

14620 RAINBARREL RD

19934207

6/12/2007

duponbj

Groundwater and Wastewater Services File Imaging Project
May 2007
Barcode Font = IDAutomationHC39M

N.C. Department of Environment and Natural Resources
Division of Environmental Health

Inspection of Engineered Subsurface Wastewater System

Mecklenburg County	BAKER RESIDENCE	6209A
Health Department	**Name of Establishment**	**Permit/Project No.**
14620 RAINBARREL RD	RESIDENCE	360
Location	**Type of Establishment**	**Design Flow**
BAKER CARL RODNEY	14620 RAINBARREL RD	
Owner/Agent	**Address**	**Phone**
NA	CHARLOTTE NC 28278	
Operator	**Address**	**Phone**
IIIb	4/6/2011	4/6/2016
System Type	**Date of Inspection**	**Next Inspection Due**

	Yes	No	N/A	Comments:
1. ESTABLISHMENT:				
a. Type, size, and sewage flow in accordance with permit?	☒	☐	☐	
2. COLLECTION SYSTEM:				
a. No evidence of leaks into or out from sewer lines/manholes?	☒	☐	☐	
b. Free of blockages/solids buildup in lines or manholes?	☒	☐	☐	
3. TANKAGE: (Grease Traps/Lift Stations/Septic/Dosing Tanks)				
a. Tank risers accessible and surface water diverted?	☒	☐	☐	
b. Tanks and access manholes structurally sound, watertight?	☒	☐	☐	
c. Sanitary tee(s) in good working condition?.....	☐	☐	☒	3.c. Sanitary tee not inspected.
d. Tanks pumped, cleaned out as needed?.....	☐	☐	☐	INACCESSIBLE
4. RAW SEWAGE LIFT STATION (if present):				
a. Required pumps present, operating, and cycling properly	☐	☐	☒	
b. High-water alarm present and operating properly?	☐	☐	☒	
c. Floats/pipe/valves/disconnects in good condition?	☐	☐	☒	
5. EFFLUENT DOSING SYSTEM:				
a. Effluent appears clear, free of excess solids?	☐	☐	☐	INACCESSIBLE
A. PUMP SYSTEMS:				
a. Required pumps present, operating, and cycling properly?	☐	☐	☐	INACCESSIBLE
b. High-water alarm present and operating properly?	☐	☐	☐	"
c. Floats/pipe/valves/disconnects in good working condition?	☐	☐	☐	"
d. Control panel enclosure/components in good condition?	☐	☐	☐	"
e. Elapsed time readings: _____ _____ _____ _____				
B. SIPHON SYSTEMS:				
a. No evidence of overflow or siphon leakage?	☐	☐	☒	
b. Siphon(s) appear to be working/alternating properly?	☐	☐	☒	
c. Bells and vents free of debris and in good condition?	☐	☐	☒	

	Yes	No	N/A	Comments:
6. GROUND ABSORPTION FIELDS:				
a. No evidence of effluent surfacing/reaching surface waters?	☒	☐	☐	
b. Minimal ponding in subsurface trenches?	☒	☐	☐	
c. Surface water being effectively diverted away?	☒	☐	☐	
d. Diversions/ditches/swales/tiles drains properly maintained?	☒	☐	☐	
e. Line cover/vegetation adequate/maintained as needed?	☒	☐	☐	
f. Protected from traffic, destructive uses?	☒	☐	☐	
g. Distribution devices in good condition, working properly?	☒	☐	☐	
h. Repair area properly reserved, maintained?	☒	☐	☐	
A. LOW PRESSURE PIPE DRAIN FIELDS:				
a. Turnups/cleanouts/valves intact and accessible?	☐	☐	☒	
b. No effluent standing in lower laterals?	☐	☐	☒	
c. Laterals free of excess solids, cleaned out as needed?	☐	☐	☒	
d. Pressure head is properly adjusted?	☐	☐	☒	

OVERALL CONDITION AND OPERATION OF SYSTEM:
GOOD

SUMMARY OF REPAIRS REQUIRED AT THIS TIME:

***REPAIR WITHIN DAYS.**

SYSTEM MAINTENANCE/IMPROVEMENTS REQUIRED:
*The MCHD recommends having the tanks (septic & dosing) pumped out every 3 to 5 years to remove excess solids.
*Please visit http://groundwater.charmeck.org for additional information.

DATE: 4/6/2011

SIGNED:  AGENT
Division of Environmental Health

Printed Name: PHILO WALKER RS
Phone #: 704-336-5570



Print

Close

Parcel Information

Parcel ID	Account	Parent	Previous
19934207	INDIVIDUAL		

Owner(s)

Owner Name	Mailing Address	City/State
BAKER CARL RODNEY	14620 RAINBARREL RD	CHARLOTTE NC 28278

Legal Information

Legal	Municipality	Annexed	Special District	Fire District	Acreage
L43B M22-444	MECKLENBURG COUNTY-UNINCORPORATED		FIRE SERVICE A	STEELE CREEK #2	0.99

Total Parcel Assessment & Exemptions

Building	Land	Features	Total	Exemption	Year Approved	Review Date	Amount
427900	275000	11600	714500				

Sales Information

Sale	Price	Stamps	Qualify	V/I	DeedBook	Type	Legal Ref.	Grantor
Jun 17 2010			LESS $3000	IMP	25698 - 180	SPEC WARRNTY	25698-180	BAKER,CARL RODNEY
Feb 8 2010			LESS $3000	IMP	25404 - 604	WARRANTY D	25404-604	BAKER,CARL RODNEY
Jun 2 2000	119000			VAC	11332 - 108	DEED STAMPS	11332-108	YAGER DEXTER R SR

Land Use

Use	Units	Type	Neighborhood	Assessment
R122	1.00	WF	T902	275000

Building Information

Bldg	Description	Type	Year Built	Property Location
1	Single-Fam	RES	2002	14620 RAINBARREL RD UNINC

Bldg	Story	Units	Total SqFt	Heated	Foundation	Ext. Wall	Grade	Value
1	2.0 STORY	1	3174	2721	CRAWL SPACE	STUCCO HRDCT -	EXCELLENT 03	427900

Bldg	Heat	Fuel	FirePlace	AC	Fixtures	Bedrooms	Full Baths	3/4 Baths	1/2 Baths
1	AIR-DUCTED	GAS		AC-CENTRAL		0	3		

Sub Areas

Bldg	Description	Size
1	BASE (FIRST FLOOR)	2165
1	GARAGE - FINISHED	453
1	UPPER STORY - FINISHED	556

Depreciation

Bldg	Physical	Functional	Economic	Special	Override
1					

Notes

Tax Year	Notes	Note Date

Special Features & Yard Items

Bldg	Built	Type	Quantity	Units	Value
1	2002	CARPORT	1	372	7800
1	2002	DECK	1	460	3800

Value Changes

Notice Date	Tax Year	Reason	Changed To	Deferred
Feb 8 2011	2011	Countywide Revaluation	714500	0
Jan 17 2003	2003	Countywide Revaluation	118800	0
Apr 2 2001	2001	Correction of Land Area	114670	
Apr 2 2001	2001	Correction of Land Area: Acreage/Sw ftg/	114670	
Jan 5 1998	1998	Countywide Revaluation	115500	
Feb 22 1991	1991	Countywide Revaluation	120000	
Jan 2 1991	1991	Countywide Revaluation	120000	

ACS

FEE: _____ **AUTHORIZATION FOR WASTEWATER SYSTEM CONSTRUCTION** X
DATE: _____ **VOID SIXTY (60) MONTHS FROM DATE OF ISSUANCE**

DATE: 5-22-01 PERMIT NO: 6209A
PARCEL NO: 199-342-07

JOB LOCATION ADDRESS: 14620 Rainbarrel Road
PROPERTY OWNER: Carl Baker
BUILDING CONTRACTOR: Carl Baker
SUBDIVISION NAME: NA
AUTHORIZATION ISSUED BY: Jeanne P. Mabe DATE: 5/22/01
DEHNR AUTHORIZED AGENT

AUTHORIZATION CONDITIONS

1. WASTEWATER SYSTEM CONSTRUCTION AND INSTALLATION MUST MEET ALL CONDITIONS AND SPECIFICATIONS AS SET FORTH IN IMPROVEMENT PERMIT NO. _____, 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. AN INSTALLATION, CONSTRUCTION, ALTERATION AND/OR REPAIR APPROVAL MUST BE SECURED **PRIOR** TO INSTALLATION OF THE SEPTIC TANK SYSTEM. THE INSTALLER OF THE SYSTEM SHALL BE A REGISTERED SEPTIC TANK CONTRACTOR WITH MECKLENBURG COUNTY HEALTH DEPARTMENT.

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 AUTHORIZATION AND ASSOCIATED PERMIT(S) TO REVOCATION.

4. OTHER CONDITIONS: See Conditions of I.P.

OWNER CERTIFICATION

I CERTIFY THAT THERE HAVE BEEN NO ALTERATIONS IN SITE OR SOIL CONDITIONS OR MODIFICATIONS TO FACILITY, WASTEWATER FLOW, OR WASTEWATER CHARACTERISTICS FROM THOSE SPECIFIED IN THE ORIGINAL APPLICATION OR ASSOCIATED IMPROVEMENT PERMIT UNLESS AUTHORIZED IN WRITING BY THE MECKLENBURG COUNTY HEALTH DEPARTMENT. I ALSO UNDERSTAND THAT ANY SUCH ALTERATIONS, MODIFICATIONS, OR FALSE INFORMATION ARE GROUNDS FOR REVOCATION OF PERMITS AND AUTHORIZATION TO CONSTRUCT.

Carl Baker 5-22-01
SIGNATURE OF OWNER/OWNER'S REPRESENTATIVE DATE

CERTIFICATE OF COMPLETION/OPERATION PERMIT

HEALTH DEPARTMENT
ENVIRONMENTAL HEALTH DIVISION
700 NORTH TRYON ST., SUITE 211
CHARLOTTE, NC 28202
PHONE (704) 336-5102

FILE: 6209a DATE: 01/08/02
TC: 99-34-207 ☒ L ☐ CRT
SERIAL Nº 18799

Name of Owner Rodney Baker Juris.: _____

Address of Property 14620 Rainbarrel Road

Inspection Data:

Tank Material PCC

Total Length of Drainfield 335'

Number of Lines 4 @55', 70', 95', 105'

Cover Depth 18"

Water Supply Source Well

Distance to Water Source >100'

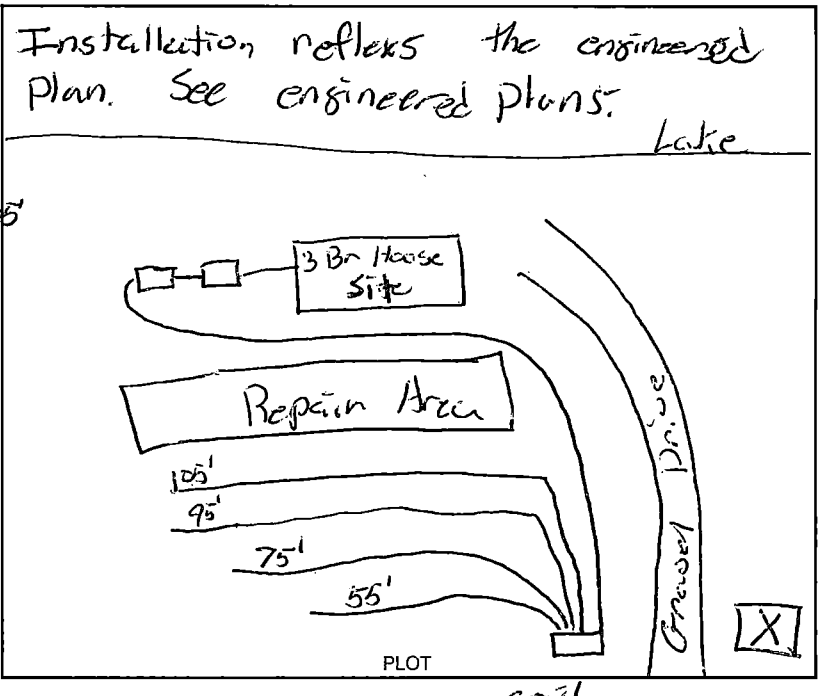
Excavation Inspected 9/27/01

Tank(s) Inspected 9/27/01

Wash Line Inspected N/A

High Water Alarm Inspected _____

Installation reflects the engineered plan. See engineered plans.



Design 2002, Type III-B, Conven, 1005S1-T, 1500 SI, 1600 PT cail CTR# WT Nonwood

The undersigned has inspected the Septic Tank System described above, and certifies it has been

☒ installed or constructed ☐ altered or repaired
☐ in accordance with the permit issued ☐ as detailed in the plot above

and meets the provisions of I5A NCAC 18A. 1900, "Laws And Rules For Sewage Treatment and Disposal Systems" in effect on the date of issuance of the permit. This issuance of this

☐ Certificate of Completion ☒ 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 I5A NCAC 18A. 1990 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/revocation of this permit.

COMMENTS: _____

Brandon Smith B.S.I.
Environmental Health Specialist

Mecklenburg County services are available without regard to ethnic origin, sex, or disability.

Owl $150 - Auth to Cont

$150 CO

$300 Total

INSTALLATION, CONSTRUCTION, ALTERATION, AND/OR REPAIR APPROVAL

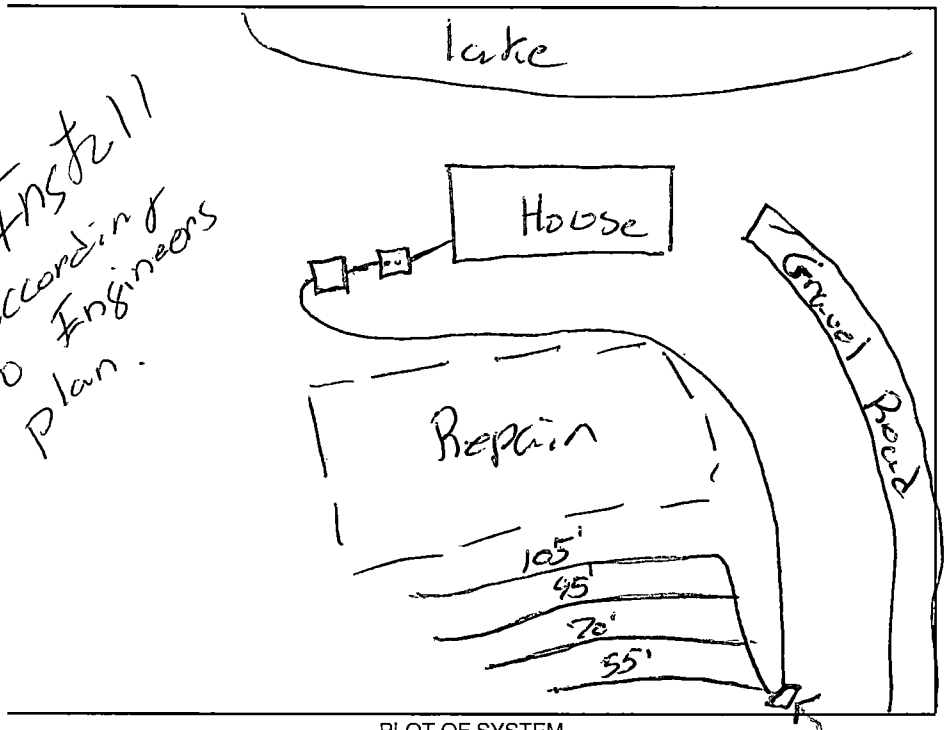
HEALTH DEPARTMENT
ENVIRONMENTAL HEALTH DIVISION
700 NORTH TRYON ST., SUITE 211
CHARLOTTE, NC 28202
PHONE (704) 336-5102

FILE: 6209a DATE: 04/27/01

TC: 19934207 L

SERIAL Nº 18891

Permission is hereby given to L Norris Install or Construct, _____ Alter or Repair the individual septic tank wastewater treatment system with subsurface, soil absorption, effluent discharge as specified herein at the described location. This permit is granted based upon the information supplied in the application dated 09/27/01. All work shall be completed on or before 30 days, after which date this permit shall be null and void. The system shall meet all of the construction requirements of I5A NCAC 18A. 1900 which are in effect on the date of the granting of this permit. A Certificate of Completion or an Operation Permit must be obtained from the Mecklenburg County Health Department before any system can be covered up or placed into service. The issuance of this permit does not in any way guarantee that the system anticipated to be constructed 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.



Install according to Engineers plan.

PLOT OF SYSTEM

Liquid Capacity of Septic Tank 1500 gallons

Liquid Capacity of Dosing Tank 1000 gallons

Tank Construction RCC

Trench Depth 24"

Absorption and/or Nitrification Lines:

Trench Width 3 feet

Trench Walls Scored and Porous _____

Total Line Length ~~325~~ 325' feet

Number of Lines 4

Depth of Stone 12" inches

Distance from House 75' feet

Distance from Property Line 710' feet

Distance from Well 7100' feet

Rainbarrel Rd Pressure manifold

NOTICE: This system shall not be installed while soils are in a wet condition.

NAME OF OWNER Rodney Baker

LOCATION OF PROPERTY 14620 Rainbarrel Road

Comments: 2001, Type III-b, Conv, 12" @, ~~1500 SFT~~, 1500 ST 975 SFT

Bruce S Sanders RSI

Environmental Health Specialist

Permit Number: 6209A

Tax Number: 177-572-01

- The 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.

Basement	✓ Yes	___ No	___ Partial Basement
Type Primary Wastewater System Type (circle one): I II (III) IV V VI	✓ Conventional ___ Prefabricated, permeable block panel system ___ Shallow Placed Conventional	___ Low Pressure Pipe ___ Large Diameter Pipe ___ Fill ___ Other	___ Innovative or Experimental: ___ IWWS-93-1 ___ IWWS-93-2 ___ IWWS-94-1

0.37 Long-term acceptance rate	360 Max gallons/day wastewater flow	973 Absorption Area (sq ft)	9' Trench spacing (min. on centers)
YES Serviced by private well	1500 Gallon septic tank	825 Total trench length (ft)	24" Maximum trench depth (At least 12" of provisionally suitable soil must remain between trench bottom and unsuitable soil conditions)
3 Bedrooms in residence	1000 Gallon pump tank	10" Depth of stone	

Any surface waters present: YES Type: Lake Wylie Minimum separation distance: 50'

Site modifications required:

Additional Conditions: Install According to submitted and approved plans
Nema 4X Simplex Control Panel

Repair Area System Type Type (circle one): I II (III) IV V VI	___ Conventional ___ Prefabricated, permeable block panel system ___ Shallow Placed Conventional	___ Low Pressure Pipe ___ Large Diameter Pipe ___ Fill ___ Other	✓ Innovative or Experimental: ___ IWWS-93-1 ___ IWWS-93-2 ___ IWWS-94-1

973 Absorption Area (Sq ft) 825 Total Trench Length (Ft)	NA Depth of Stone Trench	9' Trench spacing (min. on centers)	24" Maximum Trench Depth

For existing system, enter the year originally installed:

The undersigned, an authorized agent of the MECKLENBURG COUNTY HEALTH DEPARTMENT, certifies that the Department has approved the Request for the Job Location contained in this document. This approval is granted in accordance with the provisions of Laws and Rules For Sewage, Treatment and Disposal in effect at the time of issuance of the permit and is subject to the following provisions:

- No work shall be conducted on the septic tank system until an Installation, Construction, Alteration and/or Repair Approval is granted by this Department.
- This Improvement permit is transferable.

Jeanne P. Michels 5/22/01
DEHNR Authorized Agent Date

Owner/Agent Signature 5-21-01
Date

MECKLENBURG COUNTY
HEALTH DEPARTMENT
ENVIRONMENTAL HEALTH DIVISION
c/o HAL MARSHALL CTR.
SUITE 211
700 N. TRYON ST.
CHARLOTTE, N.C. 28202.
(704) 336-5102

NORTH CAROLINA DEPARTMENT OF
ENVIRONMENTAL, HEALTH,
AND NATURAL RESOURCES
DIVISION OF ENVIRONMENTAL HEALTH
ON-SITE WASTEWATER SECTION

Fax

To: Bill Marlin, Mecklenburg County HD

Fax: 704-336-~~4391~~ 6894

From: Hal Owen

Re: Carl Baker Property

Soil Investigation and Septic Design

Date: 17 May, 2001

CC:

Pages: 12

Hal Owen & Associates, Inc.

Soil & Environmental Consulting

P.O. Box 400

266 Old Coats Road

Lillington, NC 27546

Phone: 910-893-8743

Fax: 910-893-3594

Email: halowen@intrstar.net

☐ **Urgent** ☐ **As Requested** ☒ **For Review** ☐ **Please Comment**

HAL OWEN & ASSOCIATES, INC.

SOIL & ENVIRONMENTAL SCIENTISTS
P. O. Box 400, 266 Old Coats Road
Lillington, NC 27546
Phone (910) 893-8743 / Fax (910) 893-3594
E-mail: halowen@intrstar.net

17 May, 2001

Mr. Carl Baker
13622 Pine Harbor Road
Charlotte, NC 28278

Reference: Lot 43B Crescent Land & Timber Corp., Sect 41
Comprehensive Soil Investigation, Hydraulic Assessment,
And Septic System Design

Dear Mr. Baker,

A site investigation was conducted for the above referenced property on May 10 and 11, 2001. The site is located at 14620 Rainbarrel Road, Steele Creek Township, Mecklenburg County, North Carolina. The purpose of the investigation was to determine the ability of the lot to support a subsurface sewage waste disposal system and 100% repair area for a three-bedroom home. It is our understanding that an individual septic system and well will be utilized at this site. All ratings and determinations were made in accordance with "Laws and Rules for Sanitary Sewage Collection, Treatment and Disposal, 15A NCAC 18A .1900".

COMPREHENSIVE SOIL INVESTIGATION

At the time of the investigation no site improvements were noted other than the small gravel road that crosses the lot to the lake. Some understory vegetation appears to have been removed but mature forest overstory continues to occupy the site. The soils were evaluated under somewhat moist soil conditions through the advancing of auger borings and one pit was excavated to approximately five feet. Water was added when needed to properly observe the physical properties of the soil, in particular texture and plasticity. Soils at the site appeared to be formed from weathered residual materials derived from acid crystalline rocks with sandy loam surfaces underlain by friable clay loams. Soil depths ranged from 22 inches to greater than 48 inches in the areas proposed for the drainfields. Thin layers of light clayey textured materials were sometimes observed at the top of the subsoil layers. These clay layers were only a few inches thick and were typically located in the zone from 2 to 12 inches below ground surface. The proposed septic system design recommends 24 inch ditch bottom depths, placing the ditch bottoms and sidewalls in the lighter textured clay loam materials.

The soils indicated as provisionally suitable for subsurface sewage waste disposal (see attached map) are so rated due to clayey textured subsoil layers. The subsoils were red in color and very well structured, especially in the upper 24 inches. As previously discussed, subsoil textures were observed to be dominantly heavy clay loams and sometimes light clays (see attached soil/site evaluation form). Based on field observations, these provisionally suitable soils appear adequate to support long term acceptance rates of 0.3 to 0.4 gal/day/sqft for conventional drainlines.

The soils indicated as provisionally suitable for modified or alternative subsurface sewage waste disposal systems are so rated due to clayey textured subsoil layers with limited depth to usable saprolite layers. The subsoils were red in color with friable clay loams extending to 20 to 30 inches below ground surface (see attached soil/site evaluation form). Sandy loam saprolite was observed below the subsoils to a total depth greater than 48 inches. Although some soil profiles lack adequate soil depth, the indicated area appears adequate for reclassification as provisionally suitable for saprolite systems. Based on field observations, these soils/ saprolite will support long term acceptance rates of 0.3 to 0.4 gal/day/sqft for conventional drainlines.

HYDRAULIC CONDUCTIVITY ASSESSMENT

Hydraulic conductivity tests were conducted at various depths across the site using a Compact Constant Head Permeameter (CCHP), also known as an Amoozemeter, by using the shallow well pump-in technique as detailed in the user's manual. Hydraulic conductivity results can vary, even within similar soils, depending on the temperature and composition of the water used, climatic conditions, and/or proximity of the test layer to the water table. Therefore, the results from one boring may not be indicative of the entire area.

Due to a limited time schedule, duplicate hydraulic conductivity tests were not performed at the site. Four tests were conducted at the site at various depths in the soil. Test # 1 was conducted in the upper subsoil layer within the area designated for the repair system and also designated as provisionally suitable soils for modified or alternative systems due to lack of soil depth. The soils in this horizon were observed to be well structured and also the heavier textured soils in the profile. Test # 3 was also conducted in this area within the saprolite to approximate the hydraulic conductivity of the underlying material. Test # 2 was conducted in the upper subsoil layer within the area designated for the initial system and also designated as provisionally suitable soils. The soils in this horizon were observed to be well structured and the heavier textured soils in the profile. Test # 4 was conducted at the proposed trench bottom for the initial system and within the provisionally suitable soil area. It appears that this study, though somewhat limited, should reasonably approximate the hydraulic conditions at this site.

Using bottled spring water, a constant 16 to 18 cm head of water was established with its center at the layer of investigation. Readings were made of the rate of water level change per unit of time until the investigator believed steady-state had been reached (three consecutive readings of equal flow per unit of time). Table 1 summarizes the results of the hydraulic conductivity investigation. For detailed information about each test, please refer to the Ksat field datasheets attached.

Table 1. Summary of Hydraulic Conductivity Tests.

Test #	Observation	Ksat ID	Depth of Auger Hole	H	r	A	Q	Ksat
			Cm	cm	cm		cm^3/day	cm/day
1	Surface (7" center)	1A	28	16	3	0.000961	5184	4.9818
2	Bt horizon (12" center)	2A	39	18	3	0.000808	9072	7.3302
3	C horizon (39" center)	1B	104	17	3	0.000879	2880	2.5315
4	Trench Depth (24" center)	2B	72.5	18	3	0.000808	12096	9.7736

Hydraulic conductivity of the soil was calculated using the Glover Solution, where:

$Ksat = A*Q$

$A = \{\sinh^{-1}(H/r) - [(r/H)^2 + 1]^{1/2} + r/H\}/(2\pi H^2)$

Q = steady-state rate of water flow from CCHP into auger hole

H = depth of water in hole

r = radius of hole

An acceptable loading rate of the effluent is determined for the septic system based on the hydraulic conductivity of the soil. First, the site is evaluated to determine if all of the wastewater applied to the drainfield will be able to infiltrate the trenches in a 24-hour period. A range of proposed loading rates for the drainfield area is converted to average infiltration rates based on the trench bottom area (Table 2). These infiltration rates are then compared to the lowest Ksat value obtained at the site, which is 2.5315 cm/day. This lowest value was obtained in the saprolite which, although lighter textured, lacked soil structure and exhibited a reduced conductivity value. In other words, as described at .1955(b), the most hydraulically limiting naturally occurring soil horizon within three feet was utilized to evaluate the entire site. Average infiltration rates greater than this number are eliminated, leaving an acceptable range of loading rates as 0.4 gal/day/sqft or less (Table 3).

Second, soil beneath the trench is evaluated to determine if the wastewater will be able to vertically pass through it. The range of proposed loading rates for the drainfield are expressed in cm/day and compared to the Ksat value below the trench, which is 2.5315 cm/day. Proposed loading rates greater than this number are eliminated, leaving an acceptable range of loading rates as 0.6 gal/day/sqft or less (Table 3). Infiltration into the trenches appears to be the most limiting factor, therefore, the acceptable range of loading rates for the site is 0.4 gal/day/sqft or less.

Table 2. Determine the infiltration rate at the trench bottom.

Trench Width= 36 inches Trench Length= 12 inches
(Conventional) 91.44 cm 30.48 cm

Proposed LTAR			Depth of Water in Trench Bottom	Depth of Water w/ Gravel in Trench	Avg. Infiltration Area	Avg. Infiltration Rate
gpd/sqft	cm/day	cm^3/linear ft	cm/day	cm/day	cm^2/day	cm/day
0.1	0.41	1892.5	0.68	2.26	2856.08	0.66
0.2	0.81	3785.0	1.36	4.53	2925.07	1.29
0.3	1.22	5677.5	2.04	6.79	2994.06	1.90
0.4	1.63	7570.0	2.72	9.05	3063.05	2.47
0.5	2.04	9462.5	3.40	11.32	3132.04	3.02
0.6	2.44	11355.0	4.07	13.58	3201.02	3.55
0.7	2.85	13247.5	4.75	15.84	3270.01	4.05
0.8	3.26	15140.0	5.43	18.11	3339.00	4.53
0.9	3.67	17032.5	6.11	20.37	3407.99	5.00
1.0	4.07	18925.0	6.79	22.63	3476.98	5.44
1.1	4.48	20817.5	7.47	24.90	3545.97	5.87
1.2	4.89	22710.0	8.15	27.16	3614.96	6.28
see calculation	(a)	(b)	(c)	(d)	(e)	(f)

Convert proposed loading rate to cm/day and cm^3/linear ft.

(a) cm/day = gpd/sqft * 3785cm3/gal * 1ft²/30.48cm

(b) cm^3/linear ft = gpd/sqft * gal/linear ft/(0.2 gpd/sqft) * 3785cm^3/gal

Determine the depth that the proposed water will stand in the trench bottom?

(c) depth of water = cm^3/linear ft divided by trench bottom area (trench width(ft) X 1 linear ft X $(2.54cm/ft)^2$)

Account for the gravel in the trench assuming a 30% porosity.

(d) Depth of Water w/ Gravel in Trench = Depth of water in trench /0.30

Determine the Average infiltration area per day.

(e) Avg. Infiltration Area cm2/day = (Depth of water in gravelled trench + trench width) * length of trench

Determine the Average infiltration rate (depth of water to pass through the infiltration area).

(f) Avg. Infiltration Rate cm/day = cm^3/linear ft divided by Avg. Infiltration area/day

Hal Owen Associates, Inc.
PO Box 400, Lillington, NC 27546
(910) 893-8743 Fax 893-3594

Please notice that the conductivity value obtained at the trench bottom in the initial system area (provisionally suitable soil) is 9.7736 cm/day. When this value is compared to the average infiltration rates based on trench bottoms (Table 2), the acceptable range of loading rates is as high as 1.2 gal/day/sqft. Assuming that saprolite is encountered below the trenches of the initial system (greater than 48 inches), the vertical movement of the wastewater will be limited by the C horizon. Therefore, utilizing the conductivity values for the saprolite (Test#3) an acceptable range of loading rates is established as 0.6 gal/day/sqft or less. Although this demonstration indicates that LTAR rates as high as 0.6 gal/day/sqft could be utilized for the initial system, the attached septic system design utilized the more conservative trench infiltration rates observed in the saprolite.

Table 3. Acceptable range of loading rates based on hydraulic conductivity.

Lowest Ksat value at site = 2.5315 cm/day

Proposed LTAR		Average Infiltration Rate (cm/day)	*Select Avg. Infiltration Rates lower than the Ksat for the trench bottom*	*Select a proposed LTAR (cm/day) lower than the Ksat below the trench (least permeable layer)*	Acceptable Range of proposed LTARs
gal/day/sqft	cm/day				
0.1	0.41	0.66	0.66	0.41	**0.1**
0.2	0.81	1.29	1.29	0.81	**0.2**
0.3	1.22	1.90	1.90	1.22	**0.3**
0.4	1.63	2.47	2.47	1.63	**0.4**
0.5	2.04	3.02		2.04	
0.6	2.44	3.55		2.44	
0.7	2.85	4.05			
0.8	3.26	4.53			
0.9	3.67	5.00			
1.0	4.07	5.44			
1.1	4.48	5.87			
1.2	4.89	6.28			

The design LTAR for the initial system is 0.37 gal/day/sqft and the repair system is 0.35 gal/day/sqft (or 0.47 gal/day/sqft for innovative drainlines), which falls within the acceptable range of loading rates. Therefore, it is reasonable to assume that all of the wastewater applied to the drainfield will be able to infiltrate the trench bottom and vertically pass through the soil based on these Ksat values.

SEPTIC SYSTEM DESIGN

An initial system has been designed with an LTAR of 0.37 gal/day/sqft for a three-bedroom home (360 gallon daily flow) utilizing conventional drainlines with pressure-manifold distribution. Trenches should be installed with maximum ditch bottom depths of 24 inches below surface. The repair system has been designed with an LTAR of 0.47 gal/day/sqft utilizing innovative drainlines (polystyrene aggregate) with pressure-manifold distribution and trench bottom depths also at 24 inches below surface. The septic tank and pump tank will be located near the house and each will have a minimum 1,000-gallon capacity. A pump will be required to deliver the wastewater from the pump tank to the pressure manifold, most likely with one hp or less power requirement. The pressure-manifold is necessary to equally distribute the wastewater to the drainlines which are of unequal length. Attached are the system layouts and the supporting information for the designs.

I trust that this report provides the information that you require at this time. If you have any questions or need additional information, please contact me at your convenience.

Sincerely,

Krissina D. Briggs
Hydraulic Conductivity Specialist

Hal Owen
Licensed Soil Scientist



HAL OWEN & ASSOCIATES, INC.
P. O. BOX 400, LILLINGTON, NC 27546
VOICE: (910) 893-8743 FAX: (910) 893-3594

PROPERTY ID #: Tax map no. 199-342-07
PROPERTY RECORDED: DB 7128 PG 822
COUNTY: Mecklenburg

SOIL/SITE EVALUATION
FOR
ON-SITE WASTEWATER SYSTEM

APPLICANT: Mr. Carl Baker OWNER: ☒ AGENT: ☐ PHONE: (704) 588-7475
ADDRESS: 13622 Pine Harbor Road DATE EVALUATED: 10 May, 2001
Charlotte, NC 28278 PROPOSED FACILITY: 3-bedroom single family residence
PROPERTY SIZE: 0.99 Acre
LOCATION OF SITE: 14620 Rainbarrel Road (Lot 43B Cresent Land & Timber Corp., Sect 41), Steele Creek Tws.
WATER SUPPLY: On-Site Well ☒ Comm. Well ☐ Public ☐ Other EVALUATION METHOD: Auger Boring ☒ Pit ☐

PROFILE 1

HORIZON	DEPTH (IN)	MATRIX	MOTTLES	MOTTLE ABUNDANCE/ SIZE / CONTRAST	.1941 (a)(1) TEXTURE	.1941 (a)(2) STRUCTURE	.1941 (a)(3) MINEROLOGY	CONSISTENCE MOIST	CONSISTENCE WET
A	0 – 2	10YR 4/3			SL	Gr	SEXP	VFr	NS / NP
Bt1	2 – 12	2.5YR 4/8	7.5YR 5/8	c 2 P	CL	2 m SBk	SEXP	Fr	SS / SP
Bt2	12 – 22	2.5YR 4/8			CL	2 m SBk	SEXP	Fr	SS / SP
BC	22 – 27	7.5YR 7/6			SL	1 m SBk	SEXp	Fr	NS / NP
		5YR 5/8							
		2.5YR 4/8							
C	27 - 48	variegated			SL		SEXP	Fr	NS / NP

.1940 LANDSCAPE POS./ SLOPE%	L 32%	PROFILE LTAR	0.4
.1942 WETNESS CONDITION	> 48"	SYSTEM TYPE	Saprolite system – conventional
.1943/.1956 SAPROLITE	27"		
.1944 RESTRICTIVE HORIZON	> 27"		
.1948 PROFILE CLASSIFICATION	Provisionally suitable for modified or alternative systems – Saprolite Systems		
COMMENTS:	Bt1 is a heavy clay loam, possibly a clay.		

PROFILE 2

HORIZON	DEPTH (IN)	MATRIX	MOTTLES	MOTTLE ABUNDANCE/ SIZE / CONTRAST	.1941 (a)(1) TEXTURE	.1941 (a)(2) STRUCTURE	.1941 (a)(3) MINEROLOGY	CONSISTENCE MOIST	CONSISTENCE WET
A	0 – 4	10YR 4/3			SL	Gr	SEXP	Fr	NS / NP
Bt1	4 – 12	2.5YR 5/6			C	2 M SBk	SEXP	Fi	SS / SP
Bt2	12 – 37	2.5YR 4/8			CL	2 M SBk	SEXP	Fr	SS / SP
Bt3	37 - 48	2.5YR 4/	5YR 6/8	/	CL	1 M SBk	SEXP	Fr	SS / SP

.1940 LANDSCAPE POS./ SLOPE%	R 15%	PROFILE LTAR	0.4
.1942 WETNESS CONDITION	> 48"	SYSTEM TYPE	Conventional
.1943/.1956 SAPROLITE	> 48"		
.1944 RESTRICTIVE HORIZON	> 48"		
.1948 PROFILE CLASSIFICATION	Provisionally suitable for conventional systems		
COMMENTS:	Bt1 is light clay, possibly clay loam. Bt3 is 15 to 25% saprolite.		

Evaluated By: Hal Owen

Comments:

LEGEND OF ABBREVIATIONS FOR SITE EVALUATION FORM

LANDSCAPE POSITION	TEXTURE GROUP	TEXTURE CLASS	.1955 LTAR (gal/day/sqft)
CC - Concave Slope	I	S - Sand	1.2 - .08
CV - Convex Slope		LS - Loamy Sand	
DS - Debris Slump			
D - Depression	II	SL - Sandy Loam	0.8 – 0.6
DW- Drainage Way			
FP - Flood Plain		L - Loam	
FS - Foot Slope			
H - Head Slope	III	SCL- Sandy Clay Loam	0.6 – 0.3
I - Interfluve		CL - Clay Loam	
L - Linear Slope		SiL - Silt Loam	
N - Nose Slope		Si - Silt	
P - Pocosin			
R - Ridge		SiCL- Silt Clay Loam	
S - Shoulder			
T - Terrace	IV	SC - Sandy Clay	0.4 – 0.1
		C - Clay	
		SiC - Silty Clay	
		O - Organic	none

STRUCTURE

G - Single Grain
M - Massive
CR - Crumb
GR - Granular
SBK- Subangular Blocky
ABK- Angular Blocky
PL - Platy
PR - Prismatic

MOIST CONSISTENCE

VFR - Very Friable
FR - Friable
FI - Firm
VFI - Very Firm
EFI - Extremely Firm

MINERALOGY

SEXP - Slightly Expansive
EXP - Expansive

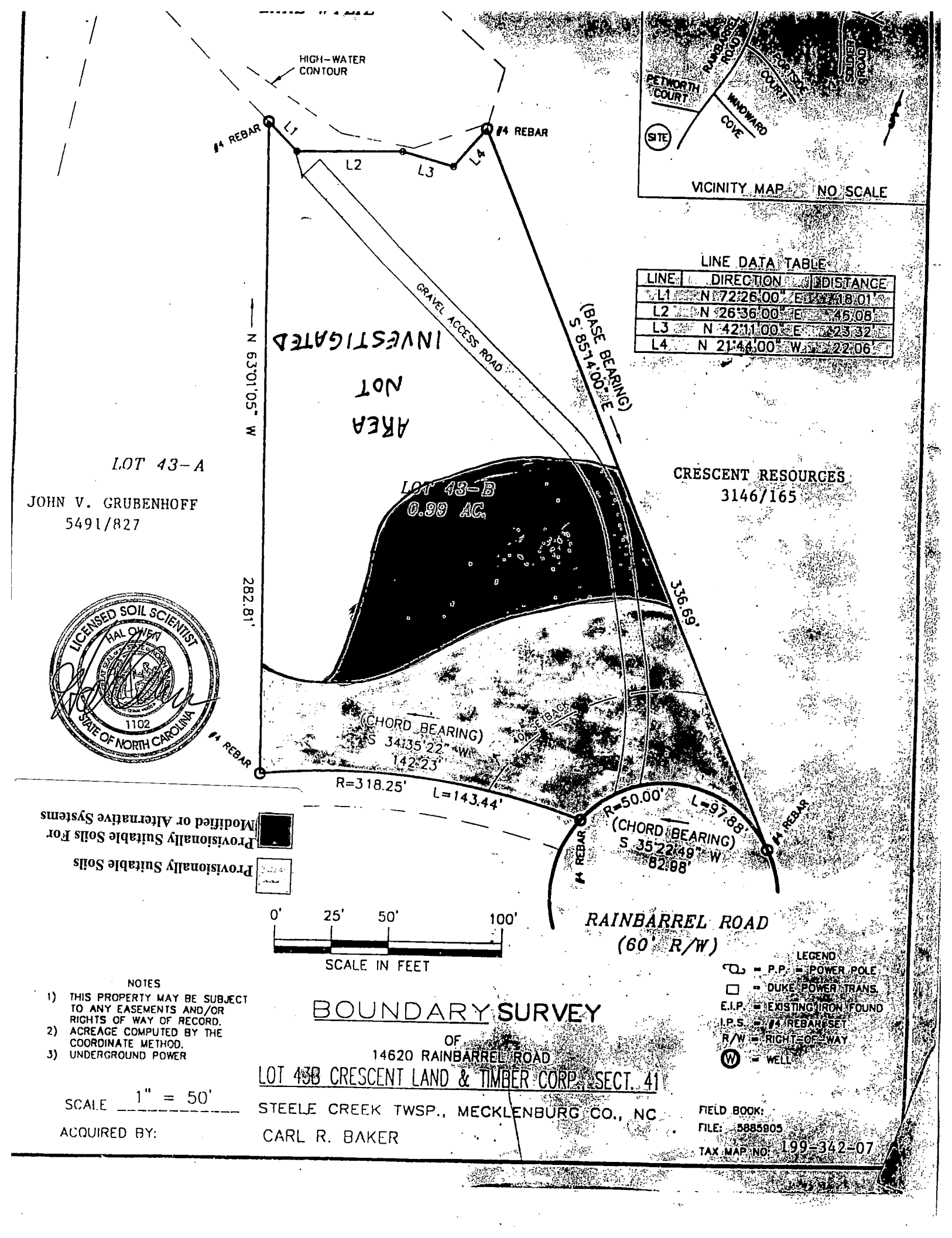
WET CONSISTENCE

NS - Non Sticky
SS - Slightly Sticky
MS - Moderately Sticky
VS - Very Sticky

NP - Non Plastic
SP - Slightly Plastic
MP - Plastic Moderately
VP - Very Plastic

MOTTLES

f – few	1 - fine	F - Faint
c – common	2 - medium	D - Distinct
m – many	3 - coarse	P - Prominent



NOTES

1) THIS PROPERTY MAY BE SUBJECT TO ANY EASEMENTS AND/OR RIGHTS OF WAY OF RECORD.
2) ACREAGE COMPUTED BY THE COORDINATE METHOD.
3) UNDERGROUND POWER

BOUNDARY SURVEY

OF

14620 RAINBARREL ROAD

LOT 43B CRESCENT LAND & TIMBER CORP., SECT. 41

STEELE CREEK TWSP., MECKLENBURG CO., NC

SCALE 1" = 50'

ACQUIRED BY: CARL R. BAKER

FIELD BOOK:

FILE: 5885805

TAX MAP NO. 199-342-07

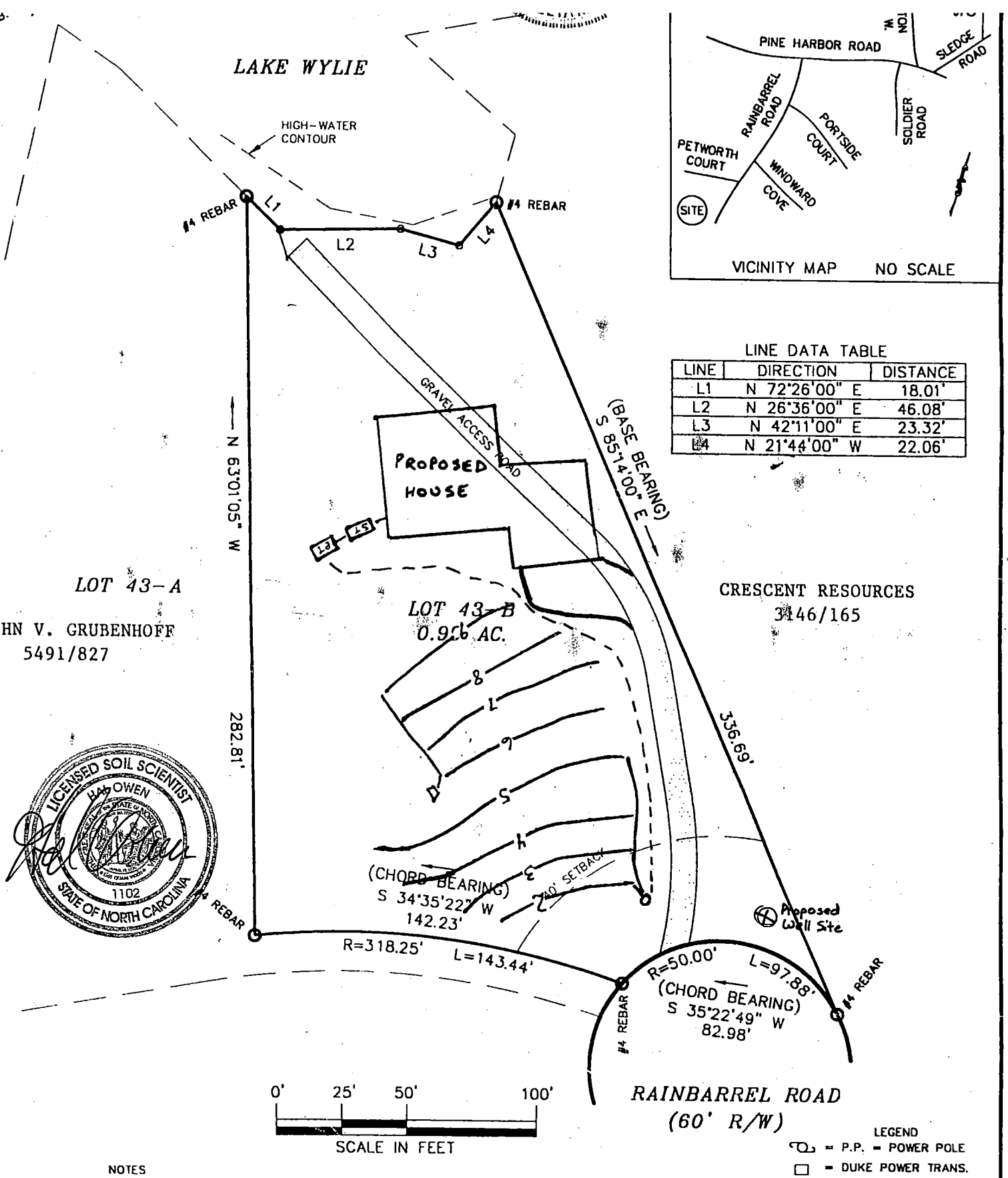
DAS DON ALLEN & ASSOCIATES, P. A.
ENGINEERING - SURVEYING - PLANNING
111 Raceway Drive - Mooresville, N.C. 28117
(704) 664-7029 (704) 664-8041 Fax

I, certify that this map was drawn under my supervision from an actual survey made under my supervision recorded in deed book 7128, page 822, and/or plat book 22, page 444, that the ratio of precision is 1':10,000, that this map was prepared in accordance with the General Statutes of North Carolina Chapter 89C.

my hand and seal on the 20, day of APRIL, A.D. 20 00.

NORTH CAROLINA PROFESSIONAL SEAL L-3499 LAND SURVEYOR ALLEN

WILLIAM M. ALLEN PLS



LINE DATA TABLE

LINE	DIRECTION	DISTANCE
L1	N 72°26'00" E	18.01'
L2	N 26°36'00" E	46.08'
L3	N 42°11'00" E	23.32'
L4	N 21°44'00" W	22.06'

LICENSED SOIL SCIENTIST
HAROWEN
STATE OF NORTH CAROLINA
1102

NOTES
1) THIS PROPERTY MAY BE SUBJECT TO ANY EASEMENTS AND/OR RIGHTS OF WAY OF RECORD.
2) ACREAGE COMPUTED BY THE COORDINATE METHOD.
3) UNDERGROUND POWER

LEGEND
P.P. = POWER POLE
□ = DUKE POWER TRANS.
E.I.P. = EXISTING IRON FOUND
I.P.S. = #4 REBAR SET
R/W = RIGHT-OF-WAY
(W) = WELL

BOUNDARY SURVEY

OF
14620 RAINBARREL ROAD
LOT 43B CRESCENT LAND & TIMBER CORP., SECT. 41
STEELE CREEK TWSP., MECKLENBURG CO., NC

SCALE 1" = 50'

ACQUIRED BY: CARL R. BAKER

FIELD BOOK:
FILE: 5885905
TAX MAP NO: 199-342-07

Pressure Manifold Design Criteria

Applicant: Mr. Carl Baker Phone #: (704) 588-7475

Mailing Address: 13622 Pine Harbor Road, Charlotte, NC 28278

Site Address: 14620 Rainbarrel Rd County: Mecklenburg Tws.: Steele Creek

Subdivision: Cresent Land & Timber Corp., Section 41 Lot#: 43B

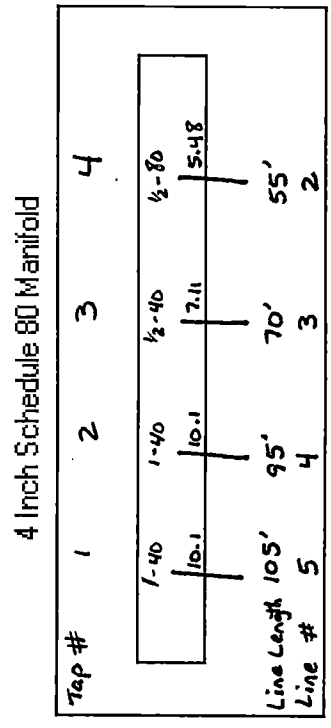
TAP CHART For Initial System

Line	Color	Drainline Length(ft)	Tap Size/ Schedule	gpm/tap	gpm/ft	gpd/ft	LTAR (gpd/sqft)
2	R	55	1/2"sch 80	5.480	0.0996	1.0939	0.365
3	O	70	1/2"sch 40	7.110	0.1016	1.1151	0.372
4	R	95	1"sch 40	10.100	0.1063	1.1672	0.389
5	O	105	1"sch 40	10.100	0.0962	1.0561	0.352
Total Drainline:		325	Total Flow:	32.79			

Pressure Head (ft)=	2
Daily Flow	360
Total Flow (gpm)=	32.79
Daily PRT(min)=	10.98
Dose Vol(gal)=	159.17
Dose PRT(min)=	4.85

@ 75% pipe volume

Target LTAR (gpd/sqft)=	0.37
LTAR + 5%	0.389



Hal Owen Associates, Inc.
Soil Environmental Scientists
P.O. Box 400, 266 Old Coats Road
Lillington, NC 27546
Phone (910) 893-8743

Pressure Manifold Design Criteria

Applicant: Mr. Carl Baker Phone #: (704) 588-7475

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Site Address: 14620 Rainbarrel Rd County: Mecklenburg Tws.: Steele Creek

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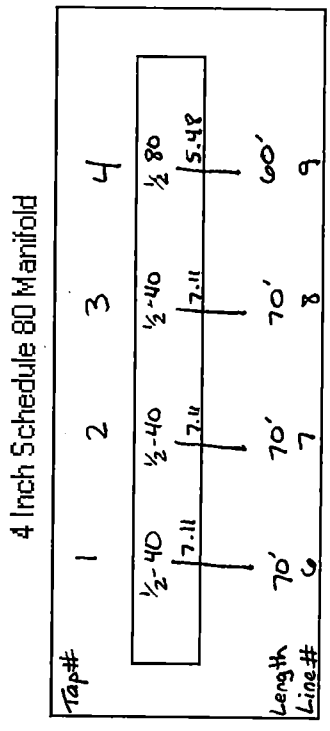
TAP CHART For Repair System

Line	Color	Drainline Length(ft)	Tap Size/ Schedule	gpm/tap	gpm/ft	gpd/ft	LTAR (gpd/sqft)
6	R	70	1/2"sch 40	7.110	0.1016	1.3639	0.455
7	O	70	1/2"sch 40	7.110	0.1016	1.3639	0.455
8	R	70	1/2"sch 40	7.110	0.1016	1.3639	0.455
9	O	60	1/2"sch 80	5.480	0.0913	1.2264	0.409
Total Drainline:		270	Total Flow:	26.81			

Pressure Head (ft)=	2
Daily Flow	360
Total Flow (gpm)=	26.81
Daily PRT(min)=	13.43
Dose Vol(gal)=	132.23
Dose PRT(min)=	4.93

@ 75% pipe volume

Target LTAR (gpd/sqft)=	0.35
LTAR w/ Innov Drainlines=	0.47
LTAR + 5%	0.489

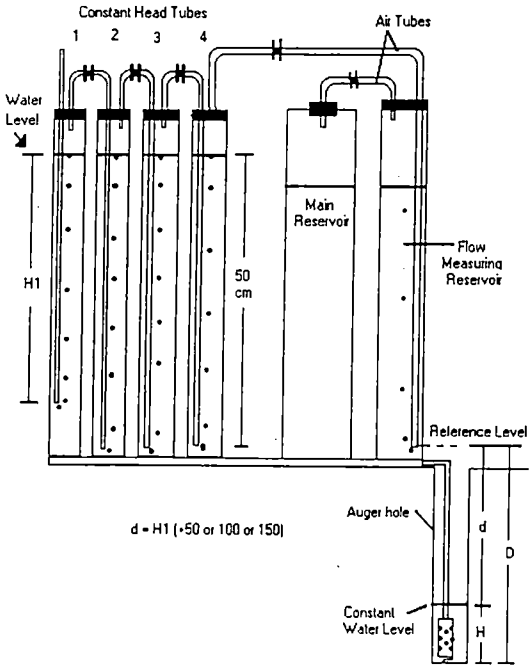


Hal Owen Associates, Inc.
Soil Environmental Scientists
P.O. Box 400, 266 Old Coats Road
Lillington, NC 27546
Phone (910) 893-8743

Project: Carl Baker (Lake Wylie)
Ksat ID: 1A

Ksat DATA SHEET

Measurement #: 1 Date: 10 MAY 2001 Investigator: K BRIGGS
System Type: Conventional Trench Depth: 24"
Location: NEAR PROFILE 1
Weather -- Condition: Partly Cloudy Temp: 30°C
Water – Source: Spring Water Bottled Temp: 23°C
Soil Horizon: Bt Slope: 32 % Layer Depth and Thickness:
Center of Layer: 7"



		cm	inches
Hole Depth		28	10
Distance b/w reference level and ground [10 cm or 4 in]	+	10	
Distance from hole bottom to reference level (D)	=	38	
Desired depth of water (H) > 15 cm or 6 in	-	16	
Constant-head tube setting (H1)	=	22	

Measured (Actual) water level in hole
Initial: 16
Final: 16
Hole radius (r): 3
Start Saturation: 3:55
Steady State Reading:

QUICK REFERENCE

Hole depth: 28
Water Level: 16
Depth to Water: 12

Ksat = A X Q

Conversion Factor (C.F.) 1-ON = 20 cm^2 2-ON = 105 cm^2

(to obtain flow volume, multiply change in water level by the appropriate C.F.)

Use Table 2 to determine A = .000961 cm^{-2}

Q from other side = 5184 cm^3/day

Ksat= 4.981824 cm/day

Project: Carl Baker

Ksat ID: 1A

Clock Time	Reservoir Reading	Change in time	Change in water level	Flow Volume (CF= 20 cm²)	Q	Q (1440 min/day)	Ksat (A=_____)
h : min	cm	min	cm	cm^3	cm^3/min	cm^3/day	cm/day
4:28	40.9						
4:38	38.6	10	2.3	46	4.6		
4:48	36.4	10	2.2	44	4.4		
4:58	34.3	10	2.1	42	4.2		
5:08	32.5	10	1.8	36	3.6		
5:18	30.6	10	1.9	38	3.8		
5:28	28.8	10	1.8	36	3.6		
5:38	27.0	10	1.8	36	3.6		
5:48	25.3	10	1.7	34	3.4		
5:58	23.5	10	1.8	36	3.6	5184	

Average of last few measurements: 3.6 cm^3/min Ksat =

Comments:

Project: Carl Baker
Ksat ID: 2A

Ksat DATA SHEET

Measurement #: 2 Date: 10 May 2001 Investigator: K. Briggs

System Type: Conventional Trench Depth: 24"

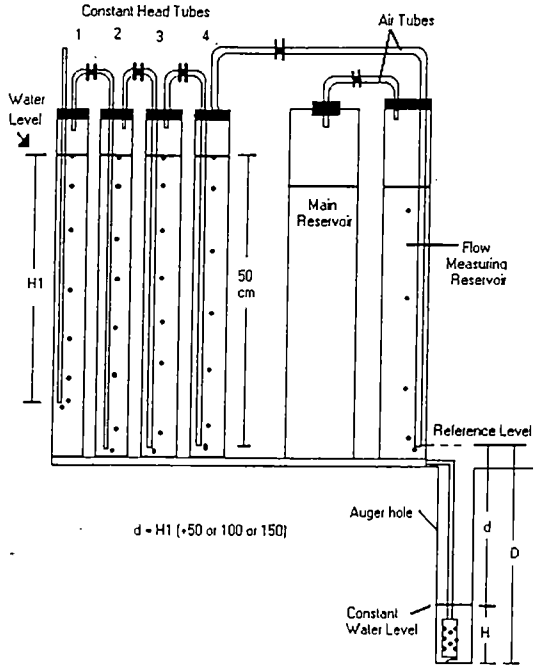
Location: NEAR PROFILE 2

Weather -- Condition: Partly Cloudy Temp: 30°C

Water – Source: Bottled Spring Water Temp: 23°C

Soil Horizon: Bt Slope: 15% Layer Depth and Thickness: _____

Center of Layer: 12"



		cm	inches
Hole Depth		39	15
Distance b/w reference level and ground [10 cm or 4 in]	+	12	
Distance from hole bottom to reference level (D)	=	51	
Desired depth of water (H) > 15 cm or 6 in	-	16	
Constant-head tube setting (H1)	=	35	

Measured (Actual) water level in hole

Initial: 16

Final: 18

Hole radius (r): 3

Start Saturation: 4:20

Steady State Reading: _____

QUICK REFERENCE

Hole depth: 39

Water Level: 16

Depth to Water: 23

Ksat = A X Q

Conversion Factor (C.F.) 1-ON = 20 cm^2 2-ON = 105 cm^2

(to obtain flow volume, multiply change in water level by the appropriate C.F.)

Use Table 2 to determine A = .000808 cm^{-2} Sem head

Q from other side = 9072 cm^3/day

Ksat= 7.330176 cm/day

Project: CARL BAKER

Ksat ID: ZA

Clock Time	Reservoir Reading	Change in time	Change in water level	Flow Volume (CF=10 cm²)	Q	Q (1440 min/day)	Ksat (A=_____)
h : min	cm	min	cm	cm^3	cm^3/min	cm^3/day	cm/day
4:40	40.7						
4:50	40.0	10	0.7	735	7.35		
5:00	39.3	10	0.7	73.5	7.35		
5:10	38.7	10	0.6	63.0	6.30		
5:20	38.1	10	0.6	63.0	6.30		
5:30	37.5	10	0.6	63.0	6.30		
5:40	36.8	10	0.7	73.5	7.35		
5:50	36.2	10	0.6	63.0	6.30		
6:00	36.6	10	0.6	63.0	6.30	9072	

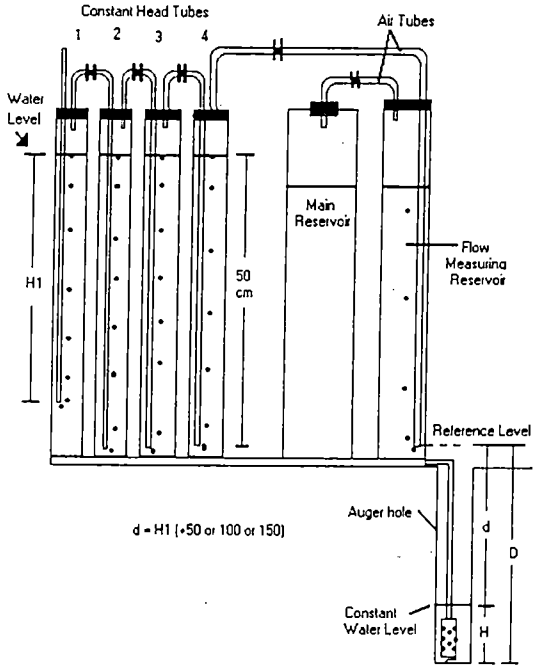
Average of last few measurements: 6.3 cm^3/min Ksat =

Comments:

Project: CARL BAKER
Ksat ID: 1B

Ksat DATA SHEET

Measurement #: 3 Date: 11 May 2001 Investigator: K. BRIGGS
System Type: Conventional Trench Depth: 24"
Location: NEAR PROFILE 1
Weather -- Condition: Partly Cloudy Temp: 25°C
Water – Source: Bottled Spring Water Temp: 17°C
Soil Horizon: C Slope: 32 % Layer Depth and Thickness: 35+
Center of Layer: 39"



		cm	inches
Hole Depth		104	41
Distance b/w reference level and ground [10 cm or 4 in]	+	10	
Distance from hole bottom to reference level (D)	=	114	
Desired depth of water (H) > 15 cm or 6 in	-	16	
Constant-head tube setting (H1)	=	98	

98 -33 65

Measured (Actual) water level in hole
Initial: 17 cm
Final: 17 cm
Hole radius (r): 3 cm
Start Saturation: 9:35
Steady State Reading: _____

QUICK REFERENCE

Hole depth: 104
Water Level: 16
Depth to Water: 88

Ksat = A X Q

Conversion Factor (C.F.) 1-ON = 20 cm^2 2-ON = 105 cm^2

(to obtain flow volume, multiply change in water level by the appropriate C.F.)

Use Table 2 to determine A = .000879 cm^{-2}

Q from other side = 2880 cm^3/day

Ksat= 2.53152 cm/day

Project: Carl Baker
Ksat ID: 1B

Clock Time	Reservoir Reading	Change in time	Change in water level	Flow Volume (CF=20 cm²)	Q	Q (1440 min/day)	Ksat (A=_____)
h : min	cm	min	cm	cm^3	cm^3/min	cm^3/day	cm/day
10:00	44.5						
10:10	43.1	10	1.4	28	2.8		
10:20	41.8	10	1.3	26	2.6		
10:30	40.6	10	1.2	24	2.4		
10:40	39.5	10	1.1	22	2.2		
10:50	38.4	10	1.1	22	2.2		
11:00	37.3	10	1.1	22	2.2		
11:10	36.2	10	1.1	22	2.2		
11:20	35.2	10	1.0	20	2.0		
11:30	34.2	10	1.0	20	2.0		
11:40	33.2	10	1.0	20	2.0	2880	

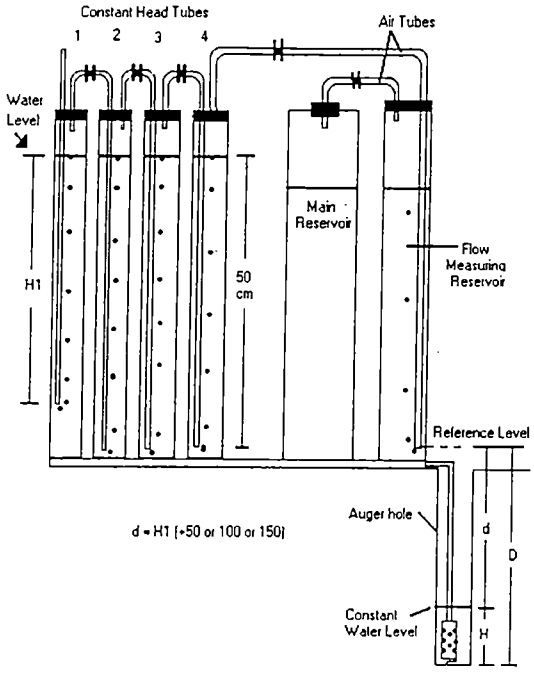
Average of last few measurements: 2.0 cm^3/min Ksat =

Comments: _____

Project: Carl Baker
Ksat ID: 2B

Ksat DATA SHEET

Measurement #: 4 Date: 11 May 2001 Investigator: K Briggs
System Type: Conventional Trench Depth: 24"
Location: Near Profile 2
Weather -- Condition: Partly Cloudy Temp: 25°C
Water – Source: Bottled Spring Water Temp: 17°C
Soil Horizon: B+ Slope: 15% Layer Depth and Thickness:
Center of Layer: 24" (Trench Depth)



		cm	inches
Hole Depth		72.5	27"
Distance b/w reference level and ground [10 cm or 4 in]	+	10.0	
Distance from hole bottom to reference level (D)	=	82.5	
Desired depth of water (H) > 15 cm or 6 in	-	16.0	
Constant-head tube setting (H1)	=	66.5	

Measured (Actual) water level in hole
Initial: 17.5 cm
Final: 18.0 cm
Hole radius (r): 3 cm
Start Saturation: 9:50
Steady State Reading:

QUICK REFERENCE

Hole depth: 72.5
Water Level: 17.5
Depth to Water: 55.0

Ksat = A X Q

Conversion Factor (C.F.) 1-ON = 20 cm^2 2-ON = 105 cm^2

(to obtain flow volume, multiply change in water level by the appropriate C.F.)

Use Table 2 to determine A = .000808 cm^{-2}

Q from other side = 12096 cm^3/day

Ksat= 9.773568 cm/day

Project: Carl Baker

Ksat ID: 2B

H	Clock Time	Reservoir Reading	Change in time	Change in water level	Flow Volume (CF=10 cm²)	Q	Q (1440 min/day)	Ksat (A=_____)
	h : min	cm	min	cm	cm^3	cm^3/min	cm^3/day	cm/day
17.5	10:12	38.5						
	10:22	37.0	10	1.5	157.5	15.75		
	10:32	35.8	10	1.2	126	12.6		
15.0	10:42	34.7	10	1.1	115.5	11.55		
18.0	10:52	33.7	10	1.0	105	10.5		
	11:02	32.7	10	1.0	105	10.5		
	11:12	31.8	10	0.9	94.5	9.45		
	11:22	31.0	10	0.8	84	8.4	12096	
	11:32	30.2	10	0.8	84	8.4		
	11:42	29.3	10	0.9	94.5			

Average of last few measurements: 12096 cm^3/d Ksat =

Comments: _____

DEPARTMENT OF ENVIRONMENT, HEALTH, AND NATURAL RESOURCES
DIVISION OF ENVIRONMENTAL HEALTH
ON-SITE WASTEWATER SECTION

#2 ACS 1996

Sheet: /

Property ID: 199-342-07

Lot #: 43B

File #: 6209A

SOIL/SITE EVALUATION
for ON-SITE WASTEWATER SYSTEM

OWNER: Carl A. Baker APPLICANT:

ADDRESS: 13622 Pine Haven Road, Charlotte, N.C. DATE EVALUATED: 12-15-00

PROPOSED FACILITY: residence PROPOSED DESIGN FLOW (.1949) 360gpd PROPERTY SIZE: 1.0

LOCATION OF SITE: 14620 Rainbarrell Road PROPERTY RECORDED:

WATER SUPPLY: ☐Private ☐Public ☒Well ☐Spring ☐Other

EVALUATION METHOD: ☒Augur Boring ☐Pit ☐Cut

TYPE OF WASTEWATER: ☒Sewage ☐Industrial Process ☐Mixed

PROFILE #	.1940 Landscape Position/ Slope %	Horizon Depth (IN.)	SOIL MORPHOLOGY (.1941) .1941 STRUCTURE/ TEXTURE	.1941 CONSISTENCE MINERALOGY	OTHER PROFILE FACTORS .1942 SOIL WETNESS/ COLOR	.1943 SOIL DEPTH	.1956 SAPRO CLASS	.1944 RESTR HORIZ	PROFILE CLASS &LTAR
1	22% LS	0-3"	gr/scl	Fr/SExPl ss/sp	72" to soil wetness	21"	N/A	None	US IV .125gpf (LLP)
		3-19"	sBk/c	Fi/SExP/s/p					
		19-21"	sBk/scl	Fr/SExP ss/sp					
2	NS 33%	0-3"	gr/scl	Fr/SExPl ss/sp	19" to soil wetness	19"	N/A	None	US IV
		3-19"	sBk/sc	Fi/SExP/s/p					
3	26% LS	0-2"	gr/scl	Fr/SExPl ss/sp	34" to soil wetness	34"	N/A	None	IV .39/F2 US
		2-18"	sBk/c	Fi/SExP/s/p					
		18-34"	sBk/scl	Fr/SExPl ss/sp					
4	LS 8%	0-3"	gr/scl	Fr/SExPl ss/sp	46" to soil wetness	46"	N/A	None	IV .39/F2 PS
		3-23"	sBk/c	Fi/SExP/s/p					
		23-46"	sBk/scl	Fr/SExPl ss/sp					

DESCRIPTION	INITIAL SYSTEM	REPAIR SYSTEM
Available Space (.1945)	US	
System Type(s)		
Site LTAR		

OTHER FACTORS (.1946):

SITE CLASSIFICATION (.1948): Unsuitable

EVALUATED BY: W. A. Marlin LS 12-18-00

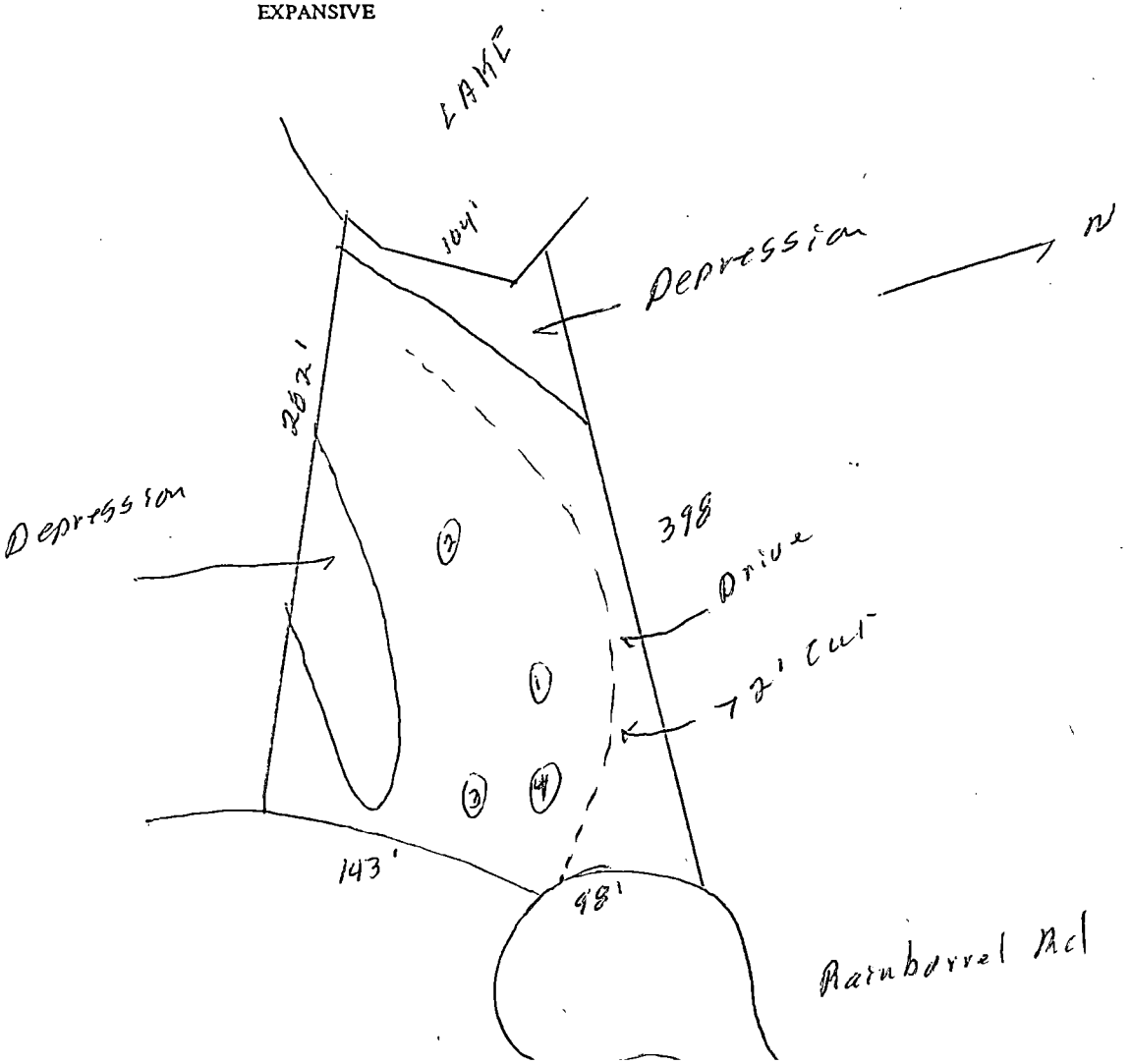
OTHER(S) PRESENT:

FILE # 6209A

COMMENTS

LANDSCAPE POSITION	GROUP	TEXTURE	.1955 LTAR	CONSISTENCE MOIST	CONSISTENCE WET
R-RIDGE	I	S-SAND	1.2-0.8		
S-SHOULDER SLOPE		LS-LOAMY SAND		VFR-VERY FRIABLE	NS-NON-STICKY
L-LINEAR SLOPE				FR-FRIABLE	SS-SLIGHTLYSTICKY
FS-FOOT SLOPE	II	SL-SANDY LOAM	0.8-0.6	FI-FIRM	S-STICKY
N-NOSE SLOPE		L-LOAM		VFI-VERY FIRM	VS-VERY STICKY
H-HEAD SLOPE				EFI-EXTREMELY FIRM	NP-NON-PLASTIC
CC-CONCLAVE SLOPE	III	SI-SILT	0.6-0.3		SP-SLIGHTLYSTICKY
CV-CONVEX SLOPE		SICL-SILTY CLAY LOAM			P-PLASTIC
T-TERRACE		CL-CLAY LOAM			VP-VERY PLASTIC
FP-FLOOD PLAIN		SCL-SANDY CLAY LOAM			
	IV	SC-SANDY CLAY	0.4-0.1		
		SIC-SILTY CLAY			
		O-ORGANIC			

STRUCTURE	MINERALOGY
SG-SINGLE GRAIN	SLIGHTLY EXPANSIVE
M-MASSIVE	
CR-CRUMB	EXPANSIVE
GR-GRANULAR	
SBK-SUBANGULAR BLOCKY	
ABK-ANGULAR BLOCKY	
PL-PLATY	
PR-PRISMATIC	



FEE: 200.00 CK #4198 DATE: 11/29/00 PC

APPLICATION FOR IMPROVEMENT PERMIT FOR RESIDENTIAL SITE INDIVIDUAL WATER AND WASTEWATER SYSTEMS PROGRAM

[ ] CRT

TYPE APPLICATION: [X] NEW SYSTEM [ ] EXPANSION/ ALTERATION OF EXISTING SYSTEM [ ] REPAIR OF EXISTING SYSTEM

NORTH CAROLINA
DEPARTMENT OF ENVIRONMENT,
HEALTH, AND NATURAL RESOURCES
DIVISION OF ENVIRONMENTAL HEALTH
ON-SITE WASTEWATER SECTION

FILE #: W20-7A

PROPERTY INFORMATION (FROM ENGINEERING FORM) FOR JOB LOCATION:

TAX/PARCEL NUMBER: 19934207 MAP# 19934207

STREET ADDRESS: 14620 RAINBARREL Rd.

SUBDIVISION OR MOBILE HOME PARK NAME: 28278

LOT NUMBER: 43-B

TYPE OF BUILDING (CHECK ONE):

- [ ] SINGLE MOBILE HOME(S)
- [ ] DOUBLE WIDE (D)
- [X] HOUSE (H)
- [ ] MODULAR HOME (M)
- [ ] MULTIPLE FAMILY (U)
- [ ] OTHER (O)

TOWNSHIP (CHECK ONE):

- [X] 0 MECKLENBURG
- [ ] 1 CHARLOTTE
- [ ] 2 DAVIDSON
- [ ] 3 CORNELIUS
- [ ] 4 PINEVILLE
- [ ] 5 MATTHEWS
- [ ] 6 HUNTERSVILLE
- [ ] 7 MINT HILL

HEATED SQUARE FOOTAGE: 2887

NUMBER OF BEDROOMS: 3 NUMBER OF OCCUPANTS: 2

CLOSING DATE _____

FOUNDATION FOR RESIDENCE:

- [ ] WITHOUT BASEMENT
- [ ] ON SLAB
- [X] CRAWL SPACE
- [ ] WITH BASEMENT /PLUMBING
- [ ] WITH BASEMENT /NO PLUMBING

IF EXPANSION/ALTERATION OF EXISTING SYSTEM, DESCRIBE THE PROPOSED BUILDING ADDITION:
None

WILL THERE BE A HOME BUSINESS IN THE RESIDENCE: [X] YES [ ] NO TYPE: Office only

WATER SUPPLY (CHECK ONE):

- [ ] COMMUNITY (C)
- [ ] MUNICIPAL (M)
- [X] PRIVATE WELL (P)
- [ ] SHARED WELL (S)
- [ ] OTHER 'SPRINGS' (O)

IF ANY OF THE FOLLOWING ARE LOCATED ON THE PROPERTY, PLEASE SHOW LOCATION ON PLAT:

BURIED CABLES, LANDFILLS, STUMPHOLES	[ ] YES [X] NO	WELL, SPRINGS OR WATERLINES	[ ] YES [X] NO
EXISTING WASTEWATER SYSTEMS	[ ] YES [X] NO	DESIGNATED WETLANDS	[ ] YES [X] NO
EASTMENTS OR RIGHT-OF-WAYS	[ ] YES [X] NO		

PROPERTY OWNER:	LEGAL AGENT FOR PROPERTY OWNER, IF APPLICABLE:
NAME: (LAST) BAKER (FIRST) CARL (MI) RODNEY	NAME: (LAST) (FIRST) (MI)
ADDRESS: 13622 Pine Harbor Rd.	DAYTIME PHONE: ( )
CITY: Charlotte STATE: NC ZIP: 28278	
DAYTIME PHONE: 704 588- 7475	

WHAT DATE WAS THE PROPERTY ORIGINALLY DEEDED AND RECORDED? _____

An Improvement Permit is subject to suspension or revocation if site plans or the intended use change or if information submitted in this application is falsified or changed. The undersigned, owner, or legal agent for the owner, of the property described above as the "Job Location" has read the foregoing application, acknowledges that the contents of same are true, and authorizes agents of the Mecklenburg County Health Department to enter onto the property for the purpose of processing this request.

SIGNED: Carl Baker DATE: 12-1-00

MECKLENBURG COUNTY HEALTH DEPARTMENT
ENVIRONMENTAL HEALTH DIVISION
c/o HAL MARSHALL CTR., SUITE 211, 700 N. TRYON ST., CHARLOTTE, N.C. 28202., (704) 336-5102

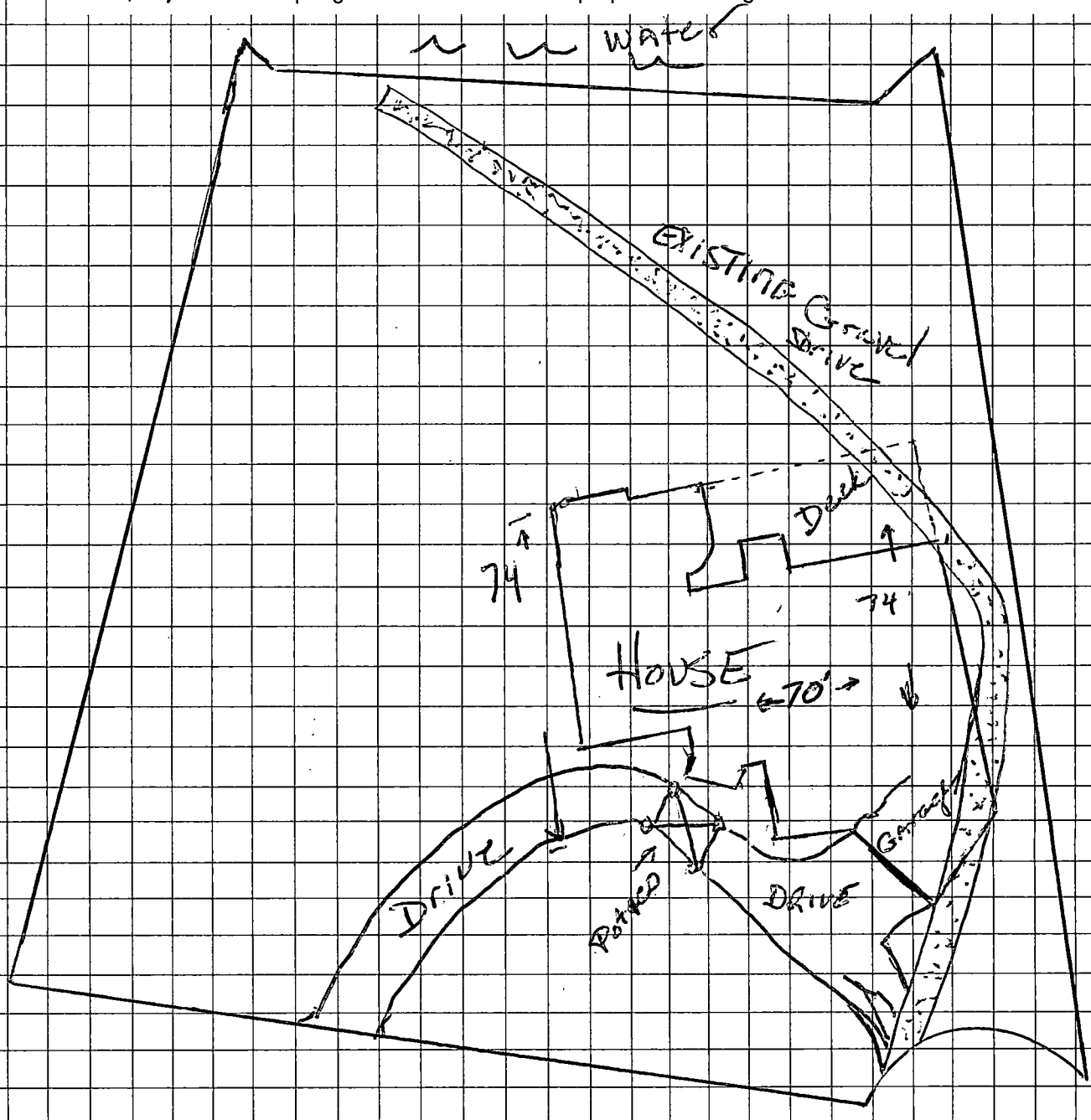
PROPOSED PLOT PLAN

HEALTH DEPARTMENT
ENVIRONMENTAL HEALTH DIVISION
700 NORTH TRYON STREET
CHARLOTTE, NC 28202
PHONE (704) 336-5102

FILE: 6209A

TC: 199-342-07

Draw in and name all roads adjoining the property. Draw in and accurately dimension the lot concerned. Accurately indicate property boundaries proposed and/or existing structures and driveways, underground utilities, and wells and springs within 100 feet of the proposed building or drainfield.



OWNER/AGENT SIGNATURE

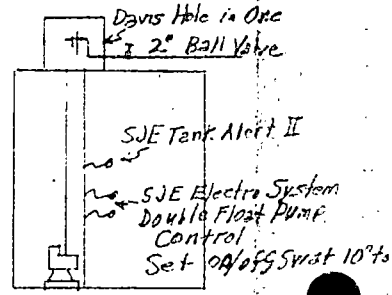
DATE 11-27-00

APPROVAL DATE _____

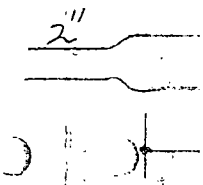
White - Health Department's Copy Canary - E.H.S. Copy Pink - Owner's Copy

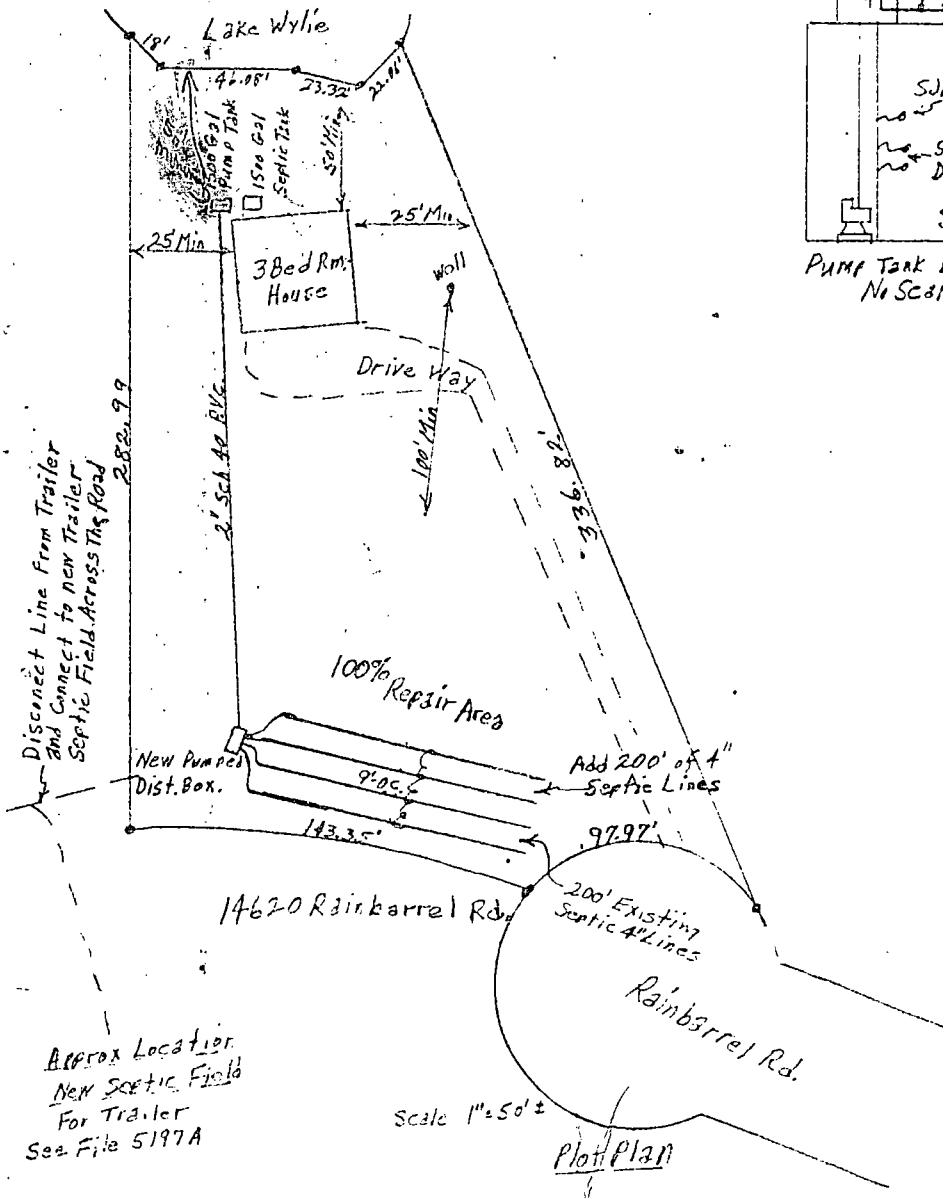
50' Minimum Setback from established high water required for Septic Pump Tank

Elevation Head 25'
Friction Head
200' @ 1.11/100' 2.2'
Pressure Head 4'
Total Head 31.1'



Pump Tank Detail
No Scale





Approx Location
New Septic Field
For Trailer
See File 5197A

Scale 1" = 50' ±

Plot Plan

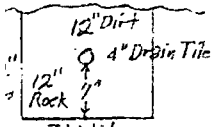
Remove & Plug Test Pipe After Adjusting Flow to 4' Head.

9'-0" O.C.

File

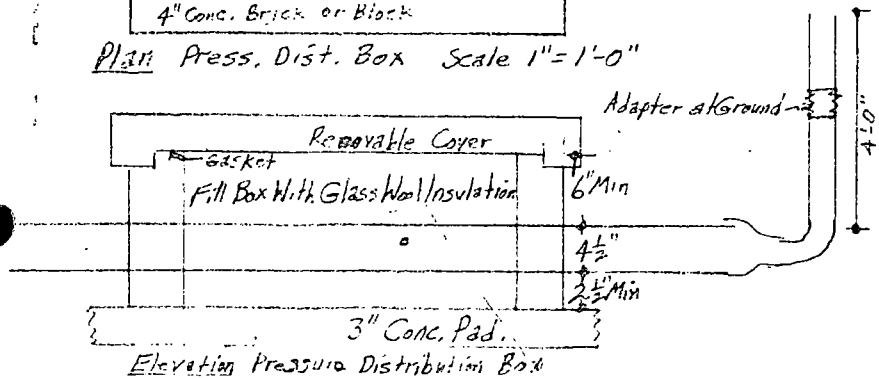
Slope Trenches to Match Ground Slope.

Drain Lines To Drain Tile May Be 2" Sch 40 PVC. or 4" Solid Drain Line Run on even Grade ¼" to 1' Minimum Set Box for Proper Drain To Highest Line



Trench Detail No Scale

Plan Press. Dist. Box Scale 1"=1'-0"



Elevation Pressure Distribution Box

3 Bed Rm @ 120 GPD/BRm = 360 GPD ÷ 3 = 1200 ÷ 3 = 400' Trench
400' ÷ 4 = 100' Long lines. 4 lines - 1 = 3 X 9 = 27 + 3 = 36' Wide Field
Use 4 lines 9'-0" C. in 3' Wide Trenches 24" Deep 1 Inst. II Dist. Box & Header Lines at one end Using 4 Dist. Lines 100' Long each.
Flow 4' Head - ½ Pipe Orfice 11.79 X $(\frac{1}{2})^2$ X √4 = 5.895 GPM
4 Lines @ 5.895 = 23.58 GPM.
PUMP 25 GPM @ 35' Head Use Hydro-Matic FPD 50 MH2
½ HP 230V - 1Ph - 3450 RPM

10-6-89

14620 RAINEARREL R.D.

File 6209A
TC. 199-342-07
Prepared By W.F. Smith dr.

APPLICATION FOR AN IMPROVEMENT PERMIT

HEALTH DEPARTMENT
ENVIRONMENTAL HEALTH DIVISION
1200 BLYTHE BOULEVARD
CHARLOTTE, NC 28203
PHONE (704) 376-4603

Mecklenburg County services are available without regard to ethnic origin, sex, or disability.

(OFFICE USE ONLY)
FILE: 6209 A
TC: 199-342-07
SERIAL: № 18659
☐ L ☑ CRT

JOB LOCATION

① ADDRESS: 14620 (STREET NO.) Rainbarrel Rd. (STREET) ② FILE: 6209 A
③ JURISDICTION: ④ TAX PARCEL NO.: 199-342-07
⑤ SUBDIVISION: ⑥ LOT: ⑦ BLOCK:

OWNER

⑧ NAME: V (FIRST) John (MIDDLE) Grubenhoff (LAST)
⑨ MAILING ADDRESS: Box 7367
⑩ CITY: Charlotte, ⑪ STATE: NC. ⑫ ZIP: 28241
⑬ PHONE: (WORK) 704-588-5901 ⑭ (HOME) 704-588-2412

REQUEST

This request is for a(n):

⑮ ☑ New permit
⑯ ☐ Repair or alteration permit
⑰ ☐ Authorization for mobile home exchange
⑱ ☐ Other (specify)

DESIGN CRITERIA

System will serve:

⑲ ☑ Residence ⑳ ☐ Mobile home
㉑ ☐ Business or place of public assembly
㉒ Number of bedrooms? 3
㉕ Type?
㉓ Maximum occupancy? 5
㉖ Maximum number of employees?
㉔ Basement? ☐ yes ☐ no
㉗ Maximum number of seats?

WATER SUPPLY

㉘ Water supply from (present or proposed):

A ☑ Individual well
B ☐ Municipal system
C ☐ Community well
D ☐ Community system

㉙ The undersigned, owner of the property described above as the "JOB LOCATION" has read the foregoing application, acknowledges that the contents of same are true, and authorizes agents of the MECKLENBURG COUNTY HEALTH DEPARTMENT to enter onto the property for the purpose of processing this request.

Signed: John Grubenhoff
Date: 10/11/89

IMPROVEMENT PERMIT

The undersigned, an authorized agent of the MECKLENBURG COUNTY HEALTH DEPARTMENT, certifies that the Department has approved the Request for the Job Location contained in this document. This approval is granted in accordance with the provisions of Laws And Rules For Sanitary Sewage Collection, Treatment And Disposal in effect at the time of issuance of the permit and is subject to the following provisions:

... No work shall be conducted on the septic tank system until an Installation, Construction, Alteration and/or Repair permit is issued by this Department.

... This permit is not transferable, and shall become null and void 36 months from the date of issuance.

Environmentalist R.S. 11/7/89
Date

Director or Authorized Section Head 11-7-89
Date

*This permit must be signed by the Director of Mecklenburg County Health Department or an authorized section head in order to be valid.

Mecklenburg County
Health Department

Basil G. Delta, M.D., M.P.H.
Health Director

October 6th, 1989

V. John Grubenhoff
PO Box 7367
Charlotte, NC 28241

RE: Property located at Rainbarrel Rd.
FILE: 6209A
PARCEL: 19934207P0

Dear Sir:

At your request, a field investigation was conducted on the property designated above for the purpose of determining site suitability for the installation of a ground absorption sewage disposal system. The property was found to contain a limited area of soils which were classified as provisionally suitable for such an installation. A copy of the Site Evaluation Report (Serial Number 12200) is enclosed for your information.

Should you desire to file for permission to install a ground absorption sewage disposal system, please submit an Application For An Improvement Permit with an ACCURATELY dimensioned plot plan detailing the location of current and/or proposed buildings, wells and sewage disposal systems to this office. The plan will be reviewed and if it is found that the area of provisionally suitable soils is adequate for the proposed construction, an Improvement Permit will be issued by this Department.

If I may be of assistance, please do not hesitate to contact me.

Very truly yours,

Gene Vaughan, R.S., Supervisor
On Premises Waste Disposal & Water Supply

Enclosure

MECKLENBURG COUNTY ENVIRONMENTAL HEALTH
SITE EVALUATION REPORT
SERIAL NUMBER 12200

File: 6209A

Action 1

Parcel: 199-342-07 PO

☐ PC

Location: Rainbarrel Rd.

Subdivision:

Lot: Block: Acres: 5

Owner: V. John Grubenhoff
Address: P. O. Box 7367
Charlotte, N. C. 28241

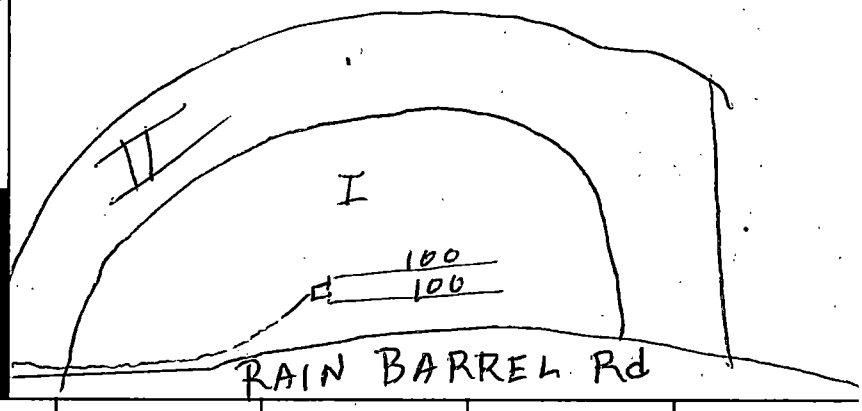
Comments: WANTS TO Add 200FT To present Drain Field and use The System For New House Repair Area Required.

Described by: W. B. Ramsey

Date: 10 — 5 —89

***** EVALUATION KEY *****

S = Suitable U = Unsuitable
PS = Provisionally Suitable
The "Area Classification" below indicates the suitability of areas in the diagram.



FACTORS	AREA 1	AREA 2	AREA 3	AREA 4	AREA 5	AREA 6
Topography	S (PS) U 4—15	S PS (U) 16-24% Valley	S PS U	S PS U	S PS U	S PS U
Texture	S (PS) U	S (PS) U	S PS U	S PS U	S PS U	S PS U
Structure	S (PS) U	S (PS) U	S PS U	S PS U	S PS U	S PS U
Drainage	S (PS) U	S (PS) U	S PS U	S PS U	S PS U	S PS U
Depth	S (PS) U 36—40	S PS (U) Various	S PS U	S PS U	S PS U	S PS U
Restrictive Horizons	S (PS) U	S (PS) U	S PS U	S PS U	S PS U	S PS U
Available Space Appear To Be Adequate	S (PS) U *	S PS (U)	S PS U	S PS U	S PS U	S PS U
Other (specify)	S PS U	S PS U	S PS U	S PS U	S PS U	S PS U
Soil Group/Series	IVa Cecil	IVa Pacolet				
Area Classification	S (PS) U	S PS (U)	S PS U	S PS U	S PS U	S PS U

APPLICATION FOR SOIL INVESTIGATION

HEALTH DEPARTMENT
ENVIRONMENTAL HEALTH DIVISION
1200 BLYTHE BOULEVARD
CHARLOTTE, NC 28203
PHONE (704) 376-4603

(OFFICE USE ONLY)

FILE: 6209A

TC: _____

☐ PC ☐ REPT

JOB LOCATION

① ADDRESS: 13625 Rainbarrel Rd 14620 Rainbarrel Rd.

② SUBDIVISION: _____ ③ LOT: _____ ④ BLOCK: _____

⑤ PARCEL REFERENCE: BOOK NO.: 199 Newest PAGE NO.: 34 PARCEL NO.: 199-241-09

⑥ DEDUCTION REFERENCE: BOOK NO.: 5491 old PAGE NO.: all over Newest

OWNER

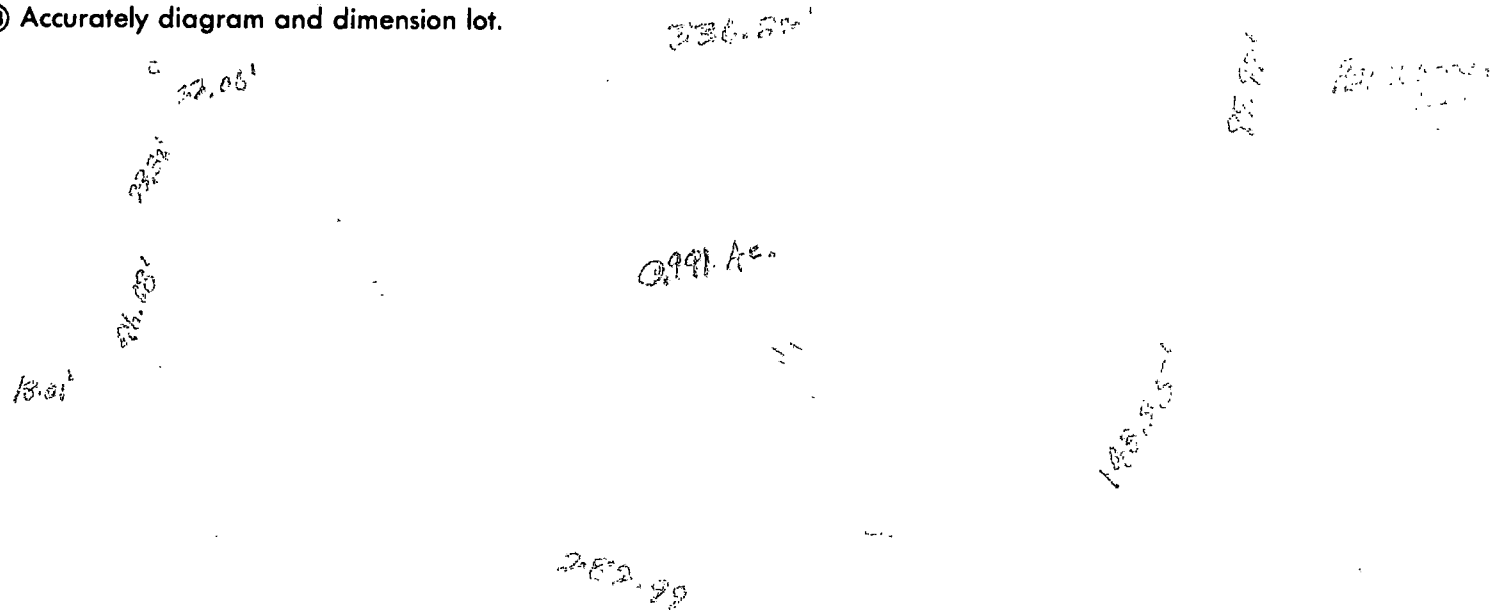
⑦ NAME: V. John Grunbanhoff
(FIRST) (MIDDLE) (LAST)

⑧ MAILING ADDRESS: Box 7367

⑨ CITY: Charlotte. ⑩ STATE: N.C. ⑪ ZIP: 28[illegible]

⑫ PHONE: (WORK) _____ (HOME) _____

⑬ Accurately diagram and dimension lot.



⑭ The undersigned, owner of the property described above as the "JOB LOCATION" has read the foregoing application, acknowledges that the contents of same are true, and authorizes agents of the MECKLENBURG COUNTY HEALTH DEPARTMENT to enter onto the property for the purpose of processing this request.

Signed: V. John Grunbanhoff

Date: 10/19/89

Mecklenburg County services are available without regard to ethnic origin, sex, or disability.

WHITE - HEALTH DEPARTMENT'S COPY • CANARY - ENVIRONMENTALIST'S COPY • PINK - OWNER'S COPY

MECKLENBURG COUNTY HEALTH DEPARTMENT
ENVIRONMENTAL HEALTH DIVISION

CHARGE SLIP

Date: 10/4/89

Name/Company: Long Core Marina

Sanitation _____

Vector Control _____

O.P.W.D. ✓

Service: Soil

2 @ 40.00 each

6209A + 5197A

MECKLENBURG COUNTY
HEALTH DEPARTMENT
ENVIRONMENTAL HEALTH DIVISION
PAID

OCT 4 1989

Fee: $ 80.00

Check 1596
$80.00

NOTICE:

A processing fee of $15.00 will be charged for all returned checks in accordance with N.C. General Statute 25-3-512.

Completed by

Collected by

BILLING — WHITE

[redacted]

40.00

APPLICATION FOR SOIL INVESTIGATION

HEALTH DEPARTMENT
ENVIRONMENTAL HEALTH DIVISION
1200 BLYTHE BOULEVARD
CHARLOTTE, NC 28203
PHONE (704) 376-4603

(OFFICE USE ONLY)

FILE: 6209A

TC: _____

☐ PC ☐ REPT

JOB LOCATION

① ADDRESS: ~~1369 Pine Harbor Rd~~ 14620 Rainbarrel Rd.

② SUBDIVISION: _____ ③ LOT: _____ ④ BLOCK: _____

⑤ PARCEL REFERENCE: BOOK NO.: 199 (New 22) PAGE NO.: 34 PARCEL NO.: 199-342-07 (Pt)

⑥ DEED REFERENCE: BOOK NO.: 5491 old PAGE NO.: old 0827 (New 444)

OWNER

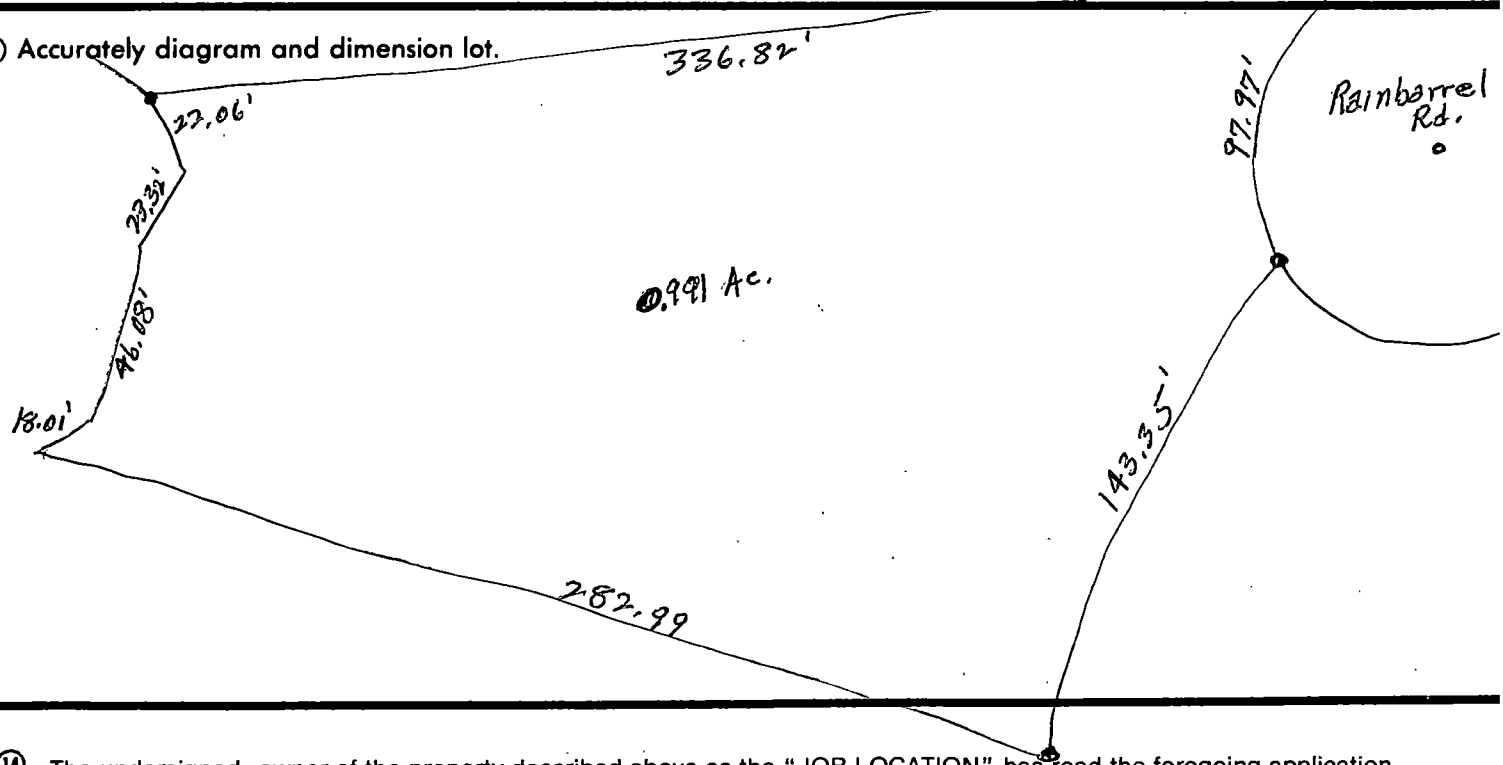
⑦ NAME: V. John Grubenhoff
(FIRST) (MIDDLE) (LAST)

⑧ MAILING ADDRESS: Box 7367

⑨ CITY: Charlotte ⑩ STATE: N.C. ⑪ ZIP: 28241

⑫ PHONE: (WORK) _____ (HOME) _____

⑬ Accurately diagram and dimension lot.



⑭ The undersigned, owner of the property described above as the "JOB LOCATION" has read the foregoing application, acknowledges that the contents of same are true, and authorizes agents of the MECKLENBURG COUNTY HEALTH DEPARTMENT to enter onto the property for the purpose of processing this request.

Signed: V. John Grubenhoff

Date: 10/4/89

Mecklenburg County services are available without regard to ethnic origin, sex, or disability.

WHITE - HEALTH DEPARTMENT'S COPY • CANARY - ENVIRONMENTALIST'S COPY • PINK - OWNER'S COPY

TO: ENVIRONMENTAL HEALTH DEPT.
BUILDING STANDARDS DEPT.
DEPT. OF ENVIRONMENTAL PROTECTION/
SOLID AND HAZARDOUS WASTE

DATE 10-4-89

FROM: COUNTY ENGINEERING DEPARTMENT

EHD FILE _____ JURISDICTION CODE Meck

PARCEL NUMBER 199-342-07

ASSIGNED ADDRESS 14620 Rainbarrel Rd

EXISTING ADDRESS _____

PROJECT NAME N/A

THE ABOVE DESCRIBED LOCATION HAS BEEN CHECKED CONCERNING:

	APPROVED	DISAPPROVED
1. SUBDIVISION REGULATIONS	/ X /	/ /*
2. FLOODWAY REGULATIONS	/ /	/ X /*
3. EROSION CONTROL REGULATIONS	/ X /	/ /*
4. PUBLIC UTILITY EASEMENT	/ X /	/ /*

	PRESENT	NOT PRESENT
5. PUBLIC UTILITY EASEMENT	/ /*	/ X
6. PROPERTY FRONTS ON THOROUGHFARE	/ /*	/ X
7. DRIVEWAY PERMIT REQUIRED	/ /*	/ X

*If checked, further investigation will be required to determine whether a building permit can be issued by Building Standards for the site.

REMARKS: ~~As~~ Perk Soil test & well-septic

NOTE: THIS FORM MUST BE TURNED IN AT THE CASHIER'S OFFICE AT BUILDING STANDARDS WHEN PAYING PERMIT FEES.
A CERTIFICATE OF OCCUPANCY WILL NOT BE GRANTED UNTIL THE TRANSPORTATION DIVISION GRANTS FINAL APPROVAL ON DRIVEWAY(S).

SIGNED: _____

OPWEAR 06-88

NEW ADDRESS / /*

FORM 100

These CAN probably Be Worked out. Judy will Have To work on Both of Them Together Since There will Be An Exchange of Drain fields.

MECKLENBURG COUNTY HEALTH DEPARTMENT
ENVIRONMENTAL HEALTH DIVISION

CHARGE SLIP

Date: 10/19/89

Name/Company: Long Cove Marina

Sanitation _____

Vector Control _____

O.P.W.D. ✓

Service: Mrg - new
to 209A

MECKLENBURG COUNTY
HEALTH DEPARTMENT
ENVIRONMENTAL HEALTH DIVISION
PAID
OCT 19 1989

+ Additional 50 on check # 2389

Fee: $ 150 on

ck # 1607
$150.00

NOTICE:

A processing fee of $15.00 will be charged for all returned checks in accordance with N.C. General Statute 25-3-512.

Total Paid $200.00

Completed by

Collected by

BILLING — WHITE CUSTOMER COPY — YELLOW