



Health & Human Services

☎ 919 856 5700

Onsite Water Protection
P.O. Box 550 • Raleigh, NC 27602
336 Fayetteville St. • Raleigh, NC 27601
wake.gov

May 12, 2025

REQUIREMENTS TO COMPLETE YOUR PRESSURE MANIFOLD SYSTEM

Dear Sir/Madam:

Enclosed is your approved pressure manifold installation plan and the "Pressure Manifold Sewage Disposal System Maintenance Information Sheet".

To complete your permit:

- **System Installation** - A contractor **CERTIFIED** by the State of North Carolina to at least a **LEVEL II** certification, and **REGISTERED** in Wake County, must be used to install your system.

ANY PROPOSED MODIFICATION TO THE APPROVED PLANS MUST BE COORDINATED WITH WAKE COUNTY.

Please call (919) 480-9998 or email at CORY.LARSEN@wake.gov if you have any questions.

Sincerely,

A handwritten signature in blue ink that reads "Cory Larsen".

CORY LARSEN, PE
Environmental Engineer

***** CA PART A - C *****

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

CONSTRUCTION AUTHORIZATION PERMIT

PERMIT # WRP-139100-2025

APPLICATION DATE: 01/13/2025

BLDG. PERMIT#: RBPR-139106-2025

PIN: 1709953268

RECORDED: Yes

TOWNSHIP: 02 - Bartons Creek

JURISDICTION: Wake County

ZONING: R-40W

APPLICANT: Wake County Test Permit Portal Account
15811 New Light Road
Wake Forest, NC 27587

BUSINESS PHONE:
HOME PHONE:
MOBILE PHONE: (919) 524-2914

HD USE: 101A CONVENTIONAL ONE-FAMILY HOUSE

EXISTING USE:

SITE ADDRESS: 2024 CADENZA LN

SUBDIVISION: ROSE HALL

LOT: 11

ACRES: 0.92

DIRECTIONS: Left off Brassfield Rd onto Honeycutt Rd , then left on Cadenza Ln

Contractors shall install system on contour. See attached SITE PLAN for wastewater system design and well location. No underground utilities, water lines or sprinklers systems may be located in the original system, or permit areas. A septic tank filter with two risers 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 Operations 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 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 nitrifications 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. Maximum depth of line is calculated using the downhill side of the trench and includes slope correction.

CONSTRUCTION AUTHORIZATION PERMIT VALID FOR: Five Years

CONSTRUCTION AUTHORIZATION PERMIT: CA STATUS: Issued

BY: Cory Larsen

DATE: 05/12/2025

CA VALID FOR: Five Years

DESIGN FLOW: 600 GALLONS

BASEMENT: No

BASEMENT FIXTURES: No

SEPTIC TANK: 1500 GALLONS

SEPTIC TANK FILTER: Yes

DOSING PUMP TANK: 1500 GALLONS

DOSING PUMP TANK FILTER:

GREASE TRAP:

GREASE TRAP FILTER:

RECIRCULATION PUMP TANK:

RECIRCULATION PUMP TANK FILTER:

PROPOSED SYSTEM: 0.25 - 25% Reduction (Innovative or Accepted)

EXISTING SYSTEM:

DRAINFIELD SQ. FT: 1,545

AGGREGATE DEPTH: 12

MAX. TRENCH DEPTH: 30 INCHES

DISTRIBUTION DEVICE: PM - Pressure Manifold

TRENCH #: 5

TRENCH LENGTH: 125, 130, 100
TRENCH WIDTH: 36 INCHES

TOTAL TRENCH LENGTH: 515 FEET

85, 75 FEET

CENTER SPACING: 9 FEET

MINIMUM SOIL COVER: 6 INCHES

PRETREATMENT:
SUBFIELDS #:
PUMP TDH: 24.61 FEET

APPROVAL #:
PUMP DESIGN FLOW: 49.32
ZONE VALVE: No

ASDMS REQUIRED: No
P.E. SIGN OFF/ASBUILT REQUIRED: No

LINE OF CREDIT REQUIRED: No

OPERATOR REQUIRED: No

TRIPARTY AGREEMENT REQUIRED: No

SPECIFIC CONSTRUCTION AUTHORIZATION REQUIREMENTS:

PERMIT REISSUED FOR CHANGES TO SYSTEM DESIGN TO ACCOMODATE SHIFT IN BUILDING FOOTPRINT

ALLOWED SYSTEM REDUCTION HAS BEEN TAKEN FOR THE DESIGN OF THE INITIAL AND REPAIR SYSTEM FOR THIS 5 BEDROOM (MAXIMUM OCCUPANCY OF 10) DWELLING. INITIAL SYSTEM IS A PRESSURE MANIFOLD SYSTEM PUMPING TO 5 UNEQUAL DRAINLINES WITH 30" TRENCH BOTTOM. REPAIR SYSTEM IS A PRESSURE MANIFOLD SYSTEM PUMPING TO 5 UNEQUAL DRAINLINES WITH 30" TRENCH BOTTOM. 1500 GALLON SEPTIC TANK AND 1500 GALLON PUMP TANKS ARE PROPOSED. FOUNDATION DRAIN ALLOWED.

WHEN INSTALLING SYSTEM, MAINTAIN ALL REQUIRED SETBACKS. DO NOT DISTURB OR REMOVE ANY SOIL IN INITIAL OR REPAIR AREAS. MUST MAINTAIN REQUIRED EMERGENCY STORAGE IN THE PUMP TANK. A NEMA 4X CONTROL PANEL WITH TWO BREAKERS, TWO POWER SUPPLIES, ELAPSED TIME METER AND CYCLE COUNTER ARE REQUIRED. IF FLAGS ARE MISSING, CALL DESIGNER TO RE-FLAG.

THIS SYSTEM IS DESIGNED BY A CONSULTANT AND MUST BE INSTALLED PER THE APPROVED DESIGN, PLAN AND SPECIFICATIONS. ANY DEVIATION MUST BE APPROVED BY THE DESIGNER AND WAKE COUNTY PRIOR TO SYSTEM INSTALLATION. PLEASE CONTACT WAKE COUNTY IF ANY QUESTIONS OR PROBLEMS ARISE PRIOR TO INSTALLATION.

Issued By:



Date: 05/12/2025

HOMEOWNER GUIDE FOR UTILIZATION AND MAINTENANCE OF ON-SITE WASTEWATER DISPOSAL SYSTEMS

What is an On-site Wastewater Disposal System?

There are a number of different types of on-site wastewater disposal systems each designed for your specific site conditions. However, there are several system components that are common to most systems. These include the following:

1. **A septic tank** - a concrete tank that is designed to receive wastewater from the house and to provide a degree of pretreatment for the waste, chiefly through removal of some of the solids in the waste. Note that these solids accumulate over time and necessitate periodic pumping of the septic tank. Currently septic tanks are equipped with two access risers (normally constructed of concrete) which are designed to be at least 6 inches above the ground surface to prevent surface and shallow groundwater from entering the septic tank and to provide access for maintenance. **Care must be taken not to damage or cover these risers so that water intervention can be prevented, and the tank can be accessed for maintenance.**
2. **In some installations, a pump tank** - a concrete tank, very similar to the septic tank, which contains a pump along with the associated controls/componentry. The pump tank and pump is designed to receive effluent from the septic tank, and pump the wastewater to a disposal field located at a higher elevation and/or to a pressurized distribution network in the disposal field. **The pump tank also has an access riser which must be protected in a similar manner to that indicated for the septic tank.** Servicing of the pump tank components often necessitates the assistance of a professional such a septic tank installer or Certified Subsurface System Operator. The latter is required for operation and maintenance of certain types of systems.
3. **A disposal field** - a series of subsurface trenches and lines that are designed to distribute the wastewater into the soil and provide for the ultimate treatment and disposal of the wastewater. There are numerous variations on the design of the disposal field, related chiefly to the type of system chosen, site constraints, etc. Dependent on the type of disposal system, you may have to maintain a contract with a Certified Subsurface System Operator for operation and maintenance of your wastewater disposal system.

Utilization of Your Wastewater Disposal System

In order to obtain the maximum efficiency and life expectancy from your system, the following simple procedures must be adhered to:

1. **Practice water conservation.** This can include many practical considerations such as not leaving the water running while you brush your teeth, not overfilling the tub, limiting time in the shower, not replacing low flow fixtures with those of higher flows, over rinsing dishes (allow the dishwasher to do its job), immediate repair of any leaking fixtures, running washing machines and dishwashers only when full, etc.

NOTE: Washing machines generate significant volumes of wastewater. As a result, laundry activities should be spread over the week as opposed to accumulating all of laundry until the weekend.

2. **Do not utilize your wastewater disposal system as a trash can by dumping nondegradables down your drains or toilet.** These include cigarette butts, sanitary products, grease, plastics, disposable diapers, etc. Avoid use of garbage disposals. Do not retrofit garbage disposals unless the system is specifically permitted for their use. Also, do not dump harmful chemicals down the drain. These include petroleum products, paint thinner, paint, pesticides, antifreeze, etc.

Maintenance of Your Wastewater Disposal System

Every wastewater disposal system requires maintenance in order to function properly. The specific maintenance required is related to the type of system. The following are general considerations that apply to all systems.

1. **Protect your wastewater disposal system components including the tanks, access risers, disposal field and associated components.** Do not drive or park on any portion of the system. The area over the disposal field should be left undisturbed with the grass cover being maintained as you would your lawn. Location of trees and shrubs on or in close proximity to the disposal field is not recommended since roots may clog or damage your drain lines. Additionally, great care must be exercised when considering the addition of any structure(s) to the site. The location of any appurtenances cannot encroach on the installation or repair areas for your system. It is not recommended that irrigation systems be located in proximity to the disposal system since their construction can cause system damage and/or result in additional hydraulic load on the disposal field.
2. **Protect the system from excess surface and shallow groundwater.** The land surface on and around the wastewater disposal system should be landscaped to shed rainfall and runoff and prevent ponding. Be sure that foundation drains, runoff from roofs and drives, etc. are diverted away from the disposal system.
3. **Regularly have the septic tank/pump tank pumped and cleaned by a permitted septage hauler.** Although the necessary frequency of pumping varies with the

household, most tanks need pumping at a frequency of 3-5 years and at any time solids occupy one-fourth to one-third of the septic tank liquid depth.

Note that all septic tanks being currently installed incorporate an effluent filter within the outlet compartment of the septic tank. This filter is to be cleaned anytime the septic tank is pumped. If plumbing becomes sluggish, this filter should be checked. If filter service is found.

4. **Be alert to warning signs that your system may not be functioning properly.** These include sewage surfacing over the disposal system, sewage backups/slow draining in the house, lush growth over the disposal system, sewage odors, etc.
5. **Do not make or allow repairs to your system unless all necessary permits are obtained from Wake County Onsite Water Protection Division.**
6. **Commercial additives for septic tank systems** - It has generally not been demonstrated that these additives enhance the function of septic systems or reduce the need for tank pumping and other necessary maintenance.
7. **Special maintenance considerations** - As already alluded to, some of the more complex wastewater disposal systems require that you retain/maintain the services of a Certified Wastewater System Operator in order to comply with Laws and Rules and maintain a valid operation permit for your system. In Wake County this maintenance requirement should be recorded with Register of Deeds if applicable.

Where Do I Obtain Information and Assistance?

If you are purchasing a new home, you should request a copy of your wastewater system permit from the builder/seller along with information regarding any special maintenance requirements. You may also obtain information and assistance from the **Wake County Onsite Water Protection Division**, 336 Fayetteville Street, Raleigh, NC 27602. Telephone (919) 856-5700.



PRESSURE MANIFOLD SYSTEMS

A Pressure Manifold System is one of several types of septic systems approved for use in Wake County. The Pressure Manifold System, while somewhat more expensive to install, is a flexible and high-quality method of wastewater disposal. A pump doses a pressure distribution manifold that disperses the effluent evenly to each trench. Dosed systems are more common for larger flows. The manifold can be constructed with different size taps to accommodate different trench lengths. This allows for better utilization of the area on the lot. The pressure manifold can include valves or plugs that permit more control over trench loading or trench resting.

Experience and study have shown that pressure manifold systems require routine maintenance in order to function properly. Items 1, 4 and 6 are also recommended for conventional septic systems. The maintenance schedule frequency is as follows:

<u>System Component</u>	<u>Frequency</u>	<u>Maintenance</u>
1. Septic Tank	6-12 months 1-3 years	Check riser condition (must be accessible from ground surface), excess in/exfiltration, entry of water at riser, and solids accumulation. Check and clean septic tank filter. Pump septage when 1/3 to ¼ of the liquid capacity of the tank is occupied by solids.
2. Pump or Dosing Tank	6-12 months	Check riser conditions (must be accessible from ground surface), excess in/exfiltration, entry of water at riser, and solids accumulation. Pump sludge accumulation as required and when septic tank is pumped. Check pump(s), controls, floats, electrical connections, and alarm for proper operation. Wash (hose) sludge accumulation from pump housing.
3. Supply lines (Manifold)	6-12 months	Check for settling, pipe exposure and leakage.
4. Ground Absorption Field	1-4 weeks 6-12 months	Maintain vegetative cover (mow grass and remove weeds and brush). Check for settling, erosion and surfacing of effluent. Check site drainage, eliminate low or settled areas and divert surface or shallow groundwater movement around fields.
5. Pressure Manifold	6-12 months	Flush sludge from pressure manifold (any discharge sludge and effluent is to be treated with a chlorine solution). Check and reset pressure head.
6. General	At all times	Prohibit vehicular or equipment traffic on ground absorption field. Prohibit tillage (gardening) or other soil disturbance over ground absorption field. Practice water conservation to reduce wastewater load on system. Do not permit entry of grease and non-domestic waste to system. Use of a garbage disposal is <u>prohibited</u> . Addition of chemical or biological additives has <u>not</u> been demonstrated to be necessary to maintain proper system function. Prevention of root intervention on lateral lines and trenches may be necessary on certain sites. Surface and groundwater diversion structures must be maintained.

A certified operator may be required.

CA PART A



Site Plan Reviewed
Wake County Inspections & Permits

This review does not constitute an approval. This site plan has been reviewed by Wake County Inspections & Permits Department for compliance with minimum permitting requirements. Additional site plan requirements, reviews and revisions may be required by other departments as part of the permitting process.

Jennifer Vega

05/05/2025 1:52:56 PM

WAKE COUNTY N.C. P.D.I.

REVISED SITE PLAN

RBPR 139106-2025



LOCATION MAP
1" = 1000'

SITE DATA	
CURRENT OWNER	L AND L OF RALEIGH, INC
SITE ADDRESS	2024 CADENZA WAY
PIN	1709-95-3268
DEED REFERENCE	D.B. 19641, PG. 267
PLAT REFERENCE	B.M. 2007, PG. 372-374
ZONING	R-40W

IMPERVIOUS AREAS (S.F.)	
HOUSE	4225
DRIVE / WALK	1974
CONC. POOL PATIO	1267
TOTAL	7466
MAX.	12829

BUILDING SETBACKS (R-40W)	
FRONT	30'
REAR	30'
SIDE	15'

Required Setbacks

Front 30

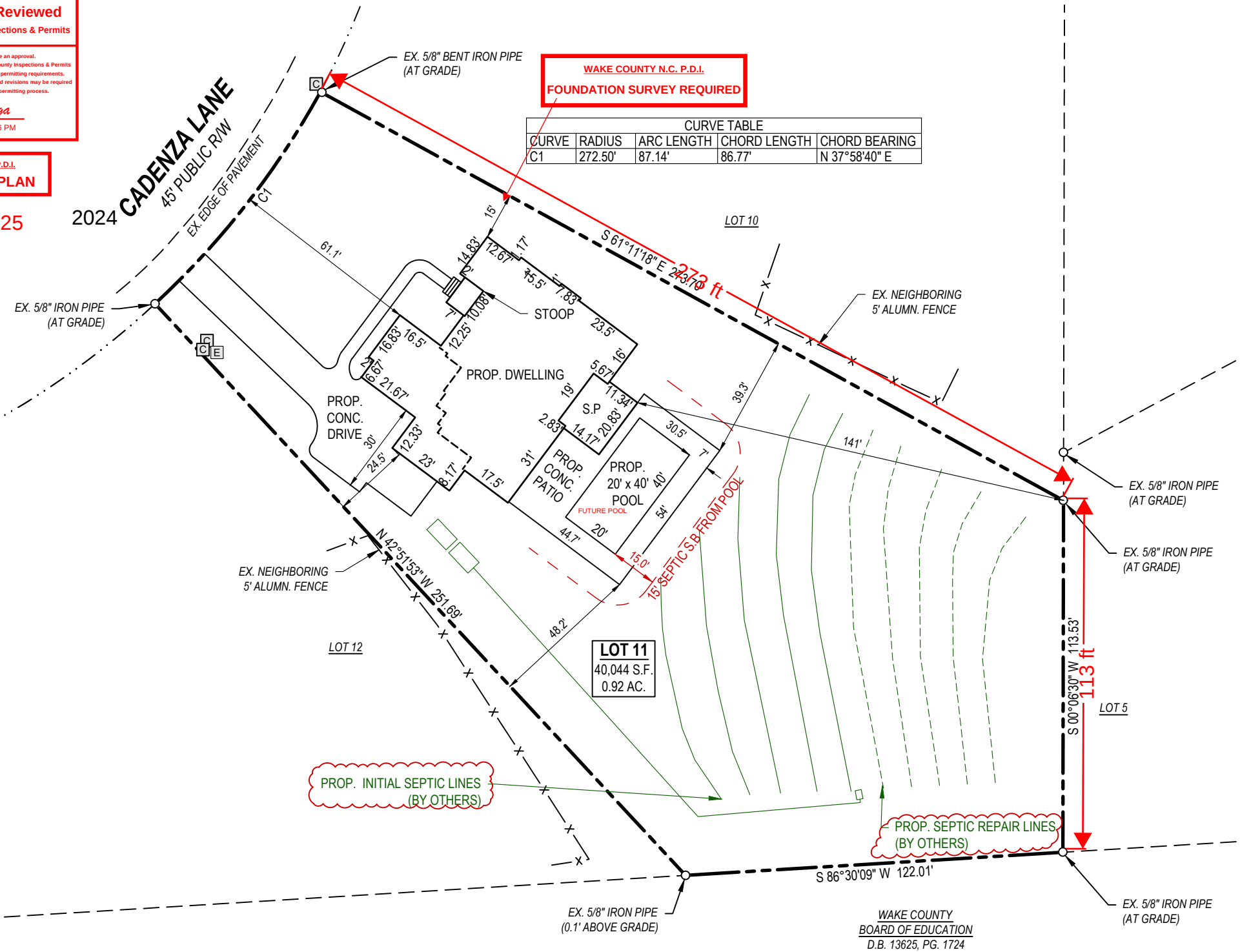
Side 15

Rear 30

Corner

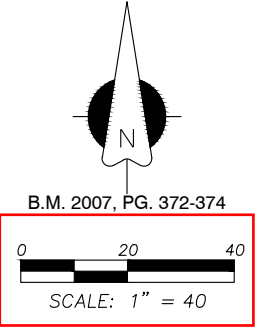


Jeremy Taylor



WAKE COUNTY N.C. P.D.I.
FOUNDATION SURVEY REQUIRED

CURVE TABLE				
CURVE	RADIUS	ARC LENGTH	CHORD LENGTH	CHORD BEARING
C1	272.50'	87.14'	86.77'	N 37°58'40" E



- LEGEND:
- Ex. property corner
 - Set property corner
 - Calculated point
 - ⊕ Water Meter
 - ⊕ Sanitary Sewer Cleanout
 - ⊕ Cable Pedestal
 - X— Fence
 - W— Water
 - SS— Sanitary sewer pipe
 - OP— Overhead Power
 - Book of Maps
 - B.M. Deed Book
 - Pg. Page
 - S.F. Square Feet
 - Ac. Acres
 - ⊕ Power Pedestal



TAYLOR
LAND CONSULTANTS, PLLC

Licenses # P-0829

1600 Olive Chapel Rd., #140
Apex, NC 27502

(919) 801-1104

I, Jeremy Taylor, certify that this plat was drawn under my supervision from an actual survey made under my supervision (deed and description recorded in Book referenced); that the boundaries not surveyed are indicated as drawn from information in Book referenced; that the ratio of precision or positional accuracy exceeds 1:10,000; and that this map meets the requirements of The Standard of Practice for Land Surveying in North Carolina (21 NCAC 56.1600). This 6th day of January, 2025.

SITE PLAN

LOT 11 - ROSEHALL
BARTON'S CREEK TOWNSHIP
WAKE COUNTY, NORTH CAROLINA

CLIENT

L & L OF RALEIGH
2301 STONEHENGE DR., #107
RALEIGH, NC 27615

REVISIONS		
1	01/13/25	MUNICIPAL REVIEW
2	04/04/25	HOUSE LOC, SEPTIC, DRIVE
3	04/30/25	SEPTIC UPDATED

DATE: 01/06/2025

SHEET:

C-01
SITE PLAN

CA PART B



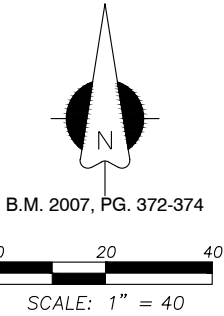
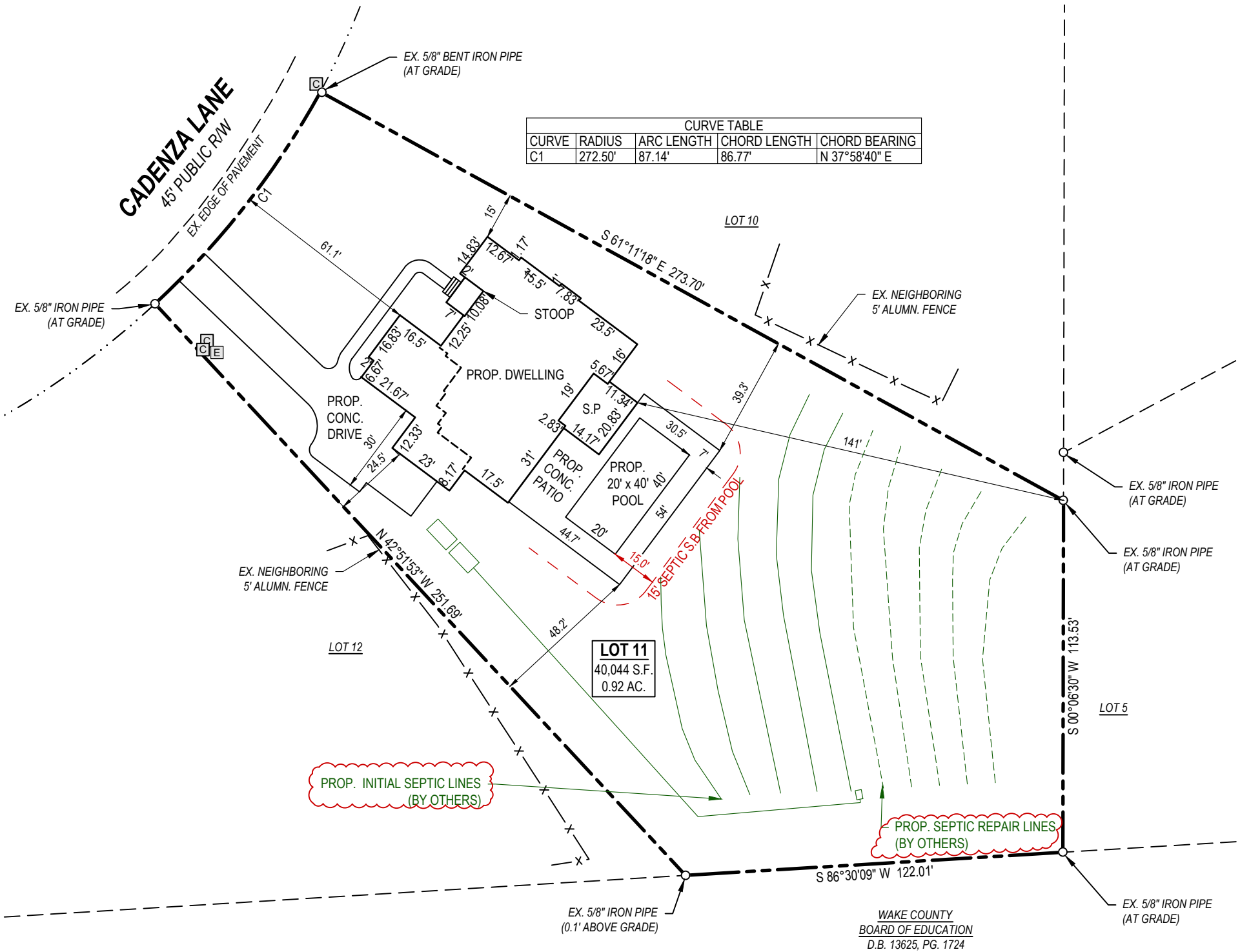
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ZONING	R-40W

IMPERVIOUS AREAS (S.F.)		BUILDING SETBACKS (R-40W)	
HOUSE	4225	FRONT	30'
DRIVE / WALK	1974	REAR	30'
CONC. POOL PATIO	1267	SIDE	15'
TOTAL	7466		
MAX.	12829		



Jeremy Taylor



LEGEND:	
○	Ex. property corner
●	Set property corner
○	Calculated point
⊕	Water Meter
⊕	Sanitary Sewer Cleanout
⊕	Cable Pedestal
—X—	Fence
—W—	Water
—SS—	Sanitary sewer pipe
—OP—	Overhead Power
B.M.	Book of Maps
D.B.	Deed Book
Pg.	Page
S.F.	Square Feet
Ac.	Acres
⊕	Power Pedestal

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SITE PLAN

LOT 11 - ROSEHALL
BARTON'S CREEK TOWNSHIP
WAKE COUNTY, NORTH CAROLINA

CLIENT

L & L OF RALEIGH
2301 STONEHENGE DR., #107
RALEIGH, NC 27615

REVISIONS		
1	01/13/25	MUNICIPAL REVIEW
2	04/04/25	HOUSE LOC, SEPTIC, DRIVE
3	04/30/25	SEPTIC UPDATED

DATE: 01/06/2025
SHEET:
C-01
SITE PLAN

CA PART C



Pressure Manifold Septic System Design

for

Rose Hall S/D, Lot 11
Wake County, North Carolina

Designed by:

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

4/11/2025

Rose Hall S/D, Lot 11
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Rose Hall S/D, Lot 11
Contact Information

Client:
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: Aholder@centralcarolinasoil.com

Rose Hall S/D, Lot 11
Layout/Design Specifications

Facility Type:	Single Family Home
# of Bedrooms:	5
Daily Flow:	600 gal/day
L.T.A.R.:	0.3 gal/day/sq.ft
Trench Depth:	WCDES in
Trench Width:	36 in
Stone Depth:	EZ-FLOW in
Manifold Length:	48 in
Manifold Diameter:	4 in sch 80pvc
Supply Line Length:	165 ft
Supply Line Diameter:	2 in sch 40pvc
Supply Line Volume:	28.71 gallons
Friction Loss + Fitting Loss:	12.31 ft(supply line length + 70' for fittings in pump tank)
Design Head:	2 ft
Elevation Head:	10.30 ft
Total Head:	24.61 ft
Dose Volume:	248.04 gals
% of Pipe Vol.	.74
Drawdown:	8.09 in @ 30.65 gal/in
Pump Run Time:	5.03 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 1,500 Gallon ST 322
Pump Tank:	Brantley 1,500 Gallon PT 293

Bench Mark;								Elevation Head:	10.30
Pump tank elev.		8.00	92.00	Pump elev.	86.60	Manifold elevation:			96.90
line	color	rod read	Elevation	length	hole size	flow/tap	gal/day	trench area	LINE LTAR
6	Blue	4.10	95.90	125	3/4in SCH 40	12.5	152.07	375	0.4055
7	Yellow	4.70	95.30	130	3/4in SCH 40	12.5	152.07	390	0.3899
8	Orange	5.20	94.80	100	3/4in SCH 80	10.1	122.87	300	0.4096
9	Yellow	5.70	94.30	85	1/2in SCH 40	7.11	86.50	255	0.3392
10	Blue	6.10	93.90	75	1/2in SCH 40	7.11	86.50	225	0.3844
		total	feet =	515	gal/min =	49.32	<u>LTAR =</u>		0.3000
							<u>LTAR + %5</u>		0.3150
% of Dose Vol.	74	<u>Des. Flow</u>		600			(ltar W/ INOV)		0.4000
Dose Volume	248.04	Pump Run=		12.17			(ltar W/ INOV + 5%)		0.4200
Dose Pump Time	5.03	Tank Gal/IN		30.65					
Drawdown in Inches	8.09								

Bench Mark:								Elevation Head:	13.30
Pump tank elev.	8.00	92.00	Pump elev.	86.60	Manifold elevation:				99.90
line	color	rod read	Elevation	length	hole size	flow/tap	gal/day	trench area	LINE LTAR
1	Red	1.10	98.90	90	3/4in SCH 80	10.1	109.58	270	0.4059
2	Pink	1.70	98.30	95	3/4in SCH 80	10.1	109.58	285	0.3845
3	Yellow	2.30	97.70	100	3/4in SCH 80	10.1	109.58	300	0.3653
4	Orange	2.90	97.10	110	3/4in SCH 40	12.5	135.62	330	0.4110
5	Green	3.50	96.50	115	3/4in SCH 40	12.5	135.62	345	0.3931
		total	feet =	510	gal/min =	55.3		<u>LTAR =</u>	0.3000
								<u>LTAR + %5</u>	0.3150
% of Dose Vol.	75		<u>Des. Flow</u>	600				(ltar W/ INOV)	0.4000
Dose Volume	248.63		Pump Run=	10.85				(ltar W/ INOV + 5%)	0.4200
Dose Pump Time	4.50		Tank Gal/IN	30.65					
Drawdown in Inches	8.11								

System: Pressure Manifold
 Lines: 6–10, (515')
 Accepted Status System
 0.3 Soil LTAR

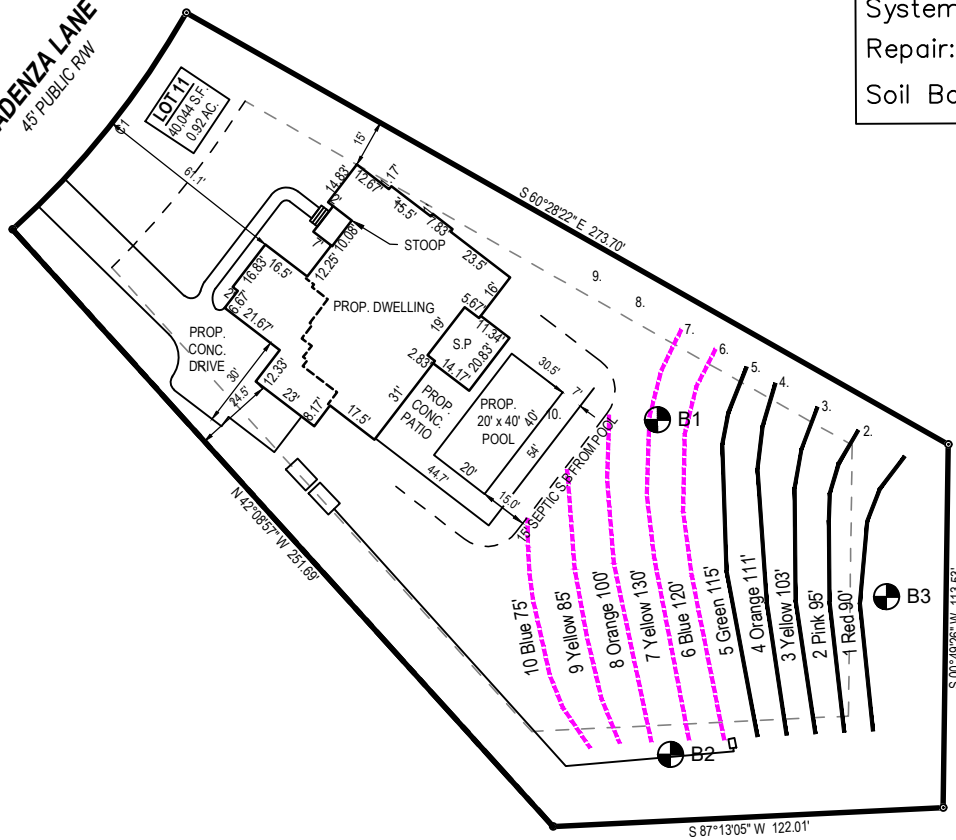
Repair: Pressure Manifold
 Lines: 1–5, (510')
 Accepted Status System
 0.3 Soil LTAR

LINE SCHEDULE SYSTEM

LINE NUMBER	COLOR	FIELD ELEVATION	LENGTH	DESIGN LENGTH
1	RED	1.1	90	
2	PINK	1.7	95	
3	YELLOW	2.3	103	
4	ORANGE	2.9	111	
5	GREEN	3.5	115	
6	BLUE	4.1	140	125
7	YELLOW	4.7	150	130
8	ORANGE	5.2	100	100
9	YELLOW	5.7	85	85
10	BLUE	6.1	75	75

CADENZA LANE
 45' PUBLIC RW

System: -----
 Repair: -----
 Soil Boring: B1



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

5-Bedroom Septic Layout
 Lot 11, Rose Hall Subdivision
 Wake County, North Carolina

Job# : 5103
 Drawn By : AH
 Date : 12/10/2024
 Revision: 4/11/2025

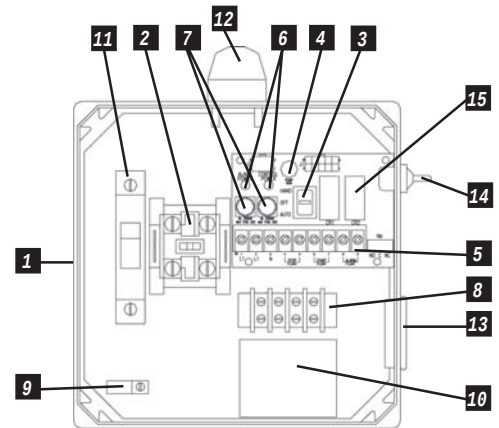
MODEL 112 Control Panel

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

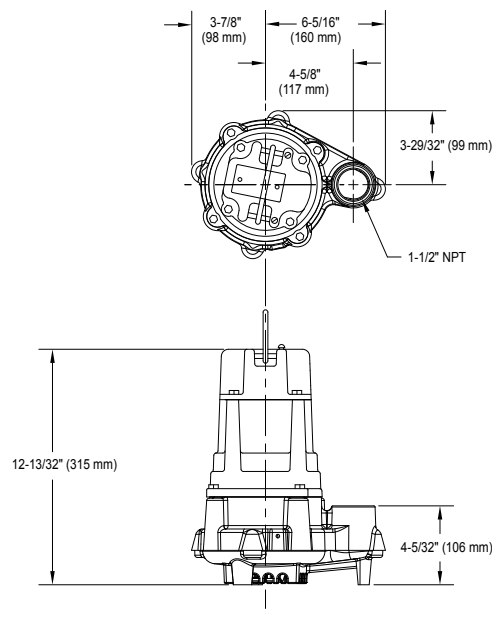
Models 140/4140, 145/4145 Effluent / Dewatering Pumps

PRODUCT SPECIFICATIONS

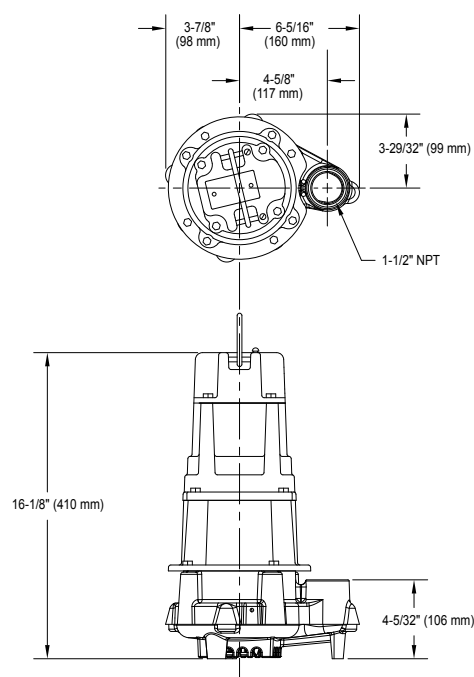
MOTOR	Horse Power	3/4 - 1
	Voltage	115 or 230
	Phase	1 Ph
	Hertz	60 Hz
	RPM	3450
	Type	Permanent split capacitor
	Insulation	Class B
	Amps	6.0 - 13.0
PUMP	Operation	Automatic or nonautomatic
	Discharge Size	1-1/2" NPT
	Solids Handling	1/2" (12 mm), 3/4" (19 mm) spherical solids
	Cord Length	20' (6 m)
	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



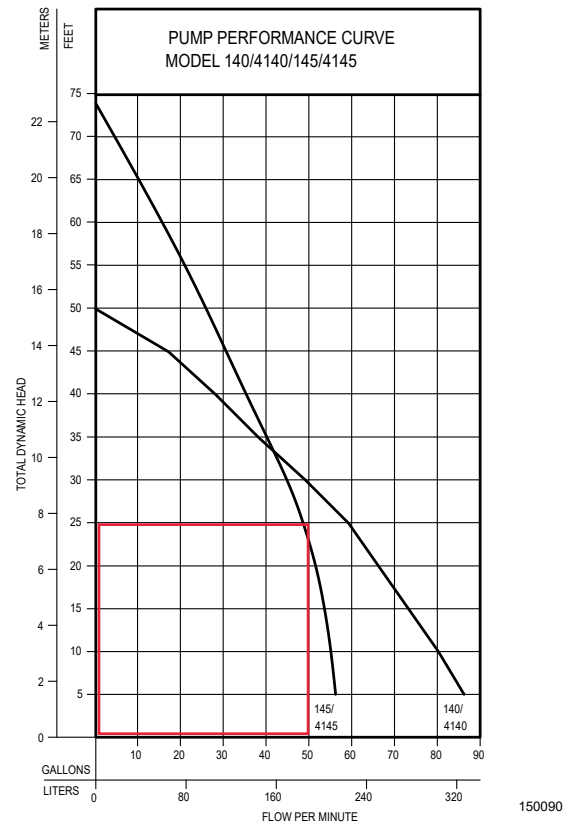
DOUBLE SEAL



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.

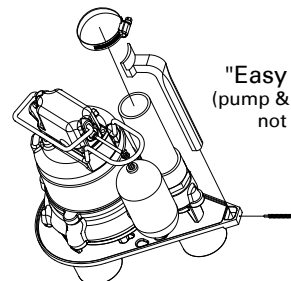
BN and BE models include a 20' (6 m) piggyback variable level pump switch. Additional cord lengths are available in 15' (5 m), 25' (8 m), 35' (11 m) and 50' (15 m). 50' (15 m) cord length is for 230 V only.

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).

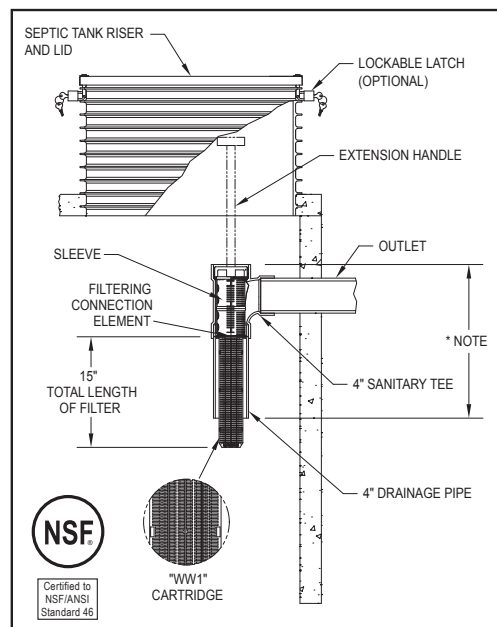
Adding An Extension Handle: A 1/2" PVC pipe can be attached to the top of the filter with a stainless steel screw. Cut off to appropriate length below the lid.

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

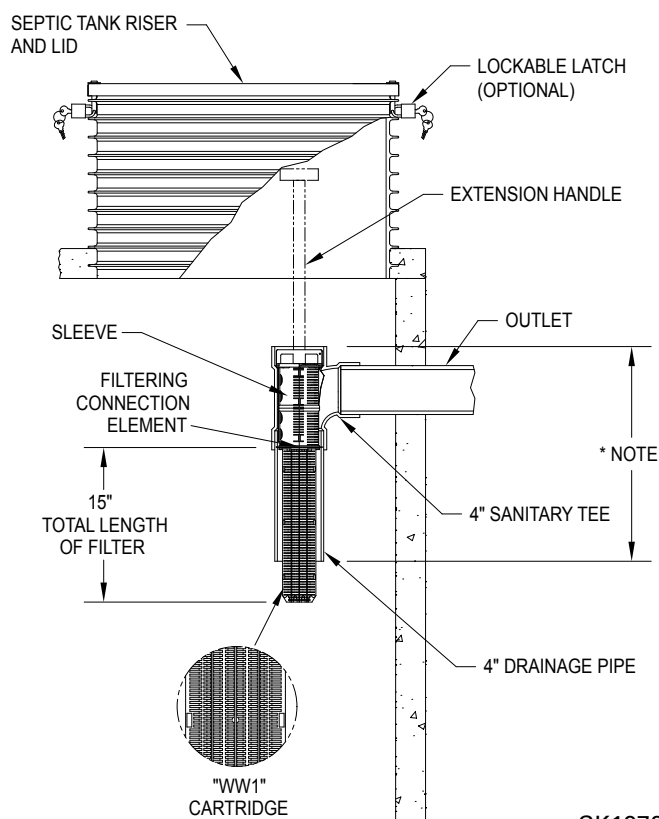
Alarm bracket sold separately
Float switch sold separately



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3649 Cane Run Road, Louisville, KY 40211 USA

3.20.052
CL0038
0121
Supersedes
0119

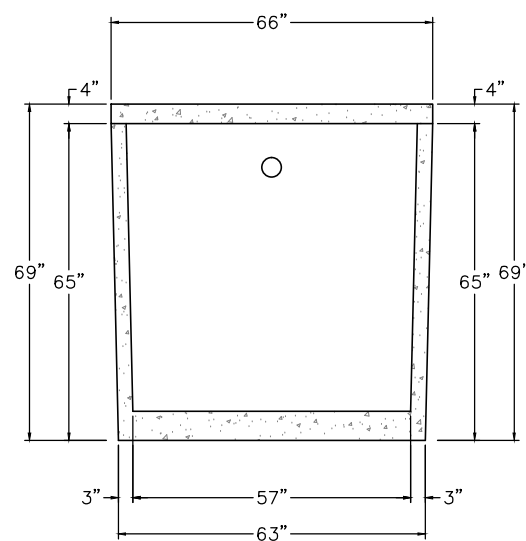
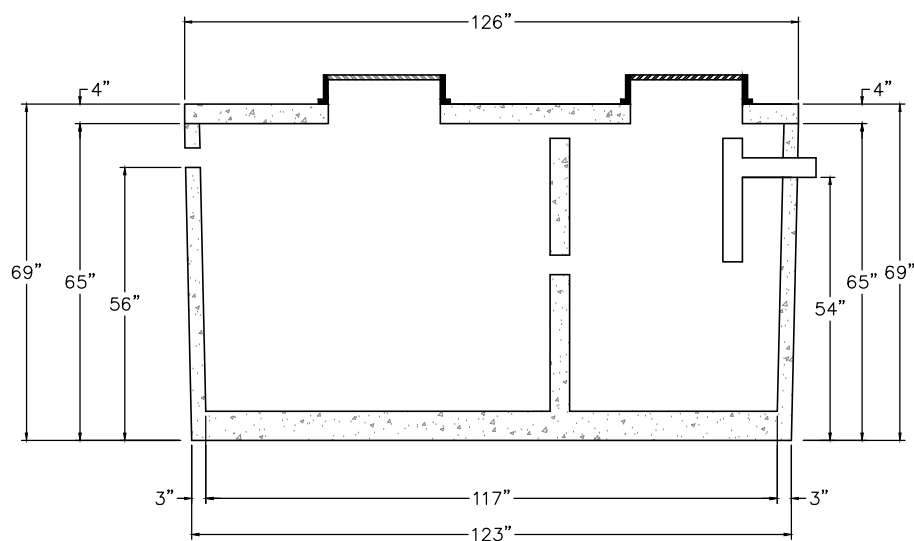


Zoeller Pump Company septic tank effluent filters are designed to protect all downstream components from solids. Every filter comes standard with bypass protection which keeps the filter working, even during cleaning!

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

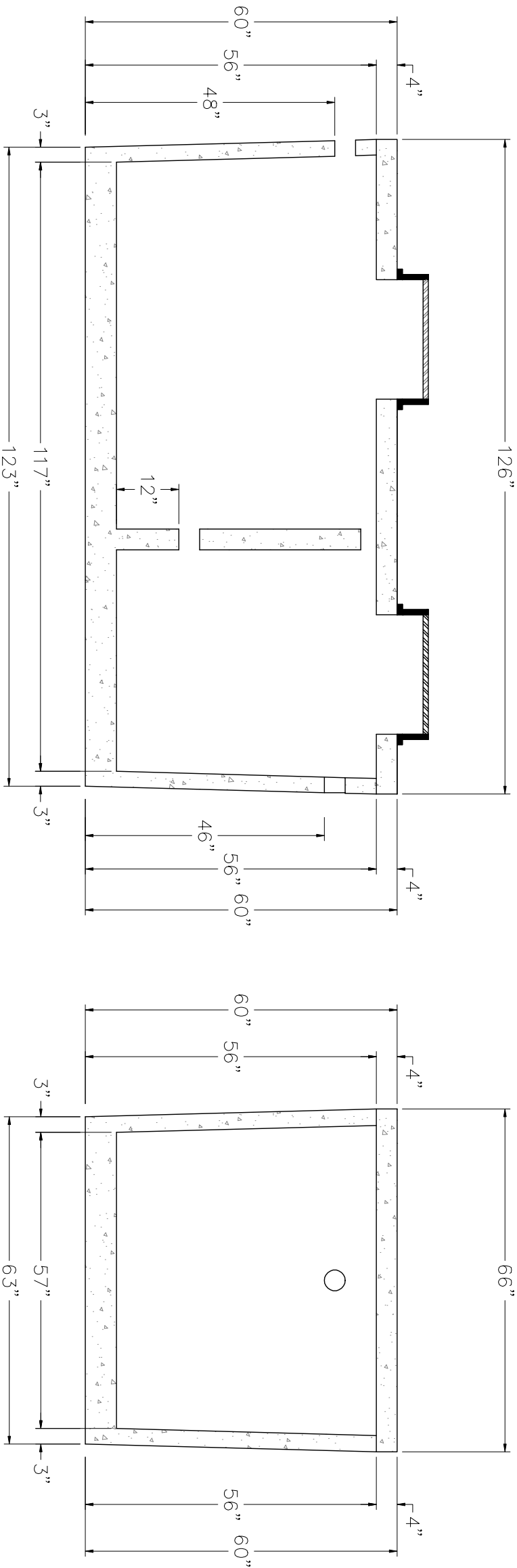




1,500 ST-322
NTS

NON TRAFFIC BEARING

DAVID BRANTLEY & SONS 37 Pine Ridge Rd. Zebulon, NC 27597 Office 252-478-3721 Fax 919-573-0443 1nstaller@gmail.com		PREPARED FOR : David Brantley & Sons 37 Pine Ridge Rd. Zebulon, NC 27597		REVISION NO. Original Submitted	DATE April 11, 2014	BRANTLEY TASK MODEL 1,500 ST 322
		DATE : April 11, 2014 CONTACT: CORY BRANTLEY		Revision 1		SHEET NUMBER 1 of 1
				Revision 2		
				Revision 3		
				Master Set		



1,500 PT 293

NTS

NON TRAFFIC BEARING

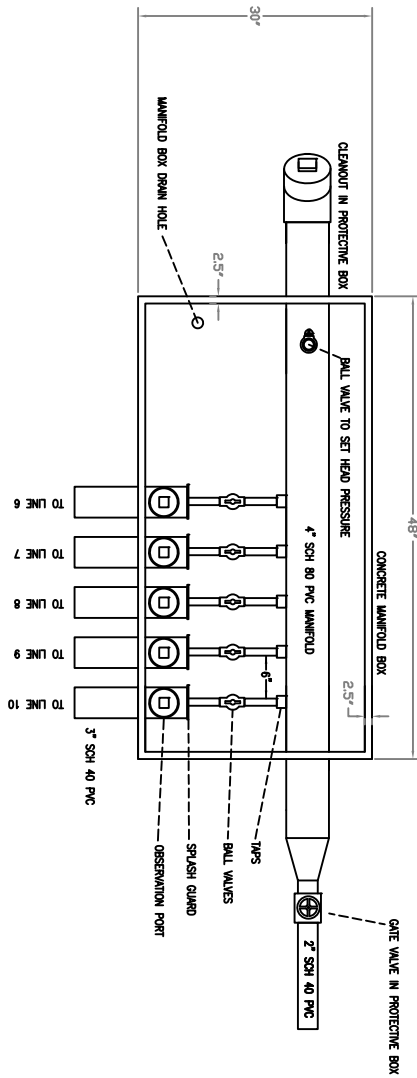
PREPARED FOR :	David Brantley & Sons 37 Pine Ridge Rd. Zebulon, NC 27597
DATE :	April 11, 2014
CONTACT:	CORY BRANTLEY

REVISION NO.	DATE
Original Submittal	April 11, 2014
Revision 1	
Revision 2	
Revision 3	
Master Set	-----

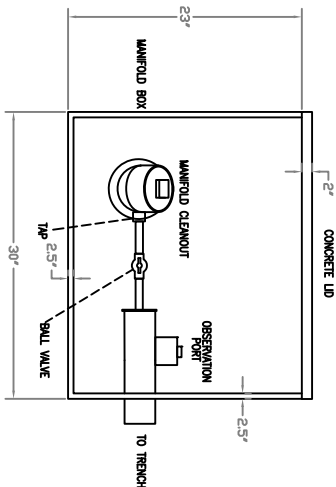
BRANTLEY TANK MODEL
1,500 PT 293
SHEET NUMBER
1 of 1

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

PRESSURE MANIFOLD DETAILS
TOP VIEW

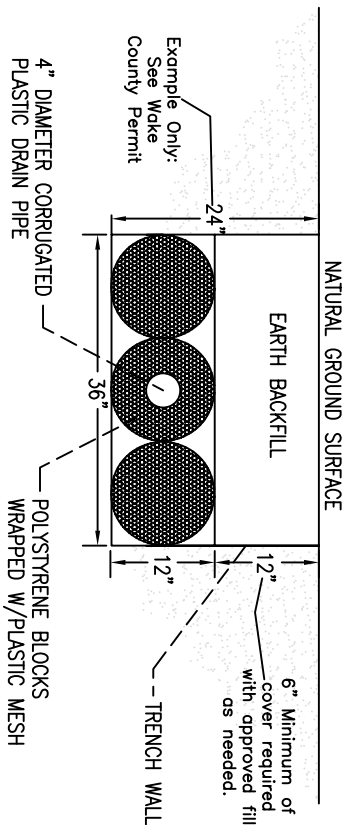


PRESSURE MANIFOLD DETAILS
END VIEW



TAP SCHEDULE		
LINE #	TAP	
6	3/4" SCH 40	
7	3/4" SCH 40	
8	3/4" SCH 80	
9	1/2" SCH 40	
10	1/2" 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.

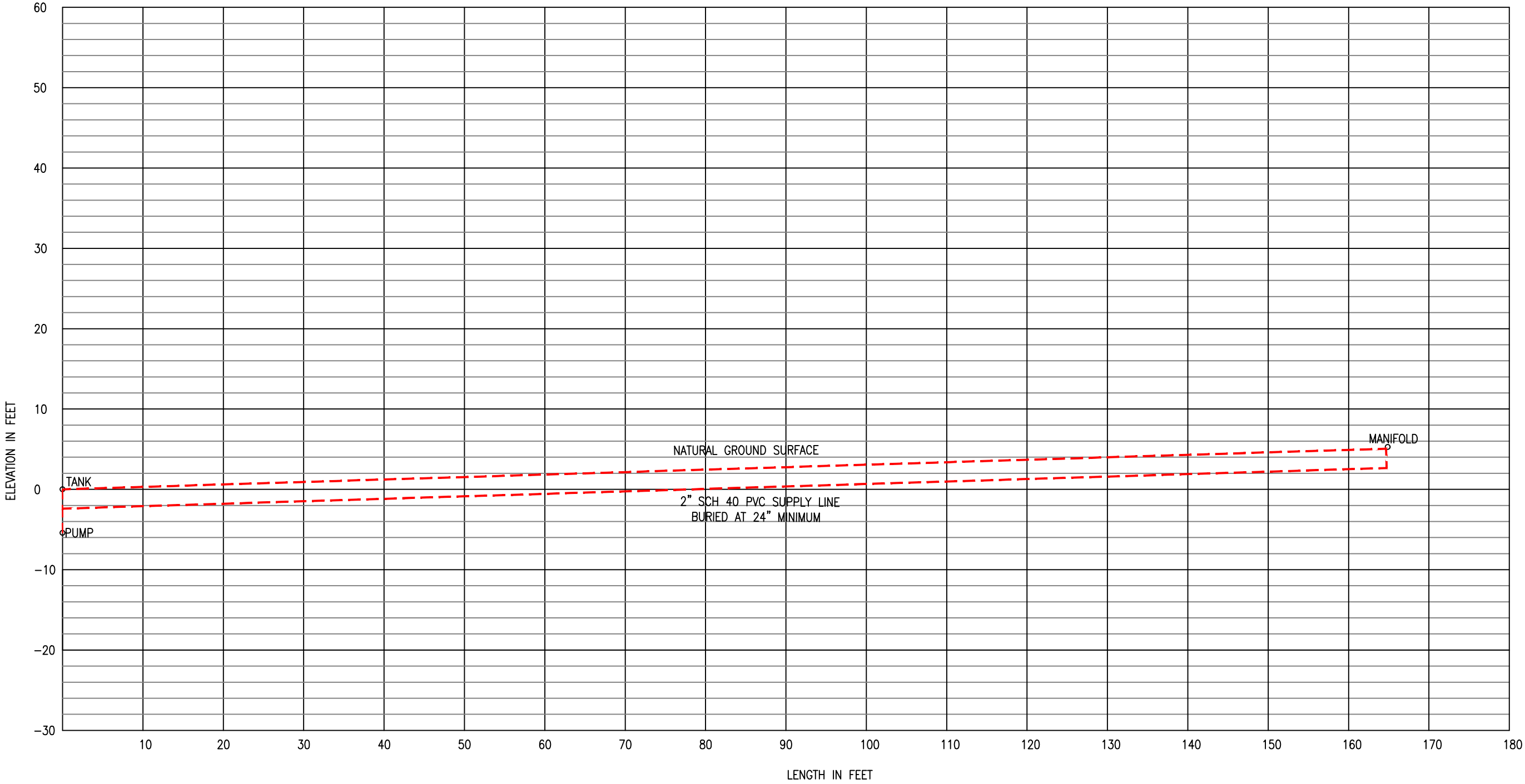


Central Carolina Soil Consulting, PLLC
1900 South Main Street, Suite 110
Wake Forest, North Carolina 27587
Phone (919)569-6704 Fax (919)569-6703

Manifold and Trench Details
Rose Hall S/D Lot 11
Wake County, North Carolina

Job# : 5103
Drawn By : AH
Date : 01/27/2025

SUPPLY LINE
HYDRAULIC PROFILE



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

Hydraulic Profile
Rose Hall S/D, Lot 11
Wake County, North Carolina

Job# : 5103
Drawn By : AH
Date : 01/27/2025
Revision : 00/00/0000