Supervisor/Administrative Professional Checklist

New Septic ☐ New Well ☐ Use Existing ☐ Alteration ☒ Modified Plot Plan ☐

Should have been a modified Plot Plan

New Septic Fees Paid:

IP ($250.00) _____ Initials/Date

CA ($200.00) paid previously 1/8/15 Initials/Date

OP ($200.00) paid previously 1/8/15 Initials/Date

(CA and OP fees need to be paid before a building permit can be issued)

New Well Fee Paid: $550.00 _____ Initials/Date

Use Existing Fee Paid: $100.00 _____ Initials/Date

Alteration Fee Paid: $300.00 (Total) $200 (If use existing was paid) 3/30/16 CE Initials/Date

Modified Plot Plan Fee Paid: $100.00 _____ Initials/Date

Floor plans need to be submitted and reviewed before CA can be issued. ☑ Reviewed ☑ SRM

OK to generate CA for App 8134

This site is served by septic and well. Verify each is complete before final hold is released. ☐

Septic file completed. ☐ _____ Well file completed. ☐ _____

Send permit for signature. ☑ Signature received. ☐ _____

This septic system requires a certified operator contract before final hold is released. ☐

Certified operator contract is on file. ☐ _____

MECKLENBURG COUNTY
HEALTH DEPARTMENT

8066B # 8134

28 MAR '16 PM 2:15

APPLICATION FOR A RESIDENTIAL SITE IMPROVEMENT PERMIT/ CONSTRUCTION AUTHORIZATION FOR AN ON-SITE WASTEWATER SYSTEM, NEW WELL INSTALLATION, OR REPAIR OF EXISTING WELL

1. SEPTIC / TYPE APPLICATION: ○ N/A ☒ NEW SYSTEM ◉ ALTERATION ○ REPAIR ◉ MODIFIED PLOT PLAN

2. WELL / TYPE APPLICATION: ○ N/A ○ NEW WELL ○ MAJOR REPAIR ○ ABANDONMENT

3. JOB LOCATION INFORMATION:

TAX PARCEL NUMBER: 137123[illegible]15

STREET ADDRESS: 9406 Surface Hill Road

CITY: Mint Hill

STATE: NC ZIP: 28227

SUBDIVISION NAME: Woods of Bainbridge

LOT #: 5 LOT SIZE (acres): 1.02

TOWNSHIP:

○ MECKLENBURG ○ CORNELIUS ○ HUNTERSVILLE
○ DAVIDSON ○ CHARLOTTE ○ PINEVILLE
○ MATTHEWS ◉ MINT HILL

4. BUILDING INFORMATION:

BUILDING TYPE:

○ SINGLE MOBILE HOME ○ MODULAR HOME
○ DOUBLE WIDE ○ MULTIPLE FAMILY
◉ HOUSE ○ OTHER _____

HEATED SQUARE FOOTAGE: 2853

NUMBER OF BEDROOMS: 4

NUMBER OF OCCUPANTS: 4

FOUNDATION TYPE:

○ CONCRETE SLAB ○ BASEMENT WITH PLUMBING
◉ CRAWL SPACE ○ BASEMENT WITH NO PLUMBING

5. IF PLANNING TO EXPAND OR ALTER THE EXISTING SEPTIC SYSTEM PLEASE COMPLETE THE FOLLOWING SECTION: ☒ N/A

NUMBER OF BEDROOMS TO BE ADDED: _____ NUMBER OF ADDITIONAL OCCUPANTS IN THE RESIDENCE: _____

6. WATER SUPPLY: ○ MUNICIPAL ○ PRIVATE WELL ○ PUBLIC WELL ○ SHARED WELL ○ OTHER _____

7. PROPOSED USE OF WELL: ○ N/A ○ IRRIGATION ○ POTABLE (DRINKING WATER) ○ OTHER _____

8. PLEASE INDICATE AND RANK DESIRED SEPTIC SYSTEM TYPE(S) IN ORDER OF PREFERENCE *(1-MOST DESIRED 5-LEAST DESIRED)*:

☐ N/A ☒ ANY TYPE ☐ CONVENTIONAL ☐ ACCEPTED ☐ INNOVATIVE ☐ ALTERNATIVE ☐ OTHER _____

8A. RANK: ____ ____ ____ ____ ____

9. DO ANY OF THE FOLLOWING APPLY TO THE PROPERTY IN QUESTION? IF "YES" PLEASE ATTACH SUPPORTING DOCUMENTATION.

BURIED CABLES, LANDFILLS, STUMPHOLES	○ YES ◉ NO	GRADING/SOIL REMOVAL PERFORMED	○ YES ◉ NO
EXISTING WASTEWATER (SEPTIC) SYSTEMS	○ YES ◉ NO	JURISDICTIONAL WETLANDS	○ YES ◉ NO
WELLS, SPRINGS, OR WATER LINES	○ YES ◉ NO	APPROVAL REQUIRED BY ANY OTHER PUBLIC AGENCY	○ YES ◉ NO
EASEMENTS OR RIGHT-OF-WAYS	○ YES ◉ NO	WASTEWATER OTHER THAN DOMESTIC SEWAGE	○ YES ◉ NO
CHEMICAL/PETROLEUM STORAGE TANKS	○ YES ◉ NO	KNOWN UNDERGROUND CONTAMINATION	○ YES ◉ NO
WASTE STORAGE	○ YES ◉ NO	GROUNDWATER USE RESTRICTIONS/VARIANCES	○ YES ◉ NO

10. WHAT DATE WAS THE PROPERTY ORIGINALLY DEEDED AND RECORDED? _____ ☒ UNKNOWN

11. WHAT IS THE ANTICIPATED CLOSING DATE FOR THIS PROPERTY? _____ ☒ N/A

12. PROPERTY OWNER:

NAME: Livewell Homes, LLC
ADDRESS: 501 Springcrest Drive
CITY: Fort Mill
STATE: SC ZIP: 29715
WORK PHONE: 704-777-8266
MOBILE PHONE: _____
FAX: _____
E-MAIL: dbowden@livewellhomes.net

13. OWNER'S LEGAL REPRESENTATIVE, IF APPLICABLE:

NAME: _____
ADDRESS: _____
CITY: _____
STATE: _____ ZIP: _____
WORK PHONE: _____
MOBILE PHONE: _____
FAX: _____
E-MAIL: _____

MECKLENBURG COUNTY – GROUNDWATER & WASTEWATER SERVICES
700 N. TRYON ST. SUITE 211 CHARLOTTE, NC 28202, OFFICE: 704-336-5103, FAX: 704-336-6894

Revised on: 12/15/10

14. SEPTIC SYSTEM PERMIT APPLICATION:

If the information in this application is falsified, changed, or the site is altered, then the Improvement Permit and Authorization to Construct shall become invalid. I have read this application and certify that the information provided herein is true, complete and correct. Authorized county and state officials are granted right of entry to conduct necessary inspections to determine compliance with applicable laws and rules. I understand that I am solely responsible for the proper identification and labeling of all property lines and corners and making the site accessible so that a complete site evaluation can be performed. The permit is valid for either sixty (60) months or is non-expiring depending upon the documentation submitted: complete site plan = 60 months, complete plat = non-expiring.

_____ (Initial here for septic system applications)

15. WELL PERMIT APPLICATION:

If the information in this application is falsified, changed, or the site is altered, then the Well Permit shall become invalid. I have read this application and certify that the information provided herein is true, complete and correct. Authorized county and state officials are granted right of entry to conduct necessary inspections to determine compliance with applicable laws and rules. I understand that I am solely responsible for the proper identification and labeling of all property lines and corners and making the site accessible so that a complete site evaluation can be performed. The permit is valid for a period of twelve (12) months from the date of issuance.

_____ (Initial here for well applications)

16. APPLICATION SIGNATURE SECTION:

ONLY COMPLETE APPLICATIONS WILL BE PROCESSED. A proper signature is required in order to process your application. Please review the application carefully and sign in the space provided below. A PROPOSED PLOT PLAN is required to be submitted with each application.

_____ 8-28-15

Property Owner's or Owner's Legal Representative Signature — Date

---

OFFICE USE ONLY

○ SURVEY PLAT TO SCALE SUBMITTED ○ SCALED SITE PLAN SUBMITTED ○ UN-SCALED SITE PLAN SUBMITTED

SEPTIC APPLICATION FEE RECEIVED: $ _____ DATE FEE RECEIVED: _____

WELL APPLICATION FEE RECEIVED: $ _____ DATE FEE RECEIVED: _____

APPLICATION PROCESSED BY: _____

GWS FILE NUMBER ASSIGNED: _____

APPLICATION ID NUMBER ASSIGNED: _____

COMMENTS:

MECKLENBURG COUNTY – GROUNDWATER & WASTEWATER SERVICES
700 N. TRYON ST. SUITE 211 CHARLOTTE, NC 28202, OFFICE: 704-336-5103, FAX: 704-336-6894

Revised on: 12/15/10

Department of Environment, Health, and Natural Resources
Division of Environmental Health
On-site Wastewater Section

Property ID: 137-123-15
Lot #: 5
File #: 8066B
AppID: 8134

SOIL/SITE EVALUATION for ON-SITE WASTEWATER SYSTEM

Property Owner: Livewell Homes
Address: 501 Springcrest Dr, Fort Mill, NC 29715
Proposed Facility: 4 Bedroom House
Design Flow (.1949): 480 GPD
Location: 9406 Surface Hill Rd, Mint Hill, NC 28227
Water Supply: [ ] Public [ ] Individual [ ] Well [ ] Spring [X] Municipal
Evaluation Method: [ ] Auger Boring [X] Pit [ ] Cut
Type of Wastewater: [X] Sewage [ ] Industrial Process [ ] Mixed

Applicant: owner
Date Evaluated: 9/9/15 & 4/4/16
Property Size: 1.04 ac
Property Recorded: Unknown

PROFILE #	1940 Landscape Position/ Slope%	Horizon Depth (IN:)	SOIL MORPHOLOGY 1941 1941 Structure/ Texture	1941* Consistence Mineralogy	PROFILE FACTORS 1942 Soil Wetness/ Color	1943 Soil Depth (IN.)	1956 Sapro Class	1944 Restr Horiz	General Comments	Profile Class & LTAR	Maximum Trench Bottom Depth for 3' Wide Conventional Trench
Pit #1	LS 5%	0 - 20	Disturbed/Fill	SS SP FR SEXP	2 chroma at 36"	0	NA	NA		US	NA
Pit #2	LS 5%	0 - 4	gr SL	SS SP FR SEXP	2 chroma at 43"	30	NA	NA	yellow mottles 12 - 54" clay inclusions 30 - 54"	PS IV 0.225	22"
		4 - 20	mfabk C	S P FR SEXP							
		20 - 30	wfsbk C	S P FI SEXP							
		30 - 54	mass L Sap	SS SP FI SEXP							
Pit #3	SS 8%	0 - 3	gr SL	SS SP FR SEXP	>56"	38	NA	NA	yellow mottles 12 - 38"	PS IV 0.25	33"
		3 - 24	wmsbk C	S P FI SEXP							
		24 - 38	wfsbk SCL	SS SP FR SEXP							
		38 - 56	mass L Sap	SS SP FI SEXP							
Pit #4	LS 3%	0 - 2	gr SL	SS SP FR SEXP	2 chroma at 32"	50	NA	NA		PS IV 0.2	19"
		2 - 21	mfsbk SC	S P FR SEXP							
		21 - 36	wfsbk SCL	SS SP FR SEXP							
		36 - 50	wfsbk C	S P VFI EXP							
Pit #5	LS 6%	0 - 14	gr SL	SS SP FR SEXP	2 chroma at 26"	40	NA	NA		PS IV 0.2	12" (Need Cover)
		14 - 26	wfsbk SCL	SS SP FR SEXP							
		26 - 40	wfsbk C	S P VFI EXP							

Description	Initial System	Repair System
Available Space (.1945)	PS	PS
System Type(s)	IIIg	IVa
Site LTAR (gpd/sq ft)	0.2*	Drip @ 0.1

***LTAR only valid for area of pits 4, 5, 6, 10, 11, 12, & 14.**

Other Factors (.1946): NA
Soil Evaluation By: Jacob Presley, REHS, LSS
Others Present: Larry Thompson, LSS
Site Classification (.1948):
Site Evaluation By: April Bumgarner
Others Present:

SOIL/SITE EVALUATION
for ON-SITE WASTEWATER SYSTEM
CONTINUED

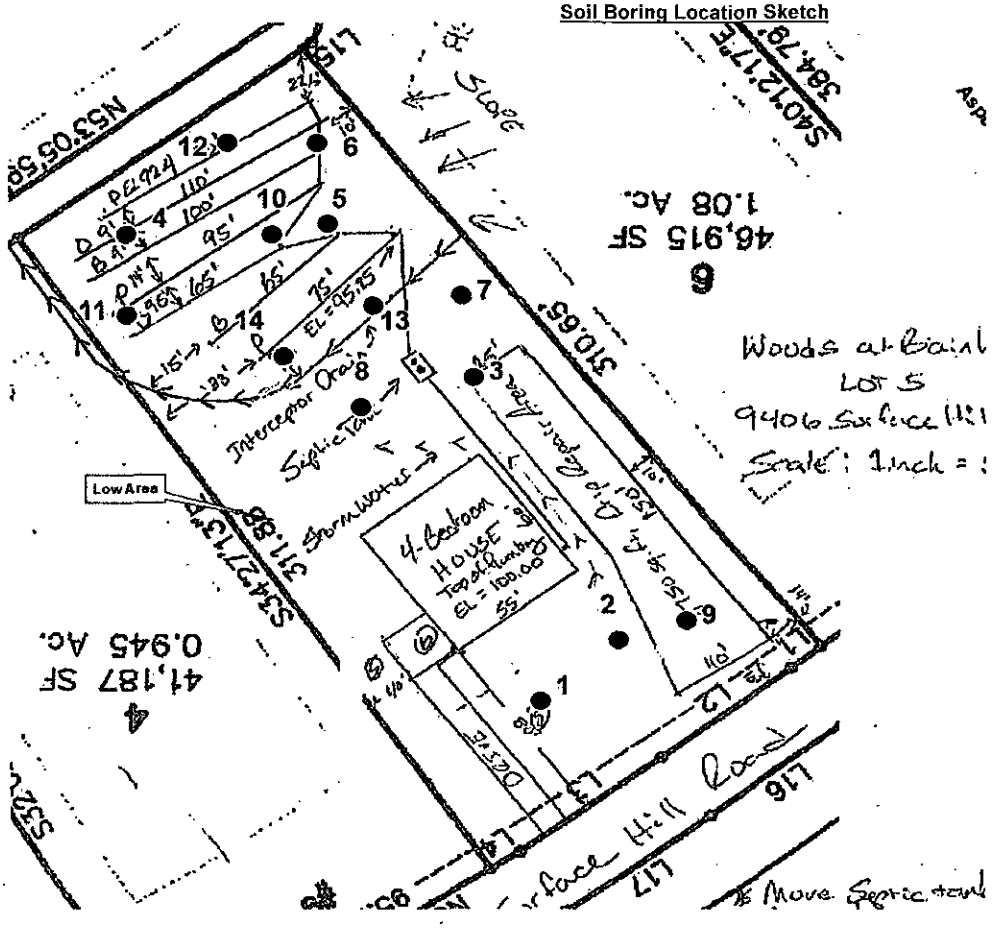
PROFILE #	1940 Landscape Position/ Slope%	Horizon Depth (IN.)	SOIL MORPHOLOGY 1941		b PROFILE FACTORS				General Comments	Profile Class & LTAR	Maximum Trench Bottom Depth for 3' Wide Conventional Trench
			1941 Structure/ Texture	1941 Consistence Mineralogy	1942 Soil Wetness/ Color	1943 Soil Depth (IN.)	1956 Sapro Class	1944 Restr Horiz			
Pit #6	LS 3%	0 - 13	gr SL	SS SP FR SEXP	2 chroma at 29"	30	NA	NA		PS IV 0.2	16" (Need Cover)
		13 - 21	wfsbk SCL	SS SP FR SEXP							
		21 - 30	mfsbk C	S P FI SEXP							
		30 - 55	mass C	S VP VFI EXP							
Pit #7	LS 7%	0 - 5	gr L	SS SP FR SEXP	2 chroma at 22 - 36"	24	US	NA	Larry present	PS IV for Drip @ 0.1	NA
		5 - 18	wfsbk C	S P FR SEXP							
		18 - 24	wfsbk SCL	S SP FR SEXP							
		24 - 36	Sap SCL	S SP FI SEXP							
		36 - 63	Sap SL	SS SP FI SEXP							
Pit #8	LS 4%	0 - 12	Fill		2 chroma at 18 - 36"	24	US	NA	Larry present	US	NA
		12 - 24	wfsbk C	S P FR SEXP							
		24 - 36	Sap SCL	S SP FI SEXP							
		36 - 60	Sap SL	SS SP FI SEXP							
Pit #9	LS 5%	0 - 4	gr CL	SS SP FR SEXP	>60"	32	US	NA	Larry present	PS IV 0.225	18"
		4 - 32	wfsbk C	S P FR SEXP							
		32 - 60	Sap CL	S P FR SEXP							
Pit #10	LS 4%	0 - 7	gr SL	SS SP FR SEXP	2 chroma at 27"	30	NA	NA	Larry present	PS IV 0.2	14" (Need Cover)
		7 - 15	wfsbk SCL	SS SP FR SEXP							
		15 - 30	sbk/abk C	S P FR SEXP							
		30 - 38	mass C	S VP VFI EXP							
Pit #11	LS 3%	0 - 9	gr L	SS SP FR SEXP	2 chroma at 27"	33	NA	NA	Larry present	PS IV 0.2	14" (Need Cover)
		9 - 18	wfabk SCL	SS SP FR SEXP							
		18 - 33	sbk/abk C	S P FR SEXP							
		33 - 40	mass C	S VP VFI EXP							
Pit #12	LS 3%	0 - 9	gr L	SS SP FR SEXP	2 chroma at 30"	34	NA	NA	Larry present	PS IV 0.2	17" (Need Cover)
		9 - 18	gr/sbk SCL	SS SP FR SEXP							
		18 - 34	sbk/abk C	S P FI SEXP							
		34 - 44	mass C	S VP VFI EXP							
Pit #13	LS 5%	0 - 7	gr L	SS SP FR SEXP	2 chroma at 19"	30	US	NA	Larry present	PS IV Drip at 0.1	NA
		7 - 19	gr/sbk SCL	SS SP FR SEXP							
		19 - 30	sbk/abk C	S P FI SEXP							
		30 - 40	Sap SL/SCL	SS SP FR SEXP							
Pit #14	LS 4%	0 - 12	gr SL/SCL	SS SP FR SEXP	2 chroma at 26"	26	NA	NA	Larry present	PS IV 0.2	13" (Need Cover)
		12 - 26	sbk/abk C	S P FR SEXP							
		26 - 42	mass C	S VP VFI EXP							

COMMENTS:

Landscape Position	Group	Texture	.1955 LTAR	Structure
R-Ridge	I	S-Sand	1.2 - 0.8	sg-Single Grain
SS-Shoulder Slope		LS-Loamy Sand		mass-Massive
LS-Linear Slope				cr-Crumb
FS-Foot Slope	II	SL-Sandy Loam	0.8 - 0.6	gr-Granular
NS-Nose Slope		L-Loam		sbk-Subangular Blocky
HS-Head Slope				abk-Angular Blocky
CC-Concave Slope	III	Si-Silt	0.6 - 0.3	pl-Platy
CV-Convex Slope		SiCL-Silty Clay Loam		pr-Prismatic
T-Terrace				Sap-Saprolite
FP-Flood Plain		CL-Clay Loam		**Structure Prefixes**
D-Drainage Way		SCL-Sandy Clay Loam		w-weak
		SiL-Silt Loam		m-moderate
				s-strong
				f-fine
	IV	SC-Sandy Clay	0.4 - 0.1	m-medium
		SiC-Silty Clay		c-coarse
		C-Clay		

Consistence Moist	Consistence Wet	Mineralogy
VFR-Very Friable	SS-Slightly Sticky	SEXP-Slightly Expansive
FR-Friable	S-Sticky	EXP-Expansive
FI-Firm	VS-Very Sticky	
VFI-Very Firm	NP-Non-Plastic	**Classification**
EFI-Extremely Firm	SP-Slightly Plastic	US-Unsuitable
	P-Plastic	PS-Provisionally Suitable
	VP-Very Plastic	S-Suitable
		NA-Not Applicable

Soil Boring Location Sketch



Mecklenburg County Groundwater & Wastewater Services
700 N. Tryon St, Suite 211 Charlotte, NC 28202
Phone: (704) 336-5103 Fax: (704) 336-6894

NC DENR
Division of Environmental Health
On-Site Wastewater Section

IMPROVEMENT PERMIT for a RESIDENTIAL ON-SITE WASTEWATER TREATMENT & DISPOSAL SYSTEM

Permit #: **30008134** GWS File #: **8066B** Tax Parcel #: **137-123-15**

- This IMPROVEMENT PERMIT is subject to revocation if site plans or the intended use change. There is to be **NO** grading, filling, or disturbance of the soil in the area of the septic tank system or repair area.
- CONSTRUCTION AUTHORIZATION must be obtained prior to receiving a Building Permit. The Construction Authorization is **NOT** transferable. Do not clear, grade, fill or disturb soil prior to obtaining a Construction Authorization.
- Domestic-type wastewater only. No industrial process wastewater may be discharged into the system.

I. This Improvement Permit Shall: Expire in Five (5) Years **Expiration Date (If Applicable):** 4/21/2021

Type of Installation: Residential - Alteration Lot Number: 5

Structure Type: HOUSE Size (ft^2): 2853 # Bedrooms: 4 # Occupants: 4

Building Foundation: Crawl Space Water Supply: Private Well

II. Initial System Type: Accepted **System Classification:** IIIg

Initial System Specifications:

Design Flow (gpd):	480	LTAR (gpd/ft^2):	.2	Septic Tank Size (gal):	1000	Pump Tank Size (gal):	N/A
Trench Width (ft):	3	Trench Spacing (ft):	9	Absorption Area (ft^2):	1800	Total Trench Length (ft):	600
Maximum Trench Depth (in):	12	Depth of Media (in):	12	Distribution Device:	Drop Boxes		

III. Repair System Type: Pretreatment with Drip Irrigation **System Classification:** Va

Repair System Specifications:

Design Flow (gpd):	480	LTAR (gpd/ft^2):	.2	Septic Tank Size (gal):	1000	Pump Tank Size (gal):	1000
Trench Width (ft):	12	Trench Spacing (ft):	2	Absorption Area (ft^2):	2400	Total Trench Length (ft):	1200
Maximum Trench Depth (in):	6	Depth of Media (in):	N/A	Distribution Device:	Headworks (Drip Irr.		

IV. Permit Conditions/Comments:

(Please See the Following Page for Permit Conditions.)

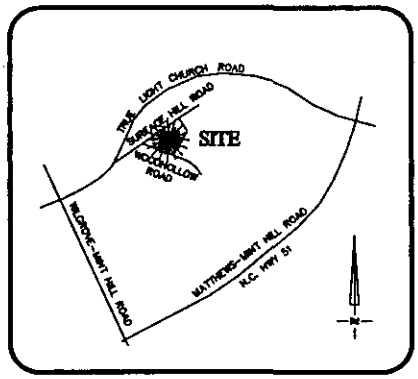
The undersigned, an authorized agent of the STATE OF NORTH CAROLINA, certifies that the Department is issuing an IMPROVEMENT PERMIT for the above referenced property. This permit is being issued in accordance with the *Laws and Rules For Sewage Treatment, and Disposal Systems* and is subject to the following provisions:

- No work shall be conducted on the septic system until a Pre-Construction meeting has been completed by the Department.
- The septic system installer shall be a licensed septic contractor with the North Carolina Wastewater Contractor Inspector Certification Board.
- The permitted system shall be installed in accordance with the included PLOT PLAN.
- This IMPROVEMENT PERMIT is transferable.

Authorized Agent: April Bumgarner Owner/Legal Agent: _____
Print Name

Signature: April Bumgarner, REHS Signature: _____

Date Issued: 4/21/2016

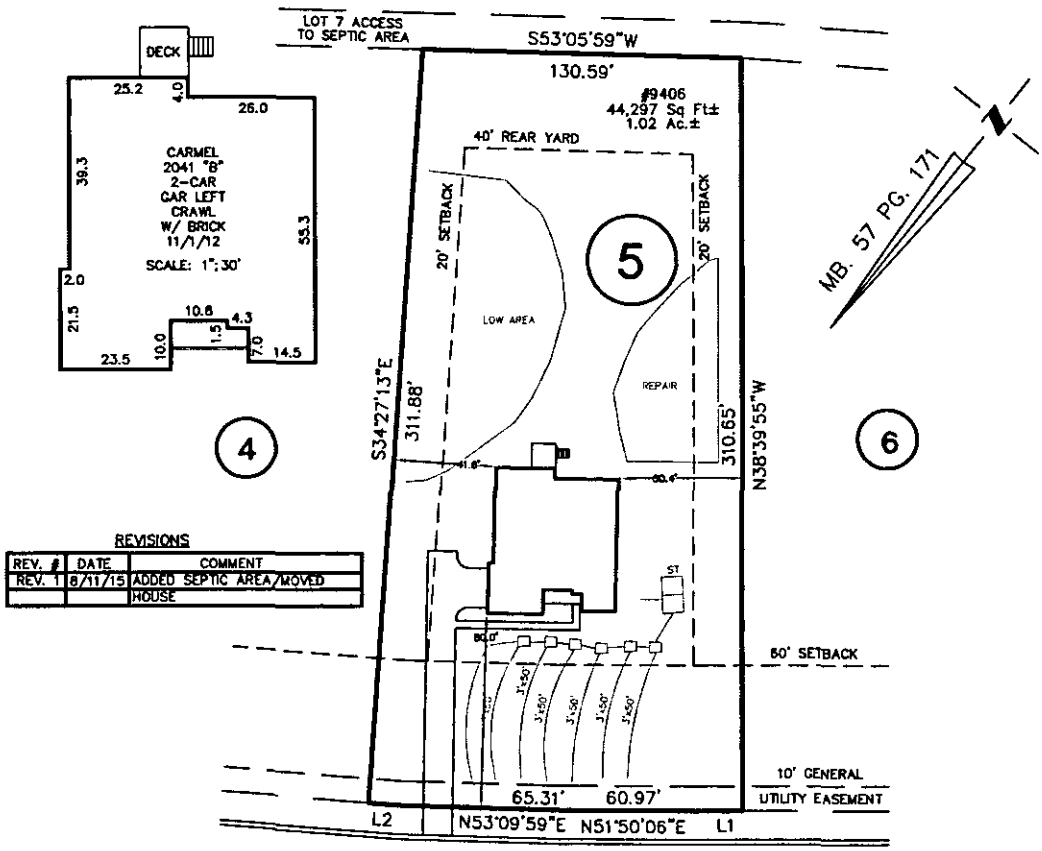


VICINITY MAP
Not To Scale

NOTE:
1. BUILDER ASSUMES RESPONSIBILITY FOR GRADING LOT AND/OR DESIGNING STEPS, PORCHES, DECKS, ETC. AS NECESSARY TO PREVENT ENCROACHMENT INTO SETBACKS.
2. HOUSE DIMENSIONS AND OPTIONS SHOULD BE VERIFIED WITH CONTRACTOR PRIOR TO CONSTRUCTION.
3. SETBACKS/ EASEMENTS SHOULD BE VERIFIED WITH DEVELOPER AND LOCAL OFFICIALS PRIOR TO CONSTRUCTION.
4. THIS IS A CONCEPTUAL DRAWING AND CONTENTS SHOWN HEREON ARE SUBJECT TO CHANGE UPON FINAL CONSTRUCTION.

NOTE:
UTILITY AND DRAINAGE EASEMENTS FIVE (5) FEET IN WIDTH SHALL BE PROVIDED ALONG SIDE LOT LINES, AND TEN (10) FEET IN WIDTH ALONG REAR LOT LINES.

IMPERVIOUS SURFACE AREA	
DESCRIPTION	AREA
HOUSE w/ PORCH	2,963 S.F.
PATIO/AC/MISC.	9 S.F.
DRIVEWAY & WALKS	1,666 S.F.
TOTAL LOT AREA	44,297 S.F.
TOTAL (PROPOSED)=	4,638 S.F.



REVISIONS

REV. #	DATE	COMMENT
REV. 1	8/11/15	ADDED SEPTIC AREA/MOVED HOUSE

SURFACE HILL ROAD

60' PUBLIC RIGHT OF WAY

LINE TABLE		
LINE	LENGTH	BEARING
L1	14.18	N51°20'03"E
L2	13.05	N53°48'55"E

THIS PROPERTY MAY BE SUBJECT TO ANY AND ALL APPLICABLE DEED RESTRICTIONS, EASEMENTS, RIGHT-OF-WAY, UTILITIES AND RESTRICTIVE COVENANTS WHICH MAY BE OF RECORD OR IMPLIED

THIS DRAWING DOES NOT REFLECT AS-BUILT INFORMATION

PRELIMINARY PLAT
NOT FOR RECORDATION, CONVEYANCES, OR SALES.

60 0 60
SCALE: 1" = 60'

EASTOVER
LAND SURVEYING COMPANY, P.A.
LAND SURVEYORS - PLANNERS (C1833)
10430 PARK ROAD, SUITE #300
CHARLOTTE, NORTH CAROLINA 28210
PHONE (704) 927-8080
FAX (704) 889-0105

HOUSE LOCATION PLOT PLAN
FOR

LOT 5, WOODS AT BAINBRIDGE, PHASE 1, MAP 1
Mint Hill, Clear Creek Township, Mecklenburg County, North Carolina

PROPERTY OF: LIVEWELL HOMES

MAP BOOK 57 PAGE 171 DEED REFERENCE

DRAWN BY: ERG | DATE: AUGUST 7, 2015

Mecklenburg County Groundwater & Wastewater Services
700 N. Tryon St, Suite 211 Charlotte, NC 28202
Phone: (704) 336-5103 Fax: (704) 336-6894

NC DENR
Division of Environmental Health
On-Site Wastewater Section

IMPROVEMENT PERMIT for a RESIDENTIAL ON-SITE WASTEWATER TREATMENT & DISPOSAL SYSTEM

Permit #: **30008134** GWS File #: **8066B**

IV. Permit Conditions/Comments:

- Easement agreement forms shall be on file and the property shall be deeded and recorded prior to issuance of Construction Authorization.
- Additional soil cover, as specified on the plot plan, required over the drain field must be inspected and approved prior to issuance of an Operation Permit.
- This type of repair system requires the installation of a pump tank and all associated components. This type of system will require routine inspections by our office. The system owner is responsible for all fees associated with these inspections.
- This type of repair system requires the property owner to obtain a contract with a Certified Operator to perform routine inspections and maintenance on the system.
- This type of repair system requires periodic inspections by our office. The system owner is responsible for any fees, as determined by the Mecklenburg County Board of Commissioners, associated with this inspection.
- The septic system shall be installed in accordance with the plans submitted by the wastewater system design consultant.
- All waterlines must be located a minimum of 10 ft. from any part of the septic system.
- Upon completion of the project the system designer shall provide Groundwater & Wastewater Services with a letter certifying that the system was installed in accordance with the approved design.
- Permitted LTAR value based on KSAT study provided by soil consultant.
- Flow from all gutters and downspouts shall be directed not to discharge water onto or across any part of the septic system.
- Foundation drains shall be constructed not to discharge water onto or across any part of the septic system.
- The maximum trench depth for this system is 12.5 inches.

The undersigned, an authorized agent of the STATE OF NORTH CAROLINA, certifies that the Department is issuing an IMPROVEMENT PERMIT for the above referenced property. This permit is being issued in accordance with the *Laws and Rules For Sewage Treatment and Disposal Systems* and is subject to the following provisions:

- No work shall be conducted on the septic system until a Pre-Construction meeting has been completed by the Department.
- The septic system installer shall be a licensed septic contractor with the North Carolina Wastewater Contractor Inspector Certification Board.
- The permitted system shall be installed in accordance with the included PLOT PLAN.
- This IMPROVEMENT PERMIT is transferable.

**A minimum of 12" of cover is required.

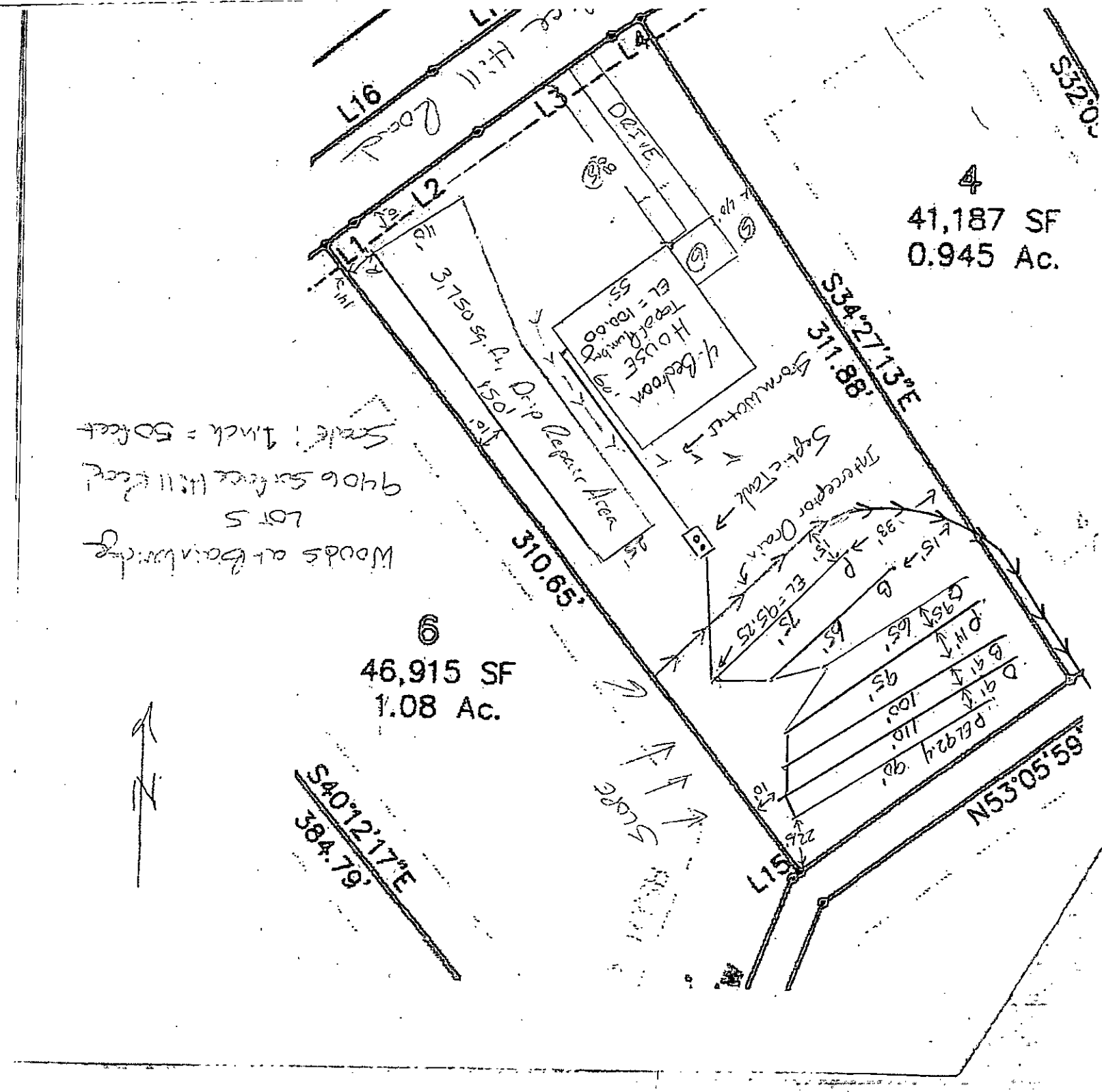
Authorized Agent: April Bumgarner

Signature: April Bumgarner, REHS

Date Issued: 4/21/2016

Owner/Legal Agent: _____
Print Name

Signature: _____


L16
L3
L4
L2
L1
DRIVE
4
41,187 SF
0.945 Ac.
S34°27'13"E
311.88'
3,750 sq. ft. D.P. Repair Area
4-Bedroom House
Top of Foundation
EL = 100.00
55'
Stormwater
Septic Tank
Interceptor Drain
EL = 95.25
310.65'
6
46,915 SF
1.08 Ac.
S40°12'17"E
384.79'
N53°05'59"
L15
Scale: 1 inch = 50 feet
Woods at Bainbridge
LOT 5
9400 Service Hill Road

Mecklenburg County Groundwater & Wastewater Services
700 N. Tryon St., Suite 211 Charlotte, NC 28202
Phone: (704) 336-5103 Fax: (704) 336-6894

Septic System Pre-Construction Meeting Checklist

File # 8066B App # 8134 Tax Parcel # 137-123-15

Property Owner: Live Well Homes

Job Location Address: 9406 Surface Hill Rd

City: Charlotte State: NC Zip Code: 28227

1. **Does System design match facility, flow & wastewater characteristics?**

   ☑ YES ☐ NO

   Comments:

2. **Is there sufficient available space for the septic systems initial and repair areas?**

   ☑ YES ☐ NO

   Comments:

3. **Can the septic system be installed per the permit conditions and drawing on file?**

   ☑ YES ☐ NO

   Comments:

*** If "NO" is checked for any of the above the existing permit may need to be revoked.**

Permission is hereby given to ☑ install ☐ alter ☐ repair an on-site wastewater treatment & and disposal system, with subsurface soil absorption and effluent discharge meeting all of the construction requirements of.15A NCAC 18A .1900 which are in effect on the date of granting this approval. **System shall not be installed while soils are in wet condition.**

April Bumgarner, REHS — Authorized Agent

4-27-16 — Date

RCS — Others Present

Mecklenburg County Groundwater & Wastewater Services
700 N. Tryon St., Suite 211 Charlotte, NC 28202
Phone: (704) 336-5103 Fax: (704) 336-6894

NC DHHS
Division of Environmental Health
On-Site Wastewater Section

OPERATION PERMIT for an
ON-SITE WASTEWATER TREATMENT & DISPOSAL SYSTEM

File #: 8066 B Permit #: 8134 Tax Parcel #: 137-123-15

Property Owner: LiveWell Homes

Job Location Address: 9406 Surface Hill Rd

City: Charlotte State: NC Zip Code: 28227

Operation Permit Issuance Date: 5-3-16 Contractor Name: RCS

Permitted Design Flow: 480 GPD Liquid Capacity of Dosing Tank: N/A gallons

Liquid Capacity of Septic Tank: 1000 gallons Manufacture JNS 12-29-15 STB-194 Effluent Pump Model: N/A

Drainfield Installation ☐ N/A

Trench Depth: 12" inches

Trench Width: 3 feet

Line Spacing: 9 feet (O.C.)

Total line length: 604 feet

# of Lines: 7 @ Varias feet

Depth of Media: 12" inches (Type) Quick 4

Depth of Cover: 12" inches

Distribution Device: Drop Box

Bed Installation *(For Repair Installations ONLY.)* ☒ N/A

Bed Depth: _____ inches

Bed Width: _____ feet

Total line length: _____ feet

# of Lines: _____ @ _____ feet

Depth of Media: _____ inches (Type) _____

Depth of Cover: _____ inches

Distribution Device: _____

Water Supply Source

☒ Municipal ☐ Private Well ☐ Community Well

☐ Other _____

System Installation Setbacks

Distance from Building Foundation: 66' feet

Distance from Property Line: 12' feet

Distance from Water Supply Source: 10' feet

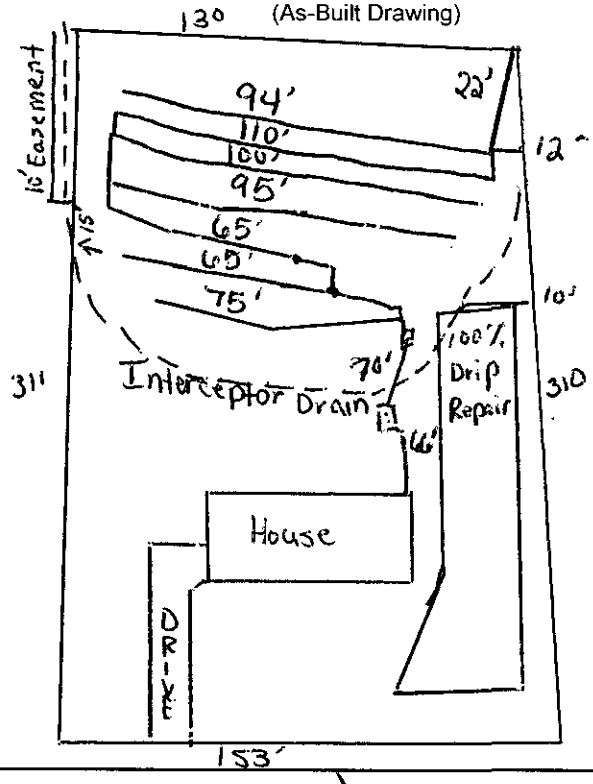
Inspection Dates

Tank(s) Inspected: 4-28-16

Excavation Inspected: 4-28-16

Pump & Controls Inspected: N/A

SKETCH OF SYSTEM INSTALLATION
(As-Built Drawing)



The undersigned has inspected the Septic Tank System described above, and certifies it has been ☒ installed ☐ altered ☐ repaired ☐ as detailed in the plot above ☒ in accordance with the permit issued and meets the provisions of 15A NCAC 18A. 1900, "Laws and Rules for Sewage Treatment and Disposal Systems" in effect on the date of issuance of the permit. The issuance of this Operation Permit does not in any way guarantee that the system will operate properly or relieve any person now or hereafter owning, controlling, or using such system from any liability resulting from the failure of the system to operate properly. This document is issued subject to those restrictions and conditions shown on the permit(s) and the provisions of 15A NCAC 18A. 1900 in addition to those listed below under "Comments." This document shall be null and void if any information contained in the application is untrue or if any additions are made to the property which would increase the requirements for said system.

Notice: Disturbance of the designated repair area may result in the Suspension or Revocation of this permit.

Comments: System Classification & Type: IIIg / g ☒ IQ4 / NA / NA

12" cover checked 5-3-16

DENR Authorized Agent: April Bumgarner Signature: April Bumgarner, REHS

Mecklenburg County Groundwater & Wastewater Services
700 N. Tryon St., Suite 211 Charlotte, NC 28202
Phone: (704) 336-5103 Fax: (704) 336-6894

NC DENR
Division of Environmental Health
On-Site Wastewater Section

OPERATION PERMIT for an
ON-SITE WASTEWATER TREATMENT & DISPOSAL SYSTEM

File #: 8066 B Permit #: 8134 Tax Parcel #: 137-123-15

Property Owner: LiveWell Homes

Job Location Address: 9406 Surface Hill Rd

City: Charlotte State: NC Zip Code: 28227

OPERATION PERMIT CONDITIONS:

I. Performance: System shall perform in accordance with 15A NCAC 18A .1961.

II. Monitoring: System shall be monitored as required by 15A NCAC 18A .1961.

III. Maintenance: Ground absorption sewage treatment and disposal systems shall be checked, and the contents of the septic tank removed, periodically from all compartments, to ensure proper operation of the system. The contents shall be pumped whenever the solids level is found to be more than 1/3 of the liquid depth in any compartment.

IV. Operation: System shall be operated in accordance with 15A NCAC 18A .1961.

System Classification: IIIg

*Operation Permits for Type V and VI systems expire five (5) years from the date of issuance (in accordance with Table V(a)). The system owner must contact GWS six (6) months prior to expiration for permit renewal.

Subsurface system operator required: Yes ☐ No ☒

☐ This type of system requires the system owner to maintain a contract with a certified operator to perform system inspection, maintenance, and reporting as required in 15A NCAC 18A .1961. and Table V(a). The system owner is responsible for all fees associated with these services.

☒ System does not require inspection by GWS on a routine frequency.

☐ System requires inspection by GWS once every five (5) years. The system owner is responsible for all fees associated with the inspection.

☐ System requires inspection by GWS once every three (3) years. The system owner is responsible for all fees associated with the inspection.

☐ System requires inspection by GWS once every twelve (12) months. The system owner is responsible for all fees associated with the inspection.

☐ System requires inspection by GWS once every six (6) months. The system owner is *responsible for all fees associated with the inspection.*

V. Other:

DENR Authorized Agent: April Burngarner Date: 05-3-16

Signature: April Burngarner

FEE: 200.00
DATE:5/5/2016

MECKLENBURG COUNTY
GROUNDWATER & WASTEWATER SERVICES

FILE NUMBER: 8066B

PERMIT NUMBER: 8066B

PARCEL NUMBER: 13712315

JOB LOCATION INFORMATION

ADDRESS: 9406 SURFACE HILL RD

CITY: CHARLOTTE **STATE: NC** **ZIP:** 28227

ISSUED TO: LIVEWELL HOMES, LLC

CONSTRUCTION AUTHORIZATION ISSUANCE DATE: 4/27/2016

CONSTRUCTION AUTHORIZATION CONDITIONS

1. WASTEWATER SYSTEM CONSTRUCTION AND INSTALLATION MUST MEET ALL CONDITIONS AND SPECIFICATIONS AS SET FORTH IN IMPROVEMENT PERMIT NUMBER 30008134, AND THE ATTACHED SITE PLAN WITH SYSTEM DETAILS. CONSTRUCTION AND INSTALLATION MUST ALSO MEET ALL REQUIREMENTS SET FORTH IN THE RULES GOVERNING SANITARY SEWAGE COLLECTION, TREATMENT, AND DISPOSAL AND ANY OTHER APPLICABLE RULES AND LAWS.

2. A PRE-CONSTRUCTION MEETING MUST BE SECURED PRIOR TO INSTALLATION OF THE SEPTIC TANK SYSTEM. THE INSTALLER OF THE SYSTEM SHALL BE A LICENSED SEPTIC TANK CONTRACTOR WITH THE NORTH CAROLINA ONSITE WASTEWATER CONTRACTOR INSPECTOR CERTIFICATION BOARD.

3. ANY ALTERATION IN SITE OR SOIL CONDITIONS (INCLUDING LOCATION OF STRUCTURES AND APPURTENANCES) OR MODIFICATION IN USE, DESIGN WASTEWATER FLOW, OR WASTEWATER CHARACTERISTICS AS SPECIFIED IN THE ASSOCIATED IMPROVEMENT PERMIT AND APPLICATION, MAY SUBJECT THIS CONSTRUCTION AUTHORIZATION AND ASSOCIATED PERMIT(S) TO REVOCATION.

4. THIS CONSTRUCTION AUTHORIZATION AS PROVIDED IN G.S. 130A-335(f) AND G.S. 130A-336(b) SHALL BE VALID FOR A PERIOD EQUAL TO THE VALIDITY OF THE IMPROVEMENT PERMIT, NOT TO EXCEED 60 MONTHS.

THOMPSON ENVIRONMENTAL CONSULTING, INC.
WATER ♦ WASTEWATER ♦ WETLANDS

April 30, 2016

April Bumgarner
Mecklenburg County Groundwater and Wastewater Services
700 N. Tryon Street, Suite 211
Charlotte, NC 28202

Dear Ms. Bumgarner,

The purpose of this letter is to inform you that I have performed an inspection of the wastewater treatment and disposal system installed for Lot 5 of The Woods at Bainbridge and I am satisfied that the installation meets the intent of the original proposal submitted to your office.

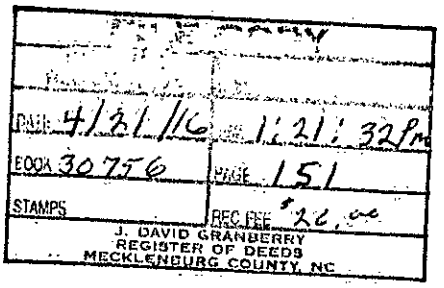
Please note that the installed septic tank size is 1,000 gallons in capacity rather than 1,500 gallons. This change was made after receiving prior approvals.

Please feel free to call on me if you have any further questions or concerns regarding this project.

Sincerely,

Larry B. Thompson, Jr.

PO BOX 541 • MIDLAND, NC • 28107-0541
PHONE: 704-301-4881 • FAX: 206-350-8895
E-MAIL: LARRY@THOMPSONENV.COM
WEB: WWW.THOMPSONENV.COM



STATE OF NORTH CAROLINA

COUNTY OF MECKLENBURG

SEPTIC SYSTEM EASEMENT AGREEMENT

This EASEMENT made this 21st day of April, 2016, by and between

GRANTOR	GRANTEE
LIVE WELL HOMES, LLC, a South Carolina limited liability company	**LIVE WELL HOMES, LLC, a South Carolina limited liability company P.O. Box 1345 Fort Mill, SC 29716**

Enter in appropriate block for each party: name, address, and, if appropriate, character or entity, e.g., corporation or partnership.

The designation Grantor and Grantee as used herein shall include said parties, their heirs, successors, and assigns, and shall include singular, plural, masculine, feminine or neuter as required by context.

WITNESSETH, that the Grantor, for a valuable consideration paid by Grantee, the receipt of which is hereby acknowledged, has and by these presents does grant, bargain, sell and convey unto the Grantee an easement as hereinafter described, to run with the land upon that certain lot or parcel of land owned by Grantor and located in the city of _____, Mint Hill Township, Mecklenburg County, North Carolina, and more particularly described as follows:

This instrument was prepared by: Paul J. Smith, Attorney

Mail after recording to: Grantee

Mecklenburg Tax Parcel No. 13712314, being

Lot 4, Woods at Bainbridge, Phase 1, Map 1 recorded in Map Book 57 Page 171, Mecklenburg County Registry.

See the map exhibit attached hereto as Exhibit A and the parcel shown thereon identified as lot number 4 for the description of Grantor's parcel and of the "10' Easement" located thereon, said parcel hereinafter referred to as the "Easement Parcel."

Grantor hereby imposes said easement for the benefit of Grantee as the present owner and for the benefit of future owners of the following lot or parcel of land, situated in the City of _____, Mint Hill Township, Mecklenburg

County, North Carolina, and more particularly described as follows:

Mecklenburg Tax Parcel No. 13712315, being

Lot 5, Woods at Bainbridge, Phase 1, Map 1, recorded in Map Book 57 Page 171, Mecklenburg County Registry.

See the map exhibit attached hereto as Exhibit A and the parcel shown thereon identified as lot number 5 for the description of Grantee's parcel, said parcel hereinafter referred to as the "Benefited Parcel."

Said Easement shall enable the Grantee to place, if, as and when needed, such need to be determined by the Grantee in his sole discretion, a French drain or other drainage facilities upon the 10' Easement area on the Easement Parcel to drain surface water away from the septic tank and drain field or portions thereof located on the Benefitted Parcel, and to inspect, maintain, repair and replace components of said drainage system and septic system at any time and from time to time. If the Easement Area also includes a connector strip for ingress and egress, Grantee shall have the right to use said connector strip for access as needed. *This Easement may not be altered, amended or cancelled without the express written permission of the Mecklenburg County Health Department, which written permission must be part of any document recorded to alter, amend or cancel this Easement.* This Easement shall automatically expire, however, should Grantee ever hook up the structure located or to be located on the Benefited Parcel to a public or community sanitary sewage system but shall otherwise be perpetual.

Grantor acknowledges that the 10' Easement Area cannot be used and will not be used for any of the following activities or in any of the following ways:

- Grading or filling
- Parking or driving heavy equipment in the area or in any other way compacting the soil in the Area
- Excavating soil from the Area
- Placing footings or foundations or engaging in any other construction activity in the Area

- Placing in-ground or above-ground swimming pools in the Area
- Placing irrigation systems in the Area
- Placing underground utility lines or cables in the Area
- Planting trees or gardens in the Area
- Removing any large trees in the Area unless dead or diseased
- Using the Area for the burial of stumps, trash, or any other type of construction material
- Using the Area for gravesites
- Using the Area to receive water from any gutter or downspout discharges

IN WITNESS WHEREOF, the Grantor and Grantee have hereunto set their hands and seals, or if corporate, have caused this instrument to be signed in their corporate names by their duly authorized officers and their seals to be hereunto affixed by authority of their Boards of Directors, the day and year first above written.

GRANTOR

LIVE WELL HOMES, LLC

BY: _____ (SEAL)
Chris Robusto, President

SEAL-STAMP

North Carolina, Union County

I, Wendy Horrell, a Notary Public of the County and State aforesaid, certify that Chris Robusto, President of Live Well Homes, LLC, personally appeared before me this day and acknowledged to me that he voluntarily signed the foregoing document for the purpose stated therein and in the capacity indicated. WITNESS my hand and official stamp or seal, this 21st day of April, 2016.

My Commission Expires: June 12, 2019

(Notary Public)

GRANTEE

LIVE WELL HOMES, LLC

BY: _____ (SEAL)
Chris Robusto, President

SEAL-STAMP

North Carolina, Union County

I, Wendy Horrell, a Notary Public of the County and State aforesaid, certify that Chris Robusto, President of Live Well Homes, LLC, personally appeared before me this day and acknowledged that he voluntarily signed the foregoing document for the purpose stated therein and in the capacity indicated. WITNESS my hand and official stamp or seal, this 21st day of April, 2016.

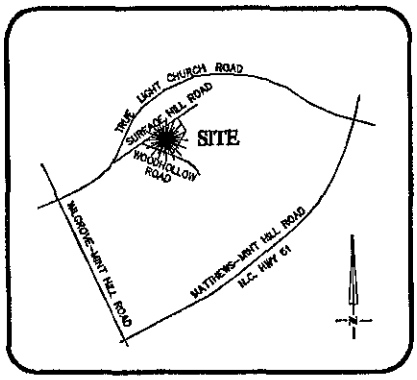
My Commission Expires: June 12, 2019 _____
(Notary Public)

Approval by the Mecklenburg County Health Department does not certify or extend to matters of title. The purchaser of property subject to or affected by this easement is responsible for ascertaining all matters affecting the validity and enforceability of this instrument.

EXHIBIT "A"

I, WILLIAM T. POWELL, JR., CERTIFY THAT THIS PLAT WAS DRAWN UNDER MY SUPERVISION FROM AN ACTUAL SURVEY MADE UNDER MY SUPERVISION (DEED DESCRIPTION RECORDED IN BOOK _____ PAGE ____, ETC)(OTHER); THAT BOUNDARIES NOT SURVEYED ARE CLEARLY INDICATED AS DRAWN FROM INFORMATION FOUND IN BOOK 57, PAGE 171; THAT THE RATIO OF PRECISION AS CALCULATED IS 1:7,500+; THAT THIS PLAT WAS PREPARED IN ACCORDANCE WITH G.S.47-30 AS AMENDED. WITNESS MY ORIGINAL SIGNATURE, REGISTRATION NUMBER AND SEAL THIS 14TH DAY OF APRIL, A.D., 2016.

BY _____ (PLS)
WILLIAM T. POWELL, JR. NCPLS L-3981

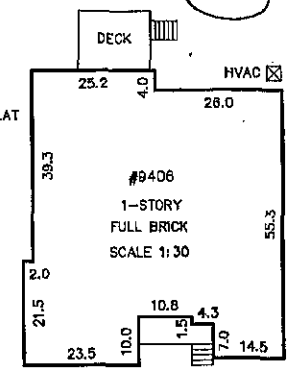


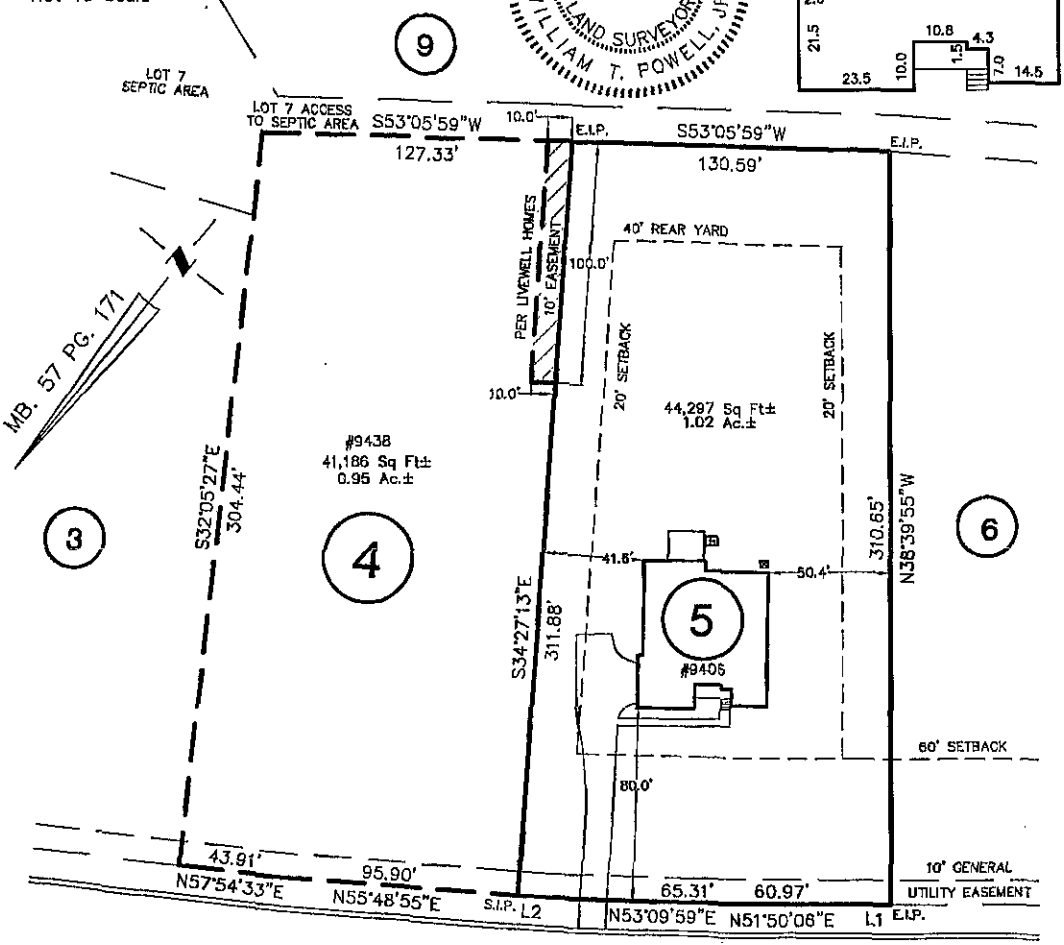
VICINITY MAP
Not To Scale

LEGEND

E.I.P.	EXISTING IRON PIN
E.C.M.	EXISTING CONCRETE MONUMENT
S.I.P.	SET IRON PIN
P.D.E.	PUBLIC DRAINAGE EASEMENT
P.U.E.	PUBLIC UTILITY EASEMENT
S.S.E.	SANITARY SEWER EASEMENT
F.P.E.	FLOOD PROTECTION ELEVATION
CLOSURE	EXCEEDS 1 INCH in 10,000'
———	PROPERTY LINE
- - - -	ADJOINER PROPERTY LINE BY DEED OR PLAT

NORTH CAROLINA PROFESSIONAL SEAL L-3981 WILLIAM T. POWELL, JR. LAND SURVEYOR





SURFACE HILL ROAD

60' PUBLIC RIGHT OF WAY

NOTE:
UTILITY AND DRAINAGE EASEMENTS FIVE (5) FEET IN WIDTH SHALL BE PROVIDED ALONG SIDE LOT LINES, AND TEN (10) FEET IN WIDTH ALONG REAR LOT LINES.
THIS PROPERTY MAY BE SUBJECT TO ANY AND ALL APPLICABLE DEED RESTRICTIONS, EASEMENTS, RIGHT-OF-WAY, UTILITIES AND RESTRICTIVE COVENANTS WHICH MAY BE OF RECORD OR IMPLIED

LINE TABLE		
LINE	LENGTH	BEARING
L1	14.18	N51°20'05"E
L2	13.06	N55°48'55"E

60 0 60
SCALE: 1" = 60'

EASTOVER
LAND SURVEYING COMPANY, P.A.
LAND SURVEYORS - PLANNERS (C1833)
10430 PARK ROAD, SUITE #300
CHARLOTTE, NORTH CAROLINA 28210
PHONE (704) 927-8080
FAX (980) 309-0842

PHYSICAL SURVEY

FOR

LOT 5, WOODS AT BAINBRIDGE, PHASE 1, MAP 1
Mint Hill, Clear Creek Township, Mecklenburg County, North Carolina

PROPERTY OF: LIVEWELL HOMES

MAP BOOK 57 PAGE 171 DEED REFERENCE _____

DRAWN BY: MJA | DATE: APRIL 15, 2016

MECKLENBURG CO REG OF DEEDS
720 EAST FOURTH STREET
CHARLOTTE, NC 28202
(704)336-2443

ISSUED TO: KEITH BELL

RECEIPT # 3710338
DATE April 21, 2016 01:21:32 PM

TIME	BOOK	PAGE	FEE
01:21 PM	30756	151	2016046838
ESMT			26.00
Total Amount Due			26.00
CASH			26.00
Total Amount Paid			26.00

THANK YOU
J. DAVID GRANBERRY
REGISTER OF DEEDS
Deputy: BAKERFR

Residential Subsurface Wastewater Treatment and Disposal System Proposal

for

Lot 5 – Woods at Bainbridge
9406 Surface Hill Road
Mint Hill, North Carolina

GWS Septic System Design Review

GWS File #: 8066B **Approved** **Disapproved**

Design Review: JAM ☑ ☐

Field Review: ABB ☑ ☐

*Projects are not considered "APPROVED" until both sections above are completed and indicate an APPROVED status.

Tax Parcel # 137-121-15
MCEH File Number: 8066B
April 7, 2016

Need Easement agreement for interceptor drain crossing property line prior to new permit being issued.

Prepared for:

LiveWell Homes
310 Springcrest Drive
Fort Mill, SC 29715
704-200-4237

LICENSED SOIL SCIENTIST
LARRY B. THOMPSON JR.
1287
STATE OF NORTH CAROLINA

Prepared by:

Larry Thompson, REHS, LSS
Thompson Environmental Consulting, Inc.
PO Box 541
Midland, NC 28107-0541
Phone: 704-301-4881
Fax: 206-350-8895
info@thompsonenv.com

NORTH CAROLINA REGISTERED ENVIRONMENTAL HEALTH SPECIALIST SEAL 1208 LARRY B. THOMPSON JR.

cc: Mr. Jacob Presley
Mecklenburg County Groundwater and Wastewater Services

Details

LiveWell Homes has contracted with Thompson Environmental Consulting, Inc. (TEC) to develop an alternate proposal for an on-site wastewater treatment and disposal system to serve the 4-bedroom single family residence that is currently under construction on Lot 5 of The Woods at Bainbridge.

Based upon a supplemental investigation and hydraulic assessment performed by TEC it was determined that a sufficient amount of "Suitable" Group IV soils are available on this property for the installation of an accepted system with a state approved 25% reduction in the required drainline length for the initial system and a pretreated drip dispersal system for the proposed repair.

LiveWell Homes requests that Mecklenburg County Groundwater and Wastewater Services (MCGWS) consider issuing an Improvement Permit and Construction Authorization for their 4-bedroom residence on Lot 5 based upon the following alternate proposal.

Location

The subject property is located on Surface Hill Road in Mint Hill, North Carolina. From Mint Hill, travel northwest on Wilgrove-Mint Hill for approximately 1.1 miles. Turn right onto Truelight Church Road and bear right onto Surface Hill Road (approximately 0.5 mile). Lot 5 is located on the right after passing the intersection of Woodhollow Road.

References

Laws and Rules for Sewage Treatment and Disposal Systems, 15A NCAC 18A, Section .1900, Department of Environment and Natural Resources, Division of Environmental Health, On-Site Wastewater Section, October 2011.

Innovative Wastewater System No. IWWS-1993-2-R13; North Carolina Department of Environment and Natural Resources, Division of Environmental Health, On-Site Wastewater Section, May 1, 2015.

Primary Investigator's Credentials

NC Registered Sanitarian No. 1208
NC Licensed Soil Scientist No. 1287
Professional Wetland Scientist No. 1346
NC Subsurface Septic System Operator No. 22199
NC Grade IV Wastewater System Installer No. 1762
NC Certified Wastewater System Inspector No. 17621

Plans and Specifications

A. Septic Tank

1. The septic tank shall be State approved (Section .1953 of 15A NCAC 18A), watertight, structurally sound, and 1500 gallons in capacity.
2. The septic tank will be fitted with an approved effluent filter.
3. It is the responsibility of the septic contractor to thoroughly inspect the septic tank prior to accepting delivery to assure that the tank has had time to properly cure and is free of cracks or other structural deficiencies.

C. Pipes and Fittings

1. All piping, connectors and supply lines should be made of SCH 40 PVC.
2. All joints must be properly "welded" utilizing the appropriate PVC cement for each application.
3. The supply line from the septic tank to the first drainline shall be 4-inch Schedule 40 PVC.

D. Distribution Method

1. Due to the unequal drainline lengths, TEC is proposing to use serial distribution via end caps and splash pads for the chamber system.

E. Drain Field Installation

1. The drainfield has been previously laid out on-site utilizing metal stemmed flags. Once this area has been approved by the MCGWS, the property owner/builder should mark this area and isolate it as much as possible from construction traffic. Prior to the system installation, the septic contractor shall contact the MCGWS and the system designer for a preconstruction conference at which time the drainfield area will be re-verified.
2. Under no circumstances shall any construction take place within the drainfield area while the soil is in a wet condition. If the installer has doubts as to whether or not the drain field area is dry enough to begin construction, the MCGWS should be contacted for permission to proceed with the installation.
3. The specified system the shallow placed innovative wastewater system **"Biodiffuser" ARC 36** or other systems with a 25% reduction approval granted by the state.
4. The drainfield consists of seven (7) lateral trenches to be constructed 3-foot wide by various lengths (1 at 75 feet, 2 at 65 feet, 1 at 95 feet, 1 at 100 feet, 1 at 110 feet and 1 at 90 feet long).
5. The maximum trench depth for this system shall be **12.5 inches**.
6. The drainlines are to be fed serial distribution.
7. The laterals are to be installed on contour with the land, keeping the individual trench bottoms level from beginning to end.
8. The trenches should be left open for the final inspection by the MCGWS.

F. Interceptor Drain

1. An interceptor drain will be required upslope of the initial drainfield area.
2. Interceptor drain will begin at a minimum of 4-feet deep and sloped to drain towards the back left side of the lot.
3. MCGWS will require a 15-oot separation between the proposed drain and any drainline. The interceptor drain will need to be installed 5-feet inside of Lot 4 in order to maintain this separation.
4. The proposed interceptor drain has been flagged in the field with red pin flags.
5. Media for the interceptor drain can be washed stone, approved tire chips or polystyrene aggregate. Contractor must obtain approval for their chosen media prior to drain installation.

F. Final Landscaping

6. Final cover over the drainfield shall a **minimum of 12 inches deep**.
7. Additional soil cover will be required. Soil cover shall be a suitable Group III material.
8. The drainfield shall be shaped to shed rainwater and be free from low spots.
9. The drainfield area should be planted with grass as soon as possible to prevent erosion. The soil should be properly tilled, limed (if necessary) and fertilized prior to planting. After applying grass seed, the area should be heavily mulched with straw or other suitable material.

G. Utility Conflicts

1. The builder and property owner must take special care in planning for any additional utilities such as water, power, gas, telephone and cable lines. These utilities shall be kept clear of all parts of the septic system and the proposed repair area. Improper planning for underground utilities can negatively impact the installation and, in some cases, cause irreparable damage and permit revocation. If there are any questions regarding preferred routes, contact the MCGWS as soon as possible.
2. Lawn irrigation should not be placed over the drain field area.

Maintenance

H. In General

1. The homeowner must maintain the drainfield area through periodic mowing. The drainfield must not be allowed to become overgrown.
2. The septic tank should be pumped every 4 years or when the solids within the septic tank reach an elevation that is equivalent to 25 percent of the volume of the tank. In some situations, the tanks may need to be pumped more frequently. If using a garbage disposal, it is recommended that the homeowner has the septic and pump tanks cleaned out annually.

3. When it becomes necessary to clean the effluent filter, the filter should be removed and the accumulated debris washed back into the septic tank – not onto the lawn.
4. Any damp areas, leakages or malfunctions in the drainfield area should be addressed immediately.
5. Divert gutter downspouts and surface water runoff away from the septic and pump tanks.

I. Suggestions to the Homeowner

1. As previously mentioned, if you plan to use a garbage disposal in your home you should plan to have your septic and pump tanks cleaned out annually. The ground up garbage adds large amounts of solids into a septic tank that tend to degrade at a very slow rate.
2. Grease, cooking oils, coffee grounds and non-degradable solids (disposable diapers, cigarettes and solid paper wastes) should never be put into a septic tank.
3. Used motor oil or any oily liquids should not be disposed of in a septic tank.
4. Be aware of the amount of water that you are using in your home. Water saving fixtures and devices can be installed on sinks, toilets and showers to reduce the volume of wastewater that you are sending to your drain field.
5. Run dishwashers and washing machines only when you have a full load.
6. Use liquid detergents. Powdered detergents have binding agents in them that tend to solidify in the wastewater disposal system.
7. Repair leaky faucets and toilets. Small drips equal large volumes of water over time and can over burden your drain field.
8. Do not use chemical additives in your system. Studies have indicated that they do not increase the biological activity that naturally occurs in the septic system and in some cases certain additives have been found to be detrimental to the life of a system.

Design Specifics

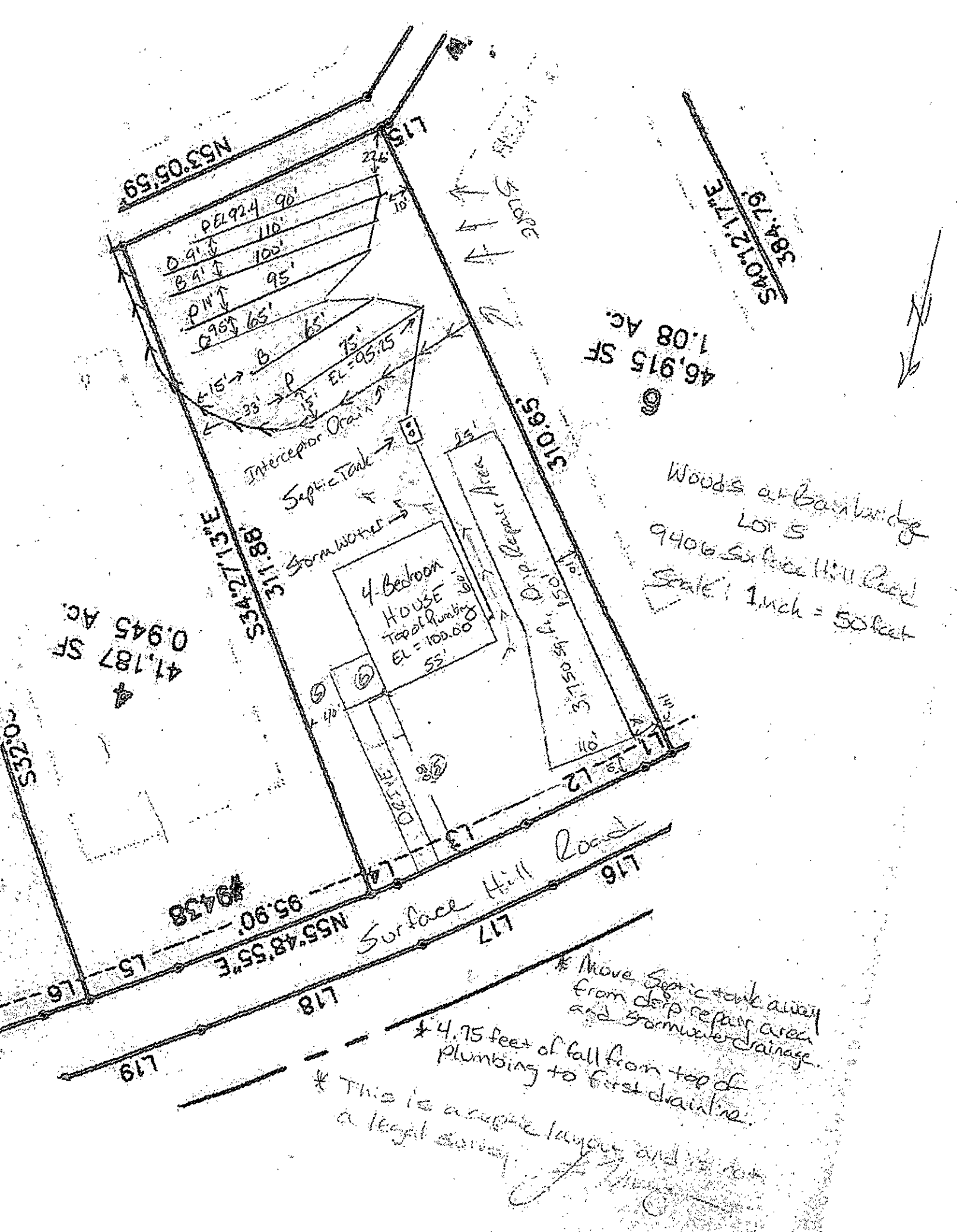
Daily Design Flow:	480 GPD – 4 bedroom house
Septic Tank Size:	1500 gallons (minimum)
Effluent Loading Rate:	Design = 0.2 GPD per sq. ft.
Drain Field Type:	Accepted 25% Reduction
Distribution Method:	Serial Distribution – End Caps
Number of Drainlines:	7
Drain Lines:	(7) 3' Wide x Various Lengths - 1 at 75 feet - 2 at 65 feet - 1 at 95 feet - 1 at 100 feet

	- 1 at 110 feet - 1 at 90 feet
Total Trench Length:	600 Linear Feet
Maximum Trench Depth:	12.5 inches
Final Cover Requirement:	12 inches (minimum)
Interceptor Drain Required:	Yes

Repair Specifics

Pump Tank Size:	1000 Gallons (minimum)
Effluent Loading Rate:	0.2 GPD per sq. ft.
System Type:	TS-II Pretreated Drip Dispersal
Maximum Trench Depth:	6 Inches Deep
Drainline Spacing:	2 Foot on Centers
Square Footage Required:	2400 Square Feet
Total Length of Drainline:	1200 Feet

* See septic layout for site locations and more details. See PercRite spreadsheet for additional repair specifics.


N53°05'59"E
S40°12'17"E
384.79'
Slope
46,915 SF
1.08 Ac.
6
PEL 92.4
D 91'
B 91'
P 114'
Q 95'
90'
110'
100'
95'
65'
65'
75'
EL=95.15
15'
33'
15'
Interceptor Drain
Septic Tank
Stormwater
4-Bedroom
HOUSE
Top of Plumbing
EL = 100.00
55'
25'
Area of Repair
S34°27'13"E
311.88'
310.65'
Woods at Bainbridge
LOT 5
9406 Surface Hill Road
Scale: 1 inch = 50 feet
47,187 SF
0.945 Ac.
#9438
95.90'
N55°48'55"E
Surface Hill Road
L1
L2
L3
L4
L5
L6
L7
L8
L9
L16
L17
L18
L19
* Move Septic tank away from drip repair area and Stormwater drainage.
* 4.75 feet of fall from top of plumbing to first drainline.
* This is a septic layout and is not a legal survey.

HYDRAULIC ASSESSMENT

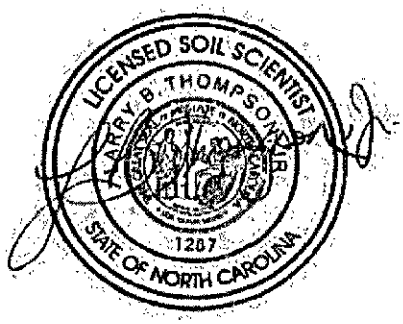
Lot 5 – The Woods at Bainbridge
9406 Surface Hill Road
Charlotte, North Carolina

LiveWell Homes
310 Springcrest Drive
Fort Mill, SC 29715

Prepared by:

Thompson Environmental Consulting, Inc.
PO Box 541
Midland, NC 28107

April 8, 2016



INTRODUCTION

Previous soil investigations for a proposed septic area located on Lot 5 of The Woods at Bainbridge in Charlotte, North Carolina, identified a potentially useable area for a pretreated subsurface drip repair system. In order to determine if a subsurface drip repair is feasible, saturated hydraulic conductivity tests (K_{SAT}) need to be performed to assist in determining a conservative long-term acceptance rate (LTAR) for the site.

Pretreated drip systems require that K_{SAT} tests be performed to substantiate the LTAR of the soils. The system LTAR, in this case, is based on the most hydraulically limiting soil horizon within 18 inches of the naturally occurring surface. Based on the previous soil investigations the soil horizons throughout the study area were fairly consistent, with a clay subsurface horizon (Bt) noted as likely the most hydraulically limiting. The K_{SAT} tests were performed below this area as shown in the attached *Soil Boring, Pit and K_{SAT} Locations map.*

HYDRAULIC CONDUCTIVITY MEASUREMENTS

A constant-head permeameter (Amoozemeter) was used to measure the K_{SAT} at three locations within the study area. Tests were conducted in accordance with the "Recommended Guidance for In-situ Measurements of Saturated Hydraulic Conductivity by the Constant Head Well Permeameter Method and for Reporting Results, August 19, 2014." The soils of the proposed system area consistently exhibited one diagnostic subsurface horizon within and immediately beneath the proposed treatment zone. As such, three K_{SAT} measurements were performed within the proposed irrigation area due to the consistency of the soils and the small area being evaluated. All tests were performed in the Bt horizon (18" and 19" depths).

Table 1 presents the results for the individual tests. The Appendix contains the results of the K_{SAT} tests. K_{SAT} data provided in the Appendix were logged only after providing sufficient time for the Amoozemeters to generally reach steady-state. The value of the K_{SAT} must be modified by an appropriate design factor to determine loading rates. This factor reflects the influence of several parameters including: inherent uncertainty of test values, variation of permeability within a soil, rooting habits of vegetation, drainage characteristics of the site, and long-term changes in soil permeability due to wastewater application.

The geometric mean of all tests is 4.97 and the results are listed in Table 1. Given that wastewater will be pre-treated to TS-II Standards a design factor of less than one percent of the measured K_{SAT} was chosen, resulting in a maximum loading rate of 0.2 gal/ft^2/day.

Table 1: Hydraulic conductivity tests results and depth of tests

Test number	Depth of test (inches)	Measured K_{sat} (gal/ft^2/day)
1	9	4.99
2	12	4.68
3	10	5.28
Geometric Mean		**4.97**

The hydraulic linear loading rate is typically defined by using Darcy's Law: $F = Kd\frac{dX}{dZ}$

F = Wastewater Flow Downslope for Unit Length (per foot of drip line)
K = Saturated Hydraulic Conductivity of the Most Restrictive Soil Horizon
d = Depth of Soil for Horizontal Transmission
$\frac{dx}{dZ}$ = Slope of the Groundwater Surface

The hydraulic linear loading rate per foot is: F = 4.97 gpd/ft^2 x 1 ft x .04 = 0.1988 gpd/ft. For a 100-foot long lateral the hydraulic linear loading rate is 0.1988 gpd/ft x 100 ft = 19.88 gpd/ft^2.

CONCLUSIONS

The findings presented herein represent Thompson Environmental Consulting's professional opinion based upon our site evaluation and knowledge of the current laws and regulations governing on-site wastewater systems in North Carolina (Section .1900 of the North Carolina Administrative Code - NCAC).

This hydraulic assessment and report has been provided to assist with a septic system design for the subject property. An Improvement Permit for a subsurface wastewater treatment and disposal would be issued by the Mecklenburg Groundwater and Wastewater Services Section. Any concurrence with the findings of this report would be made by the local health department at the time an Improvement Permit is issued.

SATURATED HYDRAULIC CONDUCTIVITY STUDY
Surface Hill Rd Lot 5

Date: 3/30/2016
Location: Front/Side yard
Number. 1
Horizon: Bt
Depth(inches): 19.0

Weather Condition: Sunny
Temperature (F): 70

SET UP

		cm	in
Hole Depth:		48.3	19.0
Reference:	+	12.7	5.0
Head:	-	17.8	7.0
CHT Tube(s) setting:	=	43.2	17.0

Valve Setting: 0 (1-ON) X (2-ON)

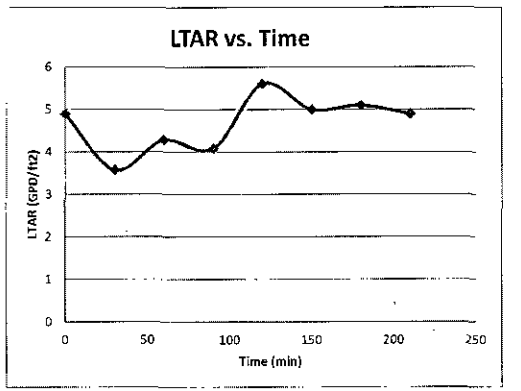
	cm	in
Target Water Level:	17.8	7.0
Beginning Water Level:	17.8	7.0
Ending Water Level:	17.8	7.0

Hole diameter (d): 6.0 cm
Hole radius (r): 3.0 cm
coefficient A. 0.000823

NOTE: Readings based on Ending Water Level

Coversion Factor (C.F.): 105.0
Saturation Start Time:
Steady-State Time:

Water Reading	Change in Water Level	Chamber C.F.	Clock Time (min)	Elapsed Time (min)	Flow Volume (cm3)	Q (cm3/hr)	K (cm/hr)	K (in/hr)	K gal/ft2/day
44.5	0.0	105.0	0.0						
39.7	4.8	105.0	30.0	30.00	504.000	1008.0	0.8293	0.3265	4.885
36.2	3.5	105.0	60.0	30.00	367.500	735.0	0.6047	0.2381	3.562
32	4.2	105.0	90.0	30.00	441.000	882.0	0.7257	0.2857	4.275
28	4.0	105.0	120.0	30.00	420.000	840.0	0.6911	0.2721	4.071
22.5	5.5	105.0	150.0	30.00	577.500	1155.0	0.9503	0.3741	5.598
17.6	4.9	105.0	180.0	30.00	514.500	1029.0	0.8466	0.3333	4.987
12.6	5.0	105.0	210.0	30.00	525.000	1050.0	0.8639	0.3401	5.089
7.8	4.8	105.0	240.0	30.00	504.000	1008.0	0.8293	0.3265	4.885
						Final Ksat	**0.847**	**0.333**	**4.987**



SATURATED HYDRAULIC CONDUCTIVITY STUDY
Surface Hill Rd Lot 5

Date: 3/30/2016
Location: Middle/Side yard
Number. 2
Horizon: Bt
Depth(inches): 19.0

Weather Condition. Sunny
Temperature (F) 70

SET UP

		cm	in
Hole Depth:		48.3	19.0
Reference:	+	11.4	4.5
Head:	-	16.5	6.5
CHT Tube(s) setting:	=	43.2	20.0

Valve Setting: 0 (1-ON) X (2-ON)

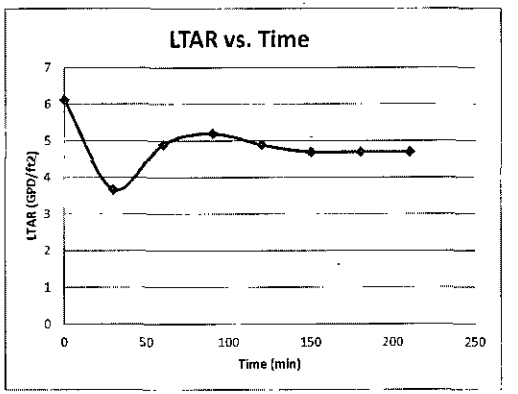
	cm	in
Target Water Level:	16.5	6.5
Beginning Water Level.	15.2	6.0
Ending Water Level:	17.8	7.0

Hole diameter (d): 6.0 cm
Hole radius (r): 3.0 cm
coefficient A: 0.000823

NOTE: Readings based on Ending Water Level

Coversion Factor (C.F.): 105.0
Saturation Start Time.
Steady-State Time:

Water Reading	Change in Water Level	Chamber C.F.	Clock Time (min)	Elapsed Time (min)	Flow Volume (cm3)	Q (cm3/hr)	K (cm/hr)	K (in/hr)	K gal/ft2/day
42	0.0	105.0	0.0						
36	6.0	105.0	30.0	30.00	630.000	1260.0	1.0367	0.4081	6.106
32.4	3.6	105.0	60.0	30.00	378.000	756.0	0.6220	0.2449	3.664
27.6	4.8	105.0	90.0	30.00	504.000	1008.0	0.8293	0.3265	4.885
22.5	5.1	105.0	120.0	30.00	535.500	1071.0	0.8812	0.3469	5.190
17.7	4.8	105.0	150.0	30.00	504.000	1008.0	0.8293	0.3265	4.885
13.1	4.6	105.0	180.0	30.00	483.000	966.0	0.7948	0.3129	4.682
8.5	4.6	105.0	210.0	30.00	483.000	966.0	0.7948	0.3129	4.682
3.9	4.6	105.0	240.0	30.00	483.000	966.0	0.7948	0.3129	4.682
						Final Ksat	**0.795**	**0.313**	**4.682**



SATURATED HYDRAULIC CONDUCTIVITY STUDY
Surface Hill Rd Lot 5

Date: 3/30/2016
Location: Rear/Side yard
Number: 3
Horizon: Bt
Depth(inches). 18.0

Weather Condition: Sunny
Temperature (F) 70

SET UP		cm	in
Hole Depth:		45.7	18.0
Reference.	+	11.4	4.5
Head:	-	16.5	6.5
CHT Tube(s) setting.	=	40.6	16.0

Valve Setting: 0 (1-ON) x (2-ON)

	cm	in
Target Water Level:	16.5	6.5
Beginning Water Level:	15.2	6.0
Ending Water Level:	15.2	6.0

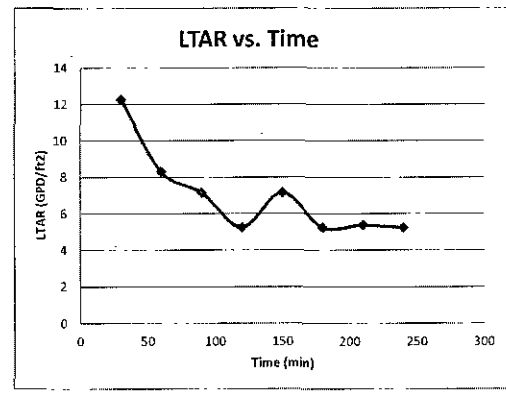
Hole diameter (d): 6.0 cm
Hole radius (r): 3.0 cm
coefficient A: 0.001032

NOTE: Readings based on Ending Water Level

Coversion Factor (C.F.). 105.0

Saturation Start Time:
Steady-State Time

Water Reading	Change in Water Level	Chamber C.F.	Clock Time (min)	Elapsed Time (min)	Flow Volume (cm3)	Q (cm3/hr)	K (cm/hr)	K (in/hr)	K gal/ft2/day
42.8	0.0	105.0	0.0						
33.3	9.6	105.0	30.0	30.00	1008.000	2016.0	2.0800	0.8189	12.252
26.8	6.5	105.0	60.0	*30.00*	*682.500*	*1365.0*	1.4084	0.5545	8.296
21.2	5.6	105.0	90.0	30.00	588.000	1176.0	1.2134	0.4777	7.147
17.1	4.1	105.0	120.0	30.00	430.500	861.0	0.8883	0.3497	5.233
11.5	5.6	105.0	150.0	30.00	588.000	1176.0	1.2134	0.4777	7.147
7.4	4.1	105.0	180.0	30.00	430.500	861.0	0.8883	0.3497	5.233
15.2	Refilled	105.0	180.0						
11	4.2	105.0	210.0	30.00	441.000	882.0	0.9100	0.3583	5.360
6.9	4.1	105.0	240.0	30.00	430.500	861.0	0.8883	0.3497	5.233
						Final Ksat	**0.896**	**0.353**	**5.275**



Thompson Environmental Consulting, Inc.
PO Box 541
Midland, NC 28107-0541
704-301-4881

SHEET 1 OF 1

COUNTY: Mecklenburg
TAX ID: 137-121-15
File# 80668

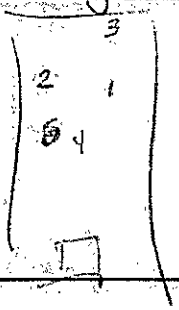
OWNER: Live Well Homes
LOCATION: The Woods at Bainbridge Lot 5 DATE: 4-4-16

PROFILES		P-1	P-2	P-3	P-4	P-5					
LANDSCAPE POSITION	.1940	LS	LS	LS	LS	LS					
SLOPE (%)	.1940	4%	4%	4%	4%	4%					
HORIZON 1 DEPTH	.1943	0-7	0-7	0-9	0-6	0-7					
TEXTURE	.1941 (a)(1)	scl	sl	scl	sl	sl					
CONSISTENCE	.1941	fr	fr	fr	fr	fr					
STRUCTURE	.1941 (a)(2)	sbk	gr	sbk	0%	gr					
CLAY MINERALOGY	.1941 (a)(3)	se	—	se	—	—					
HORIZON 2 DEPTH	.1943	7-15	7-16	9-18	6-15	7-15					
TEXTURE	.1941 (a)(1)	c	scl	c	scl	scl					
CONSISTENCE	.1941	fi	fr	fi	fi	fi					
STRUCTURE	.1941 (a)(2)	sbk	sbk	sbk	sbk	sbk					
CLAY MINERALOGY	.1941 (a)(3)	se	se	se	se	se					
HORIZON 3 DEPTH	.1943	15-30	16-35	18-47	15-20	15-27					
TEXTURE	.1941 (a)(1)	c	c	c	c	c					
CONSISTENCE	.1941	fi	fi	fi	fi	fi					
STRUCTURE	.1941 (a)(2)	sbk	sbk	sbk	sbk	sbk					
CLAY MINERALOGY	.1941 (a)(3)	se	se	se	se	se					
HORIZON 4 DEPTH	.1943	30+	35+		20+	27+					
TEXTURE	.1941 (a)(1)	c	c		sl	c					
CONSISTENCE	.1941	vfi	vfi		vfi	vfi					
STRUCTURE	.1941 (a)(2)	m	m		m	m					
CLAY MINERALOGY	.1941 (a)(3)	e	e		—	e					
SOIL WETNESS	.1942	27	27	30	19	26					
RESTRICTIVE HORIZON	.1944										
SAPROLITE	.1943/.1956										
CLASSIFICATION	.1948	PS	PS	PS	U	PS					
L.T.A.R. (gpd/ft²)	.1955	.2	.2	.2	—	.2					

OTHER FACTORS (.1946):
AVAILABLE SPACE (.1945):
SITE CLASSIFICATION (.1948):
EVALUATED BY: L. Thayer

SITE LTAR (gpd/ft²): 0.2
SYSTEM TYPE: Accepted 25% reduct.
OTHERS PRESENT: J. Presley

COMMENTS:



26" most shallow in drainfield area,
4% Slope = 24.5" soil depth
* 12.5" Install Depth
* Requires Interceptor Drain
* Requires Soil Cover (12")
* Dip Regar

Thompson Environmental Consulting, Inc.
114 Orchard Ridge Road
Locust, NC 28097-8748
704-301-4881

SHEET 1 OF 1

COUNTY: Mecklenburg
TAX ID: 137-123-09 PO

OWNER: LiveWell Homes
LOCATION: Woods at Bainbridge - Lot 5

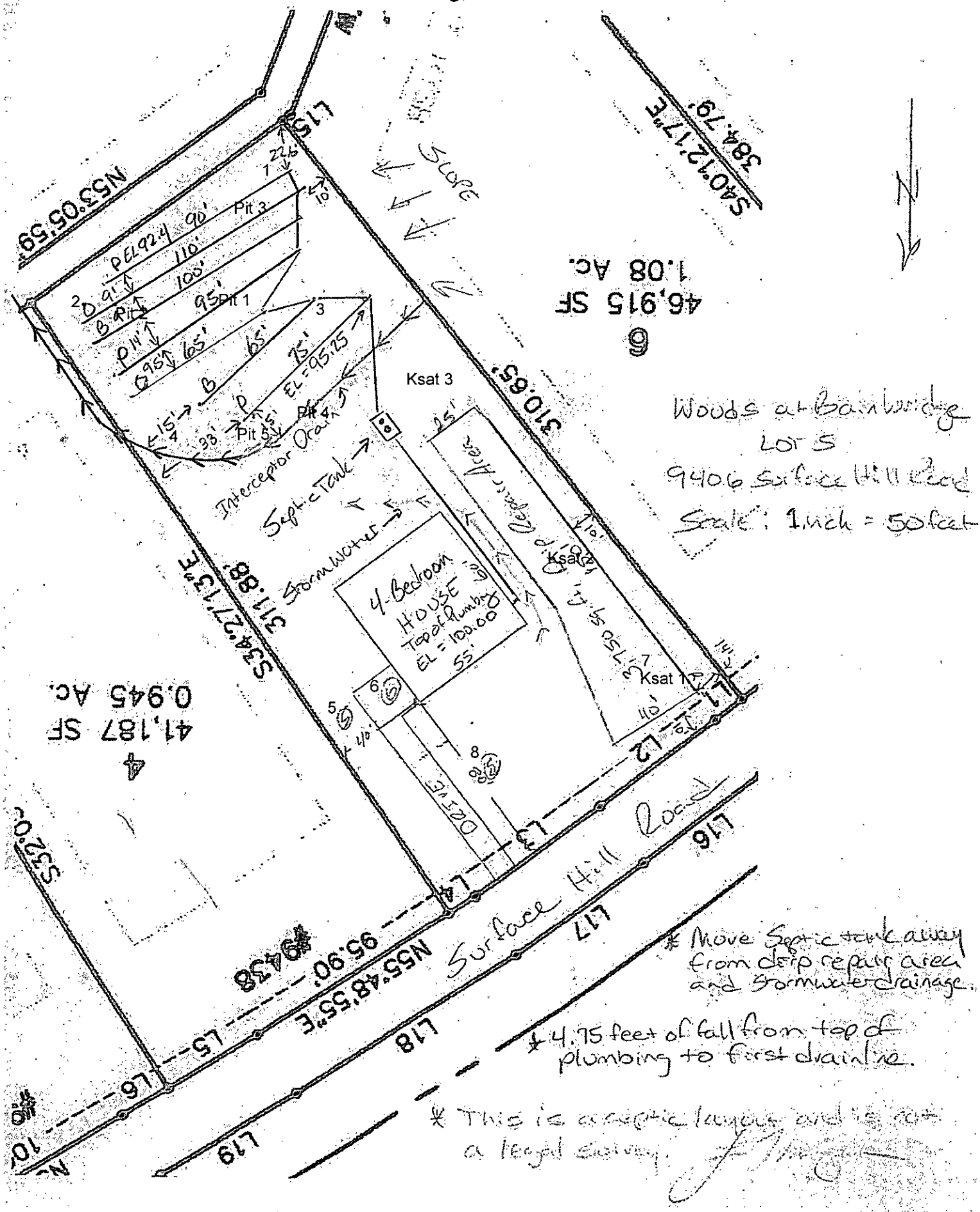
DATE: May 29, 2014

PROFILES		1	2	3	4	5	6	7	8		
LANDSCAPE POSITION	.1940	ls	ls	ls	ls	ls	ls	ls	ls		
SLOPE (%)	.1940	5%	5%	5%	5%	5%	5%	5%	5%		
HORIZON 1 DEPTH	.1943	0-4	0-3	0-3	0-3	0-3	0-6	0-6	0-6		
TEXTURE	.1941 (a)(1)	sl	sl	sl	sl	sl	scl	scl	scl		
CONSISTENCE	.1941	fr	fr	fr	fr	fi	fr	fr	fr		
STRUCTURE	.1941 (a)(2)	gr	gr	gr	gr	gr	sbk	sbk	sbk		
CLAY MINERALOGY	.1941 (a)(3)	se	se	se	se	se	se	se	se		
HORIZON 2 DEPTH	.1943	4-20	3-14	3-14	3-13	3-16	6-31	6-36	6-29		
TEXTURE	.1941 (a)(1)	scl	scl	scl	scl	scl	c	c	c		
CONSISTENCE	.1941	fi	fr	fi	fi	fi	fi	fi	fi		
STRUCTURE	.1941 (a)(2)	sbk	sbk	sbk	sbk	sbk	sbk	sbk	sbk		
CLAY MINERALOGY	.1941 (a)(3)	se	se	se	se	se	se	se	se		
HORIZON 3 DEPTH	.1943	20-31	14-26	14-31	13-27	16-20					
TEXTURE	.1941 (a)(1)	c	c	c	c						
CONSISTENCE	.1941	fi	fi	fi	fi						
STRUCTURE	.1941 (a)(2)	sbk	sbk	sbk	sbk						
CLAY MINERALOGY	.1941 (a)(3)	se	se	se	se						
HORIZON 4 DEPTH	.1943										
TEXTURE	.1941 (a)(1)										
CONSISTENCE	.1941										
STRUCTURE	.1941 (a)(2)										
CLAY MINERALOGY	.1941 (a)(3)										
SOIL WETNESS	.1942					19					
RESTRICTIVE HORIZON	.1944					20	31				
SAPROLITE	.1943/.1956	31	26	31	27			36	29		
CLASSIFICATION	.1948	ps	ps	ps	ps	u	ps	ps	ps		
L.T.A.R. (gpd/ft^2)	.1955	0.25	0.25	0.25	0.25		0.25	0.25	0.25		

OTHER FACTORS (.1946):		**SITE LTAR (gpd/ft^2):**	**0.25**
AVAILABLE SPACE (.1945):	provisionally suitable		
SITE CLASSIFICATION (.1948):	provisionally suitable	SYSTEM TYPE:	
EVALUATED BY:	Larry Thompson	OTHERS PRESENT:	John Roberts, LSS

COMMENTS:

Soil Boring, Pit and Ksat Locations



NORTH CAROLINA PERC-RITE®

DESIGN SUBMITTAL

Perc-Rite® CalcTool version 3.0

American Manufacturing Company, Inc.
1-800-345-3132 www.americanonsite.com

JOB NAME:
The Woods at Bainbridge - Lot 5

DATE:
4-Apr-16

OWNER:
LiveWell Homes
310 Springcrest Drive
Fort Mill, SC 29715

DESIGNER:
Larry Thompson, LSS
PO Box 541
Midland, NC 28107

SITE ADDRESS:
9406 Surface Hill Road
Charlotte, NC

SIGNATURE:

	SELECT ONE
Site Plan Attached:	yes
Zone Detail Attached:	yes
Model Number Specs:	yes

SITE DIRECTIONS:
From Mint Hill, travel northwest on Wilgrove-Mint Hill for approximately 1.1 Turn right onto Truelight Church Road and bear right onto Surface Hill Road Road (approximately 0.5 mile). Lot 5 is located on the right

SYSTEM INFORMATION: (Automatically Computed based on Worksheet)

Effluent Quality :	**Aerobic: TS-II**	**Total LF Tubing Provided :**	**1500**
Zone Detail :	**Z 2 5 1**	**# Bedrooms x 120 :**	**480**

ELECTRICAL REQUIREMENTS:

Pump :	**1/2 HP, 115V, 1 PHASE**
Control :	**15 AMP, 115V, 1 PHASE**
Other :	

SYSTEM MODEL NUMBER: **You may use either drop-down list. SELECT ONLY ONE.**

Aerobic OR Anaerobic:	ASD151-S122: 1 Zone Drip w/ Simplex 2 Filter, 2 Zone Control Panel
Aerobic Only:	None

OPTIONS

1. **DH-INSKIT225: Insulation & Heater Kit for Large Enclosure (208W)**	no
2. **BIOLINE500: Drip Tubing per 500 ft Roll**	1
3. **BIOLINE1000: Drip Tubing per 1000 ft Roll**	2

Click link below to access PDF for selected model number.
~ Contains Installation Instructions, Specifications, & Standard Details

Aerobic **Pump Curve**

Click link below to access Bill of Materials for selected model number.

ASD151-S122

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Back to top of page

NORTH CAROLINA WORKSHEET - Dispersal system design worksheet for residential systems.

line #	INPUTS			
	Select One			You must be able to answer **YES** to both questions in order to continue.
	yes			Are supply and return pipes 1"?
	yes			Is the lift to the HU <8' and the run to the HU<30' with 1-1/2" pipe?
1	Aerobic: TS-II	Select One: Anaerobic or Aerobic?		ASD15 Units are septic or secondary. Washdown units are secondary or better.
2	Soil Group IV.	Select One: Soil or Saprolite Group?		Found in column 1 on the Loading Rate Chart. (given by site evaluator)
3	480	Select One # Bedrooms x 120		Design quantity of wastewater to disperse. This row equals the total number of GPD. **Remember to multiply # Bedrooms by 120.**
4	150	Contour Run Length		Enter the tubing length along contour. If run length is not on table, use the actual run length. Example: 85 ft.
5	100	Supply LF		Length of supply line between hydraulic unit and farthest zone.
6	4	Lift Ft.		Vertical lift from off level in the pump chamber and highest zone elevation.
7	0.2	Area (gpd/ft^2) per code	Tab over from **Soil Group IV.** in **Loading Rate Chart**	Area loading rate required to treat and disperse wastewater. **This line is to be input from Loading Rate Chart.** (See Loading Rate Chart)
8	2400	Area Calculation		Total land area needed to disperse wastewater.
9	1200	Total LF Tubing		**Required** total linear feet of tubing to treat and disperse wastewater.
10	8.00	Calculated Runs		Determines number of runs (Total LF / Contour RL). **Rounds up to the next whole number**. Found on Zone Detail Table.
	8	Min. # Runs		
11	Z: 2, L: 5, R: 1	Zone Detail	**ASD 15: Z342** Input the appropriate Zone Detail # into the drop-down list to the left.	On **Zone Detail Table**, cross the next highest **Run Length** (ft) from **150** with the row for at least **8 runs** **Use the ASD 15 Zone Detail Table.** Select zone detail from column with next higher **Contour Run Length** and with equal or greater **# Runs**. You may input your Zone Detail # in the indicated cell next to the chart. It will then appear in the second column to the left on this worksheet.
11	10	Actual # Runs		Determined from selected Zone Detail.
12	24	Proposed Spacing (inches)		Based on available area and site condition.
13	20	Down Slop Width (ft)		Calculated from runs and run spacing.
14	3000	Area Calculated (ft^2)		Calculated from runs, run spacing, and contour run length.
12	52	Max. Lift Allowed	**ASD 15: 52** Select which Lift & Distance table you used in the box to the left.	On **Lift & Distance Table**, cross the **Supply/Return 100** with the column for **5 laterals** **Use the ASD 15 Lift & Distance Table.** You may input your Lift in the indicated cell next to the chart. It will then appear in the second column to the left on this worksheet.
13	1500	LF Provided		Total linear feet of tubing **Provided** to disperse wastewater.
14	750	LF/Zone		Total linear feet per zone.
15	YES	Will zone flush?		Reference Lift & Distance Table for pump capacity determined by the length of run to the farthest field and the number of laterals. For 1" supply and return only.
	48	Residual TDH Available		

*In line **# 11**, **Z** = # of zones, **L** = laterals per zone, **R** = runs per lateral

	given by engineer	1
	auto-computed	1
	looked up on tables	3
	user select	

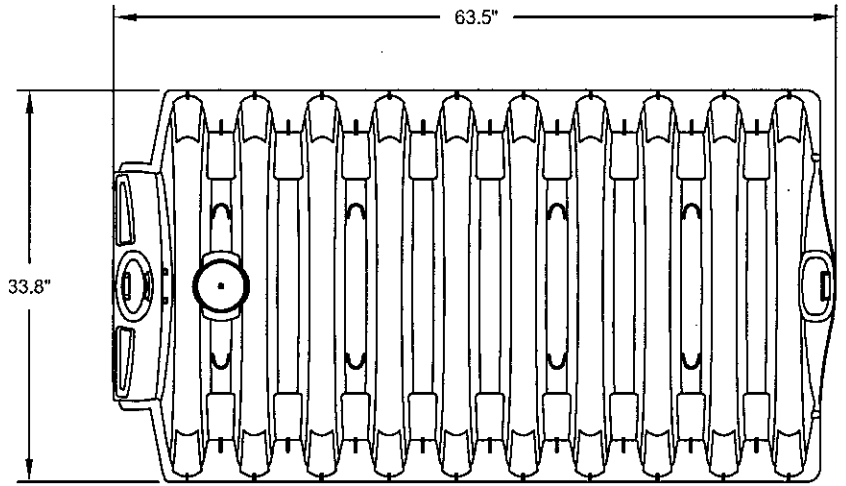
Back to top of page

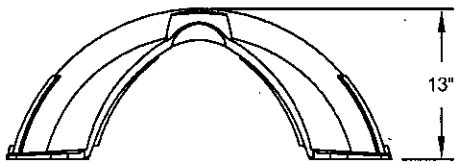
OPERATING PARAMETERS

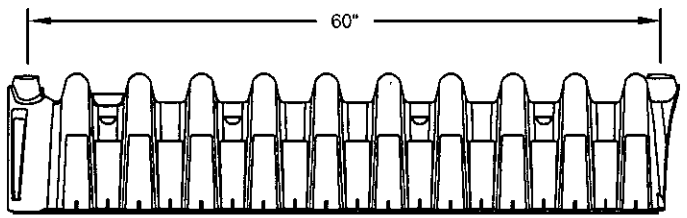
16	**480**		**Peak Gallons per day**	Maximum or design gallons per day.
17	**288**		**Average Gallons per day**	Average gallons per day. (calculated as 60% of Peak)
18	**3.81**		**Dosing Flow (gpm)**	Based on .61 gph per emitter.
19	**11.81**		**Flushing Flow (gpm)**	Flow to generate 2 fps at the distal end of each lateral.
20	**48.75**		**Gallons per dose**	The zone dose volume is 5 times the volume of the pipe.
21	**9.85**		**Peak Design Doses per day**	The total number of zone doses. Individual zone doses is this number divided by the number of zones.
22	**659.1**		**Run Time (Seconds)**	Estimated run time for dose gallons based *on filtration* capacity, flushing flow, and dosing rate
23	**Zone**	**min**	**Default Standard Rest Time**	This is the rest time at average flow. The rest time is independent of run time. (60 min. rest = 24 doses per day)
	2	**180**		
24	**Zone**	**min**	**Default Peak Rest Time**	This is the rest time at peak flow. The rest time is independent of run time. (60 min. rest = 24 doses per day)
	2	**108**		
25	**Zone**	**min**	**(Recommended)**	This is the rest time at average flow. The rest time is independent of run time.
	2	**243.75**	**Calculated Standard Rest**	(60 min. rest = 24 doses per day)
26	**Zone**	**min**	**(Recommended)**	This is the rest time at peak flow. The rest time is independent of run time.
	2	**146.25**	**Calculated Peak Rest Time**	(60 min. rest = 24 doses per day)
27	**Zone**	**doses/ day**	**(Recommended)**	This is the total number of doses per day independent of the number of zones. The rest time is independent of run time.
	2	**5.9**	**Calculated Standard doses per day**	(450 gal. per day / 50 gal per dose = 9 doses per day) for a 2, 3, or 4 zone system.
28	**Zone**	**doses/ day**	**(Recommended)**	This is the total number of doses per day independent of the number of zones. The rest time is independent of run time.
	2	**9.8**	**Calculated Peak doses per day**	(450 gal. per day / 50 gal per dose = 9 doses per day) for a 2, 3, or 4 zone system.

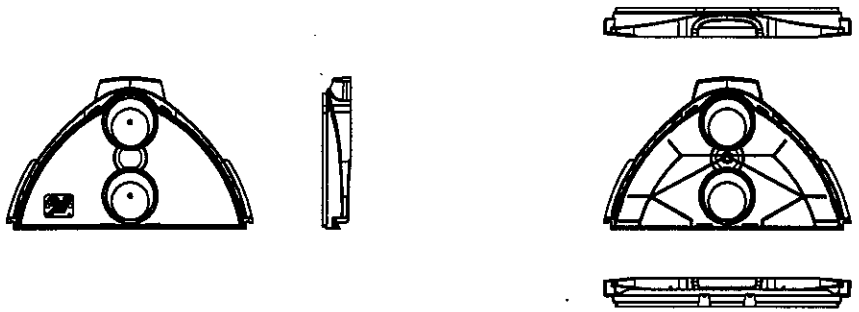
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END CAP
FRONT VIEW

END CAP
SIDE VIEW

END CAP
REAR/TOP VIEW

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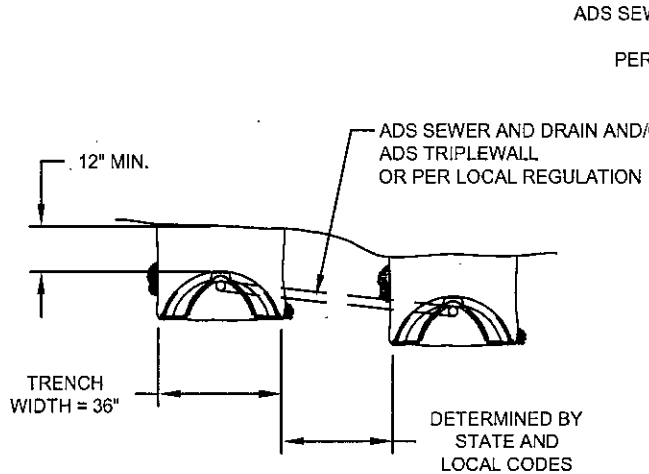
REV.	DESCRIPTION	BY	MM/DD/YY	CHK'D

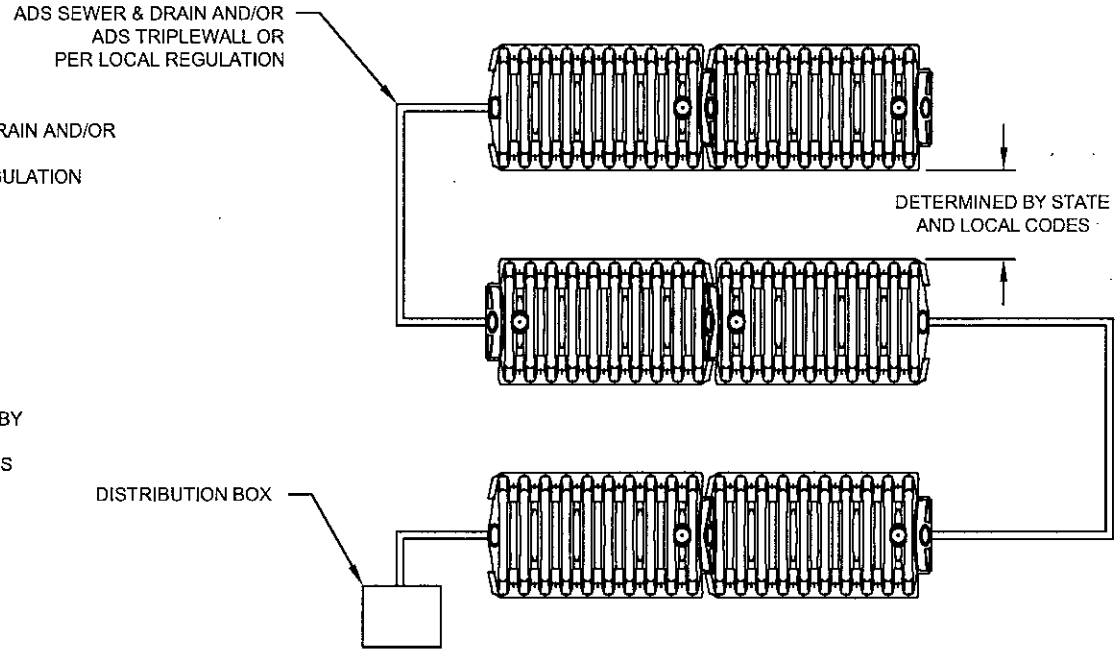
ADVANCED DRAINAGE SYSTEMS, INC. ("ADS") HAS PREPARED THIS DETAIL BASED ON INFORMATION PROVIDED TO ADS. THIS DRAWING IS INTENDED TO DEPICT THE COMPONENTS AS REQUESTED. ADS HAS NOT PERFORMED ANY ENGINEERING OR DESIGN SERVICES FOR THIS PROJECT, NOR HAS ADS INDEPENDENTLY VERIFIED THE INFORMATION SUPPLIED. THE INSTALLATION DETAILS PROVIDED HEREIN ARE GENERAL RECOMMENDATIONS AND ARE NOT SPECIFIC FOR THIS PROJECT. THE DESIGN ENGINEER SHALL REVIEW THESE DETAILS PRIOR TO CONSTRUCTION. IT IS THE DESIGN ENGINEERS RESPONSIBILITY TO ENSURE THE DETAILS PROVIDED HEREIN MEETS OR EXCEEDS THE APPLICABLE NATIONAL, STATE, OR LOCAL REQUIREMENTS AND TO ENSURE THAT THE DETAILS PROVIDED HEREIN ARE ACCEPTABLE FOR THIS PROJECT.

ARC 36 CHAMBER & END PLATES

DRAWING NUMBER: STD-903

DRAWN BY	ETC
DATE	5.15.07
CHK'D BY	
SCALE	NTS
SHEET	1 OF 1





NOTES:

1. EXCAVATE TRENCHES TO PROPER WIDTH, AND PROPER DEPTH AS REQUIRED BY STATE AND LOCAL CODES.
2. SMOOTH IRREGULARITIES IN THE EXCAVATION. A LEVEL, FLAT SURFACE IS REQUIRED.
3. ASSEMBLE ARC LEACHING CHAMBERS AND UNIVERAL ENDPLATES TOGETHER IN TRENCH(ES).
4. INSTALL UNIVERSAL END CAPS AND SECURE IN PLACE WITH BACKFILL.
5. PUNCH OUT PIPE HOLE OPENINGS IN THE END PLATES AS NEEDED AND CONNECT INLET PIPES.
6. FILL SIDEWALL AREA TO TOP CHAMBERS WITH NATIVE SOIL (COARSE SAND OR FINE GRAVEL MAY ALSO BE USED; NO HEAVY CLAY, SILT OR DEBRIS SHALL BE INCLUDED).
7. "WALK IN" FILL TO COMPACT SOIL ALONG SIDES OF ARC CHAMBER. THIS IS VERY IMPORTANT TO ACHIEVE LOAD RATING.
8. COVER ARC LEACHING CHAMBERS TO A MINIMUM OF 12" OF GRANULAR COVER AFTER CONSOLIDATION FOR H-10 APPLICATIONS. AVOID LARGE ROCKS OR DEBRIS IN COVER MATERIAL. COVER HEIGHTS AND LIVE LOADING LIMITS ARE IMPACTED BY BOTH SOIL TYPE AND COMPACTION REQUIREMENTS. CONTACT ADS WHEN POOR SOILS ARE ENCOUNTERED AND FOR MAXIMUM FILL HEIGHTS.

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REV.	DESCRIPTION	BY	MM/DD/YY	CHK'D

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ARC 36 CHAMBER STANDARD SERIAL MODE INSTALLATION

DRAWING NUMBER: STD-906C

DRAWN BY	TJR
DATE	09/05/07
CHK'D BY	CKS
SCALE	NTS
SHEET	OF

S32°0
4
41,187 SF
0.945 Ac.
S34°27'13"E
311.88'
N53°05'59"
Interceptor Drain
Septic Tank
Stormwater
4-Bedroom
House
Tapered Rubber
EL = 100.00
55'
60'
DRIVE
3,750 sq. ft. Drip Repair Area
45'
110'
310.65'
6
46,915 SF
1.08 Ac.
S40°12'17"E
384.79'
Woods at Bear Ridge
Lot 5
9406 Sorrel Hill Court
Scale: 1 inch = 50 feet
Hill Road
91
27
Store

Mecklenburg County Groundwater & Wastewater Services
700 N. Tryon St, Suite 211 Charlotte, NC 28202
Phone: (704) 336-5103 Fax: (704) 336-6894

NC DENR
Division of Environmental Health
On-Site Wastewater Section

IMPROVEMENT PERMIT for a RESIDENTIAL ON-SITE WASTEWATER TREATMENT & DISPOSAL SYSTEM

Permit #: **30008134** GWS File #: **8066B** Tax Parcel #: **137-123-15**

- This IMPROVEMENT PERMIT is subject to revocation if site plans or the intended use change. There is to be **NO** grading, filling, or disturbance of the soil in the area of the septic tank system or repair area.
- CONSTRUCTION AUTHORIZATION must be obtained prior to receiving a Building Permit. The Construction Authorization is **NOT** transferable. Do not clear, grade, fill or disturb soil prior to obtaining a Construction Authorization.
- Domestic-type wastewater only. No industrial process wastewater may be discharged into the system.

I. This Improvement Permit Shall: Expire in Five (5) Years **Expiration Date (If Applicable):** 4/21/2021

Type of Installation: Residential - Alteration Lot Number: 5

Structure Type: HOUSE Size (ft^2): 2853 # Bedrooms: 4 # Occupants: 4

Building Foundation: Crawl Space Water Supply: Private Well

II. Initial System Type: Accepted **System Classification:** IIIg

Initial System Specifications:

Design Flow (gpd):	480	LTAR (gpd/ft^2):	.2	Septic Tank Size (gal):	1000	Pump Tank Size (gal):	N/A
Trench Width (ft):	3	Trench Spacing (ft):	9	Absorption Area (ft^2):	1800	Total Trench Length (ft):	600
Maximum Trench Depth (in):	12	Depth of Media (in):	12	Distribution Device:	Drop Boxes		

III. Repair System Type: Pretreatment with Drip Irrigation **System Classification:** Va

Repair System Specifications:

Design Flow (gpd):	480	LTAR (gpd/ft^2):	.2	Septic Tank Size (gal):	1000	Pump Tank Size (gal):	1000
Trench Width (ft):	12	Trench Spacing (ft):	2	Absorption Area (ft^2):	2400	Total Trench Length (ft):	1200
Maximum Trench Depth (in):	6	Depth of Media (in):	N/A	Distribution Device:	Headworks (Drip Irr.		

IV. Permit Conditions/Comments:

(Please See the Following Page for Permit Conditions.)

The undersigned, an authorized agent of the STATE OF NORTH CAROLINA, certifies that the Department is issuing an IMPROVEMENT PERMIT for the above referenced property. This permit is being issued in accordance with the *Laws and Rules For Sewage Treatment, and Disposal Systems* and is subject to the following provisions:

- No work shall be conducted on the septic system until a Pre-Construction meeting has been completed by the Department.
- The septic system installer shall be a licensed septic contractor with the North Carolina Wastewater Contractor Inspector Certification Board.
- The permitted system shall be installed in accordance with the included PLOT PLAN.
- This IMPROVEMENT PERMIT is transferable.

Authorized Agent: April Bumgarner Owner/Legal Agent: _____
Print Name

Signature: April Bumgarner, REHS Signature: _____

Date Issued: 4/21/2016

Mecklenburg County Groundwater & Wastewater Services
700 N. Tryon St, Suite 211 Charlotte, NC 28202
Phone: (704) 336-5103 Fax: (704) 336-6894

NC DENR
Division of Environmental Health
On-Site Wastewater Section

IMPROVEMENT PERMIT for a RESIDENTIAL ON-SITE WASTEWATER TREATMENT & DISPOSAL SYSTEM

Permit #: **30008134** GWS File #: **8066B**

IV. Permit Conditions/Comments:

- Easement agreement forms shall be on file and the property shall be deeded and recorded prior to issuance of Construction Authorization.
- Additional soil cover, as specified on the plot plan, required over the drain field must be inspected and approved prior to issuance of an Operation Permit.
- This type of repair system requires the installation of a pump tank and all associated components. This type of system will require routine inspections by our office. The system owner is responsible for all fees associated with these inspections.
- This type of repair system requires the property owner to obtain a contract with a Certified Operator to perform routine inspections and maintenance on the system.
- This type of repair system requires periodic inspections by our office. The system owner is responsible for any fees, as determined by the Mecklenburg County Board of Commissioners, associated with this inspection.
- The septic system shall be installed in accordance with the plans submitted by the wastewater system design consultant.
- All waterlines must be located a minimum of 10 ft. from any part of the septic system.
- Upon completion of the project the system designer shall provide Groundwater & Wastewater Services with a letter certifying that the system was installed in accordance with the approved design.
- Permitted LTAR value based on KSAT study provided by soil consultant.
- Flow from all gutters and downspouts shall be directed not to discharge water onto or across any part of the septic system.
- Foundation drains shall be constructed not to discharge water onto or across any part of the septic system.
- The maximum trench depth for this system is 12.5 inches.

The undersigned, an authorized agent of the STATE OF NORTH CAROLINA, certifies that the Department is issuing an IMPROVEMENT PERMIT for the above referenced property. This permit is being issued in accordance with the *Laws and Rules For Sewage Treatment and Disposal Systems* and is subject to the following provisions:

- No work shall be conducted on the septic system until a Pre-Construction meeting has been completed by the Department.
- The septic system installer shall be a licensed septic contractor with the North Carolina Wastewater Contractor Inspector Certification Board.
- The permitted system shall be installed in accordance with the included PLOT PLAN.
- This IMPROVEMENT PERMIT is transferable.

**A minimum of 12" of cover is required.

Authorized Agent: April Bumgarner Owner/Legal Agent: _____
Print Name

Signature: April Bumgarner, REHS Signature: _____

Date Issued: 4/21/2016

MECKLENBURG COUNTY
LAND USE AND ENVIRONMENTAL SERVICES
Payment Receipt

Receipt Information

Date:	01/08/15	**Amount:**	200.00
Receipt #:	92149	**Tendered:**	200.00
Check / Auth #:	CHARGE	**Returned:**	0.00
Received By:	SADERLW		

Account Information

Account #: X44709
Contractor: LIVE WELL HOMES LLC
Attn:
Address: 310 SPRINGCREST DR
Address:
City/State/Zip: FORT MILL, SC 29715

Item	Description	Permit#	Quantity	Unit Price	Total Price
0703	Septic Operational Permit 9406 SURFACE HILL RD		1	200.00	200.00

Outstanding Balances

Month-To-Date	Prior Month	30 Days	60 Days	90 Days	Balance
200.00	5,789.68				

MECKLENBURG COUNTY
LAND USE AND ENVIRONMENTAL SERVICES
Payment Receipt

Receipt Information

Date:	03/30/16	**Amount:**	300.00
Receipt #:	99675	**Tendered:**	300.00
Check / Auth #:	CHARGE	**Returned:**	0.00
Received By:	ELLISLW		

Account Information

Account #: X44709
Contractor: LIVE WELL HOMES LLC
Attn:
Address: 501 SPRINGCREST DR
Address:
City/State/Zip: FORT MILL, SC 29715

Item	Description	Permit#	Quantity	Unit Price	Total Price
0706	Septic Alteration Permit 9406 SURFACE HILL ROAD		1	300.00	300.00

Outstanding Balances

Month-To-Date	Prior Month	30 Days	60 Days	90 Days	Balance
-1,873.14					