PAC - ONE
Permit Acquisition Company - One
WWW.PAC-ONE.COM
Steve Bristow
920 Garner Rd.
Selma NC, 27526
(919)-906-4737

Subsurface Wastewater Disposal System Design Packet

HARRINGTON PLACE LOT 43
140 Vili Dr.
Broadway NC 27505
PIN: 9681-60-1511
9/4/24

Table of Contents

Project Details

Contact Information 1

Table of contents page 2

Introduction Letter 3-4

Common Form 5-13

Site Specifications

Soils Evaluation 14-15

Site Plans 16-19

Design Specifications

Initial System 20

Initial Pressure Manifold Design 21

Repair System… 22

Repair Pressure Manifold Design 23

Supply Line Hydraulic profile 24

System Components

Septic Tank 25

Pump Tank 26

Pump 27-28

Filter Specs 29

Manifold Box 30

Nitrification Trench Detail 31

Control Panel Specs 32-33

Miscellaneous

Information for the Contractor 34

Insurance Information 35-41

PAC-ONE, PLLC

Subsurface Wastewater Disposal System Design Packet

Date: 9/4/24

Proposed for a:

4 -bedroom residential dwelling

Located at:

140 VILI DR BROADWAY NC 27505

DESIGNED BY:

Steve Bristow

920 Garner Rd, Selma NC 27576

Email: stevebristow57@gmail.com

Phone: (919)906-4737

Session Law 2022-11 (S372) Introduction Letter

This information contained within this packet concerns a soils and subsurface wastewater evaluation conducted by:

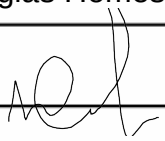
Stephen W. Bristow (LSS#1167) of Permit Acquisition Company – One, PLLC

for the property hereafter described as:

140 VILI DR BROADWAY NC 27505

at the behest of:

Owner Print: Smith Douglas Homes

Owner Signature: 

Owner's Representative (if any): Natascha Clark

Date: 9/4/24

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).

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

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

Stephen W Bristow

NC DEPARTMENT OF HEALTH AND HUMAN SERVICES

ROY COOPER • Governor
KODY H. KINSLEY • Secretary
MARK BENTON • Chief Deputy Secretary for Health
SUSAN KANSAGRA • Assistant Secretary for Public Health
Division of Public Health

Application for Services

This application, in conjunction with the common form established in G.S. 130A-335(a3) and (a5), is optional for local health departments to be used for applications submitted in accordance with G.S. 130A-335(a2), (a3), and (a5).
[hereinafter, G.S. 130A-335(a3) and (a5) permits referred to as (a2) Improvement Permit and (a2) Construction Authorization]

Applying for:
☒ (a2) Improvement Permit ☒ (a2) Construction Authorization ☐ (a2) Repair/Construction Authorization

If applying for a Construction Authorization, please indicate desired system type(s):
☒ Accepted ☐ Conventional ☐ Innovative ☐ Other _____ ☐ Any

☒ New Construction ☐ Expansion ☐ System Relocation ☐ Change of Use ☐ Repair
☒ 5-Year Expiration Requested (site plan provided) ☐ Non-Expiring Permit Requested (plat provided, defined in G.S.130A-334(7a)
Requesting DHHS review? (systems >3000 GPD or IPWW) ☒ Yes ☒ No

Applicant: Smith Douglas Homes
Mailing Address: 2520 Reliance Ave
City: Apex
State: NC Zip: 27539
Phone #:
Email:

Owner: Smith Douglas Homes
Mailing Address: 2520 Reliance Ave
City: Apex
State: NC Zip: 27539
Phone #:
Email:

If the answer to any of the following questions is "yes", applicant must attach supporting documentation.

☐ Yes	☑ No	Does the site contain any jurisdictional wetlands?
☐ Yes	☑ No	Is any wastewater going to be generated on the site other than domestic sewage?
☐ Yes	☑ No	Is the site subject to approval by any other public agency?
☐ Yes	☑ No	Are there any easements or right of ways on this property?

I understand that the documentation and fees, as required in G.S. 130A-335(a2), (a3), (a5), and (a6), attached to this application are to be used to issue an Improvement Permit and/or Construction Authorization pursuant to G.S. 130A-335(a2),(a3), and (a5). I understand that authorized county and state officials are granted right of entry to the property indicated on this application to conduct necessary inspections to determine compliance with applicable laws and rules. ***I understand that if the information in the application for an Improvements Permit and/or Construction Authorization is falsified, changed, or the site is altered, then the Improvement Permit and Construction Authorization shall become invalid.***

Applicant Signature: _____ Date: 9/4/24

Owner's Signature: _____ Date: _____

Permit/File #: _____

NC DEPARTMENT OF HEALTH AND HUMAN SERVICES

ROY COOPER • Governor
KODY H. KINSLEY • Secretary
MARK BENTON • Chief Deputy Secretary for Health
SUSAN KANSAGRA • Assistant Secretary for Public Health
Division of Public Health

Submittal Includes: ☒ **(a2) Improvement Permit** ☒ **(a2) Construction Authorization** ☐ **Fee $**_____

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

County: Harnett

PIN/Lot Identifier: 9681-60-1511

Issued To: Smith Douglas Homes

Property Location: 140 VILI DR BROADWAY NC 27505

Subdivision (if applicable) HARRINGTON PLACE Lot #: LOT 43 Block: _____ Section: _____

LSS Report Provided: Yes ☒ No ☐

If yes, name and license number of LSS: Stephen W Bristow # 1167

New ☒ Expansion ☐ System Relocation ☐ Change of Use ☐

Facility Type: SFD

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

Design Wastewater Strength: ☒ Domestic ☐ High Strength ☐ Industrial Process Wastewater

Proposed Design Daily Flow: 480 GPD Proposed LTAR (Initial): .35 Proposed LTAR (Repair): .35

Proposed Wastewater System Type*: IIIb (Initial) Pump Required: ☒ Yes ☐ No ☐ May be required

Proposed Wastewater System Type*: IIIb (Repair) Pump Required: ☒ Yes ☐ No ☐ May be required

**Please include system classification for proposed wastewater system types in accordance with Rule .1301 Table XXXII*

Effluent Standard: ☒ DSE ☐ HSE ☐ NSF/ANSI 40 ☐ TS-I ☐ TS-II ☐ RCW

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 Depth to LC (Initial)[x]: 48 Usable Depth to LC (Repair)[x]: 48 ***[x] Limiting Condition***

Max. Trench Depth (Initial)[‡]: 24 Max. Trench Depth (Repair)[‡]: 24 ***[‡] 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 .0508: Yes ☒ No ☒ Drainfield location meets requirements of Rule .0601: 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:
Trench installation depth can be between 18 to 24in. Keep installation shallow.

Licensed Soil Scientist Print Name: Steve Bristow #1167

Licensed Soil Scientist Signature: _____ Date: 9/4/24

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

Permit/File #: _____

This Section for Local Health Department Use Only

Initial submittal received: _____ by _____
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: _____ Date: _____

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 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 15A NCAC 18E 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: _____

See attached site sketch

NC DEPARTMENT OF HEALTH AND HUMAN SERVICES
Division of Public Health

Permit/File #: _____

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: _____

NC DEPARTMENT OF HEALTH AND HUMAN SERVICES
Division of Public Health

Permit/File #: _____

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

County: Harnett **Pre-Construction Conference Required:** Yes ☒ No ☐

PIN/Lot Identifier: 9681-60-1511

Issued To: Smith Douglas Homes

Property Location: 140 VILI DR BROADWAY NC 27505

AOWE/PE Plans/Evaluations Provided: Yes ☒ No ☐ If yes, name and license number of AOWE/PE: Steve Bristow # 10012E

Facility Type: SFD

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

☒ New ☐ Expansion ☐ Repair ☐ System Relocation ☐ Change of Use

Basement? ☐ Yes ☐ No Basement Fixtures? ☒ Yes ☐ No

Crawl Space? ☐ Yes ☒ No Slab Foundation? ☒ Yes ☐ No

Type of Wastewater System* IIIb (Initial) IIIb (Repair)

**Please include system classification for proposed wastewater system types in accordance with Rule .1301 Table XXXII*

Design Daily Flow: 480 GPD Wastewater Strength: ☒ Domestic ☐ High Strength ☐ Industrial Process WW

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

Effluent Standard: ☒ DSE ☐ HSE ☐ NSF/ANSI 40 ☐ TS-I ☐ TS-II ☐ RCW

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

Installation Requirements/Conditions

Septic Tank Size: 1200 gallons Total Trench/Bed Length: 375 feet Trench/Bed Spacing: 9 feet on center

Trench/Bed Width: 36 inches LTAR: .35 gpd/ft² Usable Depth to LC (Initial)ˣ: 48 ˣ***Limiting condition***

Soil Cover: 6 inches Slope Corrected Maximum Trench/Bed Depth‡: 24 inches ‡ ***Measured on the downhill side of the trench***

Pump Tank Size (if applicable): 1200 gallons Requires more than 1 pump? ☐ Yes ☐ No

Pump Requirements: 13.55 ft. TDH vs. 27.4 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 [.0204(g)]: ☐ Yes ☒ No Declaration of Restrictive Covenants: ☐ Yes ☒ No

Easement, Right-of-Way, or Encroachment Agreement Required [.0301(b)]: ☐ Yes ☒ No

Management Entity Required: ☐ Yes ☒ No Minimum O&M Requirements: _____

Permit conditions:
Trench installation depth can be between 18 to 24in. Keep installation shallow.

The requirements of 15A NCAC 18E are incorporated by reference into this permit and shall be met. Systems shall be installed in accordance with the attached site sketch. *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 15A NCAC 18E, or 15A NCAC 18A .1900, as applicable, and to the conditions of this permit.

AOWE/PE Print Name: Steve Bristow 10012E

AOWE/PE Signature: Steve Bristow Date: 9/4/24

NC ONSITE WASTEWATER EVALUATOR Certification Number 10012E

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

See attached site sketch

NC DEPARTMENT OF HEALTH AND HUMAN SERVICES
Division of Public Health

Permit/File #: _____

This Section for Local Health Department Use Only

Initial submittal received: _____ by _____
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: _____ Date of Issuance: _____

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: _____

See attached site sketch

NC DEPARTMENT OF HEALTH AND HUMAN SERVICES
Division of Public Health

Permit/File #: _____

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: _____

Permit/File #: _____

ADDENDUM TO G.S. 130A-335(a2) SUBMITTAL

County: _____

PIN/Lot Identifier: _____

Issued To: _____

Additional Improvement Permit Conditions:

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

Additional Construction Authorization Conditions:

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

NCDHHS

Permit #: _____

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: _____

DEPARTMENT OF HEALTH AND HUMAN SERVICES
DIVISION OF PUBLIC HEALTH, ENVIRONMENTAL HEALTH SECTION
ON-SITE WATER PROTECTION BRANCH

PROPERTY ID #: 9681-60-1511
COUNTY: Harnett

SOIL/SITE EVALUATION *for* ON-SITE WASTEWATER SYSTEM
(Complete all fields in full)

OWNER: Smith Douglas Homes DATE EVALUATED: 8/1/24
ADDRESS: 2520 Reliance Ave Apex, NC, 27539
PROPOSED FACILITY: SFD PROPOSED DESIGN FLOW (.0400): 480 gpd PROPERTY SIZE: .459 ac
LOCATION OF SITE: 140 Vili Dr. Broadway NC 27505 PROPERTY RECORDED: yes
WATER SUPPLY: ☑ Public ☐ Single Family Well ☐ Shared Well ☐ Spring ☐ Other _____ WATER SUPPLY SETBACK: na
EVALUATION METHOD: ☑ Auger Boring ☐ Pit ☐ Cut TYPE OF WASTEWATER: ☑ Domestic ☐ High Strength ☐ IPWW

PROFILE #	.0502 LANDSCAPE POSITION/ SLOPE %	HORIZON DEPTH (IN.)	SOIL MORPHOLOGY .0503 STRUCTURE/ TEXTURE	SOIL MORPHOLOGY .0503 CONSISTENCE/ MINERALOGY	OTHER PROFILE FACTORS .0504 SOIL WETNESS/ COLOR	OTHER PROFILE FACTORS .0505 SOIL DEPTH	OTHER PROFILE FACTORS .0506 SAPRO CLASS	OTHER PROFILE FACTORS .0507 RESTR HORIZ	.0509 PROFILE CLASS & LTAR*	.0502(d) SLOPE CORRECTION
1	Linear Slope 3%	14	GR/SL	FR/NS/NP/SEXP	10YR4/4	48			Suitable .35 LTAR	1.1in
		26	GR/SL	FR/NS/SP/SEXP	10YR4/6					
		43	SBK/SCL	FR/SS/SP/SEXP	5YR4/6					
		48	SBK/SC	FR/SS/SP/SEXP	5YR4/6					
2	Linear Slope 3%	14	GR/SL	FR/NS/NP/SEXP	10YR4/4	48			Suitable .40 LTAR	1.1in
		30	GR/SL	FR/NS/NP/SEXP	10YR 4/6					
		48	SBK/SCL	FR/SS/SP/SEXP	7.5YR 4/4					
3	Linear Slope 3%	16	GR/SL	FR/NS/NP/SEXP	10YR4/4	48			Suitable .4 LTAR	1.1in
		33	GR/SL	FR/NS/NP/SEXP	10YR4/6					
		48	SBK/SCL	FR/SS/SP/SEXP	5YR4/6					
4										

DESCRIPTION	INITIAL SYSTEM	REPAIR SYSTEM
Available Space (.0508)	YES	YES
System Type(s)	IIIb	IIIb
Site LTAR	.35	.35
Maximum Trench Depth	24	24

SITE CLASSIFICATION (.0509): _____
EVALUATED BY: Stephen W Bristow LSS 1167
OTHER(S) PRESENT: _____

Comments: _____

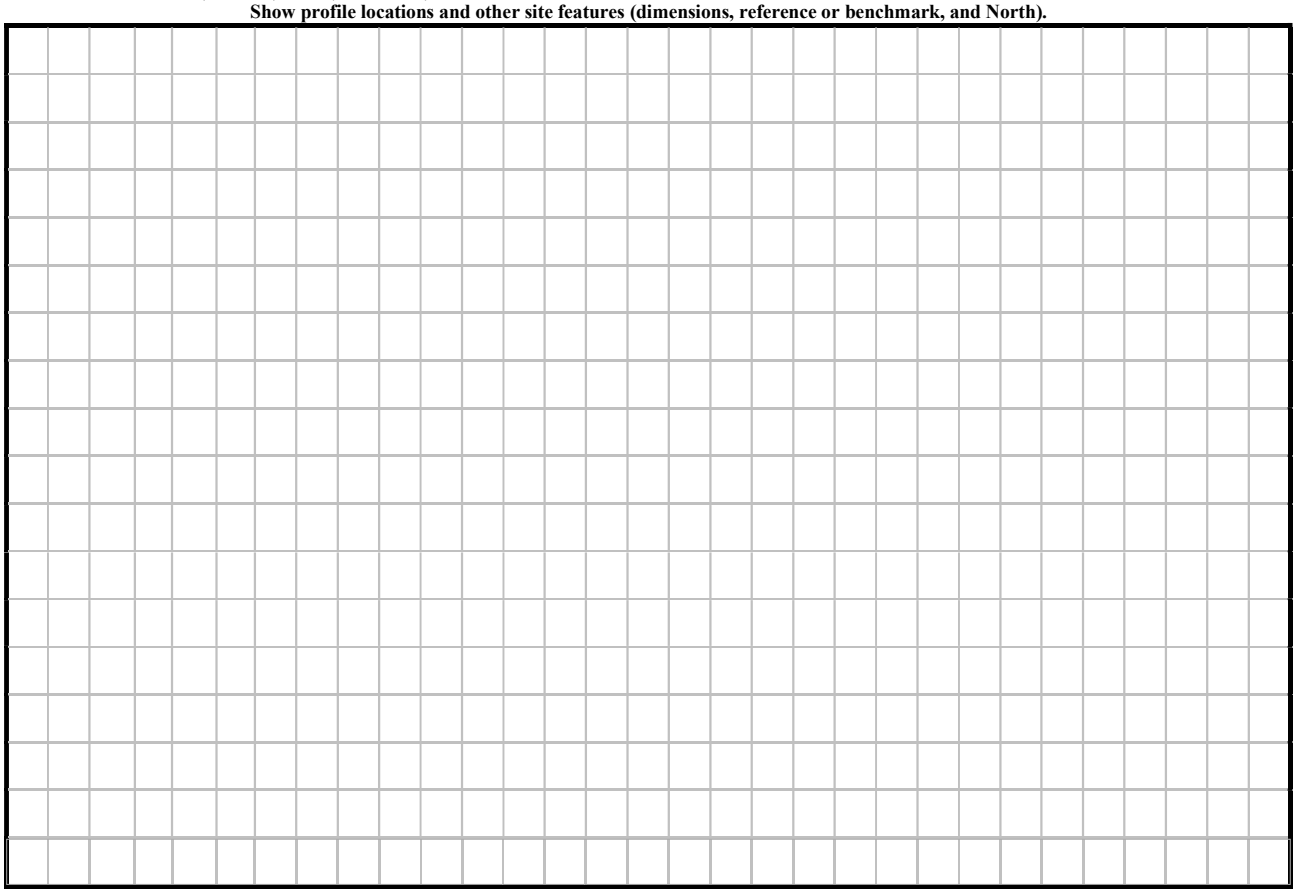
LEGEND

LANDSCAPE POSITION	SOIL GROUP	SOIL TEXTURE	CONVENTIONAL LTAR (gpd/ft²)	SAPROLITE LTAR (gpd/ft²)	LPP LTAR (gpd/ft²)	MINERALOGY/ CONSISTENCE		STRUCTURE
CC (Concave slope)	I	S (Sand)	0.8 - 1.2	0.6 - 0.8	0.4 -0.6	**MOIST**	**WET**	SG (Single grain)
CV (Convex Slope)		LS (Loamy sand)		0.5 -0.7		Lo (Loose)	NS (Non-sticky)	M (Massive)
D (Drainage way)	II	SL (Sandy loam)	0.6 - 0.8	0.4 -0.6	0.3 - 0.4	VFR (Very friable)	SS (Slightly sticky)	GR (Granular)
FP (Flood plain)		L (Loam)		0.2 - 0.4		FR (Friable)	S (Sticky)	SBK (Subangular blocky)
FS (Foot slope)	III	SiL (Silt loam)	0.3 - 0.6	0.1 - 0.3	0.15 - 0.3	FI (Firm)	VS (Very sticky)	ABK (Angular blocky)
H (Head slope)		SCL (Sandy clay loam)		0.05 - 0.15**		VFI (Very firm)	NP (Non-plastic)	PR (Prismatic)
L (Linear Slope)		CL (Clay loam)		None		EFI (Extremely firm)	SP (Slightly plastic)	PL (Platy)
N (Nose slope)		SiCL (Silty clay loam)					P (Plastic)	
R (Ridge/summit)		Si (Silt)					VP (Very plastic)	
S (Shoulder slope)	IV	SC (Sandy clay)	0.1 - 0.4		0.05 - 0.2	SEXP (Slightly expansive)		
T (Terrace)		SiC (Silty clay)				EXP (Expansive)		
TS (Toe Slope)		C (Clay)						
		O (Organic)	None					

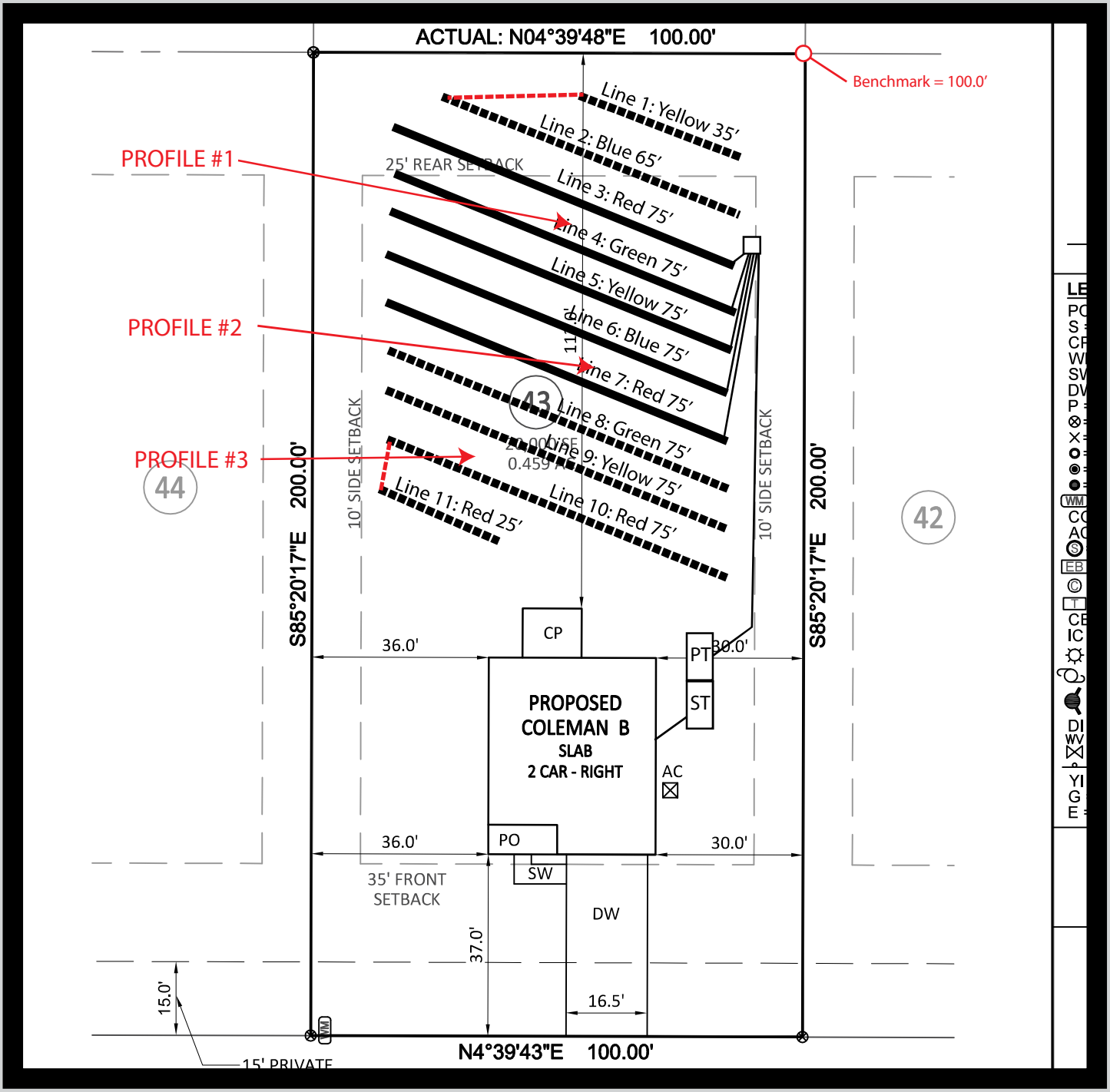
* Adjust LTAR due to depth, consistence, structure, soil wetness, landscape, position, wastewater flow and quality.
**Sandy clay loam saprolite can only be used with advanced pretreatment in accordance with 15A NCAC 18E .1200.

HORIZON DEPTH In inches below natural soil surface
DEPTH OF FILL In inches from land surface
RESTRICTIVE HORIZON Thickness and depth from land surface
SAPROLITE S(suitable) or U(unsuitable); Evaluation of saprolite shall be by pits.
SOIL WETNESS Inches from land surface to free water or inches from land surface to soil colors with chroma 2 or less - record Munsell color chip designation
CLASSIFICATION S (Suitable) or U (Unsuitable)

Show profile locations and other site features (dimensions, reference or benchmark, and North).



Harrington Place Lot 43



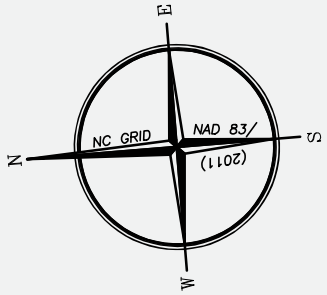
System Details

Initial:
1200 gal Septic Tank
1200 gal Pump Tank
0.35 LTAR
Lines 3-7 (375')
Accepted - Manifold
Product - EZ Flow
24" MTD

Repair:
1200 gal Septic Tank
1200 gal Pump Tank
0.35 LTAR
Lines 1-2,8-11 (350')
Accepted - Manifold
Product - EZ Flow
24" MTD

Elevation Table

Benchmark = 100'
Line 1 = 99.7'
Line 2 = 99.5'
Line 3 = 99.2'
Line 4 = 99.0'
Line 5 = 98.8'
Line 6 = 98.6'
Line 7 = 98.4'
Line 8 = 98.0'
Line 9 = 97.7'
Line 10 = 97.4'
Line 11 = 97.0'

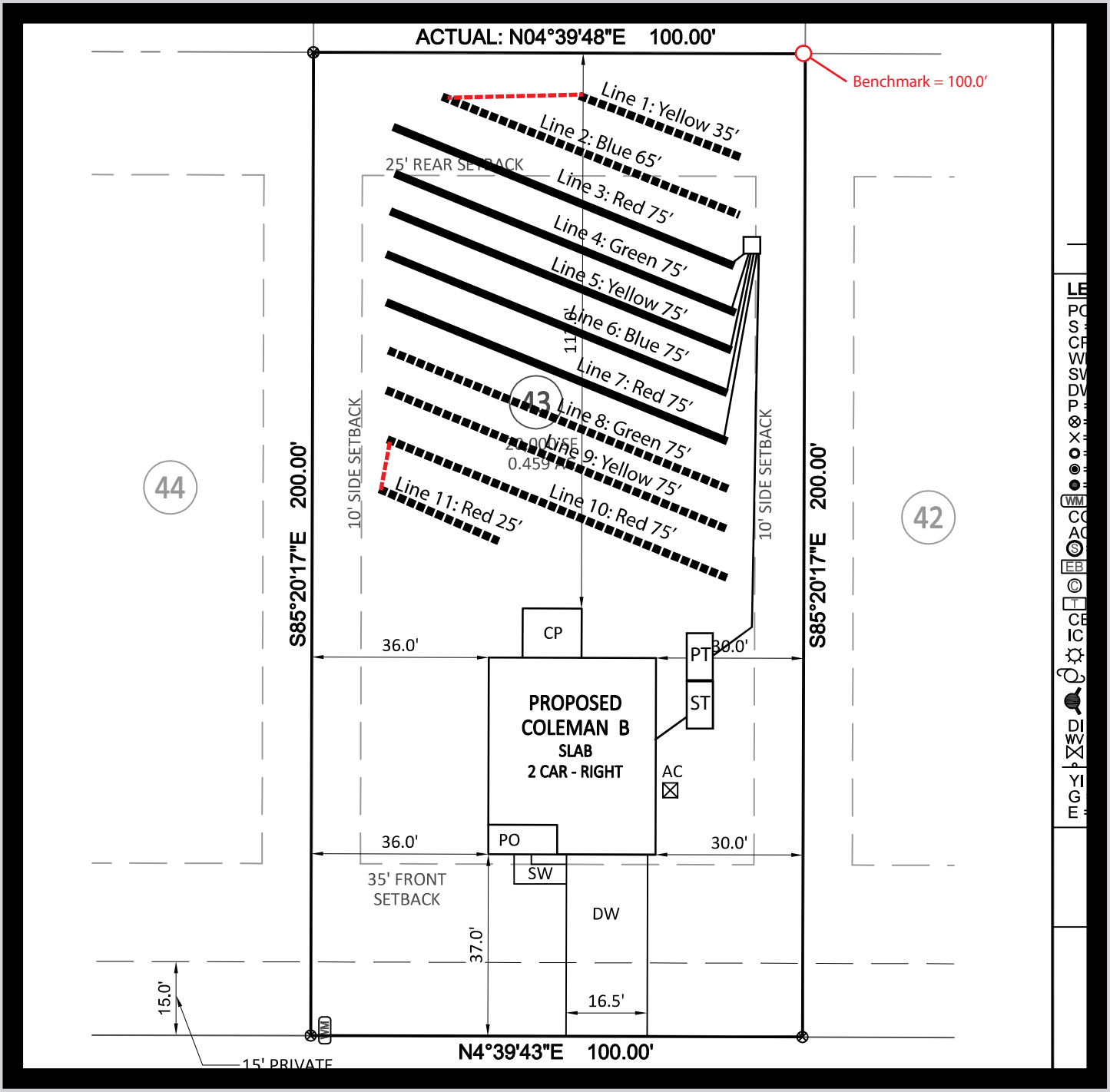


1 inch = 30'

Legend

Initial
Repair
Serial

Harrington Place Lot 43



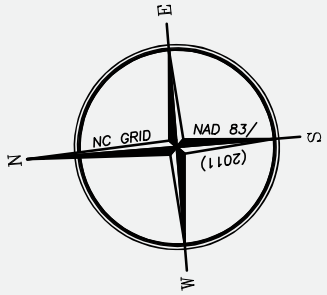
System Details

Initial:
1200 gal Septic Tank
1200 gal Pump Tank
0.35 LTAR
Lines 3-7 (375')
Accepted - Manifold
Product - EZ Flow
24" MTD

Repair:
1200 gal Septic Tank
1200 gal Pump Tank
0.35 LTAR
Lines 1-2,8-11 (350')
Accepted - Manifold
Product - EZ Flow
24" MTD

Elevation Table

Benchmark = 100'
Line 1 = 99.7'
Line 2 = 99.5'
Line 3 = 99.2'
Line 4 = 99.0'
Line 5 = 98.8'
Line 6 = 98.6'
Line 7 = 98.4'
Line 8 = 98.0'
Line 9 = 97.7'
Line 10 = 97.4'
Line 11 = 97.0'

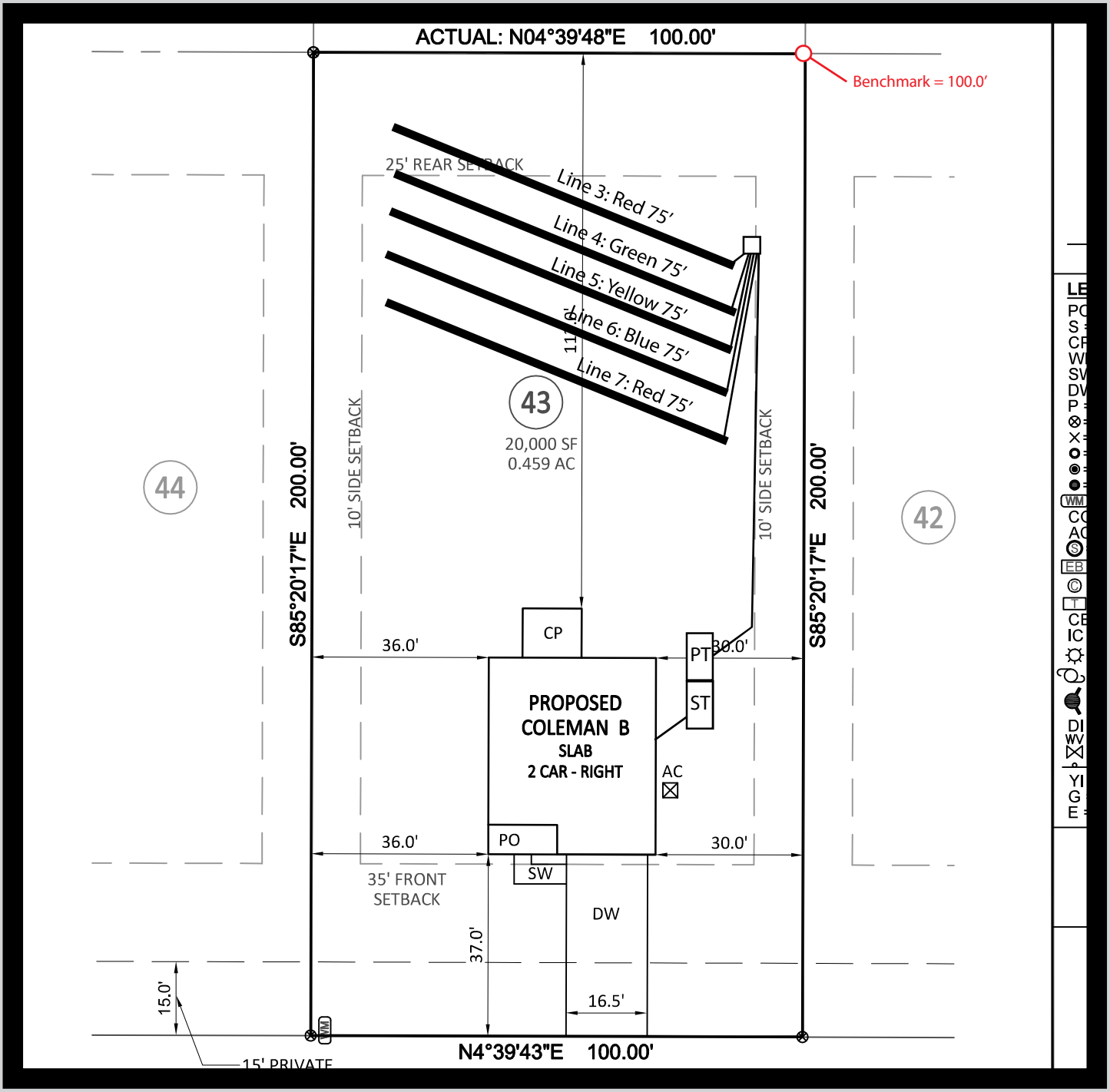


1 inch = 30'

Legend

Initial
Repair
Serial

Harrington Place Lot 43



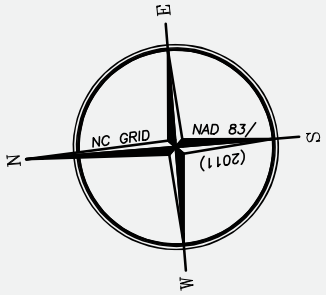
System Details

Initial:
1200 gal Septic Tank
1200 gal Pump Tank
0.35 LTAR
Lines 3-7 (375')
Accepted - Manifold
Product - EZ Flow
24" MTD

Repair:
1200 gal Septic Tank
1200 gal Pump Tank
0.35 LTAR
Lines 1-2,8-11 (350')
Accepted - Manifold
Product - EZ Flow
24" MTD

Elevation Table

Benchmark = 100'
Line 1 = 99.7'
Line 2 = 99.5'
Line 3 = 99.2'
Line 4 = 99.0'
Line 5 = 98.8'
Line 6 = 98.6'
Line 7 = 98.4'
Line 8 = 98.0'
Line 9 = 97.7'
Line 10 = 97.4'
Line 11 = 97.0'

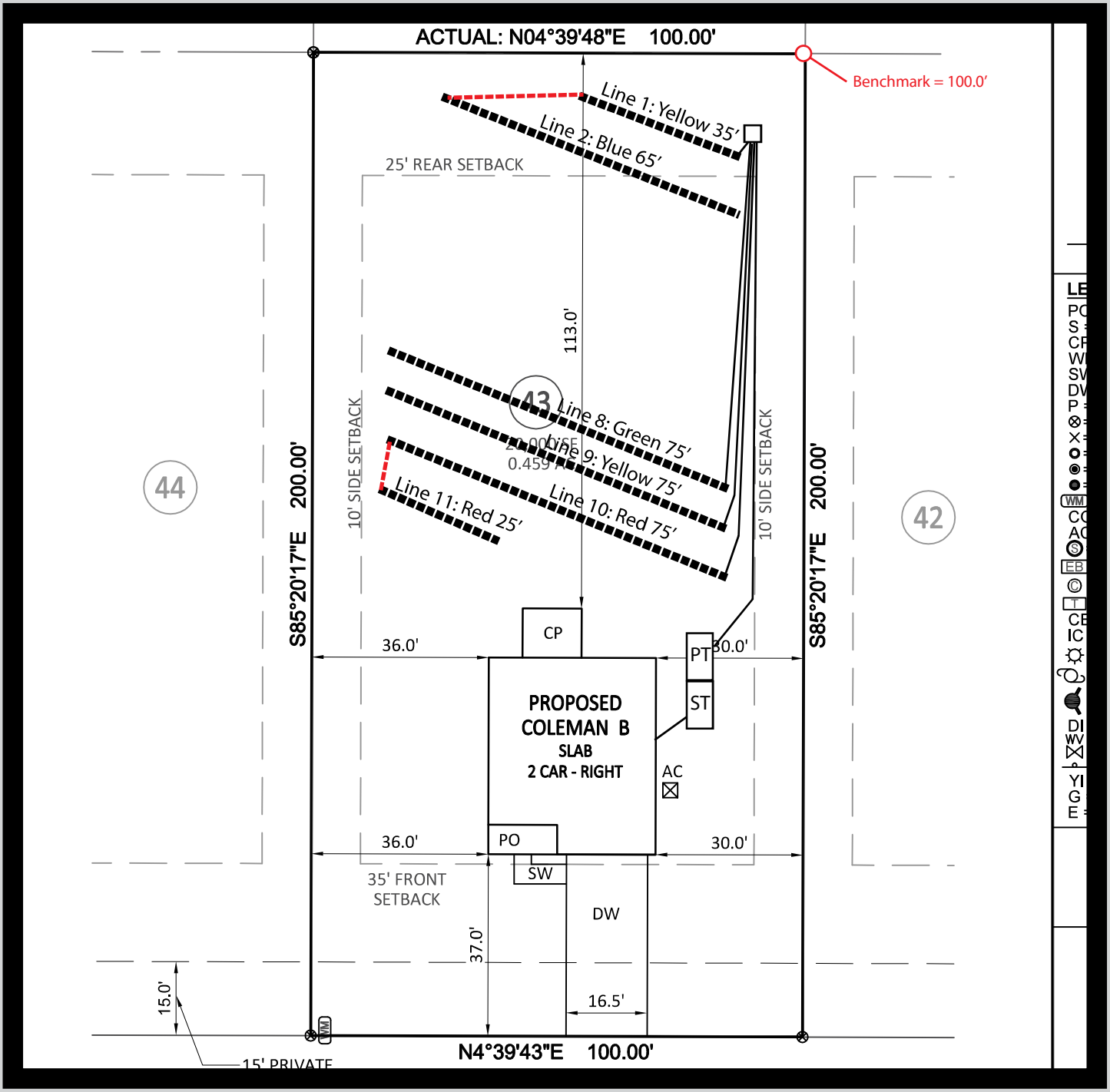


1 inch = 30'

Legend

Initial
Repair
Serial

Harrington Place Lot 43



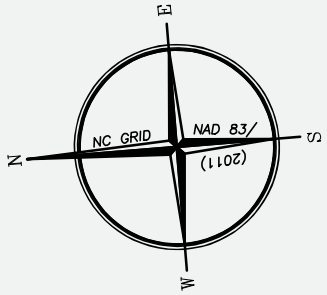
System Details

Initial:
1200 gal Septic Tank
1200 gal Pump Tank
0.35 LTAR
Lines 3-7 (375')
Accepted - Manifold
Product - EZ Flow
24" MTD

Repair:
1200 gal Septic Tank
1200 gal Pump Tank
0.35 LTAR
Lines 1-2,8-11 (350')
Accepted - Manifold
Product - EZ Flow
24" MTD

Elevation Table

Benchmark = 100'
Line 1 = 99.7'
Line 2 = 99.5'
Line 3 = 99.2'
Line 4 = 99.0'
Line 5 = 98.8'
Line 6 = 98.6'
Line 7 = 98.4'
Line 8 = 98.0'
Line 9 = 97.7'
Line 10 = 97.4'
Line 11 = 97.0'



1 inch = 30'

Legend

Initial
Repair
Serial

Initial System Overview for

Lot 43, Harrington Place

Design Criteria

Number of bedrooms	4	
Design Flow	480	gal/day
Soil L.T.A.R.	0.350	gal/day/sq ft

System Details

Trench Depth	24	inches
Total Trench Length	375	feet
Manifold Length	48	inches
Manifold Diameter	4in sch 80pvc	
Supply Line Length	120	feet
Design Head	2	feet
Elevation Head	8.20	feet
Total Design Head	13.55	feet
Dose Volume	171	gallons
% Pipe Volume	70	
Drawdown	8.5	in inches
Pump Run Time	17.52	minutes

System Components

Trench Product	EZ FLOW
Septic Tank	1200 gallons
Pump Tank	1200 gallons
Effluent Filter	Polylok PL-68 (or approved equivalent)
Effluent Pump	Zoeller Dose-Mate Model 151/152/153 (or approved equivalent)
Control Panel	SJE Rhombus Model 112 panel (or approved equivalent)

RESIDENTIAL PRESSURE MANIFOLD DESIGN

Permit # Harrington 43

# of BDR: 4 **Daily Flow:** 480 **gal/day** **L.T.A.R.:** 0.3500 **gal/day/sq.ft**

Septic Tank: 1200 **gals** **Pump Tank:** 1200 **gals** **Sq. Foot:** 1125 **System Type:** Accepted

Number of Taps: 5 **Length of Trenches:** 375 **ft(See Tap Chart for Details)**

Depth of Trenches: 24 **in** **Manifold Length:** 48 **in**

Manifold Diameter: 4in sch 80pvc **Tap Configuration: 6 in spacing** 1 **side(s) of manifold**

Supply Line: length: 120 **ft** **Diameter:** 2 **in sch 40pvc**

Friction Loss + Fitting Loss: 3.35 **ft(supply line length + 70' for fittings in pump tank)**

Design Head: 2 **ft** **Elevation Head:** 8.20 **ft**

Total Head: 13.55 **ft** **Pump to Deliver:** 27.40 **gals/min at** 13.55 **ft head**

Dosing Volume: 171 **gals,**

Drawdown: 171 **gals divided by** 20 **gals/in =** 8.5 **inches**

Simplex Control Panel required; elapsed time meter and cycle counter required; Floats to be determined by type of pump tank used. A septic tank filter is required.

TAP CHART

Benchmark 1 is = 100.00 set at Property Corner **Design Head:** 2

Pump tank elev. 4 97.00 **Pump elev.** 92.00 **Manifold elev.** 100.20

line	color	rod read	Elevation	length	hole size	flow/tap	gal/day	trench area	LINE LTAR	# of Panels (PPBPS)	Spacing of Panels (in)
3		1.80	99.20	75	1/2in SCH 80	5.48	96.00	225	0.4267		
4		2.00	99.00	75	1/2in SCH 80	5.48	96.00	225	0.4267		
5		2.20	98.80	75	1/2in SCH 80	5.48	96.00	225	0.4267		
6		2.40	98.60	75	1/2in SCH 80	5.48	96.00	225	0.4267		
7		2.60	98.40	75	1/2in SCH 80	5.48	96.00	225	0.4267		
			101.00			0	0.00	0	#DIV/0!		
			101.00			0	0.00	0	#DIV/0!		
			101.00			0	0.00	0	#DIV/0!		
			101.00			0	0.00	0	#DIV/0!		
			101.00			0	0.00	0	#DIV/0!		
			Total Feet =	**375**	**gal/min =**	**27.40**		**LTAR =**	**0.3500**		
			Feet Required =	**343**	**Velocity =**	**2.62**		**(ltar + 5%)**	0.3675		
Total # of Panels (PPBPS)				**Des. Flow**	480			**(ltar w/25% red)**	0.4667		
% of Dose Vol.		70		**Pump Run=**	17.52			**(ltar + 5%)**	0.4900		
Dose Volume		171		**Tank Gal/IN**	20						
Dose Pump Time		6.23		**Elev. Head**	8.20						
Drawdown in Inches		8.5									

Comments:

Repair System Overview for

Lot 43, Harrington Place

Design Criteria

Number of bedrooms	4	
Design Flow	480	gal/day
Soil L.T.A.R.	0.350	gal/day/sq ft

System Details

Trench Depth	24	inches
Total Trench Length	350	feet
Manifold Length	42	inches
Manifold Diameter	4in sch 80pvc	
Supply Line Length	120	feet
Design Head	2	feet
Elevation Head	8.70	feet
Total Design Head	13.57	feet
Dose Volume	159	gallons
% Pipe Volume	70	
Drawdown	8.0	in inches
Pump Run Time	19.06	minutes

System Components

Trench Product	EZ Flow
Septic Tank	1200 gallons
Pump Tank	1200 gallons
Effluent Filter	Polylok PL-68 (or approved equivalent)
Effluent Pump	Zoeller Dose-Mate Model 151/152/153 (or approved equivalent)
Control Panel	SJE Rhombus Model 112 panel (or approved equivalent)

PRESSURE MANIFOLD DESIGN - REPAIR SYSTEM

# of BDR: 4 **Daily Flow:** 480 **gal/day** **L.T.A.R.:** 0.3500 **gal/day/sq.ft**

Septic Tank: 1200 **gals** **Pump Tank:** 1200 **gals** **Sq. Foot:** 1050 **System Type:** Accepted

Number of Taps: 4 **Length of Trenches:** 350 **ft(See Tap Chart for Details)**

Depth of Trenches: 24 **in** **Manifold Length:** 42 **in**

Manifold Diameter: 4in sch 80pvc **Tap Configuration: 6 in spacing** 1 **side(s) of manifold**

Supply Line: length: 120 **ft** **Diameter:** 2 **in sch 40pvc**

Friction Loss + Fitting Loss: 2.87 **ft(supply line length + 70' for fittings in pump tank)**

Design Head: 2 **ft** **Elevation Head:** 8.70 **ft**

Total Head: 13.57 **ft** **Pump to Deliver:** 25.18 **gals/min at** 13.57 **ft head**

Dosing Volume: 159 **gals,**

Drawdown: 159 **gals divided by** 20 **gals/in =** 8.0 **inches**

Simplex Control Panel required; elapsed time meter and cycle counter required; Floats to be determined by type of pump tank used. A septic tank filter is required.

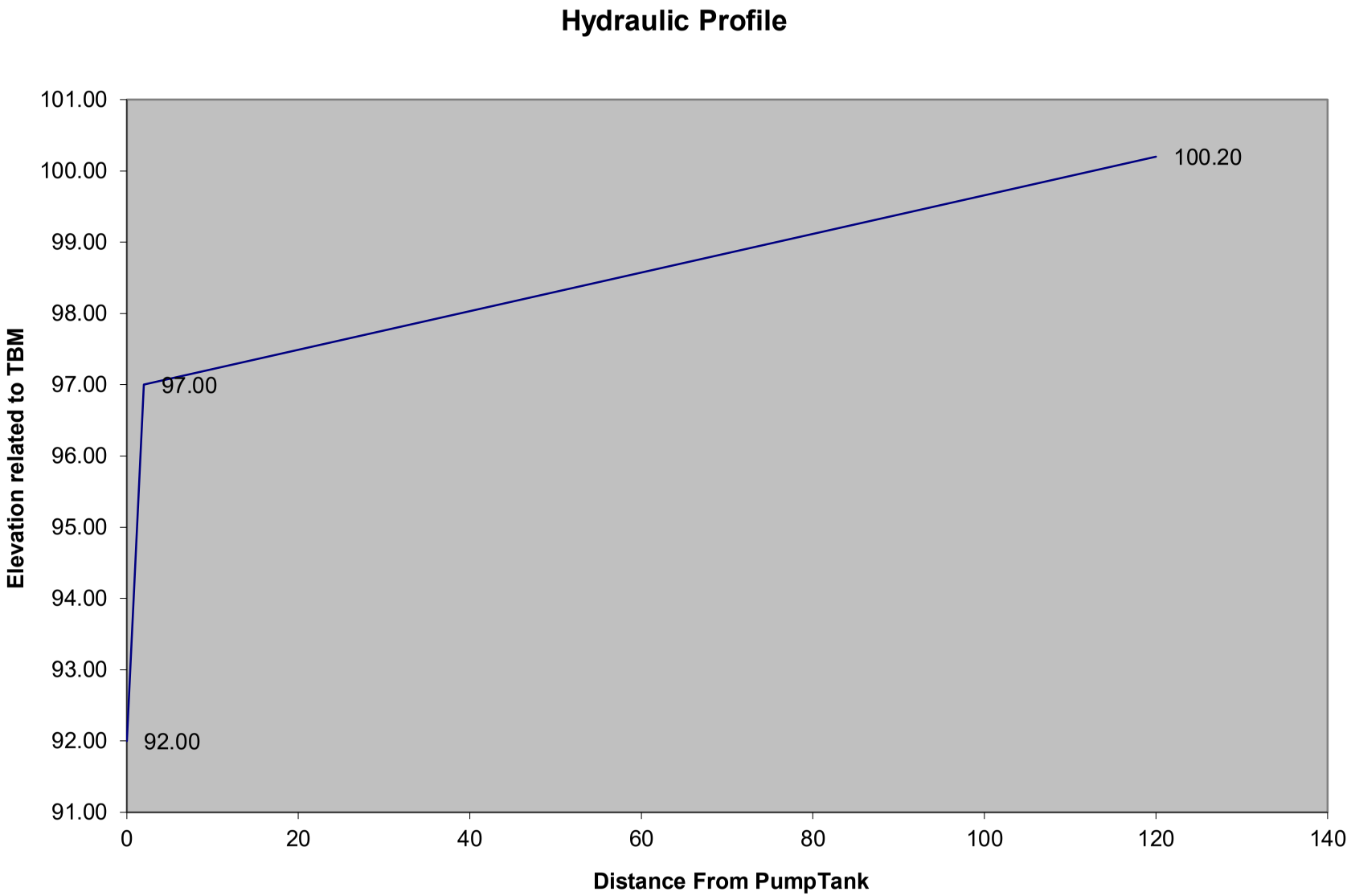
TAP CHART

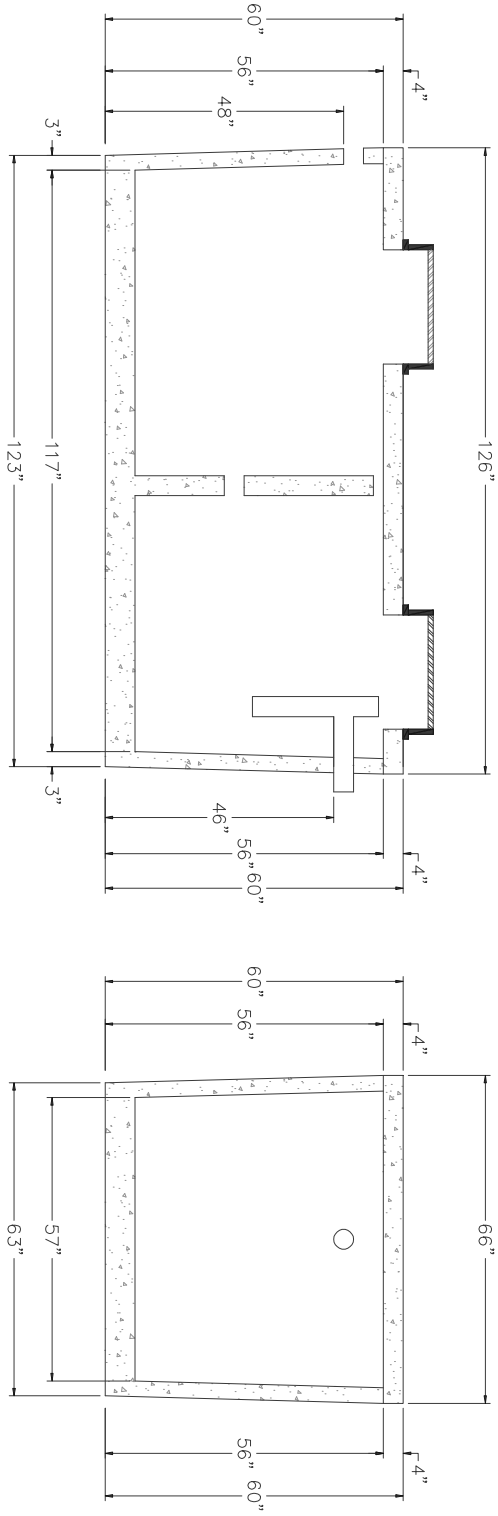
Benchmark 1 is = 100.00 set at Property Corner **Design Head:** 2

Pump tank elev. 4 97.00 **Pump elev.** 92.00 **Manifold elev.** 100.70

line	color	rod read	Elevation	length	hole size	flow/tap	gal/day	trench area	LINE LTAR	# of Panels (PPBPS)	Change in Spacing of Panels (in)
One-Two	Yel/Blue	1.30	99.70	100	1/2in SCH 40	7.11	135.54	300	0.4518		
8	Green	3.00	98.00	75	1/2in SCH 80	5.48	104.46	225	0.4643		
9	Yellow	3.30	97.70	75	1/2in SCH 80	5.48	104.46	225	0.4643		
Ten-Eleven	Red/Blue	3.60	97.40	100	1/2in SCH 40	7.11	135.54	300	0.4518		
			101.00			0	0.00	0	#DIV/0!		
			101.00			0	0.00	0	#DIV/0!		
			101.00			0	0.00	0	#DIV/0!		
			101.00			0	0.00	0	#DIV/0!		
			101.00			0	0.00	0	#DIV/0!		
			101.00			0	0.00	0	#DIV/0!		
			Total Feet =	**350**	**gal/min =**	**25.18**		**LTAR =**	**0.3500**		
			Feet Required =	**343**	**Velocity =**	**2.41**		**(ltar + 5%)**	0.3675		
Total # of Panels (PPBPS)				**Des. Flow**	480			**(ltar w/25% red)**	0.4667		
% of Dose Vol.		70		**Pump Run=**	19.06			**(ltar + 5%)**	0.4900		
Dose Volume		159		**Tank Gal/IN**	20						
Dose Pump Time		6.32		**Elev. Head**	8.70						
Drawdown in Inches		8.0									

Comments:


Hydraulic Profile
101.00
100.00
99.00
98.00
97.00
96.00
95.00
94.00
93.00
92.00
91.00
Elevation related to TBM
97.00
100.20
92.00
0
20
40
60
80
100
120
140
Distance From PumpTank



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

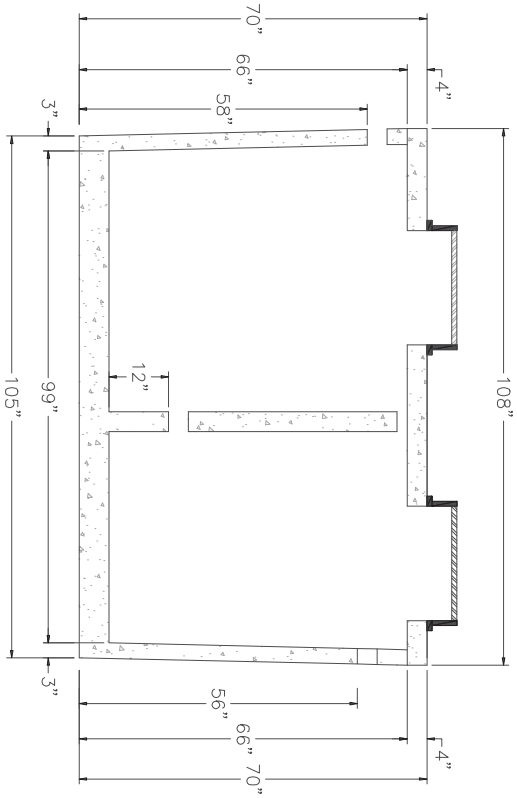
1installer@gmail.com

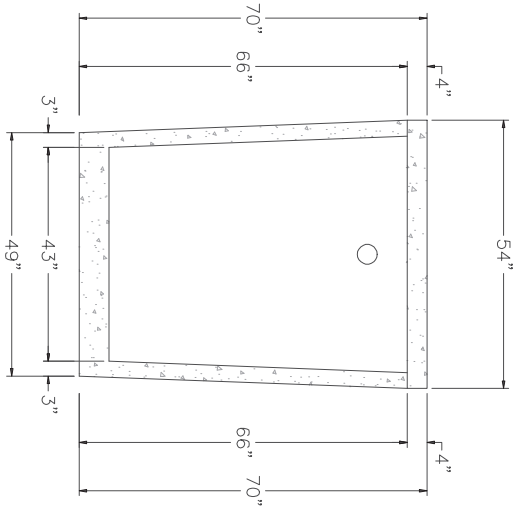
PREPARED FOR :	David Brantley & Sons 37 Pine Ridge Rd. Zebulon, NC 27597
DATE :	April 11, 2014
CONTACT:	CORY BRANTLEY

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

BRANTLEY TANK MODEL
1,250 ST 323

SHEET NUMBER
1 of 1





1,200 PT 463

NTS

NON TRAFFIC BEARING

DAVID BRANTLEY & SONS

37 Pine Ridge Rd.
Zebulon, NC 27597
Office 252-478-3721
Fax 919-573-0443

1installer@gmail.com

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

1,200 PT 463

SHEET NUMBER

1 of 1

Trusted. Tested. Tough.™

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

ZOELLER® PUMP COMPANY

SECTION: 2.15.080
FM2784
1017
Supersedes
0315

TECHNICAL DATA SHEET
DOSE-MATE SERIES
Models 151, 152, 153 Effluent Pumps

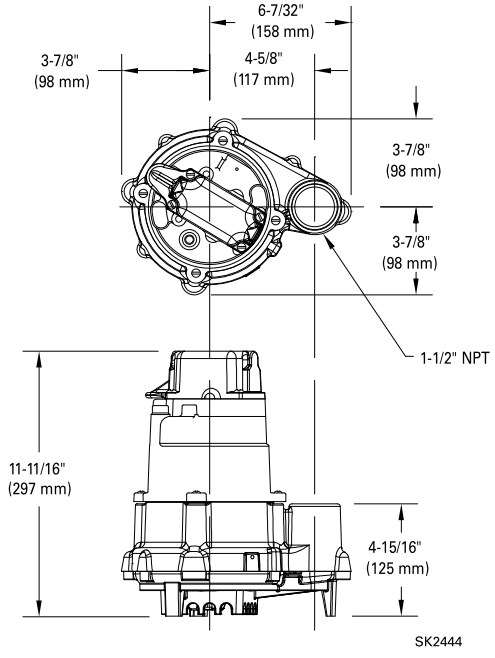
PRODUCT SPECIFICATIONS

MOTOR	Horse Power	1/3 (151), 4/10 (152), 1/2 (153)
	Voltage	115 or 230
	Phase	1 Ph
	Hertz	60 Hz
	RPM	3450
	Type	Permanent split capacitor
	Insulation	Class B
	Amps	3.0 - 10.5
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 power cord
	Max. Head	44' (13.4 m)
	Max. Flow Rate	77 GPM (291 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	Plastic or cast iron
	Upper Bearing	Sleeve bearing
	Lower Bearing	Ball bearing
	Mechanical Seals	Carbon and ceramic
	Impeller Type	Non-clogging vortex
	Impeller	Engineered thermoplastic
	Hardware	Stainless steel
	Motor Shaft	AISI 1215 steel
	Gasket	Neoprene

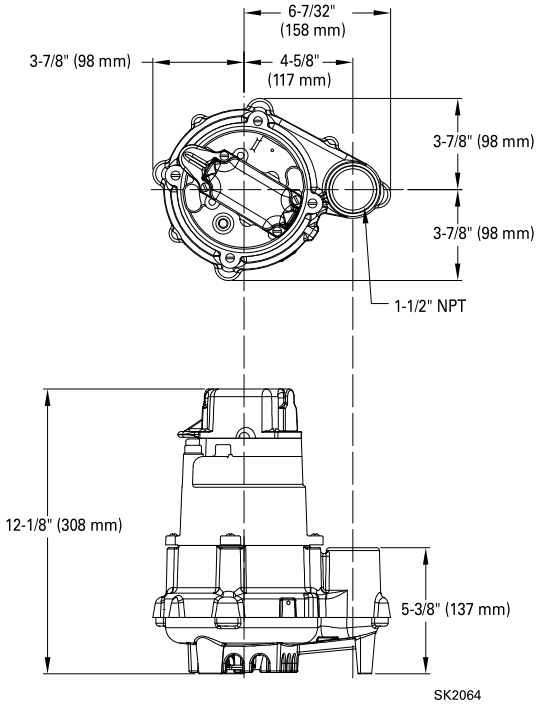
NOTE: The sizing of effluent systems normally requires variable level float(s) controls and properly sized basins to achieve required pumping cycles or dosing timers with nonautomatic pumps.

NOTE: See model comparison chart for specific details.

MODEL 151



MODELS 152 & 153

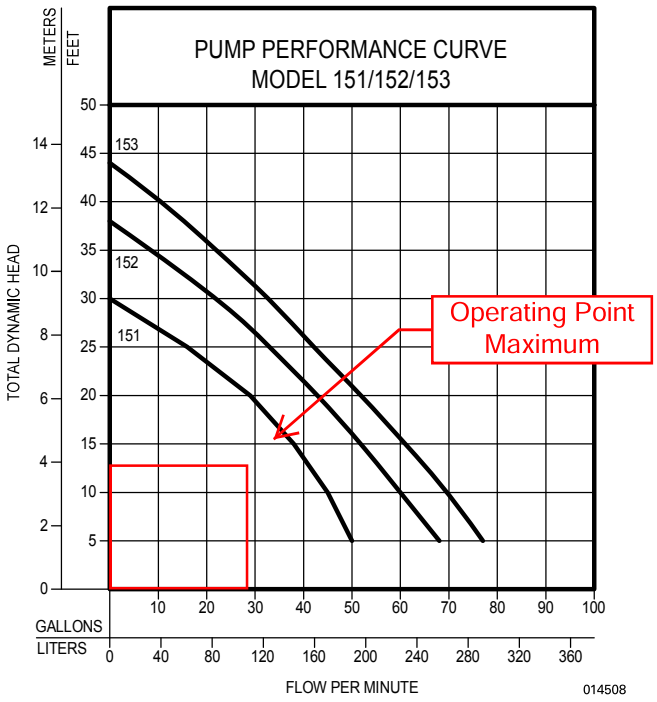


Tested to UL Standard UL778 and Certified to CSA Standard CSA22.2 No. 108

© Copyright 2017 Zoeller® Co. All rights reserved.
502-778-2731 | 800-928-7867 | 3649 Cane Run Road | Louisville, KY 40211-1961 | zoellerpumps.com

TOTAL DYNAMIC HEAD FLOW PER MINUTE

MODEL		151		152		153	
Feet	Meters	Gal.	Liters	Gal.	Liters	Gal.	Liters
5	1.5	50	189	69	261	77	291
10	3.0	45	170	61	231	70	265
15	4.6	38	144	53	201	61	231
20	6.1	29	110	44	167	52	197
25	7.6	16	61	34	129	42	159
30	9.1	--	--	23	87	33	125
35	10.7	--	--	--	--	22	85
40	12.2	--	--	--	--	11	42
Shut-off Head:		30 ft. (9.1m)		38 ft. (11.6m)		44 ft. (13.4m)	



Model	MODEL COMPARISON										
	Seal	Mode	Volts	Ph	Amps	HP	Hz	Lbs	Kg	Simplex	Duplex
N151	Single	Non	115	1	6.0	1/3	60	32	15	1	2 or 3
E151	Single	Non	230	1	3.0	1/3	60	32	15	1	2 or 3
BN151	Single	Auto	115	1	6.0	1/3	60	33	15	*	2 or 3
BE151	Single	Auto	230	1	3.0	1/3	60	33	15	*	2 or 3
N152	Single	Non	115	1	8.5	4/10	60	37	17	1	2 or 3
E152	Single	Non	230	1	4.3	4/10	60	37	17	1	2 or 3
BN152	Single	Auto	115	1	8.5	4/10	60	39	18	*	2 or 3
BE152	Single	Non	230	1	4.3	4/10	60	39	18	*	2 or 3
N153	Single	Non	115	1	10.5	1/2	60	37	17		
BN153	Single	Auto	115	1	10.5	1/2	60	39	18	*	2 or 3
E153	Single	Non	230	1	5.3	1/2	60	37	17	1	2 or 3
BE153	Single	Non	230	1	5.3	1/2	60	39	18	*	2 or 3

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

NOTE: Model 151 has a plastic base. Models 152 & 153 have a cast iron base.

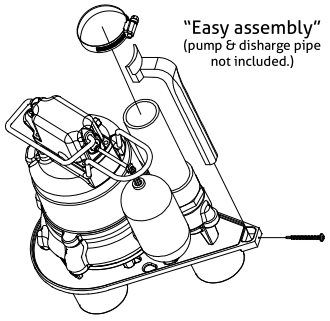
SELECTION GUIDE

1. For automatic, use single piggyback variable level float switch or double piggyback variable level float switch. Refer to FM0477.
2. See FM1228 for correct model of simplex control panel.
3. 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 1½" 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.



⚠ CAUTION 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).

© Copyright 2017 Zoeller® Co. All rights reserved.
502-778-2731 | 800-928-7867 | 3649 Cane Run Road | Louisville, KY 40211-1961 | zoellerpumps.com

POLYLOK™ Inc.
Innovations in Precast, Drainage & Wastewater Products
Zabel® A Division of Polylok Inc.

PL-68 Effluent Filter

PL-68 Filter and Tee

PL-68 is much more than just an effluent filter. The housing can also be used as an inlet baffle (tee) or an outlet baffle. The housing is designed to accept Polylok's snap in gas deflector to deflect gas bubbles away from the tee and to keep the solids in the tank.

Features:

- Offers 68 linear feet of 1/16" filter slots, which significantly extends time between cleaning.
- Accepts 3/4" PVC handle.
- Locks in any 360° position when used with PL-68 Tee.
- PL-68 Housing can be used as an inlet or outlet tee.
- Gasket prevents bypass.

PL-68 Installation:

Ideal for residential waste flows up to 800 gallons per day (GPD). Easily installs in any new or existing 4" outlet tee.

1. Locate the outlet of the septic tank.
2. Remove the tank cover and pump tank if necessary.
3. Glue the filter housing to the outlet pipe, or use a Polylok Extend & Lok if not enough pipe exists.
4. Insert the PL-68 filter into tee.
5. Replace and secure the septic tank cover.

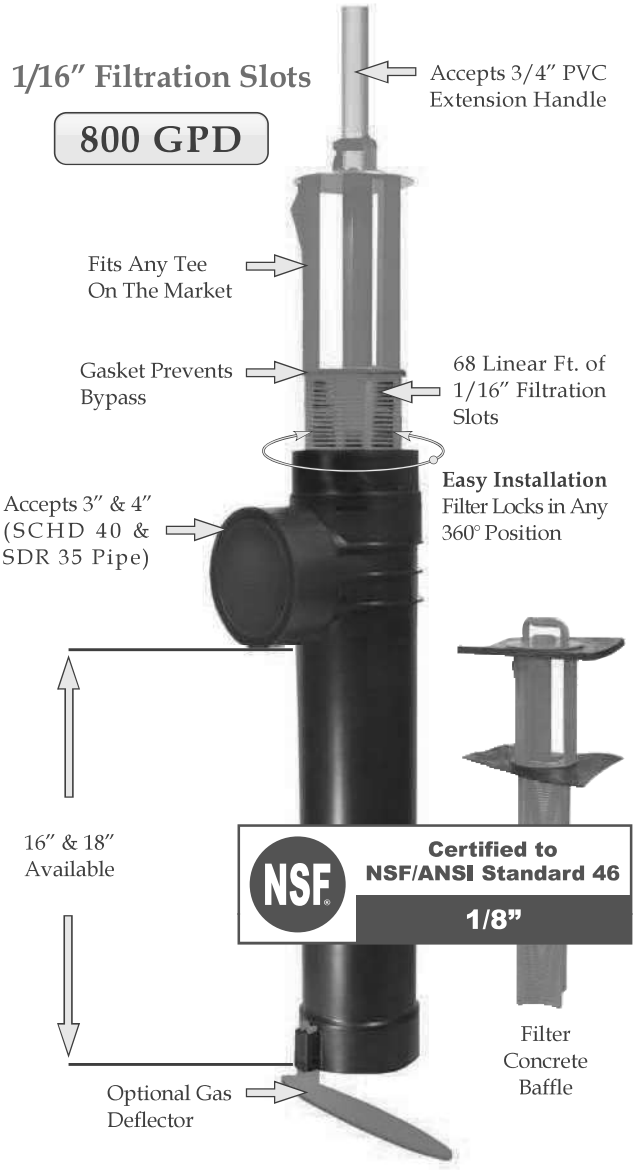
PL-68 Maintenance:

The PL-68 Effluent Filter will operate efficiently for several years under normal conditions before requiring cleaning. It is recommended that the filter be cleaned every time the tank is pumped, or at least every three years.

1. Do not use plumbing when filter is removed.
2. Pull PL-68 out of the tee.
3. Hose off filter over the septic tank. Make sure all solids fall back into septic tank.
4. Insert filter back into tee/housing.

Related Products:

PL-68 Filter Concrete Baffle
Extend & Lok™



Extend & Lok™
Easily installs into existing tanks.

Spacer Bushing 4" SCHD 40 to SDR 35

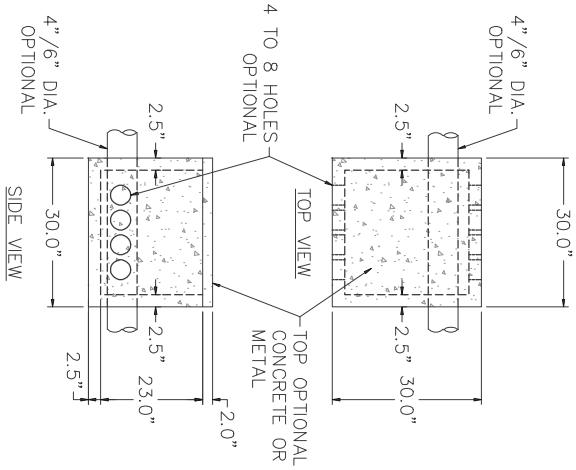
Spacer Bushing 4" SCHD 40 to 110mm Pipe

2" Extender

Polylok, Inc. 3 Fairfield Blvd. Wallingford, CT 06492 Toll Free: 877.765.9565 Fax: 203.284.8514 www.polylok.com

SMALL MANIFOLD BOX

NTS



DAVID BRANTLEY & SONS

37 Pine Ridge Rd.
Zebulon, NC 27597
Office 252-478-3721
Fax 919-573-0443

1installer@gmail.com

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	-----

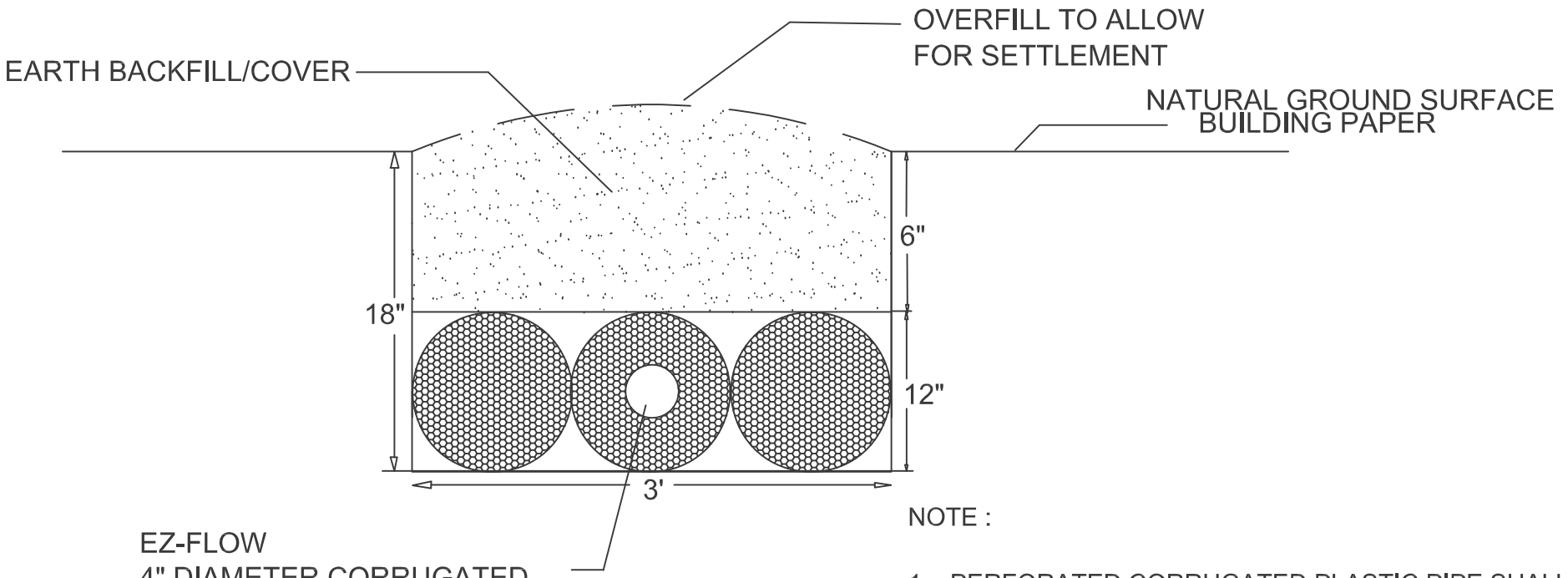
BRANTLEY TANK MODEL

SMALL MANIFOLD BOX

SHEET NUMBER

1 of 1

NITRIFICATION TRENCH DETAIL FOR EZ-FLOW



EZ-FLOW
4" DIAMETER CORRUGATED
PLASTIC DRAIN PIPE
SURROUNDED BY
POLYSTYRENE BLOCKS
WRAPPED W/PLASTIC MESH

NOTE :

1. PERFORATED CORRUGATED PLASTIC PIPE SHALL MEET REQUIREMNTS OF ASTM D 2729.
2. PIPE SHALL BE LEVEL.
3. END CAP SHALL BE PROVIDED AT END OF ALL CORRUGATED PLASTIC PIPE LINES.
4. TRENCH BOTTOM SHALL BE LEVEL.
4. SEE INFORMATION FOR INSTALLER.

JOB NO:	PROJECT NAME:	PAC-ONE PLLC	NOTES:
PROJECT MGR:			
SCALE: NTS	SHEET TITLE: NITRIFICATION TRENCH		

MODEL 112 Control Panel

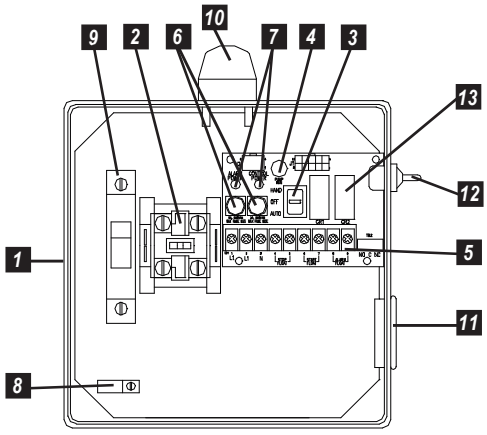
Single phase, simplex motor contactor control.

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 mounting feet 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. **Ground Lug**
9. **Circuit Breaker** (optional) provides pump disconnect and branch circuit protection.



Model Shown 1121W914X

STANDARD ALARM PACKAGE

10. **Red Alarm Beacon** provides 360° visual check of alarm condition.
    Note: NEMA 1 style utilizes a door mounted indicator in lieu of a beacon.
11. **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.
12. **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.
13. **Horn Silence Relay** (mounted on circuit board).

NOTE: other options available.

c UL us LISTED

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' SJE SignalMaster® control switches
- Complete with step-by-step installation instructions
- Three-year limited warranty

SEE BACKSIDE FOR COMPLETE LISTING OF AVAILABLE OPTIONS.
SEE PRICE BOOK FOR LIST PRICE.

SJE Rhombus®
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

112	1	W	9	1	4	H	8A,8C,3A,10E, 15A

MODEL 112

ALARM PACKAGE
- 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
- 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 (select 17 option)
- 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 , **add a one-time enclosure upsize fee would apply.**

	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
x	3A	Alarm flasher
	★ 3B	Manual alarm reset
	★ 4A	Redundant off *(select option 4D if floats included)*
	★ 4B	Red redundant off indicator & alarm *(must select 4A also)*
	4D	Redundant off float *(select 4A option) (select 17 option)*
	★ 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
x	★ 8A	Elapsed time meter
x	★ 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
x	10E	Lockable latch - NEMA 4X
	10E	Lockable latch - NEMA 1
	★10F	Lightning arrestor *(select pump circuit breaker)*
	★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
	★★	20-30 FLA
x	15A	Control / alarm circuit breaker
	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)*
	17J	Sensor Float® / pipe clamp ▲ *(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

If additional features are required, call the factory for a quote on an Engineered Custom control panel.

SAMPLE

MODEL	112	1	W	9	1	4	H	3A 8A 17A

- **Alarm Package**
- **Enclosure Rating**
- **Starting Device**
- **Pump Full Load Amps**
- **Pump Disconnect**
- **Float Switch Application**
- **Options: Flasher, Elapsed Time Meter, SJE SignalMaster® / pipe clamp**

©SJE-Rhombus 09/10

INFORMATION FOR THE CONTRACTOR

The permit should be read very carefully prior to bidding. The following are details that must be considered by the contractor prior to and during installation:

- Tanks shall be approved by NCDHHS and certification supplied by the manufacturer.

- The installer shall be responsible to the owner for placement of the tanks and to ensure that final grades are returned to the original grade, with exception of added structural features.

- The supply trench shall be compacted to eliminate cavities left during initial fill placement without damage or displacement of pipe or fittings.

- Installation of the system shall be during dry conditions in order to protect the soil structure.

- All fittings shall be pressure rated fittings.

- All joints shall be cleaned with PVC pipe cleaner and a heavy-bodied PVC pipe glue applied to weld all joints.

- Where required by the regulating County Health Department, post installation inspections by the Engineer or his representative must be scheduled **5 week days** in advance.

- Trenches shall be carefully excavated so the bottom is level **for the entire length and width of the trench**. If the trench bottom level needs adjusting after excavation it **must** be done by removing high points rather than filling low points. It is extremely important to insure that trenches are not over-excavated during initial trenching. All fine grading within the trench will be done by hand with a shovel. No loose material will be left in the trench.

- All pipe openings in the tanks shall be properly filled with press boot seal. This also applies to the joints around the riser.

- All tanks shall be properly back filled and compacted to prevent settlement.

- Earth dams, constructed of relatively impervious material, shall be installed at the beginning and end of each lateral.

- No heavy equipment shall be used on the field during or after installation. The use of a small loader (i.e. Bobcat) or a trencher (i.e. Ditch Witch 2300/2310) may be used for installation.

- Elevations at pin flag locations should be checked by the contractor prior to beginning trench excavation.

- Pump tank riser shall be 6” above grade, control panel shall be 18” above grade.

-Septic tank shall have specified effluent filter or approved equivalent.

System Specifics:
- System uses EZ-Flow drain line.
- Repair uses EZ-Flow drain line.

Miscellaneous errors and omissions

Markel has over 35 years of experience providing miscellaneous errors and omissions insurance. Our leadership has a wealth of knowledge and expertise in protecting small business owners from litigation stemming from actual or perceived negligence. Our underwriting team has crafted policies that fit your specific needs, while our seasoned, in-house claims professionals will help you successfully navigate a loss or claim should you need their assistance.

Reporting new professional liability claims

New Claims can be reported in writing by website, email, fax, or regular mail. Please refer to your specific policy for all relevant reporting requirements.

To report a new claim, visit **markelinsurance.com/file-a-claim** and select "BOP/Miscellaneous errors and omissions/Workers compensation" from the drop down. You can also email **newclaims@markelcorp.com** and include the following:

- Policy number
- Insured and claimant names with contact details
- Date of loss
- Location and description of loss
- All pertinent documentation available (incident report, police report, witness information, photos, etc.)

General claims questions

For information about an already reported Professional Liability claim, email: **markelclaims@markelcorp.com**, or contact your assigned claim examiner directly.

Additional contact information:

(800) 362-7535 or (800) 3 MARKEL

(855) 662-7535 or (855) 6 MARKEL

Markel Claims Department, P.O. Box 2009,
Glen Allen, VA 23058-2009

While your policy is primarily designed to protect against a variety of professional errors and omissions claims, it may also provide protection for other specific exposures such as pollution claims, disciplinary proceedings, third party discrimination claims, subpoena and public relations expenses, among others. Contact your agent for more information, or if you have reported a Claim, your assigned examiner.

Risk management and loss prevention

Policyholders have access to loss control and risk management resources that can assist in a better understanding of potential hazards within their operation and ways to reduce claims.

Here's a sample of the many services available:

- Exposure assessments
- Loss analysis tools
- Safety videos
- Safety training materials
- Regulatory program guidance

Designed Protection® for professional service providers and associations – professional service providers hotline

Our panel of Risk Management experts is available to discuss general risk management related concerns and questions. Please visit **markelcorp.com/riskmanagement** and under "Designed Protection®" click "Click here," enter your policy number, then select "Professional Service Providers Hotline" to access our panel of experts.

Visit our website at:
markelinsurance.com/risk-management-home.

For more information about any of Markel's loss control services, contact us at (888) 500-3344 or email **losscontrol@markelcorp.com**.

For more information about our programs, risk management articles, and FAQs, please visit **markelinsurance.com**. To pay your bill or view policy documents, please visit **portal.markelinsurance.com**.

Products and services are offered through Markel Specialty, a business division of Markel Service Incorporated. Policies are written by one or more Markel insurance companies. Terms and conditions for rate and coverage may vary. 201806

MARKEL®

CERTIFICATE OF LIABILITY INSURANCE

DATE (MM/DD/YYYY): 11/30/2023

THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AFFIRMATIVELY OR NEGATIVELY AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW. THIS CERTIFICATE OF INSURANCE DOES NOT CONSTITUTE A CONTRACT BETWEEN THE ISSUING INSURER(S), AUTHORIZED REPRESENTATIVE OR PRODUCER, AND THE CERTIFICATE HOLDER.

IMPORTANT: If the certificate holder is an ADDITIONAL INSURED, the policy(ies) must be endorsed. If SUBROGATION IS WAIVED, subject to the terms and conditions of the policy, certain policies may require an endorsement. A statement on this certificate does not confer rights to the certificate holder in lieu of such endorsement(s).

PRODUCER	CONTACT NAME: Angela Sensenig	
Wade Associates, LLC 250 Pollock St. New Bern NC 28560	PHONE (A/C, No, Ext): (252)631-5269	FAX (A/C, No): (252)649-2443
	E-MAIL ADDRESS: asensenig@wadeict.com	
	INSURER(S) AFFORDING COVERAGE	NAIC #
	INSURER A : Auto-Owners	18988
INSURED	INSURER B : Builders Mutual	10844
Permit Acquistion Company One, PLLC 920 Garner Rd. Selma NC 27576-7763	INSURER C : Markel Insurance Company	38970
	INSURER D :	
	INSURER E :	
	INSURER F :	

COVERAGES **CERTIFICATE NUMBER:** 23-24 **REVISION NUMBER:**

THIS IS TO CERTIFY THAT THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

INSR LTR	TYPE OF INSURANCE	ADDL INSD	SUBR WVD	POLICY NUMBER	POLICY EFF (MM/DD/YYYY)	POLICY EXP (MM/DD/YYYY)	LIMITS	
A	X COMMERCIAL GENERAL LIABILITY ☐ CLAIMS-MADE ☒ OCCUR GEN'L AGGREGATE LIMIT APPLIES PER: ☒ POLICY ☐ PRO-JECT ☐ LOC ☐ OTHER:			35613487	11/22/2023	11/22/2024	EACH OCCURRENCE DAMAGE TO RENTED PREMISES (Ea occurrence) MED EXP (Any one person) PERSONAL & ADV INJURY GENERAL AGGREGATE PRODUCTS - COMP/OP AGG	$ 1,000,000 $ 300,000 $ 10,000 $ Excluded $ 2,000,000 $ 2,000,000
	AUTOMOBILE LIABILITY ☐ ANY AUTO ☐ ALL OWNED AUTOS ☐ SCHEDULED AUTOS ☐ HIRED AUTOS ☐ NON-OWNED AUTOS						COMBINED SINGLE LIMIT (Ea accident) BODILY INJURY (Per person) BODILY INJURY (Per accident) PROPERTY DAMAGE (Per accident)	$ $ $ $
	☐ UMBRELLA LIAB ☐ OCCUR ☐ EXCESS LIAB ☐ CLAIMS-MADE ☐ DED ☐ RETENTION $						EACH OCCURRENCE AGGREGATE	$ $
B	WORKERS COMPENSATION AND EMPLOYERS' LIABILITY ANY PROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? Y/N ☐ N/A (Mandatory in NH) If yes, describe under DESCRIPTION OF OPERATIONS below			69KOUB-5N24039-7-23	11/14/2023	11/14/2024	X PER STATUTE ☐ OTH-ER E.L. EACH ACCIDENT E.L. DISEASE - EA EMPLOYEE E.L. DISEASE - POLICY LIMIT	 $ 500,000 $ 500,000 $ 500,000
C	Errors & Omissions			ME01642	11/22/2023	11/22/2024	General Aggregate Each Occurrence	$1,000,000 $1,000,000

DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES (ACORD 101, Additional Remarks Schedule, may be attached if more space is required)

CERTIFICATE HOLDER

FOR INFORMATIONAL PURPOSES ONLY
XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX

CANCELLATION

SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, NOTICE WILL BE DELIVERED IN ACCORDANCE WITH THE POLICY PROVISIONS.

AUTHORIZED REPRESENTATIVE

N Whitsett/RACHEL

© 1988-2014 ACORD CORPORATION. All rights reserved.

A STOCK COMPANY

MARKEL INSURANCE COMPANY

10275 West Higgins Road, Suite 750
Rosemont, IL 60018
(800) 431-1270

INSURANCE POLICY

Coverage afforded by this policy is provided by the Company (Insurer) and named in the Declarations.

In **Witness Whereof**, the company (insurer) has caused this policy to be executed and attested and countersigned by a duly authorized representative of the company (insurer) identified in the Declarations.

Kathleen Anne Sturgeon

Secretary

President

MARKEL

MARKEL INSURANCE COMPANY

NOTICE TO POLICYHOLDERS
CLAIM REPORTING

Please immediately report a new claim under this policy to:

newclaims@markel.com

For general claims inquiries after a claim has been reported, please email:

markelclaims@markel.com

In order for us to expedite the handling of your claim and quickly refer it to the appropriate party, please have the following information available:

- Claim number (or report as new)
- Your name, contact information and position with the Named Insured
- Date of loss
- Policy number and insured name
- Details of loss

Our address and additional contact information are as follows:

Markel Claims
P.O. Box 2009
Glen Allen, VA 23058-2009
Phone: 800-362-7535 (800) 3MARKEL
Fax: 855-662-7535 (855) 6MARKEL

Markel understands the importance of having knowledgeable claims professionals prepared to answer your questions with personal attention and expertise. With claims professionals located across four times zones, you are sure to find the claims assistance you need -- when you need it.

PLEASE REFER TO THE POLICY FOR ANY NOTICE AND REPORTING PROVISIONS AND DUTIES IN THE EVENT OF LOSS OR DAMAGE TO COVERED PROPERTY.

MARKEL INSURANCE COMPANY

U.S. TREASURY DEPARTMENT'S OFFICE OF FOREIGN ASSETS CONTROL ("OFAC") ADVISORY NOTICE TO POLICYHOLDERS

No coverage is provided by this Policyholder Notice nor can it be construed to replace any provisions of your policy. You should read your policy and review your Declarations page for complete information on the coverages you are provided.

This Notice provides information concerning possible impact on your insurance coverage due to directives issued by OFAC. **Please read this Notice carefully.**

The Office of Foreign Assets Control (OFAC) administers and enforces sanctions policy, based on Presidential declarations of "national emergency". OFAC has identified and listed numerous:

- Foreign agents;
- Front organizations;
- Terrorists;
- Terrorist organizations; and
- Narcotics traffickers;

as "Specially Designated Nationals and Blocked Persons". This list can be located on the United States Treasury's web site – https://www.treasury.gov/ofac.

In accordance with OFAC regulations, if it is determined that you or any other insured, or any person or entity claiming the benefits of this insurance has violated U.S. sanctions law or is a Specially Designated National and Blocked Person, as identified by OFAC, this insurance will be considered a blocked or frozen contract and all provisions of this insurance are immediately subject to OFAC. When an insurance policy is considered to be such a blocked or frozen contract, no payments nor premium refunds may be made without authorization from OFAC. Other limitations on the premiums and payments also apply.

Includes copyrighted material of Insurance Services Office, Inc. with its permission.

MARKEL

Markel Insurance Company

PROFESSIONAL LIABILITY INSURANCE DECLARATIONS

Claims Made and Reported Coverage: The coverage afforded by this policy is limited to liability for only those **Claims** that are first made against the **Insured** during the **Policy Period** or the Extended Reporting Period, if exercised, and reported to Markel Insurance Company during the **Policy Period** or the Extended Reporting Period, if exercised, or within 60 days after the expiration of the **Policy Period** or the Extended Reporting Period, if exercised.

Notice: This policy contains provisions that reduce the Limits of Liability stated in the policy by the costs of legal defense and permit legal defense costs to be applied against the deductible, unless the policy is amended by endorsement. Please read the policy carefully.

POLICY NUMBER: MEO1642-05 RENEWAL OF POLICY: MEO1642-04

NAMED INSURED: Permit Acquisition Company-One LLC

BUSINESS ADDRESS: 920 Garner Road
Selma, NC 27576

POLICY PERIOD: From 11/22/2023 to 11/22/2024
12:01 A.M. Standard Time at address of Insured stated above.

IN RETURN FOR THE PAYMENT OF THE PREMIUM, AND SUBJECT TO ALL THE TERMS OF THIS POLICY, THE COMPANY AGREES WITH THE NAMED INSURED TO PROVIDE THE INSURANCE AS STATED IN THIS POLICY.

1. **PROFESSIONAL SERVICES:** soil science

2. **LIMITS OF LIABILITY**

Professional Liability Coverage

A. Each Claim:	$2,000,000
B. Policy Aggregate:	$2,000,000

Additional Payments

A. Contingent Bodily Injury And Property Damage	$100,000
B. Pollution	$10,000
C. Pre-Claim Assistance Expenses	$20,000
D. Sexual Abuse	$10,000
E. Third Party Discrimination	$25,000

Supplementary Payments

A. Disciplinary Proceeding	$25,000 per Policy Period
B. Loss Of Earnings And Expense Reimbursement	$10,000
C. Public Relations Expenses	$5,000
D. Subpoena And Record Request Assistance	$5,000

Producer Number, Name and Mailing Address
98496
Wade Associates, LLC. - New Bern
PO Box 1209
Davidson, NC, 28036

3. **DEDUCTIBLE**

   A. Each Claim: $1,000

   B. Aggregate: $3,000

4. **RETROACTIVE DATE:** 11/22/2019

5. **PREMIUM RATE:** Flat **PREMIUM BASE:** Flat

6. **PREMIUM FOR POLICY PERIOD**

   Minimum: $560

   Deposit: $560

   Adjusted Annual Premium: $560

7. **PREMIUM PERCENTAGE FOR EXTENDED REPORTING PERIOD:**
   ADDITIONAL PERIOD:

8. **FORMS AND ENDORSEMENTS ATTACHED AT POLICY INCEPTION:**

   See MDIL 1001 attached.

These declarations, together with the Coverage Form and any Endorsement(s), complete the above numbered policy.

Countersigned: 08/30/2023 (Date)	By: John K Clark Authorized Representative Signature