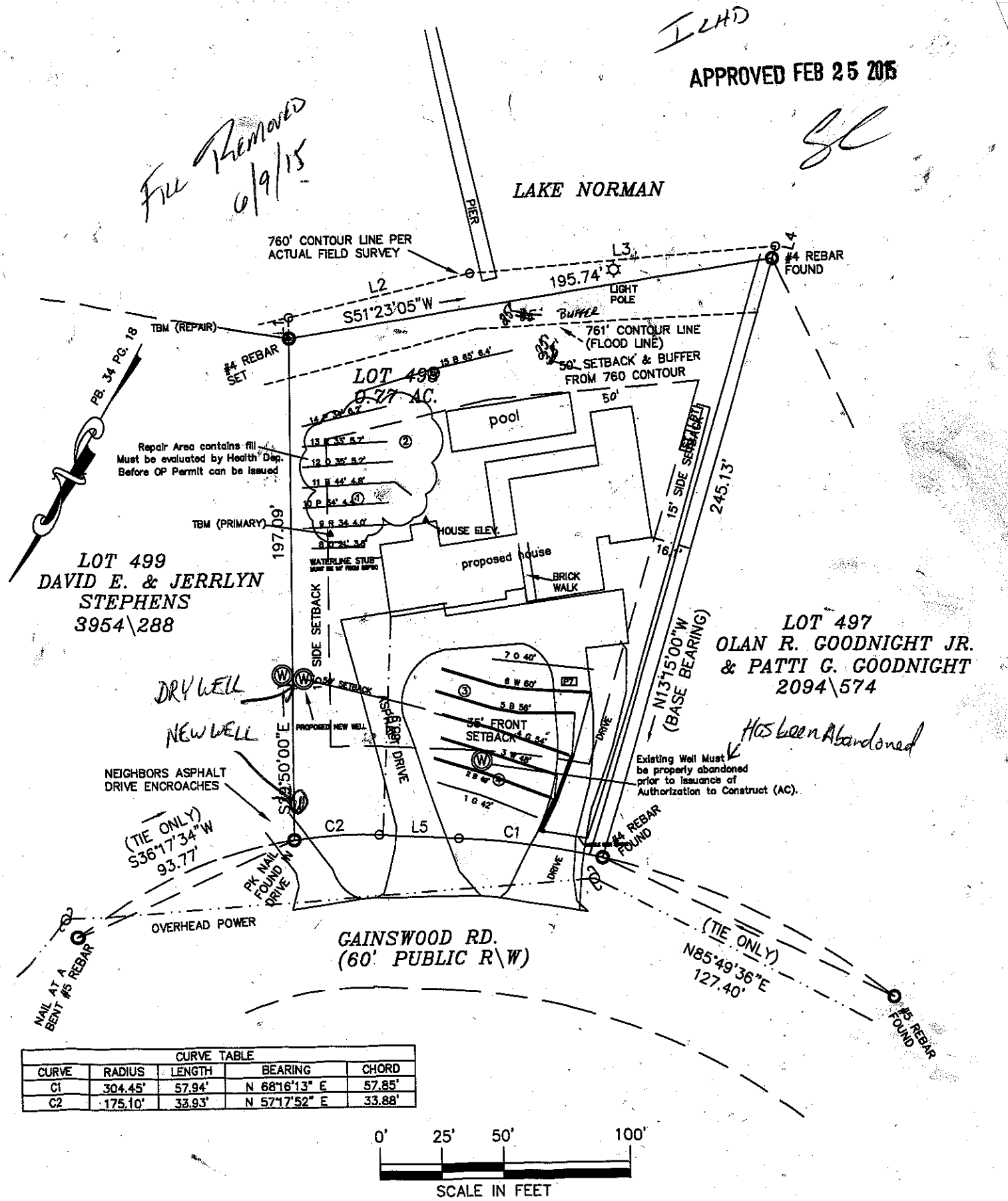


CURVE TABLE				
CURVE	RADIUS	LENGTH	BEARING	CHORD
C1	304.45'	57.94'	N 68°16'13" E	57.85'
C2	175.10'	33.93'	N 57°17'52" E	33.88'

ROLLANS *Soil & Environmental Services, PA.*

P.O. Box 832, Mooresville, NC 28115 Phone: (704) 278-0989 Fax: (704) 278-0989

Ashley Rollans, NC Licensed Soil Scientist
Mobile: (704) 746-5046
Email: rollans.ashley@yahoo.com

Attached is a proposed design for a PPBPS Septic System with low pressure distribution for a 4 bedroom single family residence on Lot # 498 CL&T, Section, 235 Gainswood Road, Iredell County, North Carolina.

Contents:

	Page
Information for the Installer	1
Design Information	
Design Specifications	2-3
Layout Specifications	4
System Tapsheet	5
Site Plan/System Plan	6-7
Calculations	8
Profile Descriptions	9

February 11, 2015
Project #: 01-1720
Design By: Rollans Soil & Environmental Services, PA

LP PPBPS SYSTEM
FOR WASTEWATER TREATMENT

Owner/Applicant:	Clifford & Jennifer Fiscus
Address:	235 Gainswood Road Mooresville, NC 28115
Phone:	704.230.7099
County:	Iredell
Location:	235 Gainswood Road
Source of Wastewater Flow:	4 Bedroom Single Family Residence
Estimated Gallons Per Day Flow:	480
System Flow:	25.01

Design Specifications

Drainfield Size:	267
Loading Rate (gpd/ft.^{2}):	0.3
Depth of Gravel in Trench:	NA (PPBPS)
Gravel Size:	NA (PPBPS)
Trench Depth:	30-36 in.(Variation based on septic layout)
Trench Width:	24 in.
Septic Tank Size:	1000
Pump Tank Size:	1000
Estimated Supply Line Length:	200
Supply Line Diameter:	2 in. SCH 40 PVC
Supply Line Volume:	34.80
Dosing Volume:	147.13
Supply Manifold:	N/A
Supply Manifold Length:	N/A
Supply Manifold Volume:	N/A
Recommended Float Controls:	SJE Sensor Float Control Switches as Required for Control Panel or County Approved Equivalents
Recommended Control Panel:	SJE-Rhombus Model 112 (NEMA 4x) Control Panel or County Approved Control Panel.
Pressure Head:	2 ft.
Friction Head:	3.56
Elevation Head:	10.30
Total Dynamic Head:	18.24
Threaded Union:	In Tank
Gate Valves:	1 in Tank 1 per lateral
Check Valves:	In Tank
Anti-Siphon Hole:	NA
Additional Comments:	Soil suitability was performed by Rollans Soil & Environmental Services

235 Gainswood Road
LP PPBPS

DESIGN FLOW (gpd):	480
SOIL APPLICATION RATE (gpd/ft.^{2}):	0.3
TOTAL AREA TRENCH BOTTOM:	534
TOTAL LATERAL LENGTH:	267
NUMBER OF FIELDS:	1
LATERAL LENGTH REQUIRED PER FIELD:	266.6666667
SUPPLY LINE LENGTH:	200
TOTAL DYNAMIC HEAD:	18.24
MANIFOLD SIZE:	N/A
DOSING VOLUME:	147.13
PUMP TANK DRAW DOWN*:	4.7
SEPTIC TANK SIZE:	1000
PUMP TANK SIZE:	1000

**Pump tank draw down based on a volume basis of 31 gallons per inch. Draw down may vary among pump tank manufacturers.*

235 Gainswood Road

Project #: 01-1720

LAYOUT FOR 4 BEDROOM HOME

February 11, 2015

LINE #	FLAG COLOR	BS	HI	FS	ELEVATION	FLAGGED LINE LENGTH	DESIGN LINE LENGTH
TBM		4.3			100.00		
INSTR. 1			104.30				
HOUSE CNR				7.10	97.20		
P. TANK				9.70	94.60		
1	GREEN			4.30	100.00	42	42
2	***BLUE***			***4.40***	99.90	***49***	***49***
3	***WHITE***			***4.70***	99.60	***48***	***48***
4	***GREEN***			***5.10***	99.20	***54***	***54***
5	***BLUE***			***5.40***	98.90	***56***	***56***
6	***WHITE***			***6.00***	98.30	***60***	***60***
7	ORANGE			6.50	97.80	40	40
TBM		7.2			100.00		
INSTR. 1			107.20				
8	ORANGE			3.60	103.60	21	21
9	RED			4.00	103.20	34	34
10	PINK			4.40	102.80	34	34
11	BLUE			4.80	102.40	44	44
12	ORANGE			5.20	102.00	35	35
13	RED			5.70	101.50	33	33
14	PINK			6.20	101.00	34	34
15	BLUE			6.40	100.80	65	65
					Total	**649**	**649**

	LINE LENGTH	LTAR GPD/FT2	SYSTEM TYPE	SOIL LTAR GPD/FT2	TRENCH SYSTEM	DISTRIBUTION
**** System***	***267***	***0.300***	***MOD.***	***0.300***	***PPBPS***	***LOW PRESSURE***
Repair	382	0.300	MOD.	0.300	PPBPS **w/TSII Pretreatment**	LOW PRESSURE

Notes:
** TBM located top of ground at EIP at corner of lot (see site plan)
**TBM is assumed to be 100'
**All measures in feet
**Nitrification lines are demonstrated on contour via colored pin flags
**BS, HI, and FS indicate rod readings

LP PPBPS TAPSHEET -CL&T Lot #498

SYSTEM

Line #	Color	Elevation	Length	Hole Size	Flow/hole	Trench Area	Number of Panels
2	***BLUE***	99.90	***49***	0.156	**0.41**	98	11
3	***WHITE***	99.60	***48***	0.156	**0.41**	96	11
4	***GREEN***	99.20	***54***	0.156	**0.41**	108	12
5	***BLUE***	98.90	***56***	0.156	**0.41**	112	13
6	***WHITE***	98.30	***60***	0.156	**0.41**	120	14
	total	**feet =**	**267**	**gal/min =**	**25.01**		61

Des. Flow	**480**
Pump Run=	**5.88**
soil LTAR	**0.3**
LTAR +5%	**0.315**
LTAR with mod.	**0.6**
LTAR with mod.. + 5%	**0.63**

.156 equals 5/32 inch hole

CALCULATIONS

Location 235 Gainswood Road

Project Number 01-1720

Lot No: Lot 498

No. of Bedrooms	4	
Design Flow	480	$^{gal}/_{day}$
LTAR	0.300	$^{gal}/_{ft^2\ day}$
PPBPS? (YES OR NO)	YES	
Supply Line Length	200	ft.
Supply Line Volume	34.8	gal.
Required Feet of Line	266.6667	ft.
Amount of Line from Layout	267	ft.
Gallons per Minute	25.01	$^{gal}/_{min}$
Required Septic Tank Capacity	1000	gal.
Septic Tank	1000	gal.
Panel Volume	3.6	gal.
# of Panels	61	
Dosing Volume	147.13	gal.

Note: Dosing Volume based on 67% of # of panels times 3.6 gal/panel

Tank Draw Down	4.7	*Generic Draw Down of 31 gal.per in.*
Pump Run Time	5.88	minutes
Elevation Head	10.3	ft.
Pressure Head	2	ft.
Friction Factor	1.78	ft./100 ft. *(From the interpolater.)*
Friction Head	3.56	ft.
Total Dynamic Head (+15%)	18.24	ft.

FRICTION FACTOR INTERPOLATER
2" SCH 40 PVC

GPM	*f*
20	0.84
	-0.88
25	1.27
	-1.28
30	1.78
	-1.76
35	2.37
	-2.25
40	3.03
43.07	3.48
45	3.77
48.14	4.28
50	4.58
57.11	5.89
60	6.42

DEPARTMENT OF ENVIRONMENT
AND NATURAL RESOURCES
DIVISION OF ENVIRONMENTAL HEALTH

SOIL/SITE EVALUATION

(Continuation Sheet)

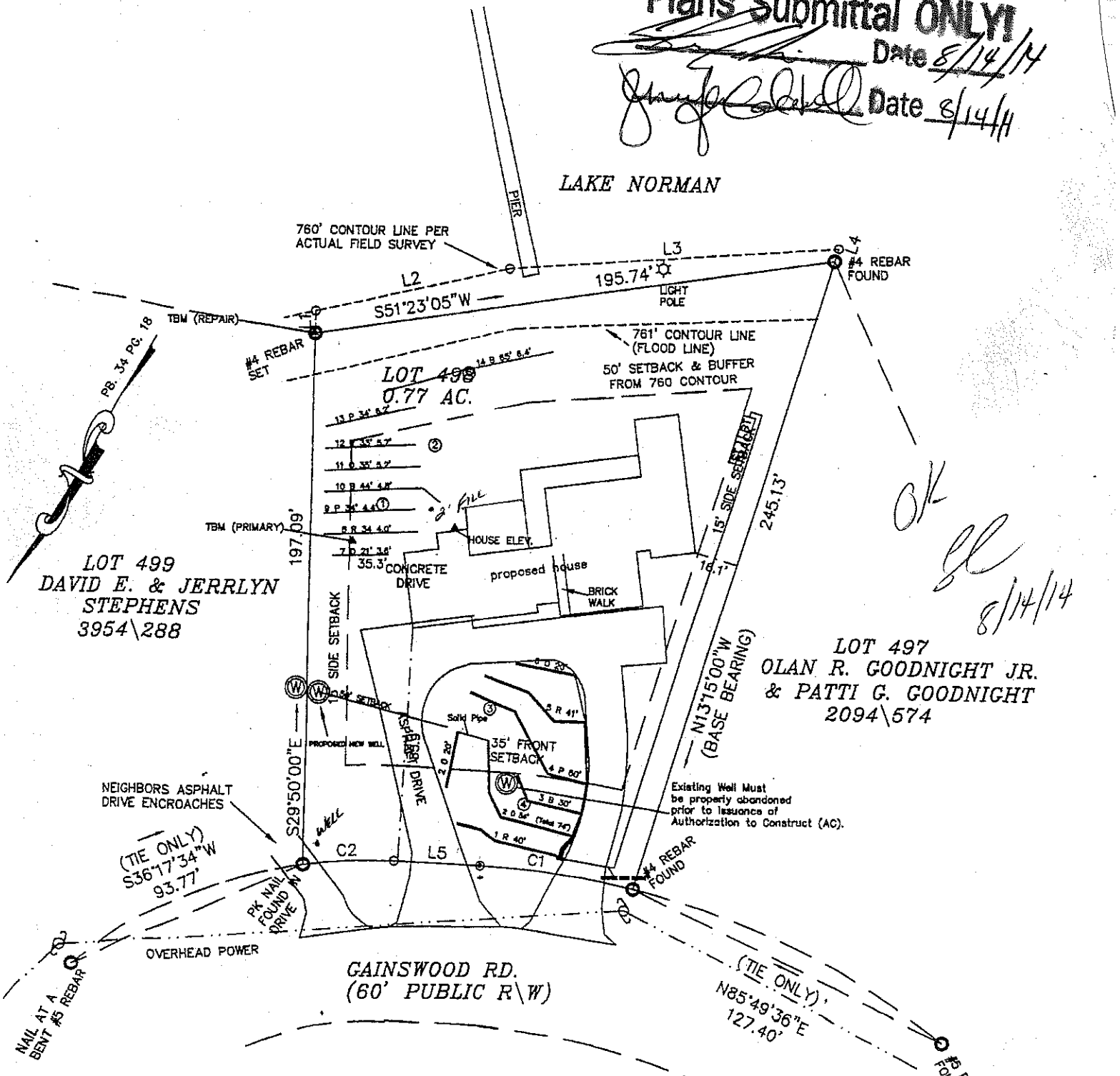
APPROVED FEB 25 2015

PROPERTY ID #: 4624453374
DATE OF EVALUATION: July 2014
COUNTY: Iredell

PROFILE #	.1940 LANDSCAPE POSITION/ SLOPE %	HORIZON DEPTH (IN.)	SOIL MORPHOLOGY (.1941) .1941 STRUCTURE/ TEXTURE	SOIL MORPHOLOGY (.1941) .1941 CONSISTENCE/ MINERALOGY	OTHER PROFILE FACTORS .1942 SOIL WETNESS/ COLOR	OTHER PROFILE FACTORS .1943 SOIL DEPTH	OTHER PROFILE FACTORS .1956 SAPRO CLASS	OTHER PROFILE FACTORS .1944 RESTR HORIZ	PROFILE CLASS & LTAR
B6	4/3%	0-12	BR C-Cl wfsbk	Fr SS SP		48"			PS .3 OK SL
		12-35	RC mmsbk	Fr SS SP					
		35-48	RC wmsbk	Fr SS SP-f sap					
P7	4/2%	0-14	BCl wmsbk	Fr SS SP	Slightly Compacted 0-6"	48"			PS .3 OK SL
		14-24	BRC wmsbk	Fr SS SP					
		24-48	RBC wmsbk	Fr SS SP					

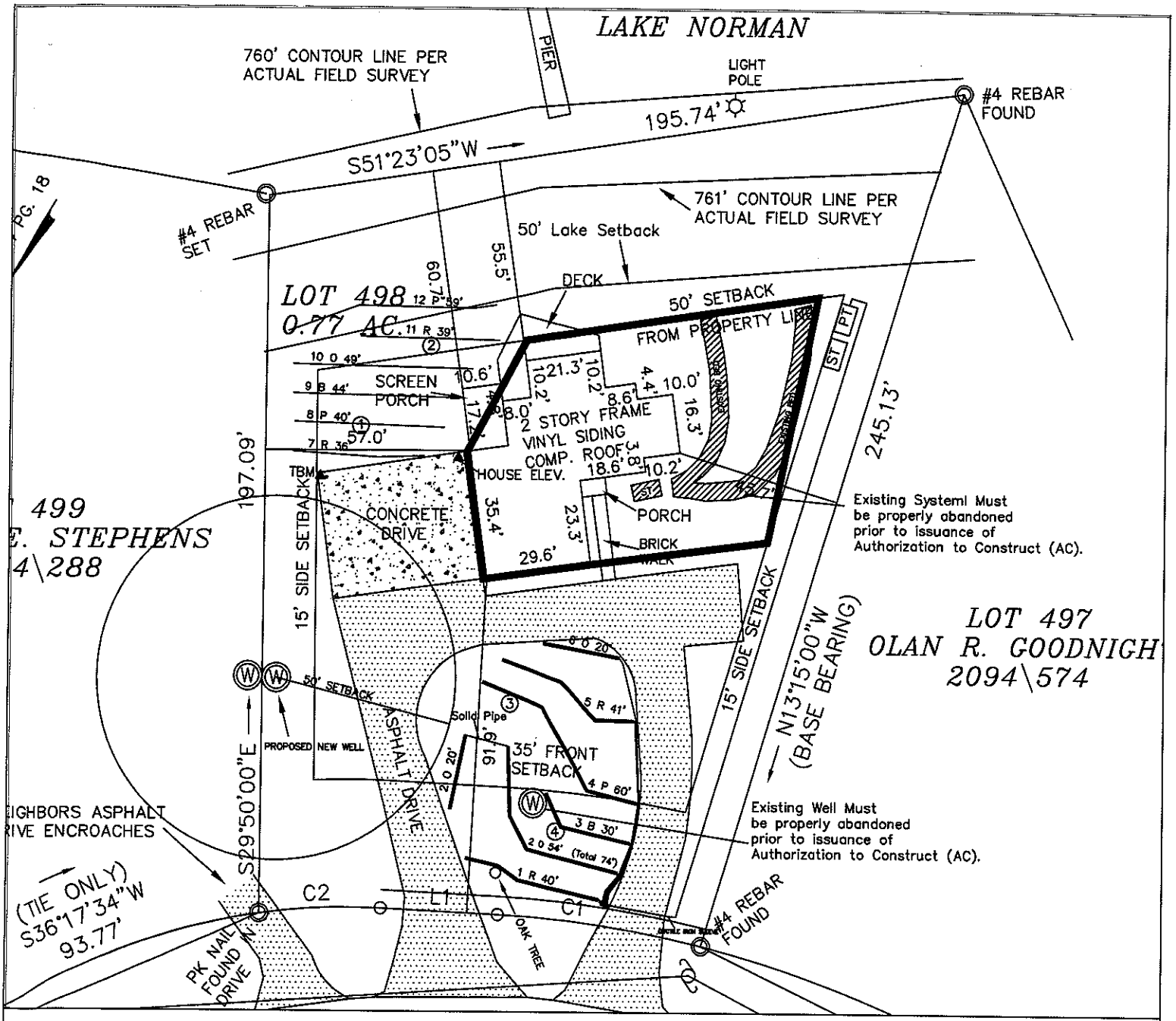
COMMENTS:

Acknowledgement Of
Plans Submittal ONLY!
Date 8/14/14
Date 8/14/14



CURVE TABLE				
CURVE	RADIUS	LENGTH	BEARING	CHORD
C1	304.45'	57.94'	N 68°16'13" E	57.85'
C2	175.10'	33.93'	N 57°17'52" E	33.88'

0' 25' 50' 100'
SCALE IN FEET



LEGEND

- Existing Septic System.
- Building Envelope.
- System lines.
- Repair lines.
- Temporary Bench Mark (TBM) or House Elev.
- (W) Well Location.
- (25) Boring Location.

Approved ICHD
8-7-12
mm

GRAPHIC SCALE
1" = 40'

40 0 40 80

FOR PRELIMINARY PLANNING PURPOSES ONLY. ALL LOTS WILL REQUIRE FINAL APPROVAL BY THE COUNTY HEALTH DEPARTMENT ON A LOT BY LOT BASIS. THIS MAP SHOULD BY USED AS A GENERAL GUIDE, SOME ADJUSTMENTS WILL BE NECESSARY IN THE FIELD DUE TO SOIL VARIABILITY AND COMPLEX TOPOGRAPHIC FEATURES. THIS MAP ONLY REFLECTS EXISTING SOIL SUITABILITY FOR ON-SITE SEPTIC TANK SYSTEMS.

PLEASE REFER TO ATTACHED SOIL REPORT FOR ADDITIONAL SITE SPECIFIC INFORMATION

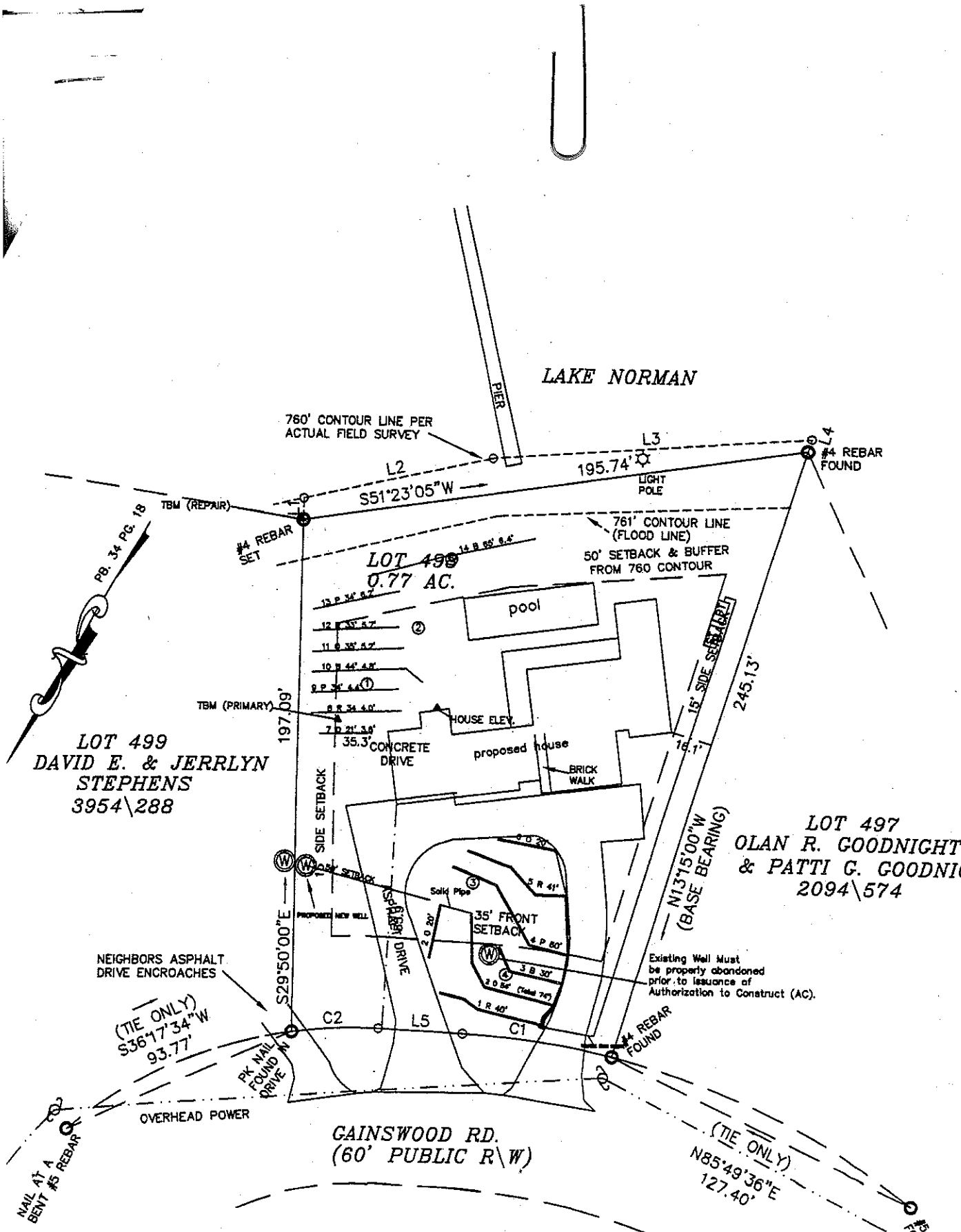
ROLLANS SOIL & ENVIRONMENTAL SERVICES, PA
P.O. BOX 832
MOORESVILLE, NC 28115
PHONE/FAX: (704) 278-0989
ASHLEY ROLLANS, NC LICENSED SOIL SCIENTIST
MOBILE: (704) 746-5046
EMAIL: rollans.ashley@yahoo.com

MAP TITLE: SITE PLAN & DRAINFIELD AREAS

PROJECT NAME: CUFF FISCUS / 235 GAINSWOOD ROAD

LOCATION/DATE: 235 GAINSWOOD ROAD IREDELL COUNTY, NORTH CAROLINA JULY 2012

JOB # : 01-1720
FILE: C:\JOBS\01-1720
PROJECT MGR.: S.A.R.
FIELD WORK: S.A.R.
DRAWN BY: S.A.R.



CURVE TABLE				
CURVE	RADIUS	LENGTH	BEARING	CHORD
C1	304.45'	57.94'	N 68°16'13" E	57.85'
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0' 25' 50' 100'

SCALE IN FEET

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

Sheet ___ of ___
PROPERTY ID #:
COUNTY: Iredell

SOIL/SITE EVALUATION
for ON-SITE WASTEWATER SYSTEM

OWNER: Clifford & Jennifer Fiscus
ADDRESS:
PROPOSED FACILITY: 4BR
PROPOSED DESIGN FLOW (.1949): 480gpd
LOCATION OF SITE: 235 Gainswood
APPLICATION DATE
DATE EVALUATED: 7/31/12
PROPERTY SIZE: ±0.77
PROPERTY RECORDED:
WATER SUPPLY: ☑ Private ☐ Public ☑ Well ☐ Spring ☐ Other
EVALUATION METHOD: ☑ Auger Boring ☐ Pit ☐ Cut
TYPE OF WASTEWATER: ☑ Sewage ☐ Industrial Process ☐ Mixed

PROFILE #	.1940 LANDSCAPE POSITION/ SLOPE %	HORIZON DEPTH (IN.)	SOIL MORPHOLOGY (.1941) .1941 STRUCTURE/ TEXTURE	SOIL MORPHOLOGY (.1941) .1941 CONSISTENCE/ MINERALOGY	OTHER PROFILE FACTORS .1942 SOIL WETNESS/ COLOR	OTHER PROFILE FACTORS .1943 SOIL DEPTH	OTHER PROFILE FACTORS .1956 SAPRO CLASS	OTHER PROFILE FACTORS .1944 RESTR HORIZ	PROFILE CLASS & LTAR
1	L/3%	0-3	B cl wmsbk	FrSSSPSExp		48	—	—	PS
		3-33	RBC wmsbk	FrSSSPSExP					0.3
		33-48	RC wmsbk	FrSSSPSExP	-fsap				
2	L/3%	0-4	BCl wmsbk	FrSSSPSExp		48	—	—	PS
		4-28	RBC wmsbk	FrSSSPSExP	-fsap				0.3
		28-48	RC wfsbk	FrSSSPSExP	-csap				
3	L/5%	0-4	BRCl wfsbk	FrSSSPSExP		48	—	—	PS
		4-36	RC mmsbk	FrSSSPSExP	-fsap				0.3
		36-48	RYCl wfsbk	FrSSSPSExP	-csap				
4	L/3%	0-15	BCl wfsbkgr	FrSSSPSExP		48	—	—	PS
		15-36	RBC mmsbk	FrSSSPSExP					0.3
		36-48	RC wfsbk	FrSSSPSExP	-fsap.				

DESCRIPTION	INITIAL SYSTEM	REPAIR SYSTEM
Available Space (.1945)	PS	PS
System Type(s)	PPBPS	PPBPS
Site LTAR	0.3	0.3

OTHER FACTORS (.1946):
SITE CLASSIFICATION (.1948): PS
EVALUATED BY: Samuel A. Rollans, LSS
OTHER(S) PRESENT:
Approved ICHD 8-7-12 gm

COMMENTS:

SEE INSTRUCTIONS ON BACK

Date Received 6/4/80

ICAR (S) Application No. 16938

T C No. 001-353-10

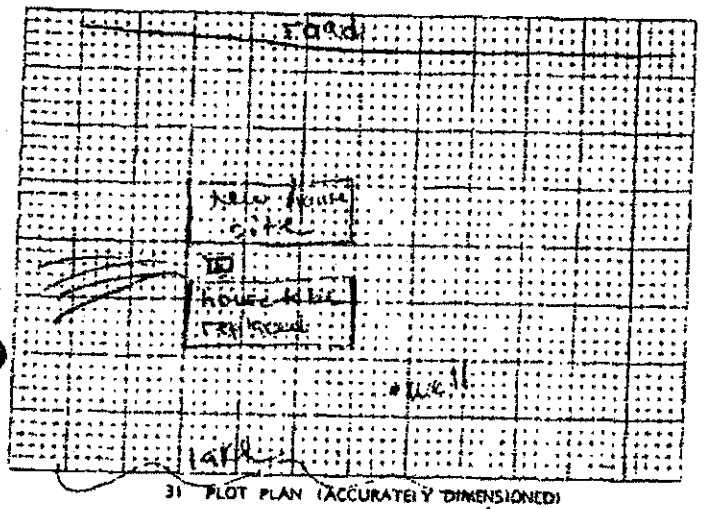
Map Date ___

MECKLENBURG COUNTY
DEPARTMENT OF ENVIRONMENTAL HEALTH

Application for an
Installation, Construction, Alteration, and/or Repair Permit
(Individual Septic Tank System with Subsurface, Soil Absorption, Effluent Discharge)

The owner of that property described hereinafter hereby applies to the Mecklenburg County Department of Environmental Health for a permit to: Hook Sewer

1) Install or Construct 2) Alter or Repair an individual septic tank wastewater treatment system with a subsurface, soil absorption, effluent discharge.



3) PLOT PLAN (ACCURATELY DIMENSIONED)

Mobile Home ___ Yes ___ No
Residence ... Yes ... No
4) No of Bedrooms 3
5) Business Use – Max No Employees N/A
6) Washing Machine Yes ___ No
7) Garbage Disposal ___ Yes ✓ No
8) Dishwasher ✓ Yes ___ No
9) Water Supply
A) Individual Well ✓
B) Governmental System ___
C) Community System
1. Well source ___
2. Governmental source ___
10) Sewage System
House located within 200 feet of public sewer ... Yes ___ ✓ No
House located within 200 feet of community sewer ___ Yes ✓ No
11) FHA Case No ___
12) VA Case No ___

13) NAME OF OWNER Stephens, Emory D.
(LAST, FIRST, MIDDLE)

14) ADDRESS OF OWNER 1618 Medford Dr., Char. 28205

15) PHONE NO. Home 537-3886 Office ___

16) LOCATION OF SYSTEM Gaineswood Dr.
(STREET OR COUNTY ROAD)

17) SUBDIVISION Lake Norman Lot No 498 Block No. Sect 6

Map Book No ___ Page No. ___

18) DEED REFERENCE — DEED BOOK ___ AT PAGE ___

19) HAS A SOIL INVESTIGATION BEEN RUN? ... YES ... NO DATE RUN ___

20) PTR NUMBER (See Instructions) ___

The undersigned person hereby agrees that he has read the foregoing application and that the contents of same are true. It is understood that any permit applied for herein shall be void and of no effect if any of the above facts are not true.

6-4-80
DATE OF APPLICATION

Emory D. Stephens
OWNER

EHD-5-76

ENVIRONMENTAL HEALTH DEPARTMENT'S COPY

462 44 55 414 L499 229 Gainswood Dr.

Serial No. 4163

LA No. 16938

Date Issued June 4, 1980

T C. No 001-353-10

Map Date

MECKLENBURG COUNTY
DEPARTMENT OF ENVIRONMENTAL HEALTH

TO THE BUILDING INSPECTION DEPARTMENT

APPROVAL OF LOT FOR INSTALLATION OF AN INDIVIDUAL SEPTIC TANK WITH SUBSURFACE, SOIL ABSORPTION, EFFLUENT DISCHARGE

NAME OF OWNER Stephens, (LAST) Emory (FIRST) D. (MIDDLE)

ADDRESS OF OWNER 1618 Medford Drive, Charlotte, NC 28205

LOCATION OF LOT Gainswood Drive (STREET OR COUNTY ROAD)

SUBDIVISION Lake Norman LOT NO #499 BLOCK NO. Sect. 6

MAP BOOK NO. PAGE NO.

The above specified lot is approved by the Mecklenburg County Department of Environmental Health for the installation of an individual septic tank system with subsurface, soil absorption, effluent discharge based on the soil investigation, on an on-site inspection of the said lot; and upon the information supplied in the "Application for an Installation, Construction, Alteration, and/or Repair Permit", number 16938 This approval is subject to the following terms and conditions:

1. That the nitrification field be installed, constructed, altered and/or repaired in the same area where the soil investigation was run.
2. That an "Installation, Construction, Alteration, and/or Repair Permit" be issued and in full force and effect when the system is installed, constructed, altred, and/or repaired and that the system be installed in accordance with same

This approval may be revoked and the building inspection department requested to revoke any building permit(s) which have been issued to authorize construction on the said lot if at any time it is determined that any information contained in the "Application for an Installation, Construction, Alteration, and/or Repair Permit" is not correct or is untrue or that the septic-tank system is not being installed, constructed, altered and/or repaired in accordance with a valid Installation, Construction, Alteration, and/or Repair Permit.

*****USE THE EXISTING SYSTEM****ADDING WASHER DRAINFIELD*****

Mike Sexton
Environmentalist

John B Atkinson
Environmental Health Director, or Authorized Section Head

EHD-S-76

Environmental Health Department's Copy