

# HAL OWEN & ASSOCIATES, INC.

SOIL & ENVIRONMENTAL SCIENTISTS

P.O. Box 400, Lillington NC 27546-0400

Phone (910) 893-8743 / Fax (910) 893-3594

www.halowensoil.com

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4 December 2023

Steve Thomas  
PO Box 825  
Broadway, NC 27505

Reference: Private Septic Permit  
4746 McNeill Hobbs Rd, Bunnlevel, Harnett Co., NC  
Lot 1; PIN 0566-49-0426.000

Dear Mr. Thomas,

A soil and site evaluation has been conducted for the above referenced property for the purpose of permitting a subsurface sewage waste disposal system. Attached to this cover letter, you will find the documents needed to file for a septic permit with the Local Health Department (LHD). **This permit is not complete until a Notice of Intent (NOI) to construct a wastewater system using an Authorized Onsite Wastewater Evaluator (AOWE) is submitted to the LHD.** You will need to file a septic application with the LHD, pay the filing fee, and provide a signed copy of the AOWE permit package. After filing a complete NOI, you may apply for building permits.

Enclosed you will find the documents needed to file a Notice of Intent:

- Notice of Intent (NOI) to Construct Form (**owner must sign NOI**)
- Certificate of Insurance for Hal Owen & Associates, Inc.
- A plat or site plan
- AOWE Evaluation for the subject property

## SEPTIC SYSTEM INSTALLATION

Hal Owen & Associates Inc. is responsible for inspecting and approving the septic system installation; therefore, it is important for the client to coordinate with us in choosing an installer to ensure a quality installation and to avoid project delays, cost overrun, or permit revocation. The septic system installer shall hold a current certification from the North Carolina Onsite Wastewater Contractor Inspector Certification Board as a **Level II installer or higher**. The installer shall **provide proof of liability insurance** with effective dates of coverage. The installer shall submit a **signed and dated statement of responsibility** to the owner, prior to commencement of work, that contains acknowledgement of the requirements of the onsite wastewater system specified by the AOWE.

Hal Owen & Associates Inc should be **contacted at least five days** prior to the anticipated septic installation date in order to schedule a **pre-construction conference and site visit**. The inspector will observe and note current site conditions and verify the locations of the structure, driveway and parking, and septic system layout. If any features are found to be out of compliance with the AOWE Permit, the inspector may delay the start of installation until issues are resolved.

Hal Owen & Associates Inc. will inspect the septic system prior to the system being covered. A Post-Construction Conference with the installer, owner (or agent), and Hal Owen & Associates staff is required. The conference shall include start-up and any required verification of the system components. Upon determining that the system is properly installed, we will issue an Authorization to Operate (ATO) and include an inspection report, as-built sketch, and system operation and management program. The applicant shall provide a copy of these documents along with the filing fee to the LHD, who will issue the certificate of occupancy for the facility.

I appreciate the opportunity to provide this service. If you have any questions or need additional information, please contact me at your convenience.

Sincerely,

A handwritten signature in black ink that reads "Hal Owen". The signature is fluid and cursive, with the first letters of "Hal" and "Owen" being capitalized and prominent.

Hal Owen  
Licensed Soil Scientist  
Authorized Onsite Wastewater Evaluator

**On-Site Wastewater System Contractor**

**Statement of Responsibility**

Project Name (site identifiers): 4746 McNeill Hobbs Rd, Bunnlevel, Harnett Co., NC

Lot 1; PIN 0566-49-0426.000

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County: Harnett LHD Reference: \_\_\_\_\_

AOWE: Hal Owen, LSS #1102 and AOWE #10036E

Wastewater System Owner:

Name: Steve Thomas

Address: PO Box 825, Broadway, NC 27505

I, Larry W Sharpe, am a certified on-site wastewater system contractor licensed in the State of North Carolina pursuant to article 5 of Chapter 90A of the General Statutes. I acknowledge the requirements of the on-site wastewater system specified by the Authorized On-Site Wastewater Evaluator (AOWE) and agree to be responsible for all aspects of the construction and installation of the wastewater system and its components, including adherence to specifications and any special inspections that are prepared, signed, and sealed by the AOWE. I have sufficient errors and omissions, liability, or other insurance for the system to be constructed.

Larry W Sharpe  
Signature of Installer

6511  
Certification #

12-11-23  
Date





**North Carolina Onsite Wastewater Contractor Inspector Certification Board**  
**Authorized Onsite Wastewater Evaluator Permit Option for Non-Engineered Systems**  
**Notice of Intent (NOI) to Construct**

New     Expansion     Repair     Relocation     Relocation of Repair Area

Owner or Legal Representative Information:  
 Name: Steve Thomas  
 Mailing address: PO Box 825 City: Broadway State: NC Zip: 27505  
 Phone: 919-906-4069 Email: southernconcrete@windstream.net

Authorized Onsite Wastewater Evaluator Information:  
 Name: Hal Owen Certification #: 10036E  
 Mailing address: PO Box 400 City: Lillington State: NC Zip: 27546  
 Phone: 910-893-8743 Email: hal@halowensoil.com

Site Location Information:  
 Site address: 4746 McNeill Hobbs Rd  
 Tax parcel identification number or subdivision lot, block number of property: \_\_\_\_\_  
Lot 1, 0566-49-0426.000 County: Harnett

System Information:  
 Wastewater System Type: IIIbg  
 Daily Design Flow: 360 gpd  
 Saproliite System:  Yes  No    Subsurface Operator Required:  Yes  No  
 Water Supply Type:  Private Well  Public Water Supply  Spring  Other: \_\_\_\_\_

Facility Type:  
 Residential 3 # Bedrooms 6 Maximum # of Occupants \_\_\_\_\_  
 Business    Type of Business and Basis for Flow: \_\_\_\_\_  
 Public Assembly    Type of Public Assembly and Basis for Flow: \_\_\_\_\_

Required Attachments:  
 Plat or Site Plan  
 Evaluation of Soil and Site Features by Licensed Soil Scientist

Attest: On this the 27 day of November 2023 by signature below I hereby attest that the information required to be included with this NOI to Construct is accurate and complete to the best of my knowledge. Furthermore, I hereby attest that I have adhered to the laws and rules governing onsite wastewater systems in the state of North Carolina.  
 This NOI shall expire on 31 day of December, 2023.  
 Signature of Authorized Onsite Wastewater Evaluator: *Hal Owen*  
 Signature of Owner or Legal Representative: \_\_\_\_\_

Disclosure: The owner may apply for a building permit for the project upon submitting a complete NOI to Construct and the fee required (if any) to the local health department. An onsite wastewater system authorized by an authorized onsite wastewater evaluator shall be transferable to a new owner with the consent of the authorized onsite wastewater evaluator.

Local Health Department Receipt Acknowledgement:  
 Signature of Local Health Department Representative: \_\_\_\_\_ Date: \_\_\_\_\_





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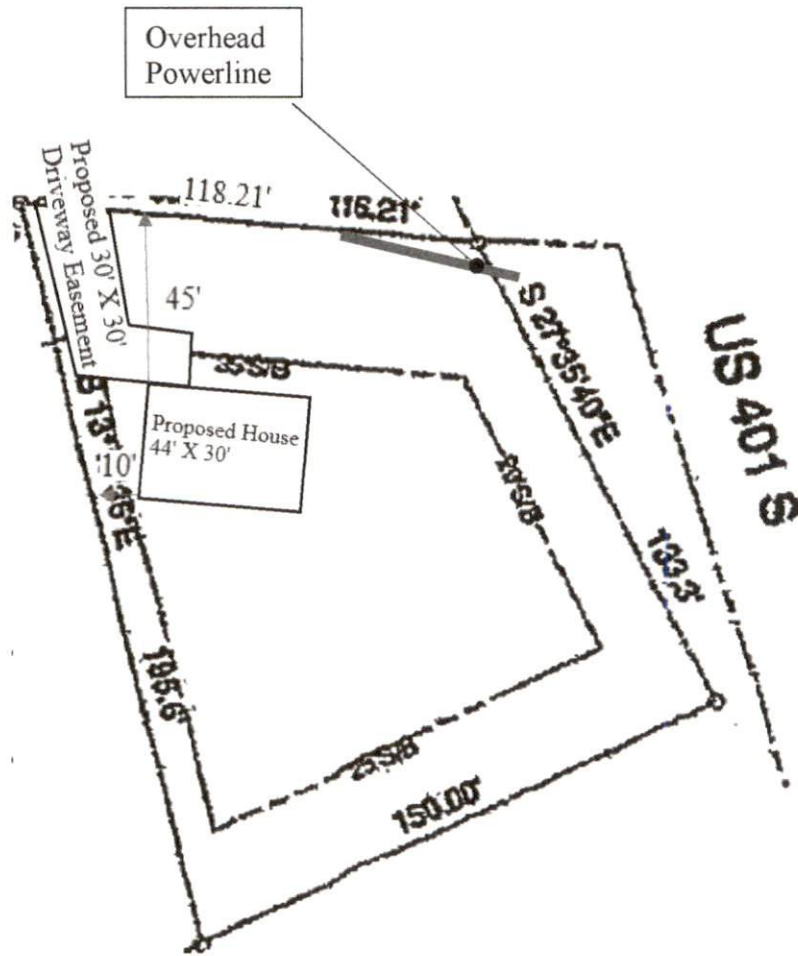
Phone (910) 893-8743 / Fax (910) 893-3594

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## Site Plan

4746 McNeill Hobbs Rd, Bunnlevel, Harnett Co., NC

Lot 1; PIN 0566-49-0426.000



Scale 1 in = 50 ft



Map for reference only. Not a survey.

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4 December 2023

Steve Thomas  
PO Box 825  
Broadway, NC 27505

Reference: AOWE Evaluation  
4746 McNeill Hobbs Rd, Bunnlevel, Harnett Co., NC  
Lot 1; PIN 0566-49-0426.000

Dear Mr. Thomas,

A soil and site evaluation has been conducted for the above referenced property for the purpose of permitting a subsurface sewage waste disposal system. **This LSS Evaluation is being submitted pursuant to and meets the requirements of G.S.130A-336.2.** This evaluation of soil conditions and site features is provided in accordance with G.S. 130A-335(e), the "Laws and Rules for Sewage Treatment and Disposal Systems, 15A NCAC 18A .1900", and local septic regulations (if any). This report represents my professional opinion as a Licensed Soil Scientist and Authorized Onsite Wastewater Evaluator. This report shall be used to file a Notice of Intent to Construction a wastewater system with the Local Health Department before December 31, 2023. Failure to file an NOI before then shall result in the AOWE Evaluation to become void.

Sincerely,



Britt Wilson  
Licensed Soil Scientist



Hal Owen  
Senior Licensed Soil Scientist  
Authorized Onsite Wastewater Evaluator

## SPECIAL TERMS AND CONDITIONS

This evaluation includes a signed and sealed soil and site evaluation, specifications, plans, and reports for the site layout and construction of a proposed onsite wastewater system by an Authorized On-Site Wastewater Evaluator (AOWE) in accordance with G.S. § 130A-336.2. This evaluation was prepared based on information provided by the owner of the proposed system; to include the basis for design flow, proposed structure location(s), and property boundaries. Any false, inaccurate, or incomplete information provided by the owner may result in denial or revocation of applications, approvals, or permits.

This evaluation is not a permit to develop. The owner and subcontractors will need to abide by all state and local rules and regulations pertaining to planning, zoning, and land use development.

Notice of Intent to Construct – The proposed wastewater system is not “permitted” until the owner files an application with the Local Health Department (LHD) and provides a complete Notice of Intent (NOI) to Construct a wastewater system using an AOWE. The owner may apply for a building permit for the project upon submitting a complete NOI and the required fee.

On-Site Wastewater System Contractor – The AOWE shall assist the owner in the selection of an on-site wastewater system contractor who shall be under contractual obligation to the owner and have sufficient errors and omissions, liability, or other insurance for the system constructed.

Inspections, Construction Observations, and Reports – The AOWE shall make periodic visits to the site to observe the progress and quality of the construction. Upon determining that the system is properly installed and capable of being operated in accordance with the conditions of the permit, the AOWE will issue an Authorization to Operate (ATO) and include an inspection report and a written operation and management program. The owner shall provide a complete ATO package and fee to the LHD, who will issue the certificate of occupancy for the facility.

Operation and Management – The owner shall be responsible for continued adherence to the operations and management program established by the AOWE. This permit shall in no way be taken as a guarantee or implied warranty that the septic system will function satisfactorily for any given period of time.

Change in System Ownership. – An authorized wastewater system shall be transferrable to a new owner with the consent of the AOWE. The new owner and the AOWE shall enter a contract for the wastewater system.

Revocation – The AOWE permit is subject to revocation if the site plan, plat, or the intended use changes. This permit is subject to compliance with the provisions of the Laws and Rules for Sewage Treatment and Disposal and to the conditions of this permit.

Repair of Malfunctioning Systems. – The owner may apply for an Improvement Permit and a Construction Authorization from the LHD or obtain a NOI from an AOWE to repair a malfunctioning wastewater system.



## **PROPOSED USE**

A new single-family residence will be built at the site. The home will not have a basement. The proposed single-family residence will contain three bedrooms and have a design wastewater flow of 360 gallons per day. The maximum occupancy of the home is 6 people.

## **WATER SUPPLY**

Public water supplies will be utilized.

## **EXISTING SITE CONDITIONS**

At the time of the investigation, the site had not been cleared, lot corners were staked, and the new building footprint was marked. No existing wells, streams, or wetlands were observed within 50 feet of the proposed septic system and repair area. An overhead power line is located in the northeast corner, and a 15-foot easement was assumed along each side of it.



## **SOIL AND SITE INVESTIGATION**

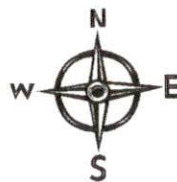
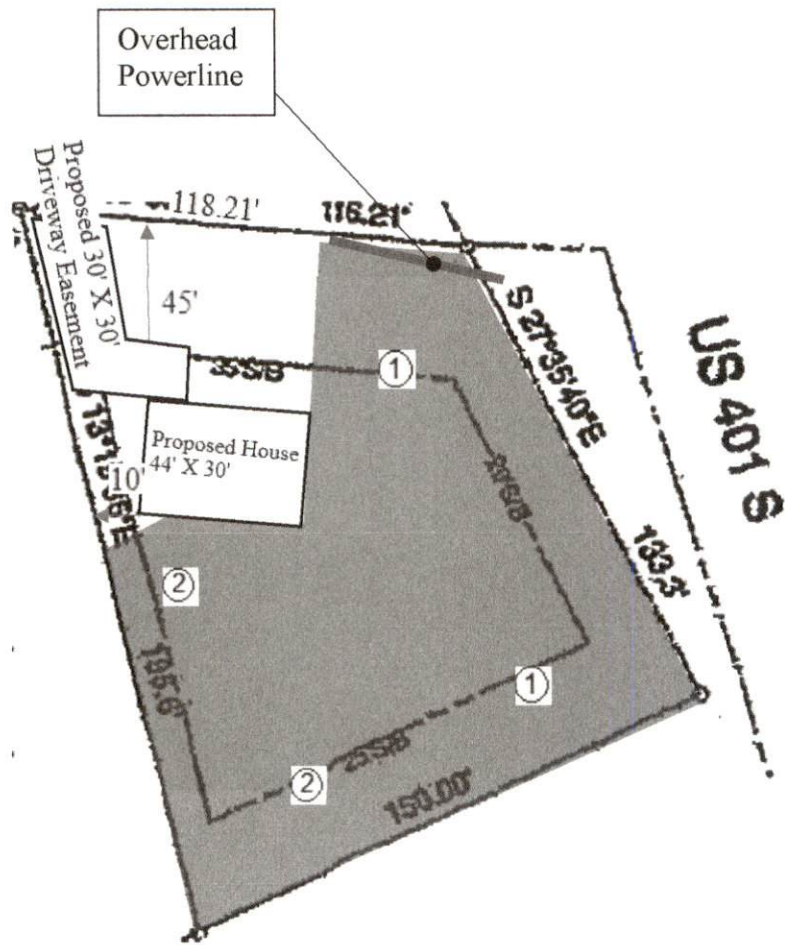
The soils were evaluated under moist soil conditions through the advancing of auger borings. This evaluation included observations of topography and landscape position, soil morphology (texture, structure, clay mineralogy, organics), soil wetness, soil depth, and restrictive horizons. Descriptions of the soil borings located within the investigated portions of the site are provided in the attached Soil/Site Evaluation form.


Soils in the proposed system area were observed to rate as provisionally suitable for modified or alternative subsurface sewage waste disposal systems. (Figure 1). The subsoils were observed to be firm sandy clay loams and extended to greater than 48 inches below ground surface. Evidence of a soil wetness condition was observed at 26 inches below surface or deeper. These soils appear adequate to support long-term acceptance rates of 0.4 gal/day/ft<sup>2</sup> for Accepted Status drainlines.

Figure 1. Soil Map showing Septic Suitability

*Soil Map Legend*

-  Provisionally Suitable for Modified or Alternative Systems
-  Soil Auger Borings



Scale 1 in = 50 ft  
  
Map for reference only.  
Not a survey.

**SOIL/SITE EVALUATION FORM  
FOR ON-SITE WASTEWATER SYSTEM**

APPLICANT: Steve Thomas  OWNER  AGENT  
 ADDRESS: PO Box 825  
Broadway, NC 27505  
 PROPOSED FACILITY: Single Family Residence COUNTY: Harnett  
 LOCATION OF SITE: 4746 McNeill Hobbs Rd PROPERTY ID #: 0566-49-4626.000  
 PROPOSED DESIGN FLOW (.1941): 360 gal WASTEWATER TYPE: Domestic Sewage  
 WATER SUPPLY:  On-Site Well  Community Well  Public  Other \_\_\_\_\_  
 EVALUATION METHOD:  Auger Boring  Pit DATE EVALUATED: 11/1/2023  
 EVALUATED BY: Britt Wilson, LSS 1351

	INITIAL SYSTEM	REPAIR SYSTEM
.1945 AVAILABLE SPACE	675 ft <sup>2</sup> trench bottom (25% reduction sys)	675 ft <sup>2</sup> trench bottom (25% reduction sys)
SYSTEM TYPE	Accepted Status (25% reduction)	Accepted Status (25% reduction)
SITE LTAR (gpd/ft <sup>2</sup> )	0.4	0.4

.1946 OTHER FACTORS: \_\_\_\_\_  
 .1948 SITE CLASSIFICATION: Provisionally Suitable for modified or alternative systems  
 COMMENTS: \_\_\_\_\_

**PROFILE 1**

HORIZON DEPTH (IN)	COLOR	.1941 SOIL MORPHOLOGY				OTHER PROFILE FACTORS	
		MOIST CONSISTENCE	.1941(a)(1) TEXTURE	.1941(a)(2) STRUCTURE	.1941(a)(3) MINERAL OGY		
0-8	10 YR 4/2	VFR	SL	GR	NEXP	.1940 LANDSCAPE POS & SLOPE%	T/ < 2%
8-12	10 YR 6/4	FR	SL	GR	NEXP	.1942 SOIL WETNESS CONDITION	27"
12-48	10 YR 6/6	FI	SCL	SBK	SEXP	.1943 SOIL DEPTH	48"
						.1956 SAPROLITE CLASS	NA
						.1944 RESTRICTIVE HORIZON	NA
						PROFILE CLASSIFICATION	PS for mod
						LTAR	0.4 gpd/ft <sup>2</sup>
COMMENTS							

**PROFILE 2**

HORIZON DEPTH (IN)	COLOR	.1941 SOIL MORPHOLOGY				OTHER PROFILE FACTORS	
		MOIST CONSISTENCE	.1941(a)(1) TEXTURE	.1941(a)(2) STRUCTURE	.1941(a)(3) MINERAL OGY		
0-6	10 YR 4/2	VFR	SL	GR	NEXP	.1940 LANDSCAPE POS & SLOPE%	T/ < 2%
6-11	10 YR 6/4	FR	SCL	SBK	SEXP	.1942 SOIL WETNESS CONDITION	26"
11-48	10 YR 6/6	FI	SCL	SBK	SEXP	.1943 SOIL DEPTH	48"
						.1956 SAPROLITE CLASS	NA
						.1944 RESTRICTIVE HORIZON	NA
						PROFILE CLASSIFICATION	PS for mod
						LTAR	0.4 gpd/ft <sup>2</sup>
COMMENTS							





## SEPTIC SYSTEM DESIGN

See section *Wastewater Treatment System Plans* and Figure 2 for a diagram of the septic system layout and design specifications.

A 1000-gallon (at minimum) septic tank and an approved septic effluent filter is required. A pump tank (1000 gallon at minimum) is required to lift effluent to the nitrification field. The pump tank may be eliminated if gravity distribution can be demonstrated.

The initial septic system is proposed as a pump driven system to 228 linear feet of Accepted Status drainlines utilizing a 25% reduction in total drainline length (Figure 2). A long-term application rate (LTAR) of 0.4 gal/day/ft<sup>2</sup> was used to design the nitrification field. A pressure manifold will be used to deliver effluent to two unequal length drainlines. The drainlines shall be installed on contour with maximum trench depths at 14 inches below surface (low side). Due to the ultra-shallow trench depth, it will be necessary to add approved soil material over the nitrification field to provide at least six inches of cover over the drainlines.

The repair septic system is proposed as a gravity driven system to 228 linear feet of Accepted Status drainlines utilizing a 25% reduction in total drainline length (Figure 2). A long-term application rate (LTAR) of 0.4 gal/day/ft<sup>2</sup> was used to design the nitrification field. A pressure manifold will be used to deliver effluent in parallel distribution to three 76-ft long drainlines. The drainlines shall be installed on contour with maximum trench depths at 13 inches below surface (low side). Due to the ultra-shallow trench depth, it will be necessary to add approved soil material over the nitrification field to provide at least six inches of cover over the drainlines.

## SEPTIC AREA PREPARATION

**It is important that you do not disturb the septic areas during site construction.** A staked line or protective fence should be placed around the system areas prior to construction to eliminate any potential damage to the soil or the layout of the system. Septic areas should not be used for staging construction materials or subjected to vehicular traffic. Do not cut, grade, fill, install utilities, or otherwise alter the designated septic areas.

Care should be taken when clearing vegetation from the septic area. Work should only occur when the soil is at the appropriate moisture content to limit the impact to the soil structure in the soil treatment area. It is recommended that all trees and stumps be removed for 20 feet around the soil absorption system to reduce the potential of root intrusion into the drainlines. Carefully remove the trees with as little disturbance as possible. Fill in the holes with sandy or loamy soil from off site. Do not scrape the ground inside the drainfield. Any clearing or preparation of the septic areas shall be done without removal, disturbance, or compaction of the soil.

## **PERMIT CONDITIONS**

### Standard Conditions

The construction and installation requirements of Rules .1950, .1952, .1954, .1955, .1956, .1957, .1958, and .1959 are incorporated by reference into this permit and shall be met.

System shall be installed in accordance with the attached *Wastewater Treatment System Plans*.

Any changes to the site plan or intended use must be approved by Hal Owen & Associates. Permit modification and resubmittal to the LHD may be necessary to ensure regulatory compliance.

Conformance to all regulatory setbacks shall be maintained. Local regulations (such as well or riparian buffer ordinances) may require more stringent setbacks.

Minimum soil cover of six inches shall be established over nitrification field. Soil cover above the original grade shall be placed at a uniform depth over the entire nitrification and shall extend laterally five feet beyond the nitrification trench. Site shall be graded to shed water away from field and a vegetative cover established to prevent erosion.

The nitrification field and repair area shall not be subject to vehicular traffic. Vehicular traffic can damage soils, pipes, and valve boxes. Do not use septic areas for parking.

Do not allow underground utilities, water lines, or sprinkler systems to be installed in the septic areas. Damage to the septic areas could result in the septic permit being revoked.

The wastewater system shall not be covered until inspected by Hal Owen & Associates and shall not be placed into use until an Authorization to Operate is issued.

### Specific Conditions:

- To ensure a watertight joint, the inlet and outlet of all tanks shall be equipped with an approved pipe penetration boot.
- No foundation drain.



**WASTEWATER TREATMENT SYSTEM PLANS**

**for 4746 McNeill Hobbs Rd**

**PROJECT INFORMATION**

Facility Type	Residential		
Basement	No	Fixtures in basement?	No
Wastewater Type	Domestic	New/Expansion/Repair?	New
Water Supply	Public Water		
Design Wastewater Flow	360	gpd	120 gal/bedroom
Basis for Flow	3	bedrooms	max occupancy 6

**PROPERTY INFORMATION**

County	Harnett
Site Address	4746 McNeill Hobbs Rd
S/D Name and Lot#	Lot 1
PIN	0566-49-0426.000
County PID	
Size (Acre)	0.49

**APPLICANT INFORMATION**

Name	Steve Thomas
Mailing Address	PO Box 825
	Broadway, NC 27505
Telephone Number	919-906-4069
E-mail Address	southernconcrete@windstream.net

**CONSULTANT INFORMATION**

Company Name	Hal Owen & Associates, Inc.
Mailing Address	PO Box 400, Lillington, NC 27546
Telephone Number	910-893-8743 Fax: 910-893-3594
E-mail Address	hal@halowensoil.com
Licensed Soil Scientist	Hal Owen, LSS #1102 and AOWE# 10036E
System Designer	Jocelyn Proulx

Septic System Design Specifications

Design Wastewater Flow 360 gpd  
 Septic Tank Size (minimum) 1000 gallons  
 Pump Tank Size (minimum) 1000 gallons

**Initial System** \*See Detailed Design Parameters

System Type: Type IIIbg Design LTAR 0.40 gal/day/ft<sup>2</sup>  
 Trenches: Accepted (25% reduction) System  
 Total Trench Length (ft): 228 Trench Spacing 9 ft on center  
 Maximum Trench Depth of 14 inches (measured on low side)  
 Soil Cover 6 inches  
 Pump Requirements 10.4 ft TDH at 25 GPM

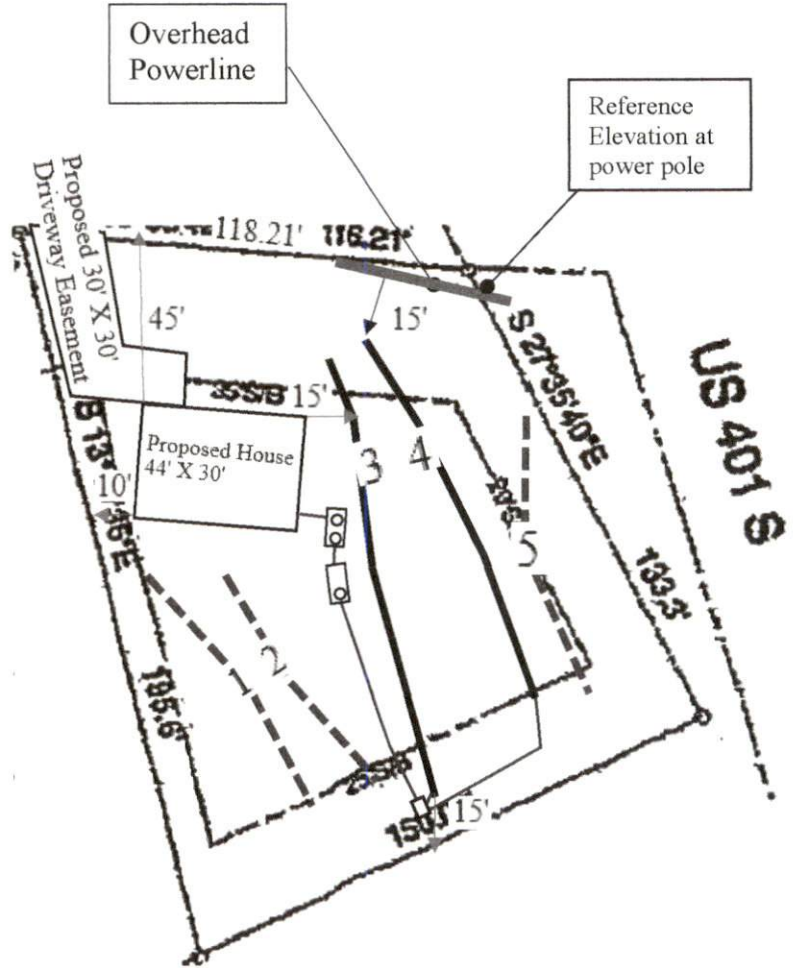
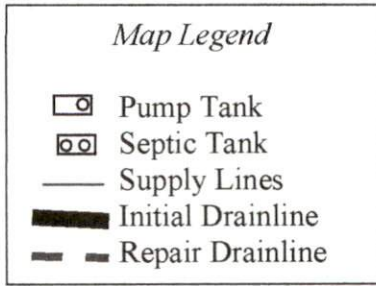
**Repair System**


System Type: Type IIIbg Design LTAR 0.40 gal/day/ft<sup>2</sup>  
 Trenches: Accepted (25% reduction) System  
 Total Trench Length (ft): 228 Trench Spacing 9 ft on center  
 Maximum Trench Depth of 13 inches (measured on low side)  
 Soil Cover 6 inches

Potential Drainlines flagged at site on 9-ft centers.

Line #	Color	Relative Elevation (ft)	Drainline Length(ft)	Field Length(ft)
1	R	99.81	76	82
2	Y	99.59	112	113
3	B	99.44	116	116
4	W	98.92	76	75
5	R	98.60	76	80
<b>Septic Tank:</b>		99.3		
<b>Pump Tank:</b>		99.24		
<b>Reference Elev</b>		<b>100.00</b>		

Figure 2. Septic system design and layout



Scale 1 in = 50 ft  
  
 Map for reference only. Not a survey.



Initial System Specifications

**Pressure Manifold Design Criteria**

**DESIGN DAILY FLOW** 360 gallons **SOIL LTAR:** 0.40 gpd/ft<sup>2</sup>  
**TANKS (minimum)** Septic Tank (gal): 1000 Pump Tank (gal): 1000

**SUPPLY LINE** Length: 90 ft Diameter: 2 " SCH 40 PVC  
 Minimum flow (gpm) to maintain 2fps scour velocity: 20.9 gpm

**TRENCHES** Drainline Type: Accepted (25% reduction) System  
 Maximum Trench Depth of 14 inches (measured on low side)  
 Trench width: 3 feet Trench Length Factor: 75  
 Absorption Area: 675 ft<sup>2</sup> Min Linear Length: 225 ft

**MANIFOLD** Length (ft): 2.5 Diameter: 4" sch 80 pvc Elevation: 100.59  
 # Taps 2 Tap Configuration: 6in. spacing, 1 side of manifold

**TAP CHART**

Line	Color	Relative Elevation	Length(ft)	Tap Size/ Schedule	flow/tap gpm	gpd/ft	LTAR gpd/sf
2	Y	99.59	112	3/4"sch 40	12.50	1.607	0.536
3	B	99.44	116	3/4"sch 40	12.50	1.552	0.517
Total Drainline:			228	Total Flow:	25.00		

Target LTAR\*: 0.53  
 LTAR + 5%: 0.560

**PUMP CALCULATIONS**

Dose Volume: 111.66 gallons, with Pipe Volume at 75 % \*65.3gal/100ft pipe  
 Dose Pump Run Time (min): 4.47 Daily Pump Run Time (min): 14.40  
 Drawdown (in.): 112 gallons + 20.25 gal/ inch = 5.51 inches  
 Pump Tank Elevation (ft): 99.24 Pump Elevation (ft): 94.24  
 Friction Head: 2.03 \*Hazen Williams Formula (use supply line length+70' for fittings in pump tank)  
 Elevation Head: 6.4 Design Head: 2.0 Total Head: 10.38 ft

Pump to Deliver: 25.0 gpm @ 10.4 ft head

NEMA 4X Simplex Control Panel with elapsed time meter, cycle counter, audible and visible alarm, hand-off-automatic (HOA) switch, and pump on separate circuits is required. A septic tank filter is required. Floats to be determined by type of pump tank used.

Possible Septic Tank: Brantley 1000 STB-499 Possible Septic Filter: Polylock PL-122  
 Possible Pump Tank: Brantley 1000 PT-237 Vol(gal): 1000 GPI: 20.25  
 Possible Pump: Zoeller 150 Series pump height (in) = 12  
 Possible Control Panel: \_\_\_\_\_

**Pump Tank Calculations:**

Possible pump tank: Brantley 1000\_PT-237

Possible Pump: Zoeller 150 Series

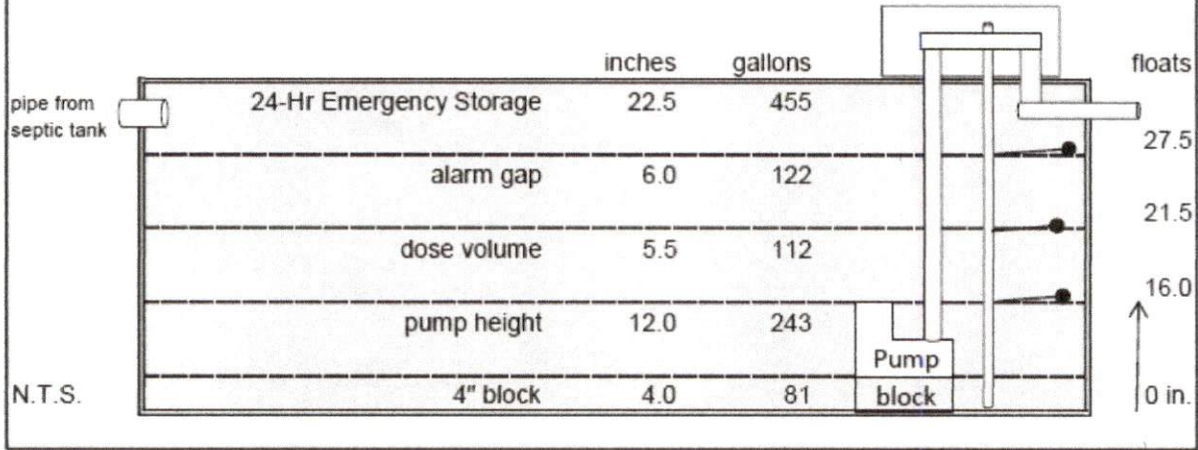
tank GPI (gal/in): 20.25 calculated

height: 12 in

tank volume (gal): 1000 per manufacturer

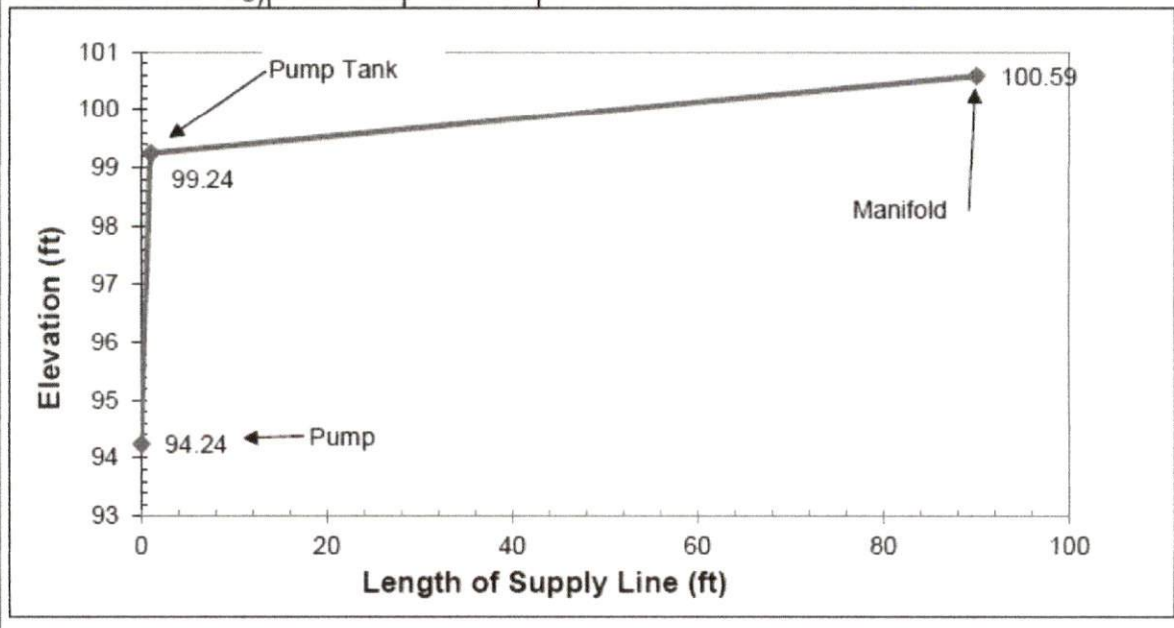
tank height (in): 50.0 per manufacturer

minimum emergency storage: 360 gal



**Supply Line Profile:**

	Distance	Elevation
Pump	0	94.24
pump tank	1	99.24
Pressure manifold	90	100.59
4)		
5)		



Repair System Specifications

**DESIGN FLOW**      360 gal/day      **SOIL LTAR:** 0.40 gpd/ft<sup>2</sup>

**TANKS (minimum)**    Septic Tank: 1000 gallons    Pump Tank: 1000 gallons

**TRENCHES**      Drainline Type: Accepted (25% reduction) System  
 Max trench depth: 13 inches      Trench width: 3 ft  
 Trench Length Factor: 75 %      Effective Trench Width: 4 ft  
 Absorption Area: 675 ft<sup>2</sup>      Minimum Linear Length: 225 ft

**PRESSURE MANIFOLD DESIGN CRITERIA**

**MANIFOLD**    # Taps 3    Tap Configuration: 6in. spacing, 1 side of manifold  
 Length (ft): 3    Diameter: 4" sch 80 pvc    Elevation: 100.81

**TAP CHART**

Line Number	Color	Relative Elevation	Drainline Length(ft)	Tap Size/Schedule	Flow/tap (gpm)	gpd/ft	LTAR (gpd/ft <sup>2</sup> )
1	R	99.81	76	3/4"sch 80	10.10	1.579	0.526
4	W	98.92	76	3/4"sch 80	10.10	1.579	0.526
5	R	98.6	76	3/4"sch 80	10.10	1.579	0.526

Total Drainline: 228    Total Flow: 30.30

Target LTAR\*: 0.53

LTAR + 5%: 0.560

**PUMP CALCULATIONS**

Total Flow: 30.30 gpm

Design Head (ft): 2.0

Daily Pump Run Time: 11.88 min (Daily Flow/Total Flow)

Dose Volume: 111.66 gallons with Pipe Volume at 75 % (65.3gal/100ft pipe)

Dose Pump Run Time: 3.69 minutes (Dose Vol/Total Flow)

\* Target LTAR: Convert LTAR for non-conventional drainline types by dividing by trench length factor

**MANIFOLD DIAGRAM:**

