities imposed by statute or in common law from any claim arising out of or attributed to evaluations, submittals, or actions from a licensed soil scientist or licensed geologist pursuant to GS 130A-335(a2).

Improvement Permit Expiration Date: 11/7/2028

See attached site sketch

Re-submittal of Improvement Permit

LHD USE ONLY: This IP resubmittal received: _____ by _____
Date Initials

The following items are being resubmitted pursuant to G.S. 130A-335(a3) for issuance of the Improvement Permit:

I, _____ hereby attest that the information required to be included with this re-submittal
Licensed Soil Scientist (Print Name)
is accurate and complete to the best of my knowledge and that the proposed Improvement Permit meets all applicable federal, State, and local laws, regulations, rules, and ordinances.

Signature of Licensed Soil Scientist

Date

The section below is for Local Health Department use after submittal of items noted as missing above.

LHD Follow-up Completeness Review of Improvement Permit

The review for completeness of this Improvement Permit re-submittal was conducted in accordance with G.S. 130A-335(a3). This Improvement Permit is determined to be:

☐ Incomplete (If box is checked, information in this section is required.)

The following items are missing:

Copies of this were sent to the LSS and the Applicant on _____
Date

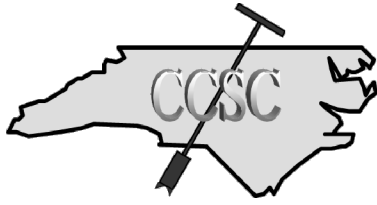
State Authorized Agent: _____

Date: _____

☐ Complete

State Authorized Agent: _____

Date: _____



Central Carolina Soil Consulting, PLLC

1900 South Main Street, Suite 110

Wake Forest, NC 27587

919-569-6704

November 1, 2023

Job # 4736 #64

Raleigh Custom Homes

Kyle Johnson

RE: Preliminary soil/site evaluation for single family wastewater approval at Grand Highland Estates Subdivision, lot 64 (4-bedroom) in Wake County pursuant to and meets the requirements of G.S. 130A-335(a2)."

Dear Mr. Johnson:

Central Carolina Soil Consulting, PLLC conducted a preliminary soil evaluation on the aforementioned lot to determine the areas of provisionally suitable soils that are suitable for subsurface wastewater disposal systems (conventional, Accepted & Innovative). **"The LSS evaluation is being submitted pursuant to and meets the requirements of G.S. 130A-335(a2)."** The soil/site evaluation was performed using test pits on March 6, 2023 and June 2023, under moist and ry soil conditions, based on the criteria found in the State Subsurface Rules, 15ANCAC 18A .1900 "Laws and Rules for Sewage Treatment and Disposal Systems". From this evaluation, CCSC laid out and located the septic layout and gps'd for site plan drawing purposes. Please note that the lot lines must be clearly marked by your surveyor prior to system installation by your installer to verify all setbacks before digging.

The lot is proposed to have a 4-bedroom system for the house. A septic system field layout was completed based on the house location and property lines surveyed in the field.

The proposed Initial system for the house is a Pressure Manifold distribution using lines 1-5 totaling 435 feet of accepted product (EZ-Flow or Chambers). The repair field is a Pressure Manifold distribution accepted product using lines 6-12 totaling 471 feet of. The septic & pump tanks for the house should be minimum 1200 gallons with risers.

Based on the findings during the field evaluation, the area on the attached map has at least 48 inches (initial) and (repair) of provisionally suitable soils for a modified conventional septic. The assigned LTAR for the site is 0.3 gal/day/ft² with a maximum depth of 30 inches for the initial system installation of the drain lines due to slope correction. The repair has an LTAR of 0.275 gal/dayft² and 30" trench bottom.

Septic Installation:

The septic system for the lot should be installed during dry soil conditions (no rain events within 72 hours). The septic system should be installed on contour while maintaining all required setbacks.

Setbacks:

- Septic and Pump Tanks
 - 10' minimum from property lines
 - 5' minimum from house (see septic design)
- Septic Lines
 - 10' minimum from property lines
 - 5' minimum from house (see septic design)
- Manifold's and D-Box's
 - 10' from property lines
- Supply Lines
 - 5' minimum from property lines

Grading:

No grading should be completed within the initial and repair septic areas that change the natural grade of the area. There should be no cutting or filling within the septic areas as well. When grading the lot, not cuts of 2' or greater should be within 15' of the septic areas. If a cut is required near the septic area, keep the cut around 6-8 inches in depth.

HOUSE:

- Initial System: Pressure Manifold lines 1-5 totaling 435' (see layout)
- Repair System: Pressure Manifold, lines 6-12 totaling 471' (see layout)
- 480 gal/day flow rate (4-bedroom)
- 1200 gallon septic tank with risers
- 30" maximum trench depth
- 0.3 LTAR for initial only
- No grading/filling septic areas
- No cuts >2' within 15' of septic areas
- Keep tanks and drain lines 10' from property lines
- Keep supply line >5' property lines
- Install in dry soil conditions (No rain events within 72 hours)
- Maintain natural contours when clearing the lot

This letter discusses the location of provisionally suitable soils for subsurface wastewater disposal systems and does not guarantee the future function of any wastewater system on sites. Central Carolina Soil Consulting, PLLC is a professional consulting firm specializing in soil delineations and design for on-site wastewater disposal systems.

If you have any questions regarding the findings on the attached map or in this report, please feel free contact me at anytime. Thank you allowing Central Carolina Soil Consulting to perform this site evaluation for you.

Sincerely,



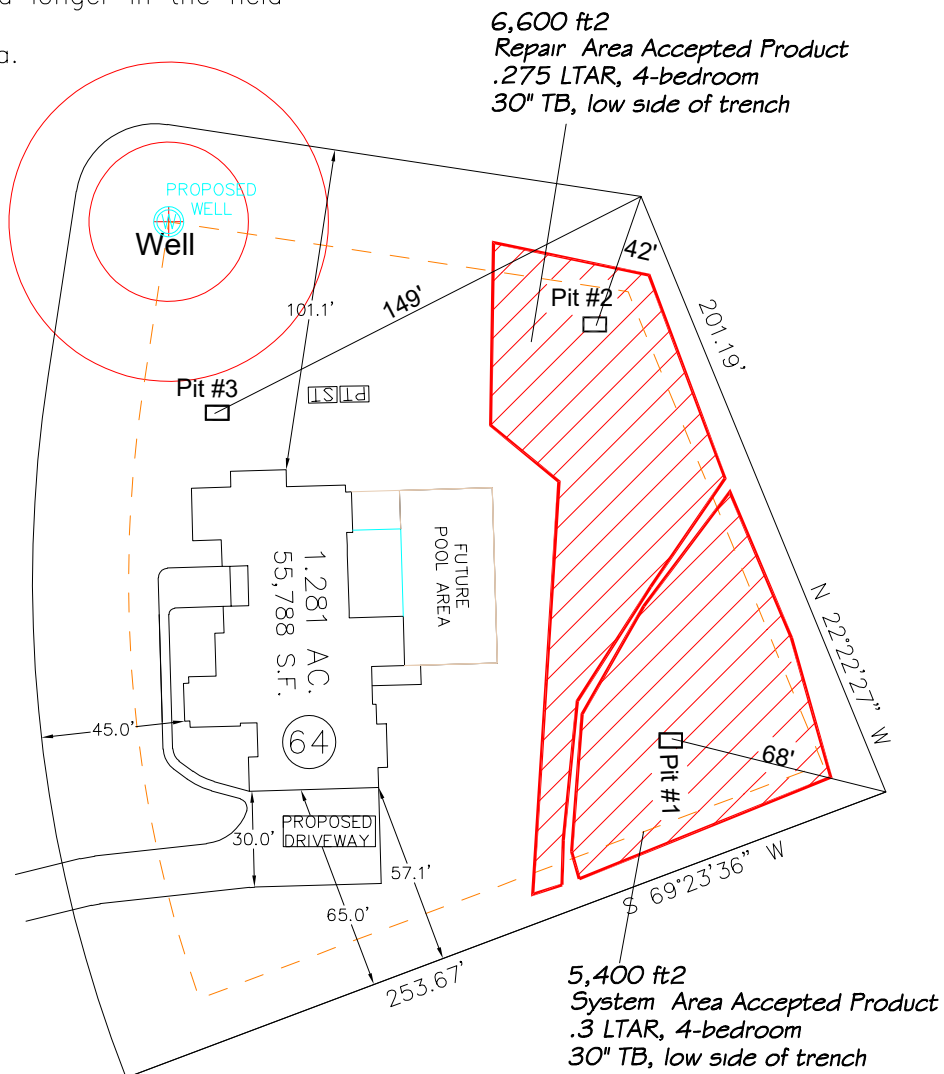
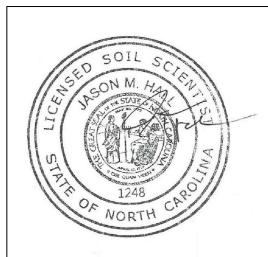
Jason Hall

NC Licensed Soil Scientist #1248



Encl: Soil Map & septic layout

- *Keep tanks and drain lines 10' from property lines.
- *Not a survey.
- *Not a guarantee of a septic permit.
- *Keep supply lines >5' from property lines.
- *Some lines are flagged longer in the field than lengths indicate.
- *No grading septic area.



GRAPHIC SCALE
1" = 60'



Central Carolina Soil Consulting, PLLC
1900 South Main Street, Suite 110
Wake Forest, North Carolina 27587
Phone (919)569-6704 Fax (919)569-6703

4-Bedroom Soils Map
Lot 64, Grand Highland Estates Subdivision
Wake County, North Carolina

Job# : 4736
Drawn By : JH
Date : 11/1/2023
Revision:

Sheet:
Property ID:
Lot #: 64
File #:
ApplID:

**CCSC SOIL/SITE EVALUATION
for ON-SITE WASTEWATER SYSTEM**

Owner:
Address:
Proposed Facility: 4-Bedroom Design Flow (.1949) 480 gal/day
Location of Site: Grand Highland Estates Property Size:
Water Supply: ☐ Public ☐ Individual ☒ Well ☐ Spring ☐ Other
Evaluation Method: ☒ Auger Boring ☒ Pit ☐ Cut
Type of Wastewater: ☒ Sewage ☐ Industrial Process ☐ Mixed

Applicant:
Date Evaluated: 12/2/2021
Property Recorded: Yes

P R O F I L E #	.1940 Landscape Position/ Slope%	Horizon Depth (IN.)	SOIL MORPHOLOGY .1941		b PROFILE FACTORS				Profile Class & LTAR
			.1941 Structure/ Texture	.1941 Consistence Mineralogy	.1942 Soil Wetness/ Color	.1943 Soil Depth (IN.)	.1956 Sapro Class	.1944 Restr Horiz	
1	R 2%	A 0-5	GR L	VFR NS NP SEXP		54			PS
		BT 5-44	SBK C	FR SS SP SEXP					0.325
		BC 44-54	W-SBK	FR SS SP SEXP					0.30
2	LS 6%	AE 0-16	GR L	VFR NS NP SEXP		48			PS
		BT 16-31	SBK C	FR SS SP SEXP					0.30
		BT2 31-48	W-SBK CL	FI SS SP SEXP					0.275
3	LS 7%	AE 0-15	GR L	VFR NS NP SEXP		48			PS
		BT 15-32	SBK C	FR SS SP SEXP					0.30
		BT2 32-48	W-SBK	FI SS SP SEXP					0.275

Description	Initial System	Repair System
Available Space (.1945)	Yes	Yes
System Type(s)	III B	III B
Site LTAR	0.275	0.275

Other Factors (.1946):
Soil Evaluation By:
Others Present:
Site Classification (.1948): Provisionally Suitable
Site Evaluation By: Jason Hall
Others Present:

COMMENTS:

Sheet:
FILE #:

<u>Landscape Position</u>	<u>Group</u>	<u>Texture</u>	<u>.1955 LTAR</u>	<u>Structure</u>
R-Ridge	I	S-Sand	1.2 - 0.8	SG-Single Grain
SS-Shoulder Slope		LS-Loamy Sand		M-Massive
LS-Linear Slope				CR-Crumb
FS-Foot Slope	II	SL-Sandy Loam	0.8 - 0.6	GR-Granular
NS-Nose Slope		L-Loam		SBK-Subangular Blocky
HS-Head Slope				ABK-Angular Blocky
CC-Concave Slope	III	SI-Silt	0.6 - 0.3	PL-Platy
CV-Convex Slope		SICL-Silty Clay		PR-Prismatic
T-Terrace		Loam		
FP-Flood Plain	IV	CL-Clay Loam	0.4 - 0.1	
		SCL-Sandy Clay		
		Loam		
		SC-Sandy Clay		
		SIC-Silty Clay		
		C-Clay		

<u>Consistence</u>	<u>Consistence</u>	<u>Mineralogy</u>
<u>Moist</u>	<u>Wet</u>	SEXP-Slightly Expansive
VFR-Very Friable	NS-Non-Sticky	EXP-Expansive
FR-Friable	SS-Slightly Sticky	
FI-Firm	S-Sticky	
VFI-Very Firm	VS-Very Sticky	
EFI-Extremely Firm	NP-Non-Plastic	
	SP-Slightly Plastic	
	P-Plastic	
	VP-Very Plastic	

Sketch of Soil Evaluation Locations



Central Carolina Soil Consulting, PLLC

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Wake Forest, NC 27587

919-569-6704

Acknowledgment of Subsurface wastewater evaluation and septic design by Central Carolina Soil Consulting, PLLC. for Grand Highland S/D, Lot 64, for issuance of an IP and CA.

For Improvement Permit (IP) issuance:

“The LSS/LG evaluation(s) attached to this application is to be used to issue an Improvement Permit in accordance with G.S. 130A-335(a2) and (a3).”

For Construction Authorization (CA) issuance:

“The plans or evaluations attached to this application are to be used to issue a Construction Authorization in accordance with G.S. 130A-335(a2), (a5) and (a6).”

The LSS evaluation attached to this application was used to produce and design a subsurface wastewater septic system for permitting to obtain an IP and CA in accordance G.S. 130A-335(a2), (a3), (a5) and (a6).

Owner: _____

Owner's representative: _____

Date: _____