

4785 BIRCHHOLLOW DR

10515354

1/2/2008

duponbj

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

CERTIFICATE OF COMPLETION/OPERATION PERMIT

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

FILE: 2946B DATE: 6-16-00

TC: 105-153-54 ☑ L ☐ CRT

SERIAL Nº 18385

Name of Owner BRIAN A. TAPASTO ~~ADOLPHUS DELPHI~~ Juris.:

Address of Property 4785 BIRCH HOLLOW DRIVE

Inspection Data:

Tank Material PCC 1500

Total Length of Drainfield 400

Number of Lines 5 @ 80'

Cover Depth 12" SOIL

Water Supply Source MUNICIPAL

Distance to Water Source >10'

Excavation Inspected 4-17-00 4BT.

Tank(s) Inspected 4-17-00 1 TANK

Wash Line Inspected

High Water Alarm Inspected 7/27/00

PLOT

* SEE INSTALLATION

Design 1500 ST 1000 DT 1600 SFT 12G CONV CTR# LARRY JUCKER

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 15A 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 15A 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: ① 4-17-00 HOLD FOR ALARM, WATER TEST/PUMP, LEVEL OF P-BOX

7/27/00 ALL OF ABOVE CHECKED. AA

Environmental Health Specialist

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

INSTALLATION, CONSTRUCTION, ALTERATION, AND/OR REPAIR APPROVAL

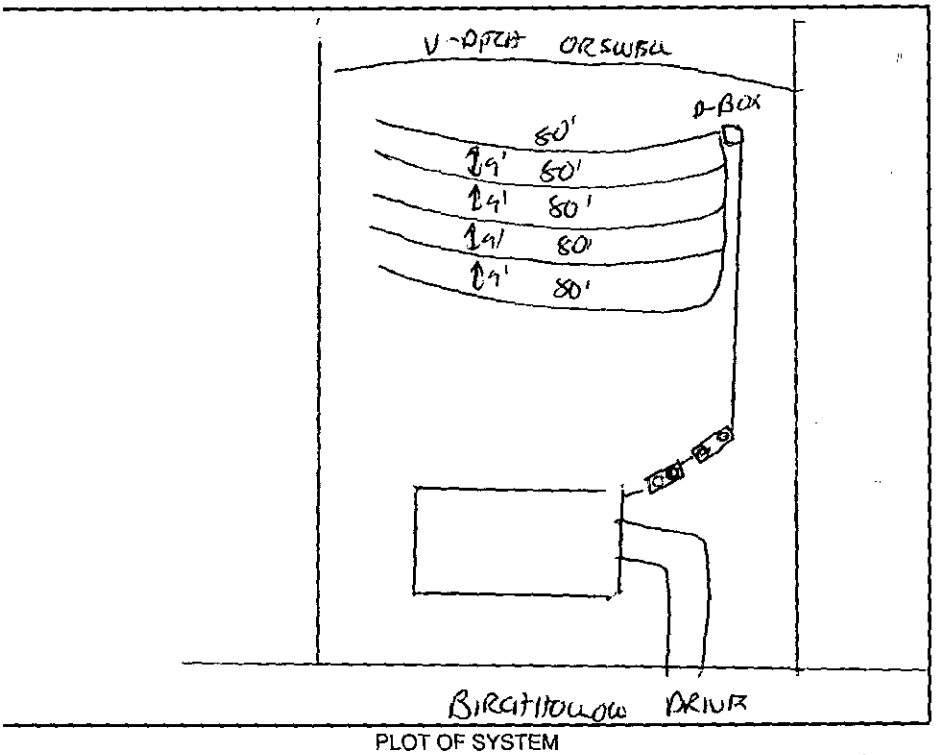
HEALTH DEPARTMENT
ENVIRONMENTAL HEALTH DIVISION
700 NORTH TRYON ST., SUITE 211
CHARLOTTE, NC 28202
PHONE (704) 336-5102

FILE: 2946B1 DATE: 6-9-00

TC: 105-153-54 ☐ L

SERIAL Nº 18423

Permission is hereby given to _____ (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 4-26-99. All work shall be completed on or before _____, after which date this permit shall be null and void. The system shall meet all of the construction requirements of 15A 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.



PLOT OF SYSTEM

Liquid Capacity of Septic Tank 1500 gallons

Liquid Capacity of Dosing Tank 1000 gallons

Tank Construction Vcc

Trench Depth 30"

Absorption and/or Nitrification Lines:

Trench Width 3 feet

Trench Walls Scored and Porous yes

Total Line Length 400 feet

Number of Lines 5

Depth of Stone 12" inches

Distance from House 5' feet

Distance from Property Line 10' feet

Distance from Well ≥100' feet

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

NAME OF OWNER ADOLPHUS DELPHI

LOCATION OF PROPERTY 4785 BIRCH HOLLOW DRIVE

Comments: (1) INSTALL GATE VALVE ON SUPPLY LINE

Environmental Health Specialist

WHITE - HEALTH DEPARTMENT's COPY • CANARY - E.H.S. COPY • PINK - OWNER OR AGENT's COPY

CK# 920

FEE: 300 AUTHORIZATION FOR WASTEWATER SYSTEM CONSTRUCTION
DATE: 11/2/95 VOID SIXTY (60) MONTHS FROM DATE OF ISSUANCE

DATE: 6-2-99

PERMIT NO: 2946B
PARCEL NO: 105-153-54

JOB LOCATION ADDRESS: 4785 BIRCHHOLLOW DRIVE
PROPERTY OWNER: WILLIAM P. STARNES
BUILDING CONTRACTOR:
SUBDIVISION NAME: PRESTON FOREST LOT 18
AUTHORIZATION ISSUED BY: [signature] DATE: 6/2/99
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: _____

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.

[signature] 6/4/99
SIGNATURE OF OWNER/OWNER'S REPRESENTATIVE DATE

CONDITIONS OF IMPROVEMENT PERMIT

Permit Number: 2946B

Tax Number: 105-153-54

- 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	X No	___ Partial Basement
Type Primary Wastewater System Type (circle one): I II (III) IV V VI	X 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

13 Long-term acceptance rate	360 Max gallons/day wastewater flow	1200 Absorption Area (sq ft)	9' Trench spacing (min. on centers)
NO Serviced by private well	1500 Gallon septic tank	400 Total trench length (ft)	30' 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	12' Depth of stone	

Any surface waters present: Type: Minimum separation distance:

Site modifications required:

Additional Conditions: SEE PLOT PLAN

Repair Area System Type Type (circle one): I II (III) IV V VI	X 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

1333 Absorption Area (Sq ft) 444 Total Trench Length (Ft)	12" Depth of Stone Trench	9' Trench spacing (min. on centers)	30' 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.

DEHNR Authorized Agent — Date 5/2/99

Owner/Agent Signature — Date 6/4/99

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

TUESDAY
10:00
CARRI TUCKER

FEE: 200.00 CK# 4201 DATE: 4/27/99 GC

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

COPY

FILE #: 2946

PROPERTY INFORMATION (FROM ENGINEERING FORM) FOR JOB LOCATION:

TAX/PARCEL NUMBER: 105-153-54

STREET ADDRESS: 4785 Birchhollow

SUBDIVISION OR MOBILE HOME PARK NAME: Preston Forest

LOT NUMBER: 18

TYPE OF BUILDING (CHECK ONE):

__ SINGLE MOBILE HOME(S)
__ DOUBLE WIDE (D)
✓ HOUSE (H)
__ MODULAR HOME (M)
__ MULTIPLE FAMILY (U)
__ OTHER (O)

TOWNSHIP (CHECK ONE):

0 0 MECKLENBURG
__ 1 CHARLOTTE
__ 2 DAVIDSON
__ 3 CORNELIUS
__ 4 PINEVILLE
__ 5 MATTHEWS
__ 6 HUNTERSVILLE
__ 7 MINT HILL

HEATED SQUARE FOOTAGE: 3000

NUMBER OF BEDROOMS: 4 NUMBER OF OCCUPANTS: 4

CLOSING DATE 4/30/99

FOUNDATION FOR RESIDENCE:

__ WITHOUT BASEMENT
__ ON SLAB
✓ CRAWL SPACE
__ WITH BASEMENT /PLUMBING
__ WITH BASEMENT /NO PLUMBING

IF EXPANSION/ALTERATION OF EXISTING SYSTEM, DESCRIBE THE PROPOSED BUILDING ADDITION:

WILL THERE BE A HOME BUSINESS IN THE RESIDENCE: __ YES ✓ NO TYPE: _____

WATER SUPPLY (CHECK ONE):
__ COMMUNITY (C)
__ SHARED WELL (S)
M MUNICIPAL (M)
__ OTHER 'SPRINGS' (O)
__ PRIVATE WELL (P)

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

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

PROPERTY OWNER:

NAME: (LAST) STARNES (FIRST) William (MI) P.

ADDRESS: 3925 Bellingham Ln

CITY: Charlotte STATE: N.C ZIP: 28215

DAYTIME PHONE: ( ) -561-5380

LEGAL AGENT FOR PROPERTY OWNER, IF APPLICABLE:

NAME: (LAST) (FIRST) (MI)

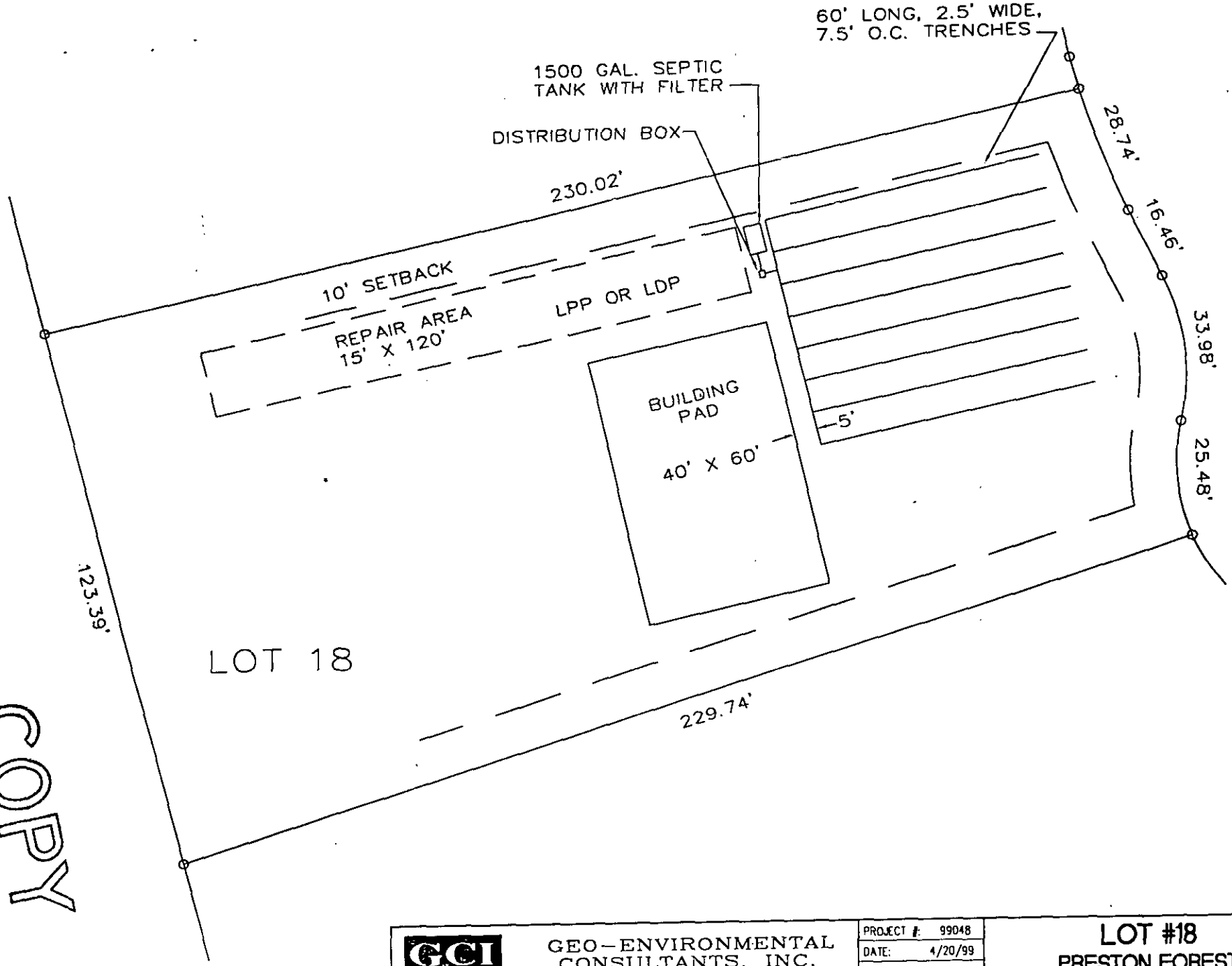
DAYTIME PHONE: ( ) -

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: Doug Starnes DATE: 4/24/99

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



COPY

105-153-55 file # 2960

P:\PROJ\99048\LOT_18_A.DWG

GCI

GEO-ENVIRONMENTAL CONSULTANTS, INC.

GEOTECHNICAL/ENVIRONMENTAL ENGINEERS & SCIENTISTS

11704 REAMES ROAD, CHARLOTTE, NC 28269-7637
PHONE (704)596-8788 FAX (704)596-8770

PROJECT #:	99048
DATE:	4/20/99
PROJECT MGR:	K.A.A.
DESIGN BY:	K.A.A.
DRAWN BY:	M.E.G.
SCALE:	NOT TO SCALE

LOT #18
PRESTON FOREST
CHARLOTTE, NORTH CAROLINA

LARGE DIAMETER PIPE SYSTEM

FIGURE 2

FEE: 200.00 Ck # 2201
DATE: 4/27/99 GC

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 #: 2946

PROPERTY INFORMATION (FROM ENGINEERING FORM) FOR JOB LOCATION:

TAX/PARCEL NUMBER: 105-153-54

STREET ADDRESS: 4785 Birchhollow

SUBDIVISION OR MOBILE HOME PARK NAME: Preston Forest

LOT NUMBER: 18

TYPE OF BUILDING (CHECK ONE):

__ SINGLE MOBILE HOME(S)
__ DOUBLE WIDE (D)
✓ HOUSE (H)
__ MODULAR HOME (M)
__ MULTIPLE FAMILY (U)
__ OTHER (O)

TOWNSHIP (CHECK ONE):

O 0 MECKLENBURG
__ 1 CHARLOTTE
__ 2 DAVIDSON
__ 3 CORNELIUS
__ 4 PINEVILLE
__ 5 MATTHEWS
__ 6 HUNTERSVILLE
__ 7 MINT HILL

HEATED SQUARE FOOTAGE: 3000

NUMBER OF BEDROOMS: 4 NUMBER OF OCCUPANTS: 4

CLOSING DATE 4/30/99

FOUNDATION FOR RESIDENCE:

__ WITHOUT BASEMENT
__ ON SLAB
✓ CRAWL SPACE
__ WITH BASEMENT /PLUMBING
__ WITH BASEMENT /NO PLUMBING

IF EXPANSION/ALTERATION OF EXISTING SYSTEM, DESCRIBE THE PROPOSED BUILDING ADDITION:

WILL THERE BE A HOME BUSINESS IN THE RESIDENCE: __ YES ✓ NO TYPE: _____

WATER SUPPLY (CHECK ONE):

__ COMMUNITY (C)
__ SHARED WELL (S)
M MUNICIPAL (M)
__ OTHER 'SPRINGS' (O)
__ PRIVATE WELL (P)

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

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

PROPERTY OWNER:	LEGAL AGENT FOR PROPERTY OWNER, IF APPLICABLE:
NAME: (LAST) Starnes (FIRST) William (MI) P.	NAME: (LAST) (FIRST) (MI)
ADDRESS: 3926 Bellingham Ln	DAYTIME PHONE: ( ) --
CITY: Charlotte STATE: N.C ZIP: 28215	
DAYTIME PHONE: ( ) -561-5380	

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: Doug Starnes DATE: 4/26/99

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

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

(400) #2

Sheet: _____
Property ID: 105-153-54
Lot #: 16
File #: 2946B

SOIL/SITE EVALUATION
for ON-SITE WASTEWATER SYSTEM

OWNER: William D. Stuner APPLICANT: _____
ADDRESS: 3925 Bellingham Lane, Charlotte DATE EVALUATED: 4-24-99
PROPOSED FACILITY: residence PROPOSED DESIGN FLOW (.1949) 400gpd PROPERTY SIZE: .6
LOCATION OF SITE: 4765 Birch Hollow Dr PROPERTY RECORDED: _____
WATER SUPPLY: ☐Private ☑Public ☐Well ☐Spring ☐Other _____
EVALUATION METHOD: ☐Augur Boring ☑Pit ☐Cut
TYPE OF WASTEWATER: ☑Sewage ☐Industrial Process ☐Mixed

PROFILE #	Slopes 5-15% .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	LS	0-11"	gr/l	Fr/SE XPl NS/WP	746" TO SOIL wetness	46"	N/A	None	PS .391 Fz III
		11-45"	SBK/SC	F:/SEXPl SlP					
2	LS	0-4"	gr/cl	Fr/SE XPl SS/SP	744" TO SOIL wetness	44"	N/A	None	PS .391 Fz IV
		4-44"	ABK SBK/C	F:/SEXPl SlP					
3	LS	0-4"	gr/cl	Fr/SEXPl SS/SP	737" TO SOIL wetness	37"	N/A	None	PS .2159 II
		4-39"	SBK/C	F:/SEXPl SlP					
4	LS	0-4"	gr/sl	Fr/SE XPl NS/WP	739" TO SOIL wetness	39"	N/A	None	PS .2759 Fz II
		4-39"	ABK SBK/C	F:/SEXPl SlP					

DESCRIPTION	INITIAL SYSTEM	REPAIR SYSTEM
Available Space (.1945)	~~Trench~~ PS	LS
System Type(s)		
Site LTAR		

OTHER FACTORS (.1946): _____
SITE CLASSIFICATION (.1948): Unsuitable
EVALUATED BY: W.R. Marlin LSS 5-24-99
OTHER(S) PRESENT: _____

FILE # 2946B

COMMENTS

No Report

LANDSCAPE POSITION	GROUP	TEXTURE	.1955 LTAR
R-RIDGE	I	S-SAND	1.2-0.8
S-SHOULDER SLOPE		LS-LOAMY SAND	
L-LINEAR SLOPE			
FS-FOOT SLOPE	II	SL-SANDY LOAM	0.8-0.6
N-NOSE SLOPE		L-LOAM	
H-HEAD SLOPE			
CC-CONCLAVE SLOPE	III	SI-SILT	0.6-0.3
CV-CONVEX SLOPE		SICL-SILTY CLAY LOAM	
T-TERRACE		CL-CLAY LOAM	
FP-FLOOD PLAIN		SCL-SANDY CLAY LOAM	
	IV	SC-SANDY CLAY	0.4-0.1
		SIC-SILTY CLAY	
		O-ORGANIC	

CONSISTENCE	
MOIST	WET
VFR-VERY FRIABLE	NS-NON-STICKY
FR-FRIABLE	SS-SLIGHTLYSTICKY
FI-FIRM	S-STICKY
VFI-VERY FIRM	VS-VERY STICKY
EFI-EXTREMELY FIRM	NP-NON-PLASTIC
	SP-SLIGHTLYSTICKY
	P-PLASTIC
	VP-VERY PLASTIC

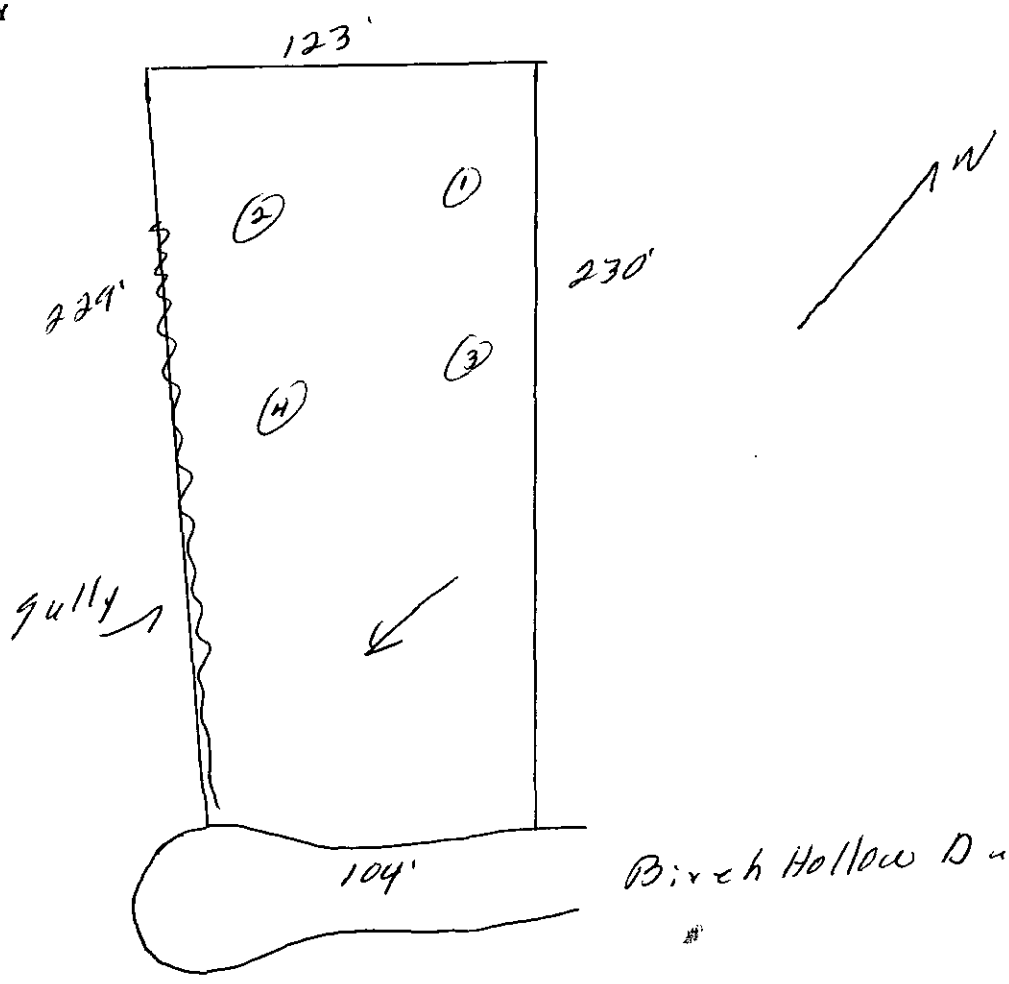
STRUCTURE

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

MINERALOGY

SLIGHTLY EXPANSIVE

EXPANSIVE



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

#2

Sheet: _____
Property ID: 105-153-54
Lot #: 16
File #: 2946B

SOIL/SITE EVALUATION
for ON-SITE WASTEWATER SYSTEM

OWNER: William D. Stevens APPLICANT: _____
ADDRESS: 3925 Bellingham Lane, Charlotte DATE EVALUATED: 4-24-94
PROPOSED FACILITY: residence PROPOSED DESIGN FLOW (.1949) 480 gpd PROPERTY SIZE: .6
LOCATION OF SITE: 4765 Birch Hollow Dr PROPERTY RECORDED: _____
WATER SUPPLY: ☐Private ☑Public ☐Well ☐Spring ☐Other _____
EVALUATION METHOD: ☐Augur Boring ~~☐Pit~~ ☐Cut
TYPE OF WASTEWATER: ☑Sewage ☐Industrial Process ☐Mixed

PROFILE #	Slopes 5-15% .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	LS	0-11"	gr/l	Fr/SE XPl NS/NP	746" TO soil wetness	46"	N/A	None	PS .391 Fa III
		11-45"	SBK/SC	F:/SE XPl SlP					
2	LS	0-4"	gr/cl	Fr/SE XPl SS/SP	744" TO soil wetness	44"	N/A	None	PS .391 Fa IV
		4-44"	ABK SBK/C	F:/SE XPl SlP					
3	LS	0-4"	gr/cl	F:/SE XPl SS/SP	739" TO soil wetness	39"	N/A	None	PS .2159 IV
		4-39"	SBK/C	F:/SE XPl SlP					
4	LS	0-4"	gr/sl	Fr/SE XPl NS/NP	739" TO soil wetness	39"	N/A	None	PS .2159 IV
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DESCRIPTION	INITIAL SYSTEM	REPAIR SYSTEM
Available Space (.1945)	~~US~~ PS	US
System Type(s)		
Site LTAR		

OTHER FACTORS (.1946): _____
SITE CLASSIFICATION (.1948): Unsuitable
EVALUATED BY: W.R. Marlin LSS 5-24-94
OTHER(S) PRESENT: _____

FILE # 2946B

COMMENTS 100 % Aspen

LANDSCAPE POSITION	GROUP	TEXTURE	.1955 LTAR
R-RIDGE	I	S-SAND	1.2-0.8
S-SHOULDER SLOPE		LS-LOAMY SAND	
L-LINEAR SLOPE			
FS-FOOT SLOPE	II	SL-SANDY LOAM	0.8-0.6
N-NOSE SLOPE		L-LOAM	
H-HEAD SLOPE			
CC-CONCLAVE SLOPE	III	SI-SILT	0.6-0.3
CV-CONVEX SLOPE		SICL-SILTY CLAY LOAM	
T-TERRACE		CL-CLAY LOAM	
FP-FLOOD PLAIN		SCL-SANDY CLAY LOAM	
	IV	SC-SANDY CLAY	0.4-0.1
		SIC-SILTY CLAY	
		O-ORGANIC	

CONSISTENCE	
MOIST	WET
VFR-VERY FRIABLE	NS-NON-STICKY
FR-FRIABLE	SS-SLIGHTLYSTICKY
FI-FIRM	S-STICKY
VFI-VERY FIRM	VS-VERY STICKY
EFI-EXTREMELY FIRM	NP-NON-PLASTIC
	SP-SLIGHTLYSTICKY
	P-PLASTIC
	VP-VERY PLASTIC

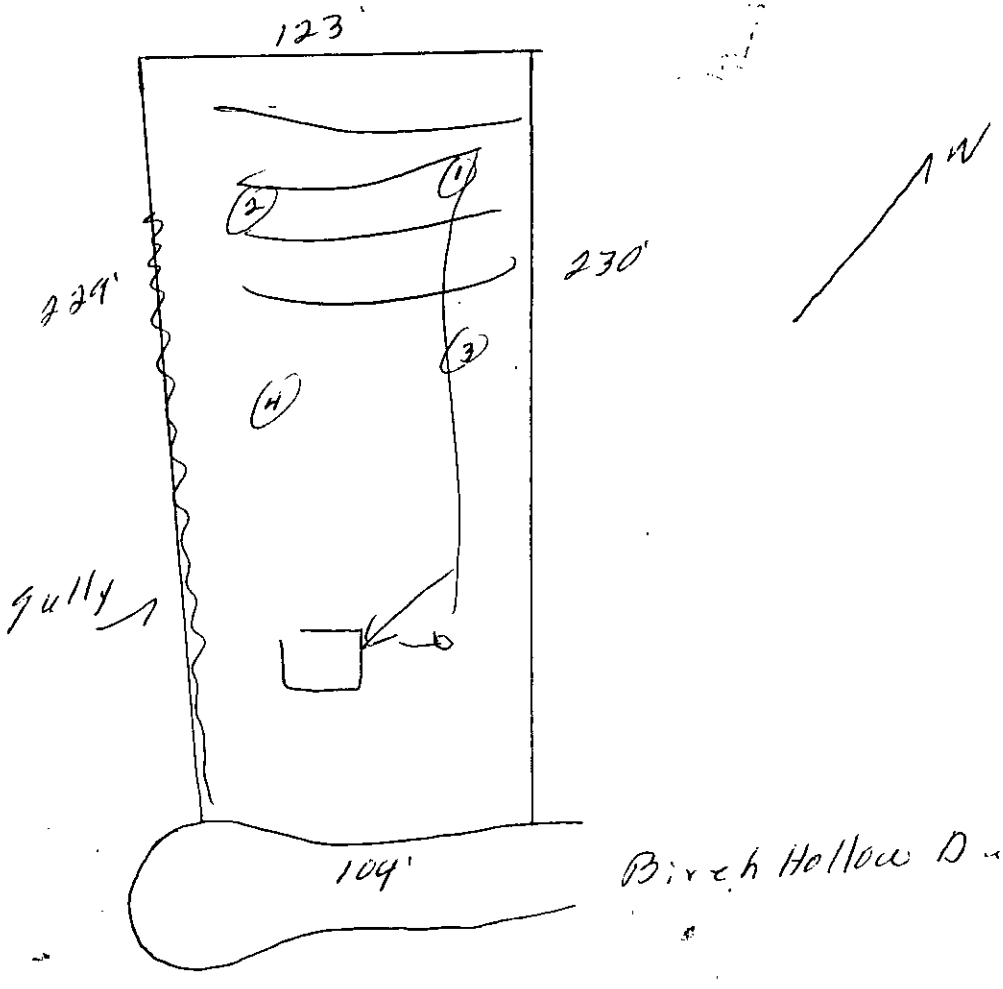
STRUCTURE

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

MINERALOGY

SLIGHTLY EXPANSIVE

EXPANSIVE



Mecklenburg County
Health Department

July 6, 2000

Brian A. Tapasto
656 Emerald Cove Drive
Charlotte, NC 28262

Re: 4785 Birch Hollow Drive
File: 4785B
Parcel: 105-153-54

Dear Mr. Tapasto:

At your request an inspection was made at the above referenced property to facilitate the issuance of an Operation Permit for the Sewage Treatment and Disposal System. During the inspection it was found that the following items did not meet the regulations set forth in the "Laws and Rules for Sewage Treatment and Disposal Systems, 15A NCAC 18A .1900; .1952 Septic Tank, Dosing Tank and Lift Station Design." Our comments follow:

1) (6) Pump and control circuits shall be provided with manual circuit disconnects within a watertight, corrosion-resistant, outside enclosure (NEMA 4X or equivalent) adjacent to the pump tank, securely mounted at least 12 inches above the finished grade. The pump(s) shall be manually operable without requiring the use of special tools or entrance into the tank for testing purposes. Conductors shall be conveyed to the disconnect enclosure though the water proof, gas proof, and corrosion-resistant conduits, with no splices or junction boxes provided inside the tank. Wire grips, duct seal, or other suitable material shall be used to seal around wire and wire conduit openings inside the pump tank and disconnect enclosure.

2) (9) The pump tank shall have a properly functioning high-water alarm. The alarm circuit shall be supplied ahead of any pump overload and short circuit protective devices. The alarm shall be audible and visible by system users and weather proof if installed outdoors in an enclosure (NEMA 4X or equivalent).

The above mentioned items must be installed and inspected prior to the Operation Permit being issued. The Operation Permit is required for the Certificate of Occupancy and the permanent electric hook-ups. Please schedule the inspections at least five (5) working days in advance to ensure no delays in the Operation Permit issuance.

Please call me at 336-5573 to discuss any question you may have concerning this matter.

Sincerely,

J. Andrew Walker, R.S.
Individual Water and Wastewater Systems

JAW:gc

PROPOSED PLOT PLAN

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

FILE: 2946B

TC: 105-153-54

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.

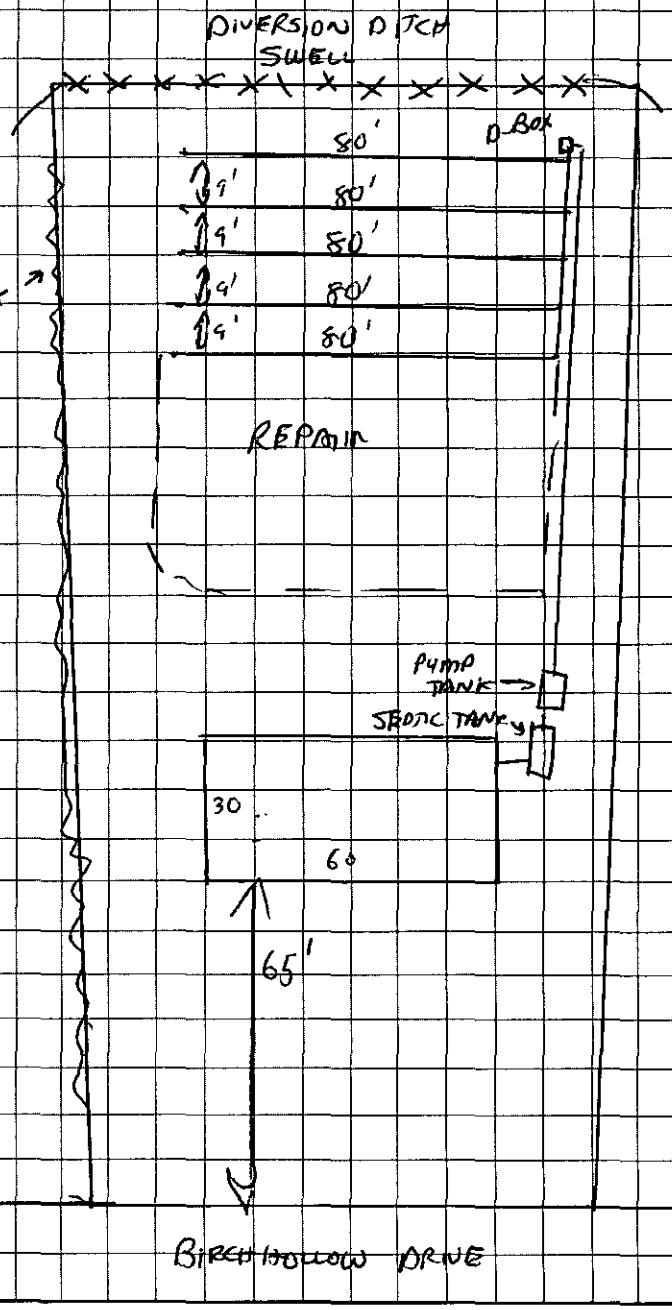
SCALE 1" = 40'

(1) INSTALL DRAINLINES SHALLOW 30" AND ON CONTOUR

(2) INSTALL DRAINLINES 15' FROM GULLY

(3) INSTALL GATE VALVE ON 2" LINE BETWEEN PUMP TANK AND D-BOX TO REGULATE FLOW TO D-BOX

(4) SYSTEM DESIGN IS FOR A 3 BEDROOM HOUSE PER DOUG STARNES. ANY CHANGES WILL VOID THIS IMPROVEMENT PERMIT!



OWNER/AGENT SIGNATURE Doug Starnes

DATE 6/4/99

APPROVAL DATE 6-2-99 ajw

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

2946B

[redacted]

GCI

GEO-ENVIRONMENTAL
CONSULTANTS, INC.

A Common Sense Approach To A Cleaner Environment

11704 Reames Road, Charlotte, NC 28269-7637 • 704-596-8788 • FAX: 704-596-8770

RESIDENTIAL LARGE DIAMETER PIPE SYSTEM
FOR
SUBSURFACE WASTEWATER DISPOSAL
LOT #18 - PRESTON FOREST
CHARLOTTE, NORTH CAROLINA

Prepared For
Mr. William D. Starnes
3925 Bellingham Lane
Charlotte, North Carolina 28215

Prepared by
Geo-Environmental Consultants, Inc.
11704 Reames Road
Charlotte, North Carolina 28269

GCI Project No. 99048

APRIL 1999

GEO-ENVIRONMENTAL
CONSULTANTS, INC.

April 22, 1999

Mr. Andrew Walker
Environmental Health Division
700 North Tryon Street, Suite 211
Charlotte, North Carolina 28202

RE: **Residential Large Diameter Pipe System**
Lot 18 - Preston Forest
Charlotte, North Carolina
GCI Project No. 99048

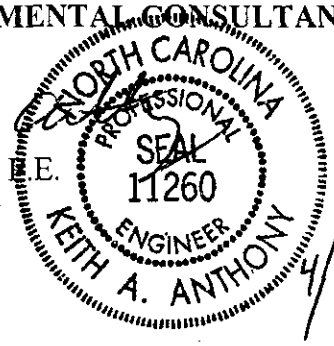
Dear Mr. Walker:

On behalf of Mr. William D. Starnes, Geo-Environmental Consultants, Inc. (GCI) is pleased to present the attached application and design package for the above project. If you have any questions concerning this submittal, please contact us at 596-8788.

Sincerely,

GEO-ENVIRONMENTAL CONSULTANTS, INC.

Keith A. Anthony, P.E.
Principal Engineer



Tracy B. Lanier
Tracy B. Lanier
Project Manager

Attachment

cc: Mr. William D. Starnes

W:\REPORTS\1999\99048\LOT18.RPT.wpd

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BACKGROUND

The property is planned for single family 4-bedroom residence.

North Carolina Licensed Soil Scientist, Mr. Kenny Owens, performed a site investigation on April 17, 1999. He classified the site as provisionally suitable with a LTAR of 0.4 gpd/ft^2. See attached Soil/Site Evaluation report.

The development is served by City of Charlotte Water Department.

The location of the nitrification field is on a relatively flat portion of the site. The area is partially wooded. Trees will need to be cut and removed, however, no stumps shall be removed. Care shall be taken to ensure minimum land disturbance. The nitrification field along with the designated repair area is shown on the attached figure. The repair area was sized for Low Pressure Pipe (LPP) or Large Diameter Pipe (LDP) systems.

APPLICATION INFORMATION

1) Application for Improvement Permit has been submitted to Mecklenburg County Health Department by the property owner, Mr. William D. Starnes.
2) Property is shown on attached portion of development survey.
3) Owner: Mr. William D. Starnes
3925 Bellingham Lane
Charlotte, NC 28215
(704) 597-7744 (Home)

Engineer: Mr. Keith A. Anthony, P.E.
Geo-Environmental Consultants, Inc.
11704 Reames Road
Charlotte, NC 29269
(704) 596-8788 (Office)
(704) 596-8770 (Fax)

4) Project described herein is a new project.
5) Water supply for development is provided by City of Charlotte.
6) Facility to be served by the proposed system is a 4-bedroom single family residence.
7) Wastewater system components are described herein.

LOCATION

The property is located on Birchollow Drive in the Preston Forest Subdivision in Charlotte, North Carolina.

REFERENCES

1) Laws and Rules for Sewage Treatment and Disposal Systems, 15A NCAC 18A, Section .1900, Department of Environment Health and Natural Resources, August 1, 1998
2) On-Site Wastewater Management Guidance Manual by: North Carolina Department of Environment and Natural Resources, Division of Environmental Health, On-Site Wastewater Section, March 1996.

SITE PREPARATION

1) One of the most important concerns for an on-site system is to protect the site from soil disturbance by heavy equipment.
2) As soon as the absorption area has been designed, it should be flagged, roped off and "quarantined" from construction traffic. No site preparation or on-site construction work should occur if the soil is wet.
3) After the location is staked out and the soil is dry enough the site should be cleared of brush and small trees. If larger trees are removed, they should be cut off rather than uprooted in order to avoid creating depressions and damaging the soil-pore network.
4) Provisions must be made for intercepting or diverting surface water away from the absorption area.
5) After the area has been cleared and shaped, the location of the conveyance pipe and distributor box should be accurately staked out according to design specifications. Each disposal trench should be laid out along a level contour using a transit.

SPECIFICATIONS AND INSTALLATION FOR SPECIFIC SYSTEM COMPONENTS

Septic Tank

1) The septic tank receives wastewater directly from the house.
2) A septic tank shall be watertight, structurally sound, and not subject to excessive corrosion or decay.
3) The 1500 gallon septic tank must be of two-compartment design for maximum solids retention. The inlet compartment of a two-compartment tank shall hold between two-thirds and three-fourths of the total tank capacity.
4) Effluent from the two-compartment septic tank flows by gravity through a three-inch solid PVC pipe to the distribution box.
5) The septic tank must be provided with aboveground concrete or masonry manhole risers to provide easy access for clean-out and filter service.

6) When prefabricated concrete tanks or tanks of other material are used, they shall be constructed in accordance with the plans which have been approved by the State and shall comply with all requirements of Section .1953 of 15A NCAC 18A.

7) On the outlet tee of the septic tank a filter should be installed. This filter should be equivalent to a Zabel Model A1800. An access port over the filter should be installed. See attached product sheet from Zabel Environmental Technology.

Conveyance Piping

1) Conveyance pipes must be solid, non-perforated, Schedule 40 pipe at least 3 inches in diameter. The pipe can be made of PVC, PE or ABS and the joints must be made using the correct solvent and fittings for the type of pipe.

2) The pipes should be installed in trenches with bottoms of undisturbed or compacted soil so that the soil will not settle and break the pipes.

3) All conveyance piping should have a constant slope of 1/8 inch per foot to allow the sewage to flow by gravity to the distribution box. The slope of the pipe can be determined by measuring the height of the pipe at the septic tank outlet and at the distribution box.

4) The conveyance pipes must be installed to meet all required setback distances.

5) All the joints in the conveyance pipe and its connections to the septic tank and the distribution box should be watertight.

Distribution Box

1) Be certain that the distribution box is installed at the proper location and as marked on the plans. Check that the location meets all setback distances.

2) The box must be installed so that at least 2 feet of undisturbed earth separates the distribution box from the septic tank and the disposal trenches. This separation by undisturbed earth helps reduce leaking of sewage into unsuitable areas outside the treatment and disposal field.

3) Install distribution box on a base of level, undisturbed earth or a level concrete pad to prevent the soil from settling. If the soil settles, the device can tilt so that the effluent is not evenly distributed, possibly leaking from the device. A good test is to stand on the box and try to rock it - it should not rock or tilt.

4) Check the connections of the conveyance pipes to the distribution box to make sure there are no leaks.

5) Inspect distribution box to be sure that it is watertight and strong enough so it won't collapse in the soil.

6) One way to check for a leaking distribution box is to check the water level early in the inspection and then at the end of the inspection. If the water level has dropped below the outlet, there is a leak in the box.

7) Be sure that the distribution box inlet is higher than the outlet so the effluent will flow out to the treatment and disposal trenches. Often, distribution boxes are installed backwards, so it is important to check orientation.

8) Make certain the distribution box outlets are at least 6 inches below the septic tank outlet so the full trench depth can be used without directing effluent up into the septic tank.

9) A riser installed over the distribution box allows easy access and adjustment of flow after the system is installed.

10) Adjustments to ensure even flows to all trenches should be made during installation of distribution box. All outlets from a distribution box must be at the same level so that the same amount of effluent flows out of each outlet. A number of devices are available to make rapid adjustments to the outlets of distribution boxes so that all outlets have the same flow. These flow-adjusting devices work well and can speed installation.

11) Distribution boxes can be made of concrete or polyethylene plastic, either material works well if installed properly.

Disposal Trenches

1) Treatment and disposal trenches in large-diameter pipe systems use a large pipe installed in a narrow trench with no crushed rock surrounding the pipe. In conventional systems, the effluent is stored in the open spaces in the crushed rock to allow it to flow into the soil. In a large-diameter pipe system, the large pipes serve as reservoirs to hold the effluent while it slowly flows into the soil through holes in the pipe.

Special pipes are used for these systems. The outlet holes are in two rows on the lower portion of the pipe and the top of the pipe is marked with a line for proper installation.

To keep the pipes from filling in with soil and to help spread the effluent, the pipes are wrapped with a *geotextile fabric or filter wrap.* Geotextile fabric is a specially made nylon, polyester, or nylon/polyester blend cloth that holds back soil particles while allowing water to pass through. These special pipes come from the factory wrapped with the geotextile fabric and packaged in protective plastic sleeves. To prevent sunlight from degrading the geotextile fabric, the plastic sleeves should not be removed until just before installation.

2) The trenches must be installed on the contour so that the entire trench is at the same level. If the trench is level, all parts of the trench will accept effluent, instead of only the low parts in an uneven trench.

3) Trench bottoms should be level, within plus or minus 1/4 inch per 10 feet.

4) The width, spacing and depth of the trenches should be as shown on Figures 2 and 3.

5) Pipe size should be 10 inches in inside diameter.

6) The trench bottom must be contoured to the shape of the pipe and level along its length. The trench must be 30 inches wide.

7) The pipes come from the factory wrapped in filter cloth and covered with plastic to protect the filter cloth from sunlight. Do not remove the plastic cover until placing the pipes in the trenches. The plastic must be removed before the pipes are covered with soil. Once the plastic cover is removed, cover the pipes with soil as soon as possible to keep the filter cloth from being damaged by the sun. Be careful to not tear the filter cloth wrapping.

8) Install the large diameter pipe with the striped side up, to ensure that the holes in the pipe face the ground.

9) Remove all stones and rocks from the soil that is used to cover the pipes. Stones and rocks can tear the filter cloth. Group IV soils cannot be used for backfill. Large diameter pipe systems must be backfilled with soil classified as Soil Groups I, II or III, which are characterized as sands, coarse loams and fine loams.

FINAL LANDSCAPING

1) After the system is installed, the following should be checked to ensure that the system will not be overloaded with excess rainwater and runoff:
   - The distribution field is shaped to shed rainwater and is free of low areas
   - Grassy swales or ditches for diverting surface water are properly installed
   - Gutter and downspout drains are directed away from the system.

2) Finally, the entire area should be planted with grass in order to prevent erosion. The soil should be properly tilled, limed (if necessary) and fertilized before planting. After applying an appropriate grass seed, the area should be heavily mulched with straw or other suitable material.

QUALITY ASSURANCE REQUIREMENTS

The LDP system must be installed by a qualified, contractor that is on the Mecklenburg County list of competent contractors. GCI also recommends that the construction and installation of the LDP system be spot checked by an independent design engineer recognized by Mecklenburg County to have experience in the design of LDP systems. Critical stages of the installation which should be checked are:

1. System layout
2. Septic tank installation prior to backfilling
3. Trench excavation and large diameter pipe placement.
4. Final landscaping.

If quality assurance is not provided by GCI, then the homeowner and/or installation contractor assumes liability for proper system operation.

The system design is based on a maximum waste flow of 480 gallons per day. Homeowners should pay particular attention to the section titled Homeowner Suggestions for ways to minimize the burden on the system.

MAINTENANCE

1) Any person owning or controlling the property upon which a ground absorption sewage treatment and disposal system is installed shall be responsible for the following items regarding the maintenance of the system:
   - Ground absorption sewage treatment and disposal systems shall be maintained at all times to prevent seepage or discharge of sewage or effluent to the surface of the ground or to surface waters.
   - Ground absorption sewage treatment and disposal systems shall be checked and the contents of the septic tank removed periodically to ensure proper operation of the system.

OPERATION AND MAINTENANCE PROCEDURE

The system is classified as Type III. The Management Entity responsible for operation and maintenance of this type system is the Owner.

Operating, Maintenance and Inspection procedures shall include but not be limited to the following:

- Septic system shall be pumped every 4 years or when solids accumulate to 1/3 the volume of the tank.
- On a two- to five-year basis, clean and inspect the septic tank filter. When washing the filter, debris must be sprayed directly back into the septic tank and not onto the lawn.

- The property should be inspected to insure all surface water is deflected away from the fields and tank. Any ponding of surface water should be corrected.
- Grasses shall be mowed and maintained and any erosion shall be corrected promptly.
- The nitrification field area shall be checked for leakages, blowouts or malfunction, indications of damp or mushy areas compared to surrounding area or evidence of noticeable odor of sewage. Repairs shall be made immediately.
- Check septic tank and distribution box for evidence of damage or leakage. Check the quality of effluent including grease and sludge accumulation.

HOMEOWNER SUGGESTIONS

Most large diameter pipe systems do not require much effort to operate and maintain. Even though the effort is small, the system must be maintained properly so that it operates reliably and at a minimum cost. Following are suggestions for the home owner to minimize the burden on a large diameter pipe system.

1) Garbage disposals should not be used in on-site systems. The ground garbage adds large amounts of solids to a septic tank, causing sludge to build up very quickly.
2) Grease, cooking oils and coffee grounds should never be put into a septic tank.
3) Items such as disposable diapers, cigarettes, facial tissues and other solid or paper wastes should not be flushed into the on-site system.
4) Used motor oil and other such oily liquids should not be put into a septic tank.
5) Using less water can reduce the amount of water flowing to the treatment and disposal field.
6) Water-saving fixtures and devices can be installed on sinks, toilets and showers to reduce the rate at which the water flows from the fixture.
7) Dishwashers and washing machines should only be run with full loads.
8) Leaky faucets and toilets can add large volumes of water to the daily flow of water into the on-site system. Repair the leaks to save water and give the treatment and disposal field a rest.
9) Roof drains, basement sump pumps, foundation drains, and other such drains should not empty into the on-site system. These drains should be directed to another part of the lot away from the treatment and disposal field.

APPENDIX

DESIGN SPECIFICATIONS
Large Diameter Pipe System
Preston Forest - Lot #18

Daily waste flow	480 gal
Septic tank size	1500 gal
Effluent loading rate	0.40 gal/ft^2/day
Absorption area	1200 ft^2
Total length of laterals	480 ft
Laterals	10 in diameter
Lateral configuration	8 x 60 ft lines
Supply line diameter	3 in dia. sch 40 PVC

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GEO-ENVIRONMENTAL CONSULTANTS, INC.

BY RAU DATE 4-22-99

CHKD. BY _____ DATE _____

CLIENT	WILLIAM D. STARNES	SHEET	1 OF 1
PROJECT	PRESTON FOREST - LOT #18	PROJECT NO.	99048
SUBJECT	LARGE DIAMETER PIPE SYSTEM		

SIZE OF ABSORPTION AREA

4 BEDROOMS 4×120 gpd $= 480$ gpd

LOADING RATE (FROM KENNY OWENS 4-17-99) $= 0.40$ gpd/ft^2 =

480 gpd $/ 0.40$ gpd/ft^2 $= 1200$ ft^2

TOTAL LENGTH OF LARGE DIAMETER PIPE (10" DIAMETER, 2.5' WIDE)

1200 ft^2 $/ 2.5' = 480'$

USE 8 LINES, 60' LONG, 7 1/2' SPACING

AREA = $60' \times 52.5'$

SIZE SEPTIC TANK

2×480 gpd $= 960$ gal

USE 1500 gal SEPTIC TANK

REPAIR AREA

LOW PRESSURE PIPE (LPP) SYSTEM

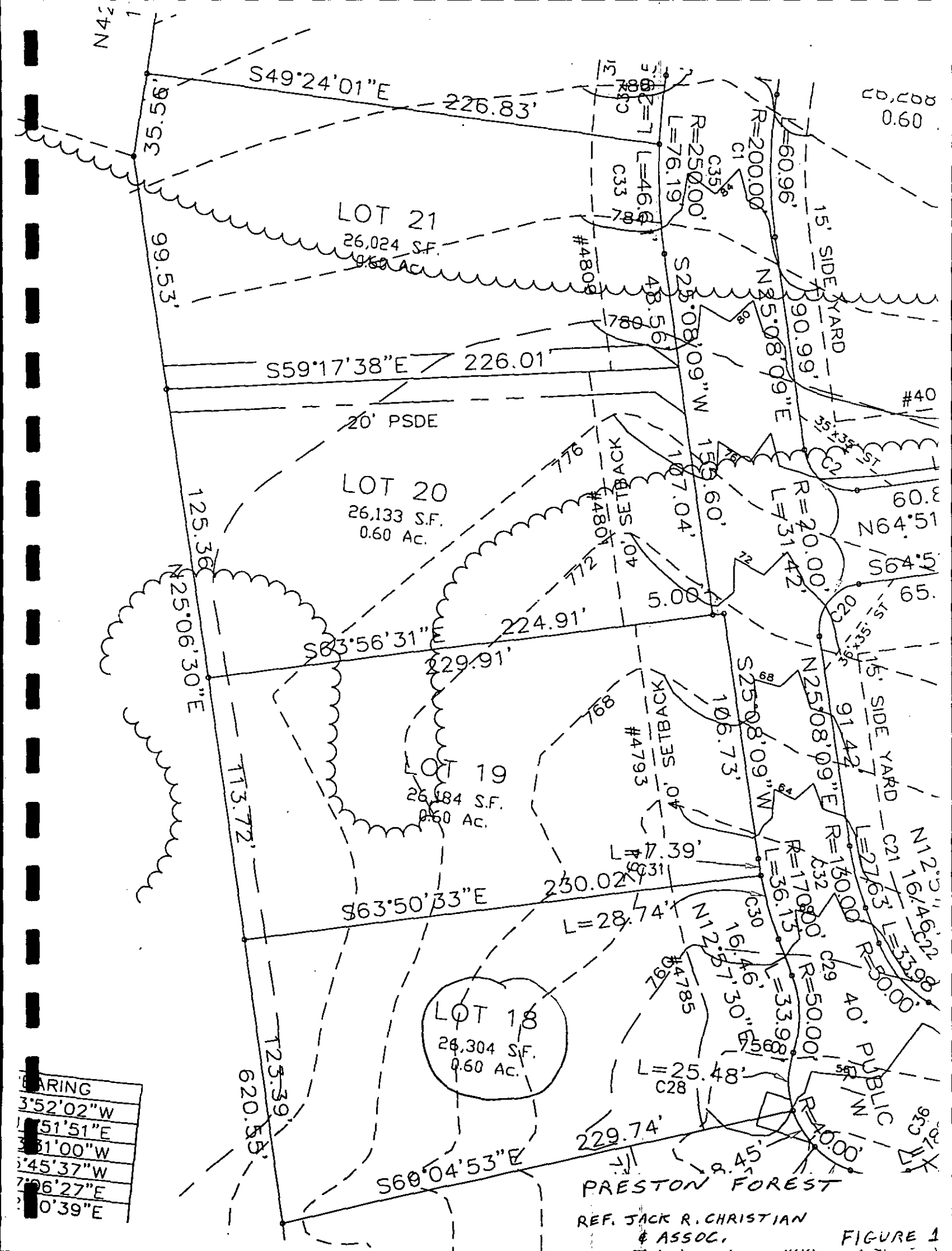
480 gpd $/ 0.40 (1/2) = 2400$ ft^2

2400 ft^2 $/ 5' = 480'$

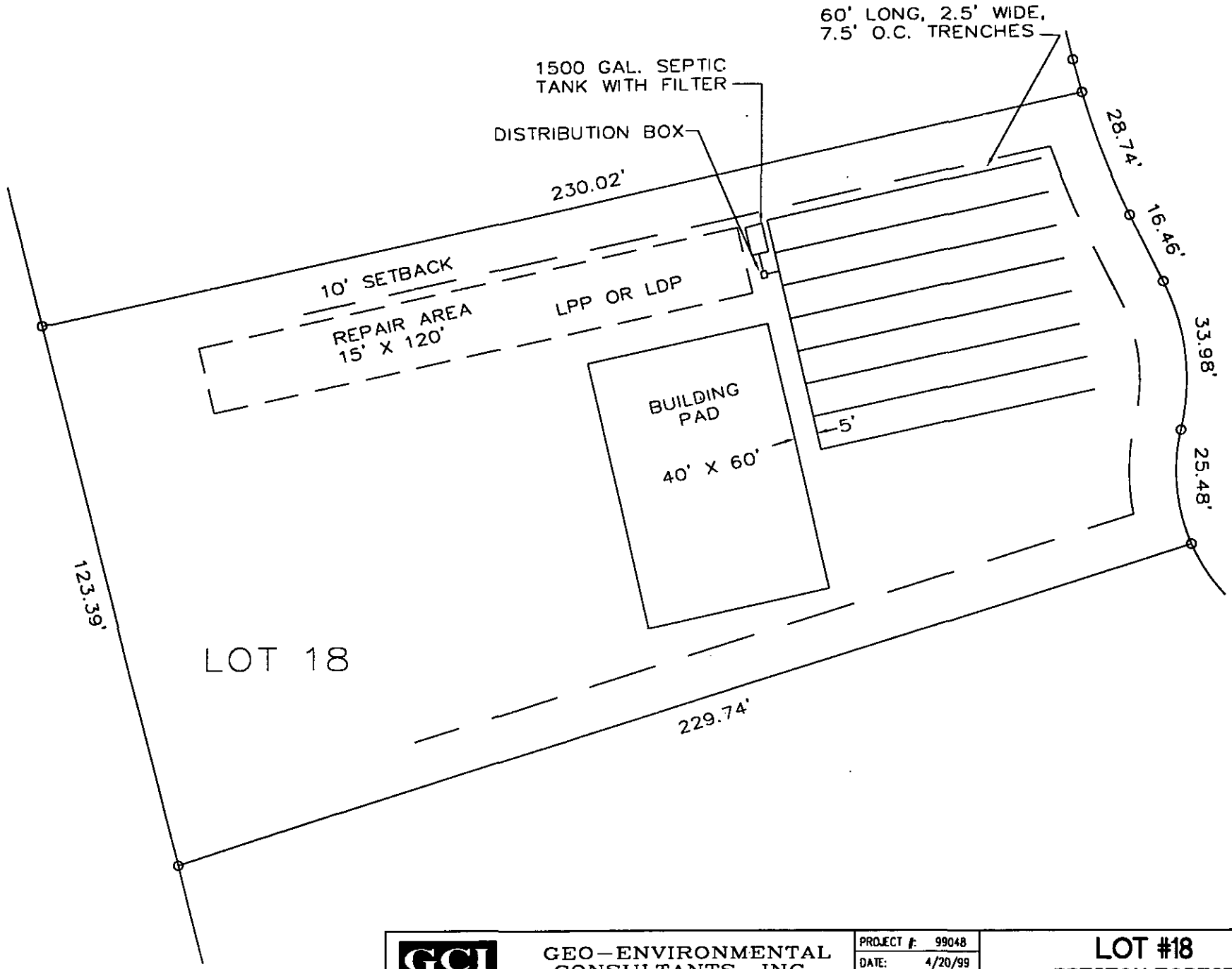
USE 4 LINES, 120' LONG, 5' SPACING

AREA = $120' \times 15'$

REPAIR AREA COULD BE LPP OR LOP



BEARING
3°52'02"W
51'51"E
31'00"W
'45'37"W
06'27"E
0'39"E



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GCI

GEO–ENVIRONMENTAL CONSULTANTS, INC.

GEOTECHNICAL/ENVIRONMENTAL ENGINEERS & SCIENTISTS

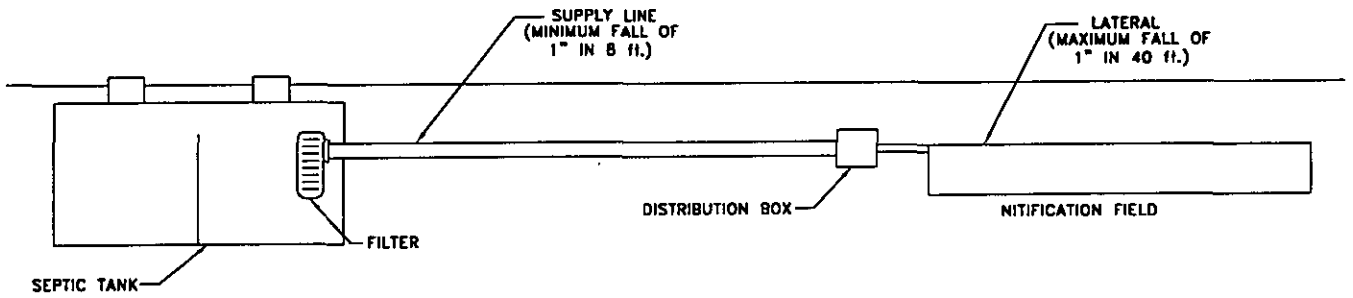
11704 REAMES ROAD, CHARLOTTE, NC 28269–7637
PHONE (704)596–8788 FAX (704)596–8770

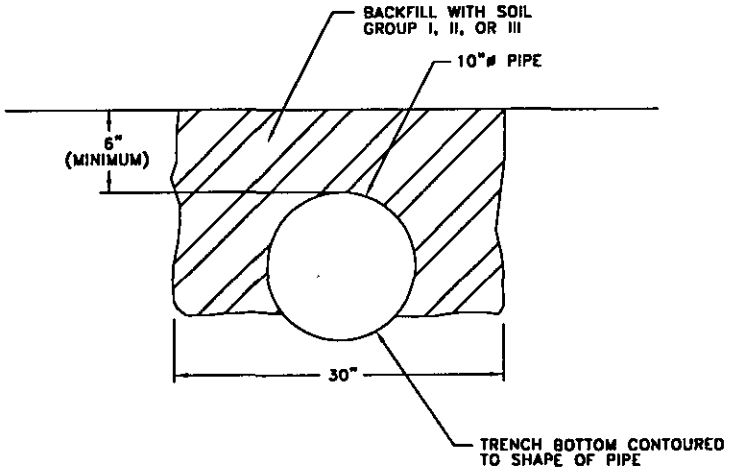
PROJECT #:	99048
DATE:	4/20/99
PROJECT MGR:	K.A.A.
DESIGN BY:	K.A.A.
DRAWN BY:	M.E.G.
SCALE:	NOT TO SCALE

LOT #18
PRESTON FOREST
CHARLOTTE, NORTH CAROLINA

LARGE DIAMETER PIPE SYSTEM

FIGURE 2





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GEOTECHNICAL/ENVIRONMENTAL ENGINEERS & SCIENTISTS
11704 REAMES ROAD, CHARLOTTE, NC 28269-7637
PHONE (704)596-8788 FAX (704)596-8770

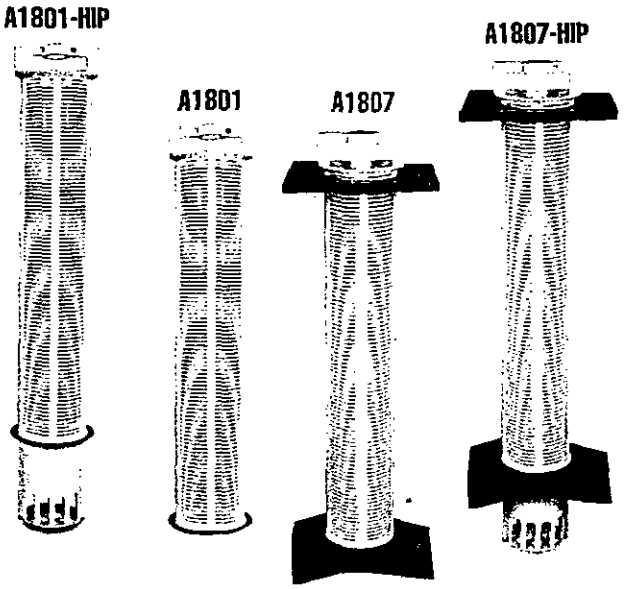
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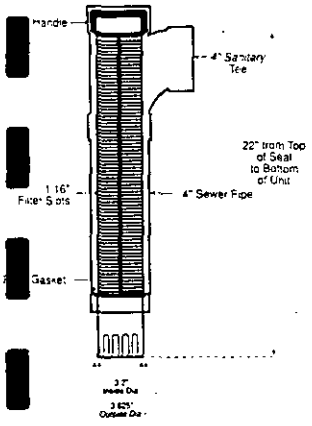
LOT #18
PRESTON FOREST
CHARLOTTE, NORTH CAROLINA

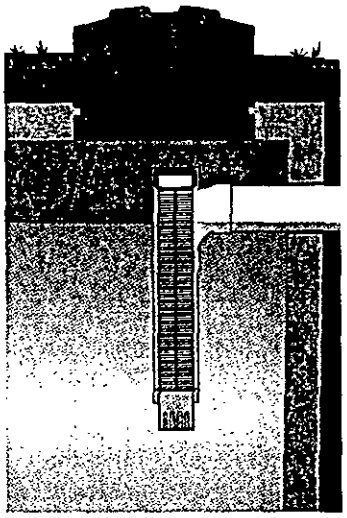
LARGE DIAMETER PIPE SYSTEM

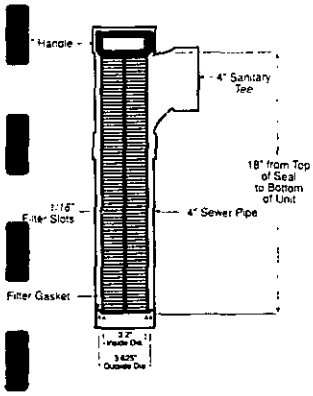
FIGURE 3

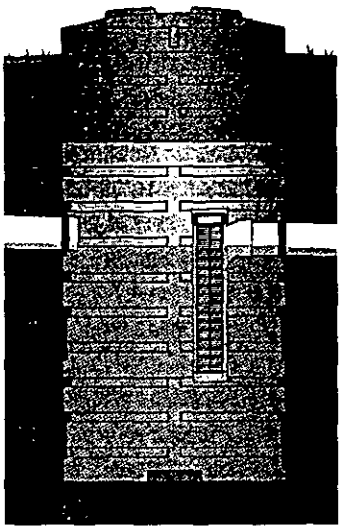
A1800s

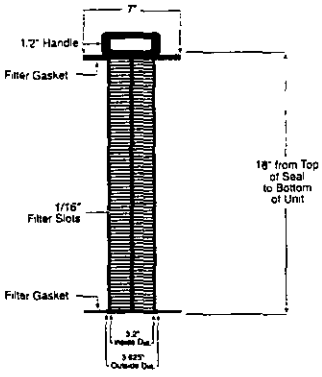


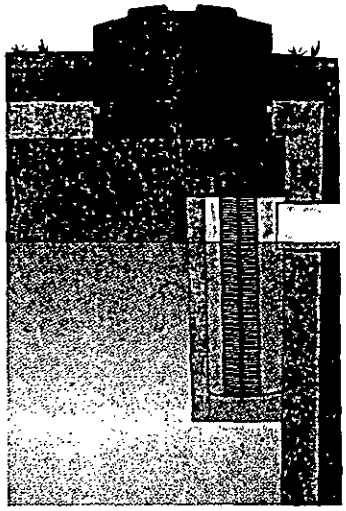












Zabel™ Recommendation: Any configuration of Risers used **should not** exceed 48" in height.

The product(s) shown are covered by one or more of the following patents:
U.S. 5,382,357, 5,482,621, 5,683,577, 5,580,453, 5,582,716, 5,591,331, 4,710,295, 5,593,584, U.S. Des. 386,241,349067, 4605501,5098568, Des. 309007, Canadian: 2,135,937 New Zealand: 264824, Other Patents Pending

Zabel™ A1800 Series Residential Wastewater Effluent Filter Product Specification

1. Product Name: Zabel™ The A1800 Residential Wastewater Filters, U.S. Patent Nos.: 5,382,357; 5,482,621; Canadian Patent No: 2,135,937; Other patents pending.
2. Model Numbers: A1800; A1800-HIP, A1800-HIP-SF, A1801, A1801-HIP, A1801-HIP-SF, A1807, A1807-HIP
3. Application: Single family homes no more than four bedrooms. **Zabel's™ New Residential High Performance Filter** is designed to provide extra protection for homes with garbage disposals and still sloughs the solids back into the tank.
4. Performance Specification
   4.1. All A1800 Models: Maximum daily flow - 800 gpd.
   4.2. Multiple Filters may be installed in manifolds to handle larger flows.
   4.3. TSS: Average reduction in TSS within 6 months of installation - 40 percent in typical residential wastewater.
5. Materials: All materials are non-corrosive PVC
6. New System Installation: Center the top of the 4-inch Filter Case under an outlet access opening at least 8 inches in diameter. Securely fasten the bell coupling of the case by a PVC solvent weld connection to the 4-inch PVC pipe extending through the outlet wall of the tank. The pipe extending through the end wall may be any schedule four-inch pipe. Location of the PVC outlet pipe in the tank end wall shall conform to local code. The PVC outlet pipe should extend at least 18 inches beyond the outside face of the tank wall. For septic tanks with cast in place concrete baffles use the A1807 model. Insert bottom of filter through thick gasket and slide to top of filter cartridge. Install filter cartridge with top gasket **only** into tank baffle, to ensure gasket lies flat without hanging over the edge of baffle. **Do not trim** gasket unless it overhangs edge of baffle. Remove filter cartridge and install thin gasket into the groove at the bottom of the cartridge. Reinsert the cartridge into the concrete baffle to complete installation. A riser to grade over the Outlet Access Opening is recommended.
7. Existing System Installation: The filter cartridge, Model A1801 may be installed in any existing 4" outlet Tee and pipe. The filter may be installed in an existing tank if an adequate outlet access opening already exists and the filter can be installed without damaging the existing tank. If a 4-inch PVC outlet pipe does not extend into the tank, the filter can be installed utilizing a plumbing flange. For septic tanks with cast in place concrete baffles use the A1807 model. Insert bottom of filter through thick gasket and slide to top of filter cartridge. Install filter cartridge with top gasket **only** into tank baffle, to ensure gasket lies flat without hanging over the edge of baffle. **Do not trim** gasket unless it overhangs edge of baffle. Remove filter cartridge and install thin gasket into the groove at the bottom of the cartridge. Reinsert the cartridge into the concrete baffle to complete installation. If the existing tank cannot be used, the filter can be installed in existing systems using a Zabel Container Assembly Model CA100 or Zeus™ Basin System.
8. Service: A professional onsite service company should perform all onsite system service.
9. Service Method: Grasp the filter handle and pull the filter cartridge upward. A Zabel™ 36" T-Handle is available if required to reach filters more than 12 inches below grade. Tap the cartridge on the inside of the inspection port or hose off the cartridge into the tank if needed and reinsert into the case. Installation of an effluent filter may increase the frequency of service if the homeowner discharges materials that are harmful to the system
10. Service Frequency: The filter should be cleaned when the septic tank is normally inspected and pumped as required by local regulation. The A1800's are designed to slough most normal solids off the inside of the vertical walls and back into the tank when the effluent flow is in a resting state. Installation of an effluent filter may increase the frequency of service if the homeowner discharges materials that are harmful to the system
11. Warranty: The A1800's are warranted to be free from defects in material and workmanship for the life of the original purchaser. Zabel's™ liability is limited to repair or replacement of the part and in no event shall Zabel™ be liable for any consequential damages of any kind.
12. Dimensions:

	Diameter	Cartridge Height	Filtration	Total Filter Surface	Lineal Feet of Weir
A1800	4"	18"	1/16"	158.4 in²	61
A1800-HIP	4"	22"	1/2"-1/16"	*158.4 in²	*61
A1807	4"	18"	1/16"	158.4 in²	61

*Calculations are for the 1/16" area only.

April 21, 1999

Mr. Keith Anthony
Geo-Environmental Consultant, Inc.
11704 Reames Road
Charlotte, North Carolina 28269

Re: Cursory Septic System Evaluation
Present Forest, Birch Hollow Drive
Mecklenburg County, North Carolina

Dear Mr. Anthony:

On April 17, 1999, a preliminary site walkover was conducted on two individual lots approximately 0.60 acres in size located in Mecklenburg County, North Carolina. The objective of the walkover was to evaluate the potential for individual lots to be subdivided for multiple family use with each lot having an on-site wastewater treatment and disposal (septic) system.

A total of nine hand auger borings were advanced on lot 18 and 19 during the walkover. Each of these soil borings was advanced to a maximum depth of 48 inches or until unsuitable characteristics were encountered such as a shallow water table, bedrock or restrictive soil horizons. A total of six hand auger boring were advanced on lot 18. The topography of the site is gently to strongly sloping with gradients ranging from 3 to 15 percent. Soil depths ranged from 20 to 30 inches. Soil textures classes ranged from loam to clay. Most limiting factor is shallow soil depths, resulting in other alternative systems if applicable.

A total of three hand auger borings were advanced on lot 19. The topography of lot 19 was flat to gently sloping with gradients ranging from 0 to 4 percent. Soil depths ranged from 29 to 48 inches. Additional hand auger soil boring would be necessary to better evaluate the back property area once cleared.

As discussed in our recent telephone conversation, proposed wastewater treatment and disposal system locations must be approved by the Mecklenburg County Health Department. The approval process is conducted by County sanitarians. We recommend you obtain authorization to construct septic systems prior to proceeding with property transfer negotiations.

In the event that you desire to discuss this project or we can be of further assistance, please do not hesitate to call.

Sincerely,



Kenneth L. Owens, L.S.S.
Soil Scientist

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