



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: Mattamy Homes, LLC  
 Mailing address: 11000 Regency Parkway, Suite 110 City: Cary State: NC Zip: 27518  
 Phone: 919-625-9546 Email: george.young@mattamycorp.com

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: 0 Denali Drive  
 Tax parcel identification number or subdivision lot, block number of property: \_\_\_\_\_  
Lot 21 Ph 1 Riverfall Subdivision County: Harnett

System Information:  
 Wastewater System Type: Type IIIbg  
 Daily Design Flow: 480 gpd  
 Sapro-lite System:  Yes  No Subsurface Operator Required:  Yes  No  
 Water Supply Type:  Private Well  Public Water Supply  Spring  Other: \_\_\_\_\_

Facility Type:  
 Residential 4 # Bedrooms 8 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 1 day of December 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: George Young For Mattamy Homes, LLC

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: \_\_\_\_\_



HALOWE1

OP ID: SGW

# CERTIFICATE OF LIABILITY INSURANCE

DATE (MM/DD/YYYY)

11/21/2023

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 have ADDITIONAL INSURED provisions or 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 <b>INSURANCE SERVICE CTR -LILLING</b> <b>LILLINGTON BRANCH OFFICE</b> PO Box 1565 LILLINGTON, NC 27546 <b>DANIEL L. BABB</b>	<b>910-893-5707</b>		CONTACT NAME: <b>SHARON WOODY</b>
			PHONE (A/C, No, Ext): <b>910-893-5707</b>
			FAX (A/C, No): <b>910-893-2077</b>
			E-MAIL ADDRESS: <b>SWOODY@ISCFAY.COM</b>
			INSURER(S) AFFORDING COVERAGE
			INSURER A : <b>STARSTONE NATIONAL</b>
			INSURER B :
			INSURER C :
			INSURER D :
			INSURER E :
			INSURER F :

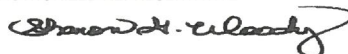
INSURED  
**HAL OWEN & ASSOCIATES, INC.**  
 PO BOX 400  
 LILLINGTON, NC 27546

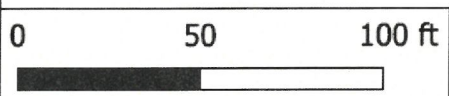
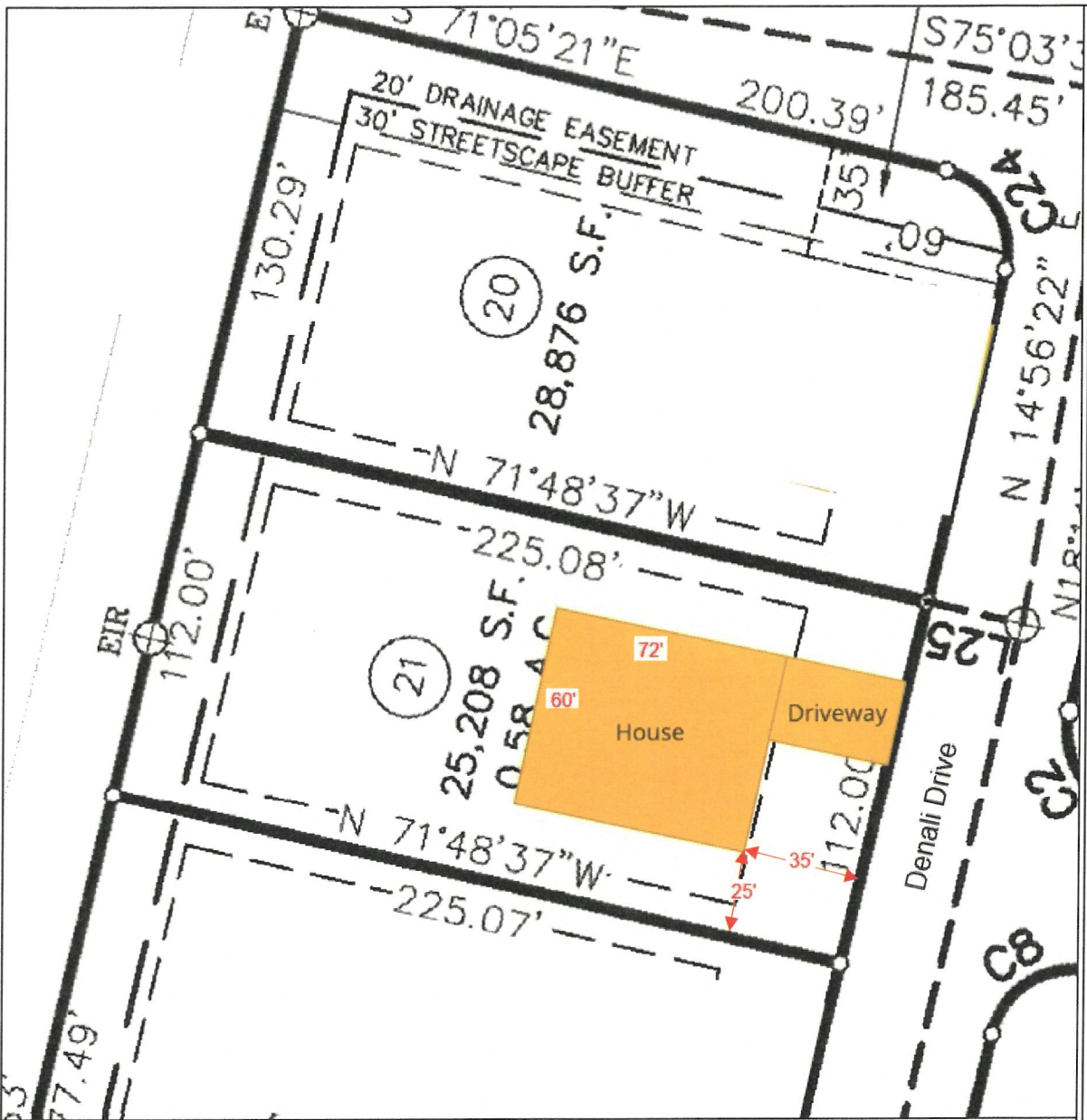
COVERAGES                                      CERTIFICATE NUMBER:                                      REVISION NUMBER:

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 INSP	SUBR WVD	POLICY NUMBER	POLICY EFF (MM/DD/YYYY)	POLICY EXP (MM/DD/YYYY)	LIMITS
	<b>COMMERCIAL GENERAL LIABILITY</b> <input type="checkbox"/> CLAIMS-MADE <input type="checkbox"/> OCCUR  GEN'L AGGREGATE LIMIT APPLIES PER: <input type="checkbox"/> POLICY <input type="checkbox"/> PROJECT <input type="checkbox"/> LOC OTHER:						EACH OCCURRENCE \$ DAMAGE TO RENTED PREMISES (Ea occurrence) \$ MED EXP (Any one person) \$ PERSONAL & ADV INJURY \$ GENERAL AGGREGATE \$ PRODUCTS - COMP/OP AGG \$ \$
	<b>AUTOMOBILE LIABILITY</b> <input type="checkbox"/> ANY AUTO OWNED AUTOS ONLY <input type="checkbox"/> HIRE AUTOS ONLY <input type="checkbox"/> SCHEDULED AUTOS <input type="checkbox"/> NON-OWNED AUTOS ONLY						COMBINED SINGLE LIMIT (Ea accident) \$ BODILY INJURY (Per person) \$ BODILY INJURY (Per accident) \$ PROPERTY DAMAGE (Per accident) \$ \$
	<b>UMBRELLA LIAB</b> <input type="checkbox"/> OCCUR <b>EXCESS LIAB</b> <input type="checkbox"/> CLAIMS-MADE DED    RETENTION \$						EACH OCCURRENCE \$ AGGREGATE \$ \$
	<b>WORKERS COMPENSATION AND EMPLOYERS' LIABILITY</b> ANY PROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? (Mandatory in NH) <input type="checkbox"/> Y <input type="checkbox"/> N / A If yes, describe under DESCRIPTION OF OPERATIONS below						PER STATUTE    OTH-ER E.L. EACH ACCIDENT \$ E.L. DISEASE - EA EMPLOYEE \$ E.L. DISEASE - POLICY LIMIT \$
<b>A</b>	<b>PROFESSIONAL LIAB.</b>			<b>42ESP00143901</b>	<b>01/27/2023</b>	<b>01/27/2024</b>	<b>PER OCC. 1,000,000</b> <b>AGGREGATE 2,000,000</b>

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

<b>CERTIFICATE HOLDER</b>  	<b>CANCELLATION</b> 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 



Map for reference only.  
Not a survey.

Hal Owen & Associates Inc.  
PO Box 400, Lillington NC 27546  
www.halowensoil.com  
919-893-8743

Lot 21  
Riverfall Subdivision  
Phase 1

SITE MAP

# 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](http://www.halowensoil.com)

1 December 2023

Mattamy Homes, LLC  
11000 Regency Parkway, Suite 110  
Cary, NC 27518

Reference: AOWE Evaluation  
Lot 21 Ph 1 Riverfall Subdivision  
Harnett County, North Carolina

Dear Mattamy Homes LLC,

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 within one year of the date of this evaluation. Failure to file an NOI before then shall result in the AOWE Evaluation become void.

Sincerely,



A handwritten signature in black ink that reads "Hal Owen".

Hal Owen  
Senior Licensed Soil Scientist  
Authorized Onsite Wastewater Evaluator

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## **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 four bedrooms and have a design wastewater flow of 480 gallons per day. Maximum occupancy of the home is 8 people.

## **WATER SUPPLY**

Public water supplies will be utilized.

## **EXISTING SITE CONDITIONS**

At the time of the investigation, the site had been cleared, lot corners were staked, and the new building footprint was marked.

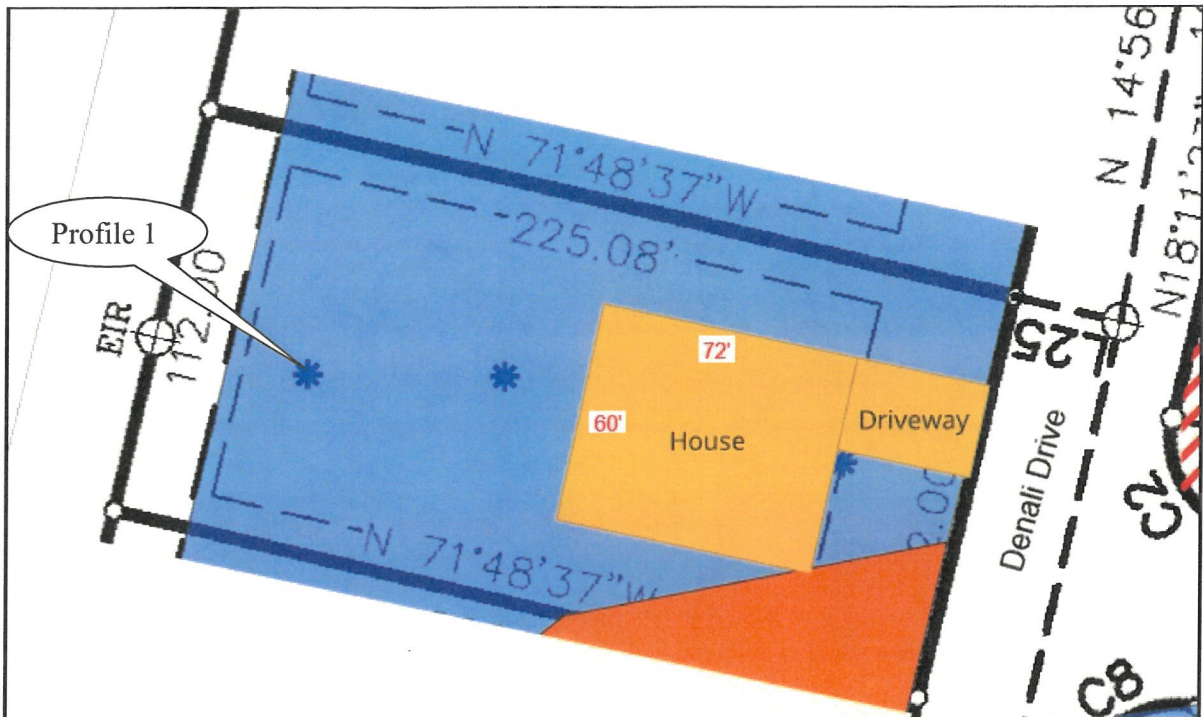
No existing wells, streams, or wetlands were observed within 50 feet of the proposed septic system and repair area.

A 20-ft drainage easement is located along the back lot line (see Figure 1).

## **SOIL AND SITE INVESTIGATION**

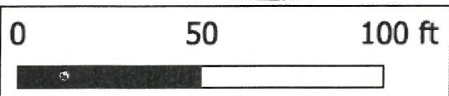
The soils were evaluated under moist soil conditions through the advancing of auger borings. This evaluation included observations of topography and landscape position, soil morphology (texture, structure, clay mineralogy, organics), soil wetness, soil depth, and restrictive horizons. Descriptions of 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 subsurface sewage waste disposal systems. (Figure 1). The subsoils were observed to be friable sandy clay loams and extended to greater than 48 inches below ground surface. Evidence of a soil wetness condition was observed at 40 inches below surface or deeper. These soils appear adequate to support long-term acceptance rates of 0.4-0.45 gal/day/ft<sup>2</sup> for conventional drainlines.



**Legend**

- Reference Elevation
- House
- Soil Unit**
- Provisionally Suitable
- Low Profile Chamber
- soil boring**
- Provisionally Suitable



Map for reference only.  
Not a survey.

<p>Hal Owen &amp; Associates Inc. PO Box 400, Lillington NC 27546 www.halowensoil.com 919-893-8743</p>	<p>Lot 21 Riverfall Subdivision Phase 1</p>	<p>Figure 1 Soil Map for Septic Suitability</p>
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Soil/Site Evaluation Form for On-Site Wastewater System

APPLICANT NAME: Mattamy Homes, LLC  OWNER  AGENT  
 LOCATION OF SITE: 0 Denali Drive PIN: 0  
 COUNTY: Harnett  
 PROPOSED FACILITY Single Family Residential WASTEWATER TYPE: Domestic  
 PROPOSED DESIGN FLOW: 480 gpd WATER SUPPLY: Public Water  
 DATE EVALUATED: 10/20/23 EVALUATION METHOD: AUGER BORING   
 EVALUATED BY: Hal Owen, LSS 1102 and Steven Boor PIT

	INITIAL SYSTEM	REPAIR SYSTEM
AVAILABLE SPACE	900 ft <sup>2</sup> trench bottom	900 ft <sup>2</sup> trench bottom
SYSTEM TYPE	Accepted (25% reduction) System	Accepted (25% reduction) System
SITE LTAR	0.40 gpd/ft <sup>2</sup>	0.40 gpd/ft <sup>2</sup>
SITE CLASSIFICATION	<u>Provisionally Suitable</u>	OTHER FACTORS _____
COMMENTS	_____	

PROFILE 1

HORIZON DEPTH	COLOR	CONSISTENCE	TEXTURE	STRUCTURE	MINERALOGY	OTHER PROFILE FACTORS	
0-6	10YR 6/3	VRF	LS	GR	NEXP	LANDSCAPE POS & SLOPE%	T <2%
6-13	10YR 7/6	VFR	SL	GR	NEXP	SOIL WETNESS CONDITION	40"
13-40	10YR6/8	FR	SCL	SBK	SEXP	SOIL DEPTH	48"
40-48	10YR 6/1	FR	SCL	SBK	SEXP	SAPROLITE CLASS	NA
						RESTRICTIVE HORIZON	NA
						PROFILE CLASSIFICATION	PS
						LTAR gpd/ft <sup>2</sup>	0.45
COMMENTS _____							

**LEGEND OF ABBREVIATIONS FOR SITE EVALUATION FORM**

<u>LANDSCAPE POSITION</u>	<u>TEXTURE GROUP</u>	<u>TEXTURE CLASS</u>	<u>.1955 LTAR (gal/day/sqft)</u>
CC - Concave Slope	I	S - Sand	1.2-0.8
CV - Convex Slope		LS - Loamy Sand	
DS - Debris Slump	II	SL - Sandy Loam	0.8 – 0.6
D - Depression		L - Loam	
DW - Drainage Way			
FP - Flood Plain	III	SCL - Sandy Clay Loam	0.6 – 0.3
FS - Foot Slope		CL - Clay Loam	
H - Head Slope		SiL - Silt Loam	
L - Linear Slope		Si - Silt	
N - Nose Slope		SiCL - Silt Clay Loam	
R - Ridge	IV	SC - Sandy Clay	0.4 – 0.1
S - Shoulder Slope		C - Clay	
T - Terrace		SiC - Silty Clay	
		O - Organic	none

<u>STRUCTURE</u>	<u>MOIST CONSISTENCE</u>	<u>WET CONSISTENCE</u>
G - Single Grain	VFR - Very Friable	NS - Non Stick
M - Massive	FR - Friable	SS - Slightly Sticky
CR - Crumb	FI - Firm	MS - Moderately Stick
GR - Granular	VFI - Very Firm	VS - Very Sticky
SBK - Subangular Blocky	EFI - Extremely Firm	
ABK - Angular Blocky		NP - Non Plastic
PL - Platy	<u>MINERALOGY</u>	SP - Slightly Plastic
PR - Prismatic	NEXP - Non Expansive	MP - Moderately Plastic
	SEXP - Slightly Expansive	VP - Very Plastic
	EXP - Expansive	

<u>MOTTLES</u>		
f - few	1 - fine	F - Faint
c - common	2 - medium	D - Distinct
m - many	3 - coarse	P - Prominent

Give Horizon Depth in inches below natural soil surface and Fill Depth in inches above land surface.

Depth to Soil Wetness: inches below land surface to free water or to soil colors with chroma 2 or less.

Classification: S – Suitable      PS – Provisionally Suitable      U – Unsuitable

D – drip      Mod – modified or alternative systems

## 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 initial septic system is proposed as a pump driven system to 300 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 four 75-ft long drainlines. The drainlines shall be installed parallel to the back property line with maximum trench bottom depths at 24 inches below surface (as measured on low side).

The repair septic system is proposed as a pump driven system to 300 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 four 75-ft long drainlines. The drainlines shall be installed parallel to the back property line with maximum trench bottom depths at 24 inches below surface (as measured on low side).

## 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. 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**

**PROJECT INFORMATION**

Facility Type	Single Family Residential			
Basement	No		Fixtures in basement?	No
Wastewater Type	Domestic		New/Expansion/Repair?	New
Water Supply	Public Water			
Design Wastewater Flow	480	gpd	120 gal/bedroom	
Basis for Flow	4	bedrooms	max occupancy	8

**PROPERTY INFORMATION**

County	Harnett
Site Address	0 Denali Drive
S/D Name and Lot#	Lot 21 Ph 1 Riverfall SD
PIN	
County PID	
Size (Acre)	0.58

**APPLICANT INFORMATION**

Name	Mattamy Homes, LLC
Mailing Address	11000 Regency Parkway, Suite 110
	Cary, NC 27518
Telephone Number	919-625-9546
E-mail Address	<a href="mailto:george.young@mattamycorp.com">george.young@mattamycorp.com</a>

**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	<a href="mailto:hal@halowensoil.com">hal@halowensoil.com</a>
Licensed Soil Scientist	Hal Owen, LSS #1102 and AOWE# 10036E
System Designer	Krissina Newcomb

Septic System Design Specifications

Design Wastewater Flow 480 gpd  
 Septic Tank Size (minimum) 1000 gallons  
 Pump Tank Size (minimum) 1000 gallons

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

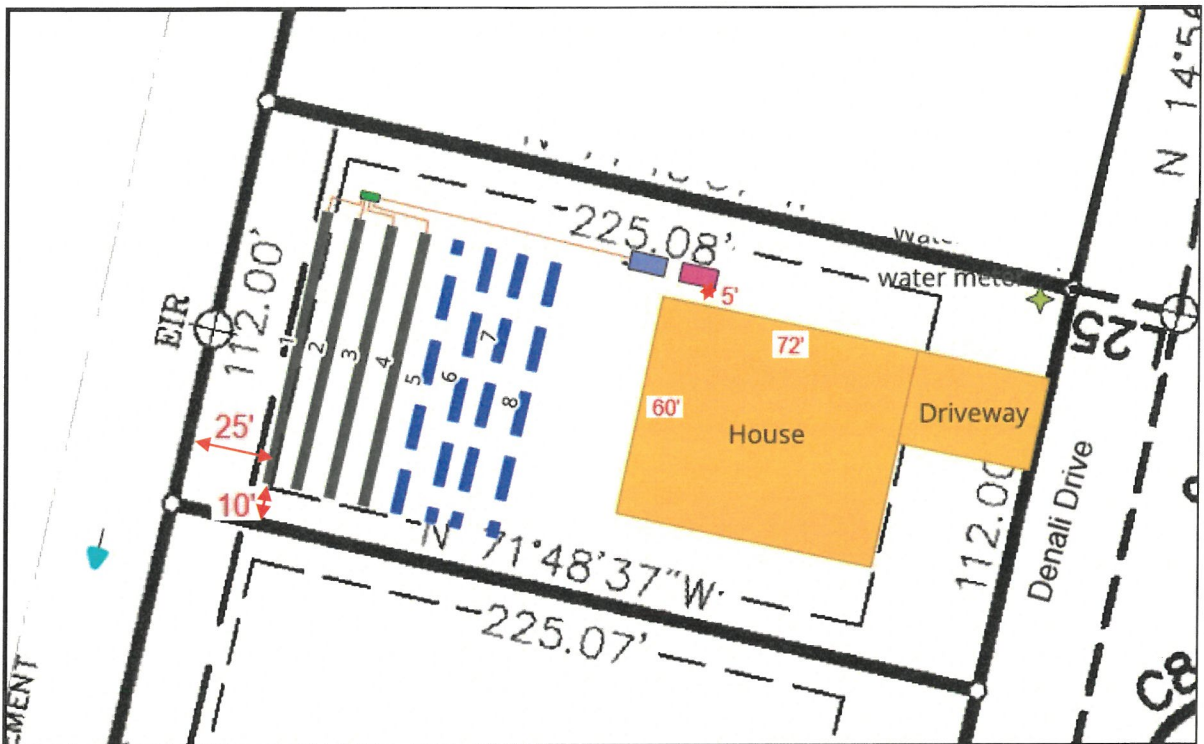
System Type Type IIIbg Saprolite System No  
 Design LTAR 0.40 gal/day/ft<sup>2</sup> Fill System No  
 Trenches: Accepted (25% reduction) System  
 Total Trench Length (ft): 300 feet configuration: 4 X 75ft (X 3ft)  
 Trench Spacing 9 ft on center  
 Usable soil depth (inches) 40 Soil Cover 6 inches  
 Maximum Trench Depth 24 inches, measured on downhill side of trench  
 Pump Required Yes 10.1 ft TDH at 21.92 GPM

**Repair System**

System Type: Type IIIbg Saprolite System No  
 Design LTAR 0.40 gal/day/ft<sup>2</sup> Fill System No  
 Trenches: Accepted (25% reduction) System  
 Total Trench Length (ft): 300 configuration: 4 X 75ft (X 3ft)  
 Trench Spacing 9 ft on center  
 Usable soil depth (inches) 40 Soil Cover 6 inches  
 Maximum Trench Depth 24 inches, measured on downhill side of trench  
 Pump Required Yes

Potential Drainlines flagged at site on 9-ft centers.

Line #	Color	Relative Elevation (ft)		Drainline Length(ft)	Field Length(ft)
		North	South		
1	Y	104.89	104.89	75	92
2	R	104.3	104.15	75	92
3	B	104.41	104.34	75	92
4	W	104.59	104.55	75	92
5	Y	104.75	104.77	75	92
6	R	104.77	104.90	75	92
7	B	104.99	105.14	75	92
8	W	105.15	105.15	75	92
<b>Septic Tank:</b>		103.64			
<b>Pump Tank:</b>		103.64			
<b>Reference Elev:</b>		<b>100.00</b>			

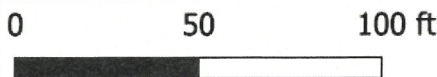


**Legend**

- ◆ Reference Elevation
- House
- Septic Components
- PM
- Pump Tank
- Septic Tank
- 
- drainlines
- Intial
- Repair
- supply/conveyance

**Notes:**

- \*No grading or removal of soil in initial or repair areas
- \*Property lines per owner
- \*Trench bottoms shall be level to +/- 1/4" in 10ft
- \*All parts of septic system must meet minimum setbacks:
  - 10' from property line
  - 5' from foundation (15' from basement)
  - 10' from water line
  - 1ft from sidewalks and driveway



Map for reference only.  
Not a survey.

Hal Owen & Associates Inc.  
PO Box 400, Lillington NC 27546  
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919-893-8743

Lot 21  
Riverfall Subdivision  
Phase 1

Figure 2  
Septic System Layout

Initial System Specifications

**Pressure Manifold Design Criteria**

**DESIGN DAILY FLOW**                    480 gallons                    **SOIL LTAR:** 0.40 gpd/ft<sup>2</sup>  
**TANKS (minimum)**                    Septic Tank (gal): 1000                    Pump Tank (gal): 1000

**SUPPLY LINE**                    Length: 70 ft                    Diameter: 2 " SCH 40 PVC  
    Minimum flow (gpm) to maintain 2fps scour velocity: 20.9 gpm  
    Supply Pipe Volume 12 gallons

**TRENCHES**                    Drainline Type: Accepted (25% reduction) System  
    Maximum Trench Depth of 24 inches, measured on low side of trench  
    Trench width: 3 feet                    Trench Length Factor: 75 %  
    Absorption Area: 900 ft<sup>2</sup>                    Minimum Linear Length: 300 ft

**MANIFOLD**                    Length (ft): 3.5                    Diameter: 4" sch 80 pvc                    Elevation: 105.3  
    # Taps 4                    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/ft <sup>2</sup> )
1	Y	104.89	75	1/2"sch 80	5.48	1.600	0.533
2	R	104.30	75	1/2"sch 80	5.48	1.600	0.533
3	B	104.41	75	1/2"sch 80	5.48	1.600	0.533
4	W	104.59	75	1/2"sch 80	5.48	1.600	0.533
Total Drainline:			300	Total Flow:	21.92		

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

**PUMP CALCULATIONS**

Dose Volume: 146.93 gallons, with Pipe Volume at 75 %                    \*65.3gal/100ft pipe  
 Dose Pump Run Time (min): 6.70                    Daily Pump Run Time (min): 21.90  
 Drawdown (in.): 147 gallons ÷ 20.25 gal/ inch = 7.26 inches  
 Pump Tank Elevation (ft): 103.64                    Pump Elevation (ft): 98.64  
 Friction Head: 1.39 \*Hazen Williams Formula (use supply line length+70' for fittings in pump tank)  
 Elevation Head: 6.7                    Design Head: 2.0                    Total Head: 10.05 ft  
 Pump to Deliver: 21.9 gpm @ 10.1 ft head

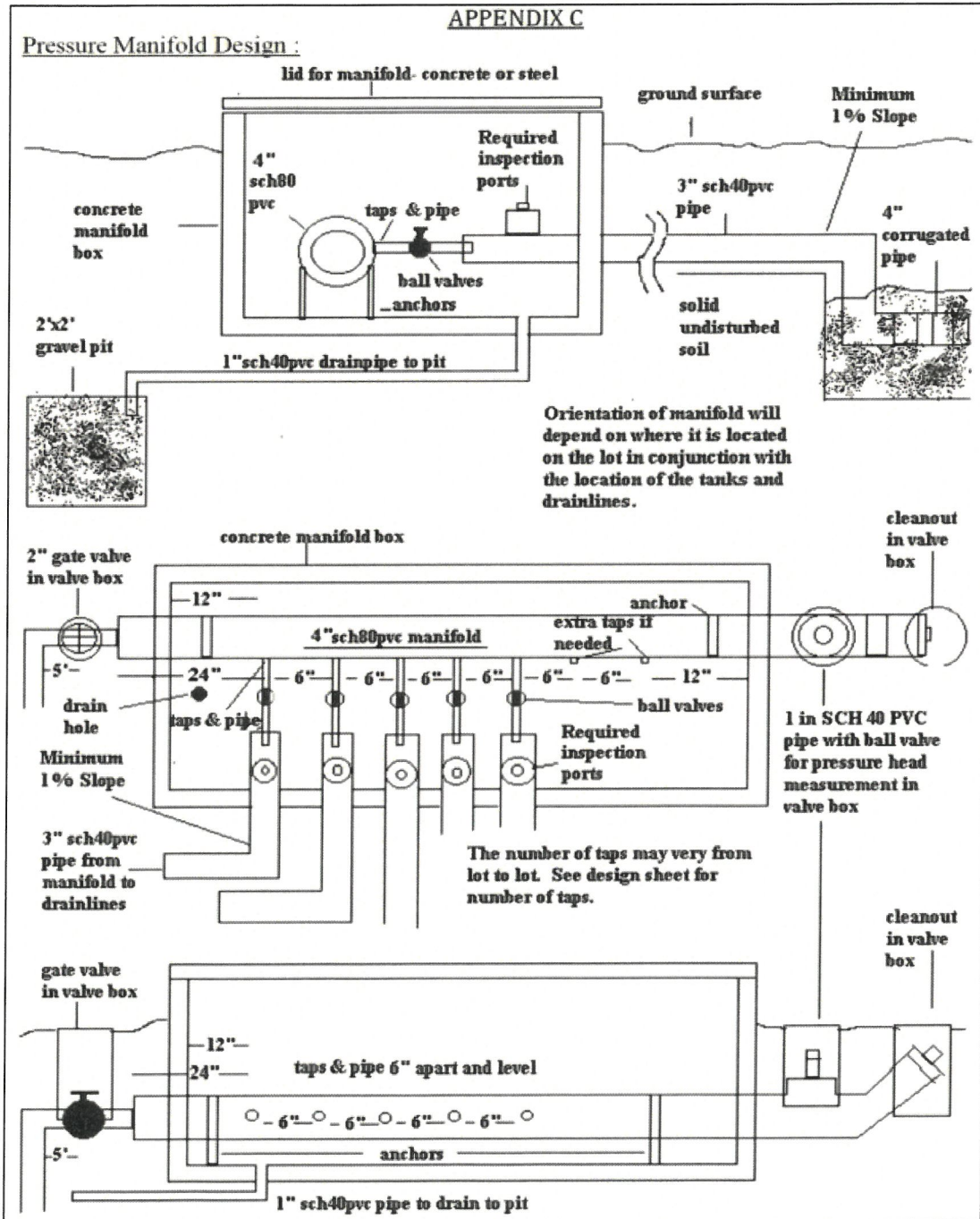
NEMA 4X Simplex Control Panel with elapsed time meter, cycle counter, audible and visible alarm, hand-off-automatic (HOA) switch, and pump on separate circuits is required. A septic tank filter is required. Floats to be determined by type of pump tank used.

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 50 (3/10HP)                    pump height (in) = 10.5  
 Possible Control Panel: \_\_\_\_\_



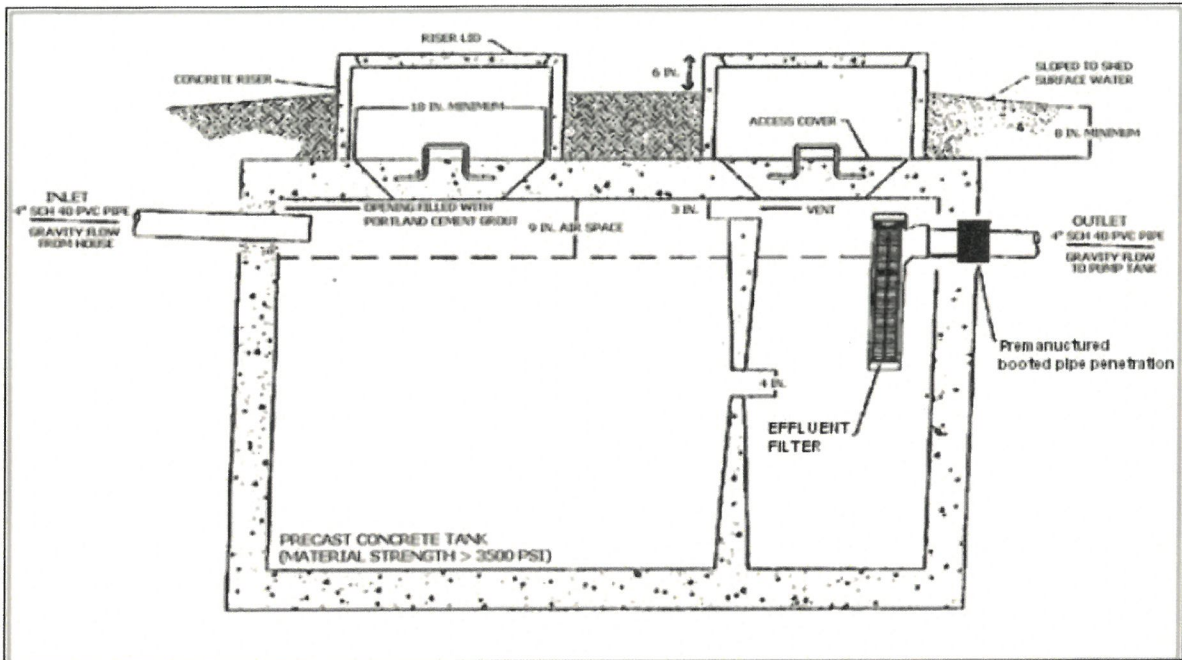
**Pressure Manifold Diagram**

	1	2	3	4
	Manifold 4" SCH 80 PVC			
tap size	1/2" sch 80	1/2" sch 80	1/2" sch 80	1/2" sch 80
flow (gpm)	5.48	5.48	5.48	5.48
length (ft)	75	75	75	75



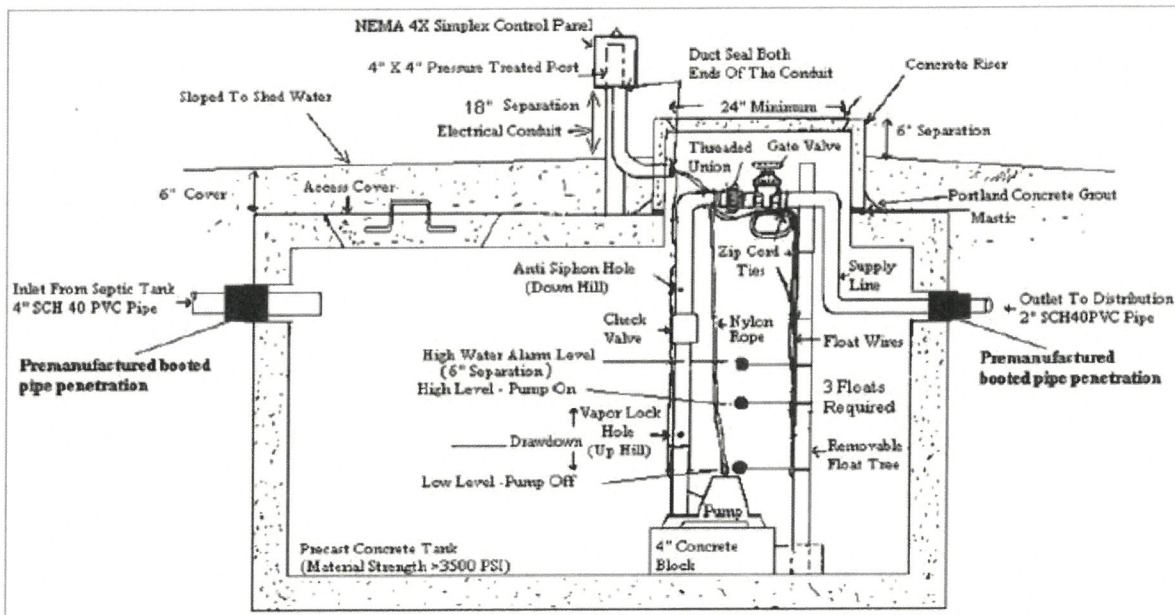
Typical Septic Tank

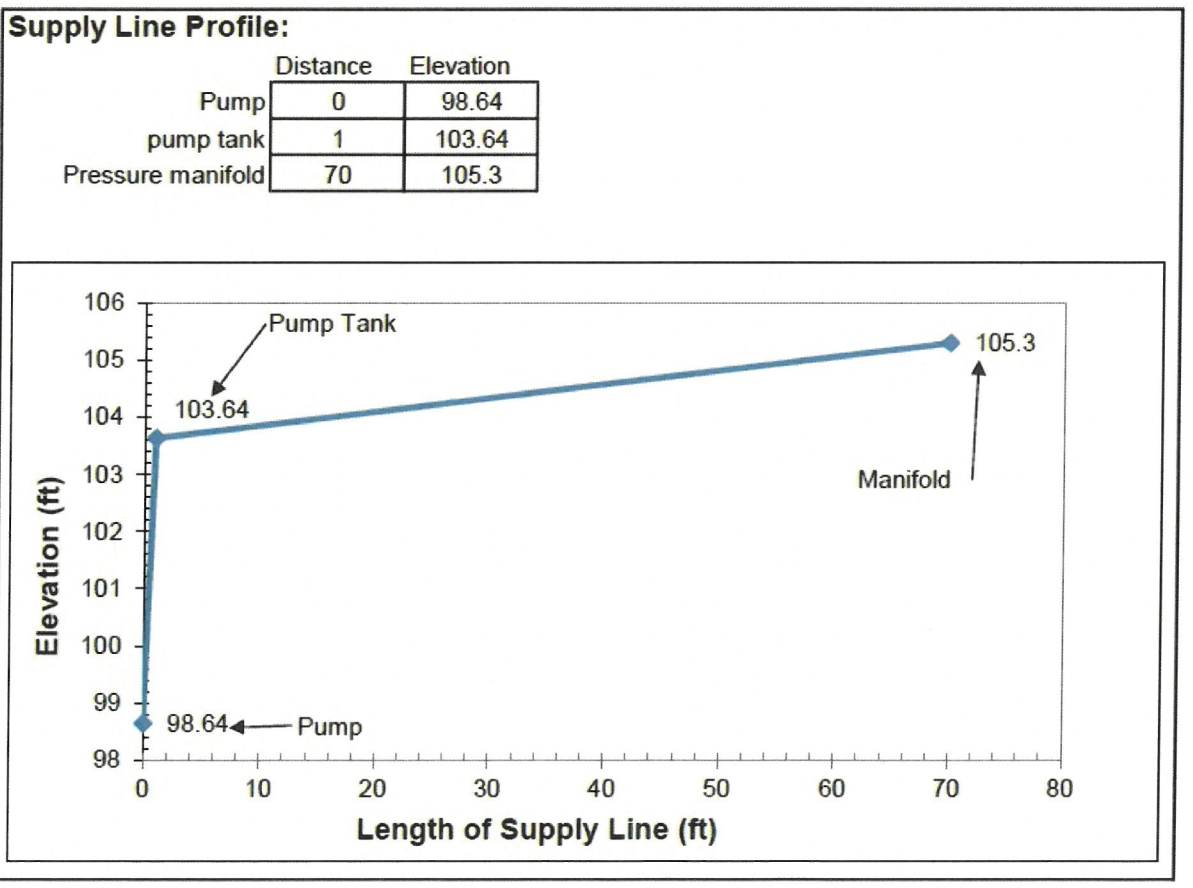
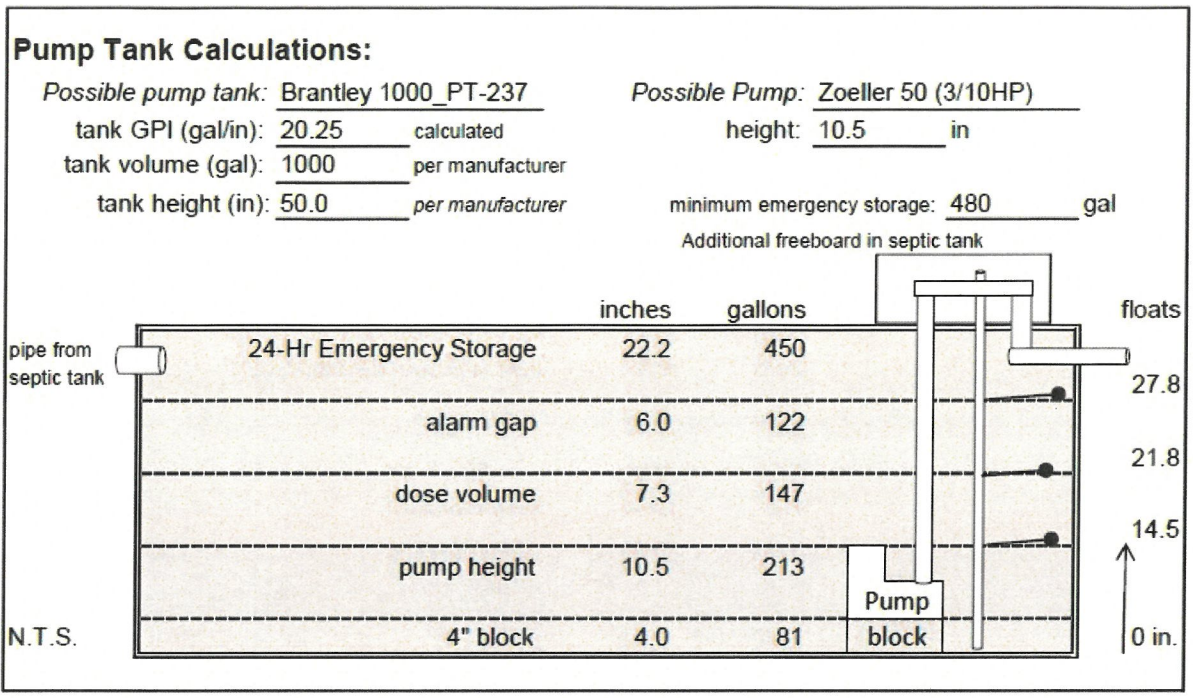
1000 GALLON SEPTIC TANK, minimum



Typical Pump Tank

1000 GALLON PUMP TANK, minimum





Repair System Specifications

DESIGN FLOW 480 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

Trench depth: 24 inches (low side) Trench width: 3 ft  
 Trench Length Factor: 75 % Effective Trench Width: 4 ft  
 Absorption Area: 900 ft<sup>2</sup> Minimum Linear Length: 300 ft

PRESSURE MANIFOLD DESIGN CRITERIA

MANIFOLD # Taps 0 Tap Configuration: 6in. spacing, 1 side of manifold

Length (ft): 1.5 Diameter: 4" sch 80 pvc Elevation: 105.75

TAP CHART

Line Number	Color	Relative Elevation	Drainline Length(ft)	Tap Size/Schedule	Flow/tap (gpm)	LTAR (gpd/ft <sup>2</sup> )
5	Y	104.75	75	1/2"sch 80	5.48	0.533
6	R	104.77	75	1/2"sch 80	5.48	0.533
7	B	104.99	75	1/2"sch 80	5.48	0.533
8	W	105.15	75	1/2"sch 80	5.48	0.533

Total Drainline: 300 Total Flow: 21.92

Target LTAR\*: 0.53

LTAR + 5%: 0.560

PUMP CALCULATIONS

Total Flow: 21.92 gpm Design Head (ft): 2.0

Daily Pump Run Time: 21.90 min (Daily Flow/Total Flow)

Dose Volume: 146.93 gallons with Pipe Volume at 75 % (65.3gal/100ft pipe)

Dose Pump Run 6.70 minutes (Dose Vol/Total Flow)

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

MANIFOLD DIAGRAM:

