

9820 BRIEF RD

19713105

LOT20

1/10/2008

duponbj

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

Groundwater & Wastewater Services
Septic Project File & Data Review Worksheet

GWS File #: 6499 B WASPS App #: 818

Primary ES assigned to project: DC

Secondary ES assigned to project:

Project Type: New System ☑ Alteration ☐ Repair ☐ Modified Plot Plan ☐

I. File Review:

Rule or Law				
	Permit Application			
.1937(d)	Is the Application complete	Yes ☑	No ☐	N/A ☐
.1937(d)	Is there a Site plan/Plat with application	Yes ☑	No ☐	N/A ☐
.1937(d)	Is the Facility shown?	Yes ☑	No ☐	N/A ☐
.1937(d)	Are appurtenances shown	Yes ☑	No ☐	N/A ☐
	Site Evaluation Information			
.1939 (a)(1)	Topography and Landscape Position Recorded?	Yes ☑	No ☐	N/A ☐
.1940 (a-g)	Slope % Recorded?	Yes ☑	No ☐	N/A ☐
.1939 (a)(2)	Texture Class Recorded?	Yes ☑	No ☐	N/A ☐
.1939 (a)(2)	Structure type Recorded?	Yes ☑	No ☐	N/A ☐
.1939 (a)(2)	Consistence Recorded?	Yes ☑	No ☐	N/A ☐
.1939 (a)(2)	Mineralogy Recorded?	Yes ☑	No ☐	N/A ☐
.1939 (a)(3)	Soil Wetness Condition Recorded?	Yes ☐	No ☐	N/A ☑
.1939 (a)(4)	Soil Depth to Rock or Parent Material Recorded When Encountered	Yes ☐	No ☐	N/A ☑
.1939 (a)(5)	Depth to Restrictive Horizons Recorded When Encountered?	Yes ☐	No ☐	N/A ☑
.1939 (a)(6)	Sufficient Available Space Recorded?	Yes ☑	No ☐	N/A ☐
.1937(m)	Are the Profile Locations Shown?			
.1939(a)	Are the S/PS Profiles in system & in repair area? (2 × Conventional profiles)	Yes ☑	No ☐	N/A ☐
& .1945(b)	Number of auger borings made: 2			
	Were sufficient auger borings made?	Yes ☑	No ☐	N/A ☐
.1939(d), .1955, .1956, .1957	LTAR .3	Yes ☑	No ☐	N/A ☐
	Improvement Permit/Construction Authorization			
.1937(g) 130A-336(a)	Proposed System Type stated-Initial	Yes ☑	No ☐	N/A ☐
.1945(b)	Proposed System Type stated-Repair	Yes ☑	No ☐	N/A ☐
130A-336 (a)(3)	System location identifiable by setbacks - Initial	Yes ☑	No ☐	N/A ☐
.1937(g) .1945(b)	System components shown – Initial	Yes ☑	No ☐	N/A ☐
.1945(b)	Repair area shown	Yes ☑	No ☐	N/A ☐
.1937 (f)(g)	Does System design match facility, flow & WWcharacteristics?	Yes ☑	No ☐	N/A ☐
.1937 (f)(g)	Is System design consistent with soil/site conditions?	Yes ☑	No ☐	N/A ☐
.1937 (f)(g)	Is the System located in the approved area?	Yes ☑	No ☐	N/A ☐
130A-336(a)	Is the Design flow (gpd) indicated?	Yes ☑	No ☐	N/A ☐

130A-336(a)	Number of Bedrooms, employees, seats, etc. indicated?	Yes ☑	No ☐	N/A ☐
.1937(g)	Trench depth indicated?	Yes ☑	No ☐	N/A ☐
.1937(g)	Trench width indicated?	Yes ☑	No ☐	N/A ☐
.1937(g)	Trench length indicated?	Yes ☑	No ☐	N/A ☐
130A-336(a)(1)	Proposed/existing well shown?	Yes ☑	No ☐	N/A ☐
130A-336(a)(1)	Property line lengths shown?	Yes ☑	No ☐	N/A ☑
130A-336(a)	Facility/appurtenance setbacks shown from fixed points?	Yes ☑	No ☐	N/A ☐
	Operation Permit			
.1937(i)	System type as described in table V(a) of rule .1961	Yes ☐	No ☐	N/A ☐
.1937(i)	Conditions for system performance, operation, maintenance, monitoring and reporting.	Yes ☐	No ☐	N/A ☐

II. WASPS Review:

Construction authorization issued	Yes ☐	No ☐	N/A ☐
Installation approval issued	Yes ☐	No ☐	N/A ☐
Operation permit issued	Yes ☐	No ☐	N/A ☐
Other related documentation	Yes ☐	No ☐	N/A ☐

Items requiring correction/modification: _____

Comments:

_____

_____

_____

_____

_____

IA issued date: _____

OP issued date: _____

Review performed by: _____ Date performed: 10-19-07

CC

#815

GWS – RES. APP 07/05

SEPTIC FEE: 280
DATE: 5/15/06
CRT [ ]
SC

PERMIT APPLICATION FOR A RESIDENTIAL SITE IMPROVEMENT PERMIT / CONSTRUCTION AUTHORIZATION FOR ON-SITE WASTEWATER SYSTEM NEW WELL INSTALLATION OR REPAIR OF EXISTING WELL MECKLENBURG COUNTY GROUNDWATER & WASTEWATER SERVICES

FILE # 6498

WELL FEE: _____
DATE: _____
CRT [ ]

SEPTIC / TYPE APPLICATION: ☐ NONE ☒ NEW SYSTEM ☐ ALTERATION ☐ REPAIR ☐ MODIFY PLOT PLAN

WELL / TYPE APPLICATION: ☐ NONE ☐ NEW WELL ☐ MAJOR REPAIR ☐ ABANDONMENT

JOB LOCATION INFORMATION:

TAX/PARCEL #: Portion of 19713105
STREET ADDRESS: 9820 Brief Road
CITY: Charlotte
STATE: NC ZIP: 28227
SUBDIVISION OR MOBILE HOME PARK NAME: Undecided
LOT #: ~~1~~ 20
TOWNSHIP:

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

BUILDING INFORMATION:

TYPE OF BUILDING:

☐ SINGLE MOBILE HOME (S) ☐ MODULAR HOME (M)
☐ DOUBLE WIDE (D) ☐ MULTIPLE FAMILY (U)
☒ HOUSE (H) ☐ OTHER

HEATED SQUARE FOOTAGE: n/a
NUMBER OF BEDROOMS: 4
NUMBER OF OCCUPANTS: n/a

FOUNDATION FOR RESIDENCE:

☐ CONCRETE SLAB ☐ BASEMENT WITH PLUMBING
☒ CRAWLSPACE ☐ BASEMENT WITH NO PLUMBING

IF PLANNING TO EXPAND/ALTER THE EXISTING SYSTEM INDICATE THE FOLLOWING CHANGES:

NUMBER OF BEDROOMS TO BE ADDED: NUMBER OF ADDITIONAL OCCUPANTS IN THE RESIDENCE:
WILL THERE BE A HOME BUSINESS IN THE RESIDENCE? ☐ YES ☐ NO TYPE:

WATER SUPPLY:

☐ MUNICIPAL (M) ☐ PUBLIC (C) ☐ PRIVATE WELL (P) ☒ SHARED WELL (S) ☐ OTHER 'SPRINGS' (O)

PROPOSED USE OF WELL: ☐ N/A ☐ IRRIGATION ☐ POTABLE ☐ GEOTHERMAL ☐ OTHER

ARE ANY OF THE FOLLOWING LOCATED ON THE PROPERTY? IF SO, PLEASE SHOW LOCATION ON SITE PLAN/PLAT.

BURIED CABLES, LANDFILLS, STUMPHOLES	☐ YES	☒ NO	WELLS, SPRINGS, OR WATER LINES	☐ YES	☒ NO
EXISTING WASTEWATER SYSTEMS	☐ YES	☒ NO	DESIGNATED WETLANDS	☐ YES	☒ NO
EASEMENTS OR RIGHT-OF-WAYS	☐ YES	☒ NO	GRADING/SOIL REMOVAL PERFORMED	☐ YES	☒ NO

PROPERTY OWNER:

NAME: Angela B. Page
ADDRESS: 9900 Brief Road
CITY: Charlotte
STATE: NC ZIP: 28227
HOME PHONE: 704.545.6375 WORK PHONE:
MOBILE PHONE: FAX:

LEGAL AGENT FOR PROPERTY OWNER, IF APPLICABLE:

NAME: J. Scot Collins
ADDRESS: 1101 Lester Mullis Road
CITY: Indian Trail
STATE: NC ZIP: 28079
HOME PHONE: 704.248.8493 WORK PHONE: 704.641.4470
MOBILE PHONE: FAX: 704.753.5898

WHAT DATE WAS THE PROPERTY ORIGINALLY DEEDED AND RECORDED? n/a
WHAT IS THE ANTICIPATED CLOSING DATE FOR THIS PROPERTY? within 30 days

*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 the Mecklenburg County Health Department to enter onto the property for the purpose of processing this request.

J. Scot Collins 5/15/06
Owner's/Agent's Signature Date

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

*A Well 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 the Mecklenburg County Health Department to enter onto the property for the purpose of processing this request.

Owner's/Agent's Signature Date

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

DAN SPANGLER
LICENSED SOIL SCIENTIST
802 BRADFORD PLACE
MONROE NC 28110-9355

TO: Reserve Properties Inc.
1101Lester Mullis Road
Indian Trail, NC 28079

FROM: Dan Spangler

SUBJECT: Revised septic system design on Lot 20 in Irongate Subdivision, Brief Road, Mecklenburg Co., NC.

DATE: September 4, 2007

This lot has an area that is **SUITABLE** for conventional or Innovative (EZflow) septic system, however because of uneven topography (old eroded gullies) the T and J Panel Block System (PPBS) would work best. The soils are group 4 with mean depth to saprolite more than 48 inches and more than 48 inches to a seasonal water table. The septic system for a four bedroom house requires 270 linear feet of lines for the Panel Block System. LTAR of 0.3 gpd/ft square, design flow of 480 GPD or 270 feet of lateral length of lines for Panel Block System required or 1 lines at 55 and 6 lines at 40 feet that are fed from the center. There is a total of 67 panels. The gullies at the end of the lines should be filled with soil during or before installation. The trenches shall be 36 inches wide and not less than nine feet on center. The trench depths may vary between 28 and 36 inches. The repair area is down slope and has the same panel block system with varying length lines between the gullies. (See attached, design specifics, lot map and soil/site evaluation.)

The above soils report is my opinion as a licensed soil scientist; however, wastewater treatment systems must be approved by the local health department.

CC: Trevor Thomason
Mecklenburg County Environmental Health

GWS Septic System Design Review

GWS File #: 6499B **Approved** **Disapproved**

Design Review: TCT 9-12-07 ☒ ☐

Field Review: ☒ ☐

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

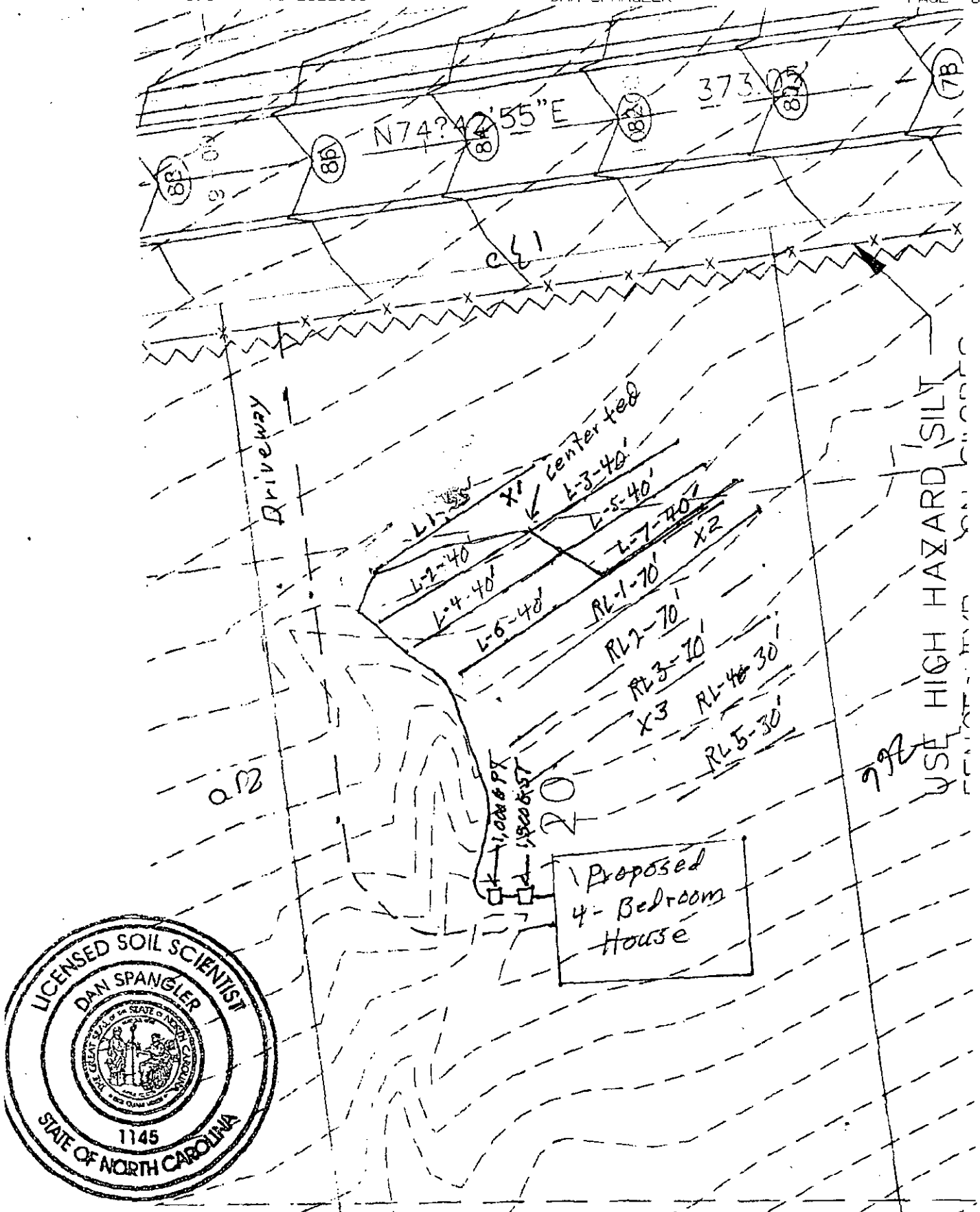
* PENDING APPROVAL 9-12-07
- NEED VERIFICATION ON SOILS FROM BILL IN PROPOSED DRAINFIELD AREAS.

DESIGN SPECIFICS √TCT

Spangler Soil Investigations **Revised 9/4/07**
Lot 20 Irongate Subdivision

Daily Design Flow:	480 GPD – 4 bedroom house
Septic Tank Size:	1500 gallons (2 compartments)
Pump Tank Size:	1000 gallons (one piece)
Effluent Loading Rate:	Design = 0.3 GPD per ft/sq T & J Panel Block (PPBS)
Supply Length and Diameter:	Approx. 130ft of 2" Sch. 40 PVC (please see note)
Number and Size of Laterals:	1 line @ 55, and 6 lines @ 40 ft
Hole Size:	5/32 inch
Hole Spacing:	1 per panel = 67 total
Number of Panels:	67
Dosing Volume:	241.2 gallons per dose
Flow Rate through system:	27.47 gallons per *minute*
Elevation Head:	18 feet (may vary, see note)
Pressure Head:	2 feet
Pump Requirements:	29.5 GPM at 24.2 TDH (2 GPM added for vapor lock)
Depth of Water Pumped:	11.49" check with tank
manufacturer	
Pump Run:	8.84 minutes
Check Valve:	Yes
Vapor Lock Hole:	Yes

*** Please note that supply line and elevation head measurements are approximate. It is the contractor's responsibility to confirm these values based upon the actual house and plumbing location. If there is a discrepancy, contact the system designer prior to beginning construction.**



~ Scale 1" = 35'
X - Soil Boring Location

PAGE 11
DAN SPANGLER
7042822319
09/04/2007 15:54

PPBPS Design Worksheet (Primary System)

File #: 6503B
Tax #: 139-302-15
Address: Lot 20 - Irongate

Consultant: Dan Spangler
Phone:

Reviewed By: Trevor Thomason TCT 9-12-07
Date: 8/3/2007

System Requirements

Design Flow	480	gpd
LTAR	0.275	gpd/ft.^2
Linear footage	582	ft. (conventional)
Linear footage	291	ft. (50% Reduction)

Design Layout

Laterals	Length (ft)	# Panels	Calculated
Line # 1	55	13	12.69
Line # 2	40	9	9.23
Line # 3	40	9	9.23
Line # 4	40	9	9.23
Line # 5	40	9	9.23
Line # 6	40	9	9.23
Line # 7	40	9	9.23
Line # 8	0	0	0.00
Line # 9	0	0	0.00
Line # 10	0	0	0.00
Totals	**295**	**67**	68.08

*Lines longer than 70 ft. must be center-fed to comply with sewage rules.

T & J Panels	
Linear Feet	# Panels
20	5
30	7
40	9
50	11
60	14
70	16

Absorption Area

Length (ft)	Width (ft)	Area (ft^2)	
295	3	885	
System Pressure Head	2	ft.	Value selected by system designer (must be between 2-5 ft.)
Orifice Diameter	5/32	in.	Size selected by system designer (1/8 in. minimum)
Flow Rate per Orifice	0.41	gpm	Determined from orifice flow design table (use table from Flow Rate tab)
Total System Flow Rate	27.27	gpm	Total number of panels required multiplied by the orifice flow rate
System Dose Volume	241.20	gal.	Total number of panels required multiplied by 3.6 gal./panel
Doses Per Day	1.99	cycles	Number of dose cycles per day based on daily design flow
Pump Run Time	8.84	min.	System dose volume divided by the total system flow rate
Pump Tank Volume / Inch	21	gal./in.	1,000 gal. Pump tank, volume is approximately 21 gallons per inch. 1,500 gal. pump tank, volume is approximately 29 gallons per inch
Pump Tank Drawdown	11.49	in.	Depth of effluent pumped per dose cycle.

Cells with blue shading require user input.
Cells with yellow shading are automatically calculated.

Comments:

1. Install system using 3 ft. wide trenches.
2. Install drainlines on 9 ft. centers, level, and on contour.
3. System design requires effluent pump for distribution.
4. 100% Repair area is required.

DAN SPANGLER
802 BRADFORD PLACE, MONROE, NC 28110
MOBILE: (704) 291-1909 OFFICE/ FAX: (704) 282-2319

PROPERTY ID #: 19713103
PROPERTY RECORDED:
COUNTY: Mecklenburg

SOIL/SITE EVALUATION
FOR
ON-SITE WASTEWATER SYSTEM

APPLICANT: Reserve Properties Inc, OWNER: ☐ AGENT: ☑ PHONE: 704-641-5898
ADDRESS: 1101 Lester Mullis Road DATE EVALUATED: 5/17/07
Indian Trail, NC 28079 PROPOSED FACILITY: 4-3 bedroom
PROPERTY SIZE: ~1 Acre
LOCATION OF SITE: Lot 20, Irongate Subdivision, Brief Road
WATER SUPPLY: On-Site Well ☐ Comm. Well ☐ Public ☑ Other _____ EVALUATION METHOD: Auger Boring ☑ Pit ☐

PROFILE #	.1940 LANDSCP POS./ SLOPE %	HORIZON DEPTH (IN.)	.1941 (a)(1) TEXTURE	.1941 (a)(2) STRUCTURE	.1941 (a)(3) MINEROLOGY		
1	Ridge	0-2" A	Brown SSL	fr. 2 fgr	SO/PO	.1942 WETNESS CONDITION	- 748"
Upper	8%	2-48" Bt	2.5YR 4/8 C	fr. 3 fsbk	SS/SP	.1943/.1956 SAPROLITE	- 748"
Part						.1944 RESTRICTIVE HORIZON	- 748"
of SA						.1948 PROFILE CLASSIFICATION	- Suitable
						PROFILE LTAR	- 0.3
						SYSTEM TYPE	- Conventional / T+J Pa.
		COMMENTS: Cecil Soil					
2	SS	0-3½ A	Brown SSL	fr. 2 fgr	SO/PO	.1942 WETNESS CONDITION	- 748"
middle	7%	3-48" Bt	2.5YR 4/8 C	fr. 2 fsbk	SO/PO	.1943/.1956 SAPROLITE	- 748"
Part						.1944 RESTRICTIVE HORIZON	- 748"
of SA						.1948 PROFILE CLASSIFICATION	- Suitable
						PROFILE LTAR	- 0.3
						SYSTEM TYPE	- Conventional / T+J Panel
		COMMENTS: Cecil Soil					
3	SS	0-4" A	Red CL	fr. 1 msbk	SO/SP	.1942 WETNESS CONDITION	- 748"
Lower	7%	4-48" Bt	2.5YR 4/8 C	fr. 2 fsbk	SS/SP	.1943/.1956 SAPROLITE	- 748"
Part						.1944 RESTRICTIVE HORIZON	- 748"
of SA						.1948 PROFILE CLASSIFICATION	- Suitable
						PROFILE LTAR	- 0.3
						SYSTEM TYPE	- conventional / T+J Panel
		COMMENTS: Cecil Soil					
4						.1942 WETNESS CONDITION	-
						.1943/.1956 SAPROLITE	-
						.1944 RESTRICTIVE HORIZON	-
						.1948 PROFILE CLASSIFICATION	-
						PROFILE LTAR	-
						SYSTEM TYPE	-
		COMMENTS:					

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

NC DENR
Division of Environmental Health
On-Site Wastewater Section

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

Permit #: **30000815** GWS File #: **6499B** Tax Parcel #: **197-131-05**

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

I. This Improvement Permit Shall: Expire in Five (5) Years **Expiration Date (If Applicable):** 10/16/2012

Type of Installation: Residential - New System Lot Number: 20

Structure Type: HOUSE Size (ft^2): 0 # Bedrooms: 4 # Occupants: 3

Building Foundation: Crawl Space Water Supply: Municipal

II. Initial System Type: PPBPS *(pressurized)* **System Classification:** IVa

Initial System Specifications:

Design Flow (gpd): 480 LTAR (gpd/ft^2): 0.3 Septic Tank Size (gal): 1500 Pump Tank Size *(gal)*: 1000

Trench Width (ft): 3 Trench Spacing (ft): 9 Absorption Area (ft^2): 873 Total Trench Length (ft): 291

Maximum Trench Depth (in): 30 Depth of Media (in): N/A Distribution Device: Pressure Manifold

III. Repair System Type: PPBPS (pressurized) **System Classification:** IVa

Repair System Specifications:

Design Flow (gpd): 480 LTAR (gpd/ft^2): 0.3 Septic Tank Size (gal): 1500 Pump Tank Size (gal): 1000

Trench Width (ft): 3 Trench Spacing (ft): 9 Absorption Area (ft^2): 873 Total Trench Length (ft): 291

Maximum Trench Depth (in): 30 *Depth of Media (in)*: N/A Distribution Device: Pressure Manifold

IV. Permit Conditions/Comments:

(Please See the Following Page for Permit Conditions.)

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

- No work shall be conducted on the septic system until an INSTALLATION APPROVAL *is granted by the* Department.
- The septic system *installer shall be a registered* septic contractor with Mecklenburg County Health Department.
- The permitted system shall be installed in accordance with the included PLOT PLAN.
- This IMPROVEMENT PERMIT is transferable.

DENR Authorized Agent: David Cornelius Owner/Legal Agent: _____
Print Name

Signature: _____ Signature: _____

Date Issued: 10/16/2007

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

NC DENR
Division of Environmental Health
On-Site Wastewater Section

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

Permit #: **30000815** GWS File #: **6499B**

IV. Permit Conditions/Comments:

- This type of septic system requires an inspection once every 3 years by our office. The system owner is responsible for any fees, as determined by the *Mecklenburg County Board of Commissioners*, associated with this inspection.
- This type of septic system requires a Certified Operator to maintain the system. A system maintenance contract with a Certified Operator must be on file prior to issuance of an Operation Permit.
- 100% repair area is not required for this property. However, the maximum feasible area shall be allocated for a repair area.
- *This Improvement Permit* is being issued based on a supplemental soil investigation performed by staff from our office.
- The septic system shall be installed in accordance with the plans submitted by the wastewater system design consultant.
- All components of the septic system must be located at least 100 ft. (50 ft. minimum) from all private wells.
- Soil in proposed drainfield location confirmed in field by Kelly Randall. Maintenance agreement with certified operator required before CO release.

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

- No work shall be conducted on the septic system until an INSTALLATION APPROVAL is granted by the *Department.*
- The septic system installer shall be a registered septic contractor with Mecklenburg County Health Department.
- The permitted system shall be installed in accordance with the included *PLOT PLAN.*
- This IMPROVEMENT PERMIT is transferable.

DENR Authorized Agent: David Cornelius

Signature: _____

Date Issued: 10/16/2007

Owner/Legal Agent: _____
Print Name

Signature: _____

Irongate Subdivision Design Review

Lot # 20
File # 6499B
App # 815

Date: 8/3/07
Reviewed By: TCT

Comments:

1. Please provide a map showing your soil boring locations for the profiles included in the proposal.
2. Provide correct calculations for PPBPS system type. Recalculate system dose volume and system flow rate (see worksheet provided).
3. Discard manifold design sheet. This manifold type may not be used with a PPBPS system.
4. *Note: For systems with LPP distribution, lateral line lengths may not exceed 70 ft. Lines over 70 ft. must be center fed.

GWS Septic System Design Review

GWS File #: 6499B	**Approved**	**Disapproved**
Design Review: TCT 8-3-07	☐	☒
Field Review:	☐	☐

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

PPBPS Design Worksheet	(Primary System)						File #:	6503B
							Tax #:	139-302-15
System Requirements							Address:	Lot 20 - Irongate
Design Flow	480	gpd						
LTAR	0.275	gpd/ft.^2					Consultant:	Dan Spangler
Linear footage	582	ft. (conventional)					Phone:	
Linear footage	291	ft. (50% Reduction)						
							Reviewed By:	Trevor Thomason TGR
Design Layout							Date:	8/3/07
Laterals	Length (ft)	# Panels	Calculated					
Line # 1	66	13	12.69		T & J Panels			
Line # 2	46	9	9.23		Linear Feet	# Panels		
Line # 3	46	9	9.23		20	5		
Line # 4	46	9	9.23		30	7		
Line # 5	46	9	9.23		40	9		
Line # 6	46	9	9.23		50	11		
Line # 7	46	9	9.23		60	14		
Line # 8	0	0	0.00		70	16		
Line # 9	0	0	0.00					
Line # 10	0	0	0.00					
Totals	**295**	**67**	68.08					
	*Lines longer than 70 ft. must be center-fed to comply with sewage rules.							
Absorption Area								
Length (ft)	Width (ft)	Area (ft^2)						
295	3	885						
System Pressure Head	2	ft.	Value selected by system designer (must be between 2-5 ft.)					
Orifice Diameter	5/32	in.	Size selected by system designer (1/8 in. minimum)					
Flow Rate per Orifice	0.41	gpm	Determined from orifice flow design table (use table from Flow Rate tab)					
Total System Flow Rate	27.27	gpm	*Total number of panels required multiplied by the orifice flow rate*					
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Pump Run Time	8.84	min.	System dose volume divided by the total system flow rate					
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Pump Tank Drawdown	11.49	in.	Depth of effluent pumped per dose cycle.					
Cells with blue shading require user input.								
Cells with yellow shading are automatically calculated.								
Comments:								
1. Install system using 3 ft. wide trenches.								
2. Install drainlines on 9 ft. centers, level, and on contour.								
3. System design requires effluent pump for distribution.								
4. 100% Repair area is reguired.								

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LICENSED SOIL SCIENTIST
802 BRADFORD PLACE
MONROE NC 28110-9355

6499B

TO: Reserve Properties Inc.
1101Lester Mullis Road
Indian Trail, NC 28079

FROM: Dan Spangler

SUBJECT: Revised septic system design on Lot 20 in Irongate Subdivision, Brief Road, Mecklenburg Co., NC.

DATE: July 30, 2007

This lot has an area that is **SUITABLE** for conventional or Innovative (EZflow) septic system, however because of uneven topography (old eroded gullies) the T and J Panel Block System (PPBS) would work best. The soils are group 4 with mean depth to saprolite more than 48 inches and more than 48 inches to a seasonal water table. The septic system for a four bedroom house requires 270 linear feet of lines for the Panel Block System. LTAR of 0.3 gpd/ft square, design flow of 480 GPD or 270 feet of lateral length of lines for Panel Block System required or 4 lines at 55, 80, 80 and 80 feet for a total of 66 panels. The gullies at the end of the lines should be filled with soil during or before installation. The trenches shall be 36 inches wide and not less than nine feet on center. The trench depths may vary between 28 and 36 inches. The repair area is down slope and has the same panel block system with varying length lines between the gullies. (See attached design, design specifics, lot map and soil/site evaluation.)

The above soils report is my opinion as a licensed soil scientist; however, wastewater treatment systems must be approved by the local health department.

CC: Trevor Thomason
Mecklenburg County Environmental Health

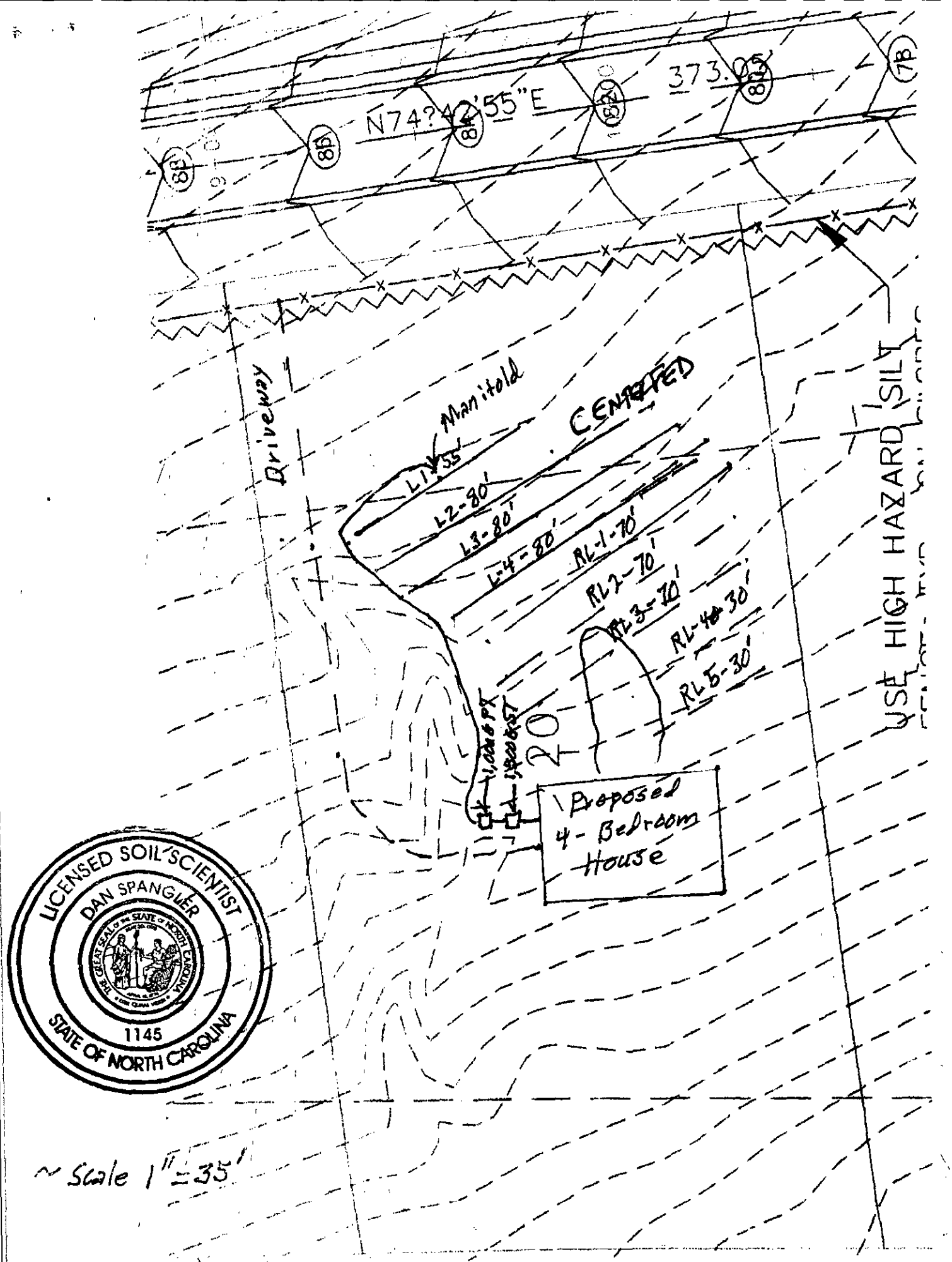
GWS Septic System Design Review

GWS File #: ~~7495B~~ 6499B **Approved** **Disapproved**

Design Review: TCT 8-3-07 ☐ ☒

Field Review: _____ ☐ ☐

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


N74?4?'55"E
373.05'
Driveway
Manifold
CENTERED
L1-55'
L2-80'
L3-80'
L4-80'
RL1-70'
RL2-70'
RL3-70'
RL4-30'
RL5-30'
20
Proposed
4-Bedroom
House
USE HIGH HAZARD SILT
LICENSED SOIL SCIENTIST
DAN SPANGLER
1145
STATE OF NORTH CAROLINA
~ Scale 1" = 35'

DESIGN SPECIFICS

Lot 20 Irongate Subdivision

Daily Design Flow:	**480 GPD – 4 bedroom house**
Septic Tank Size:	**1500 gallons (2 compartments)**
Pump Tank Size:	**1000 gallons (one piece)**
Effluent Loading Rate:	**Design = 0.3 GPD per ft/sq**
	T & J Panel Block (PPBS)
Supply Length and Diameter:	**Approx. 130ft of 2" Sch. 40**
	PVC (please see note)
Number and Size of Laterals:	**4 lines @ 55, 80, 80 & 80 ft**
Hole Size:	**5/32 inch**
Hole Spacing:	**1 per panel = 66 total**
Number of Panels:	**66**
Dosing Volume:	**178 gallons per dose**
Flow Rate through system:	**37.4 gallons per minute**
Elevation Head:	**18 feet (may vary, see note)**
Pressure Head:	**2 feet**
Pump Requirements:	**39.4 GPM at 24.2 TDH**
	(2 GPM added for vapor lock)
Depth of Water Pumped:	**8.5" check with tank manufacturer**
Pump Run:	**4.8 minutes**
Check Valve:	**Yes**
Vapor Lock Hole:	**Yes**

REVISE

*** Please note that supply line and elevation head measurements are approximate. It is the contractor's responsibility to confirm these values based upon the actual house and plumbing location. If there is a discrepancy, contact the system designer prior to beginning construction.**

Note: Follow T+J manual for Installation Instructions

66 panels x 3.6 g/Panel = 238 x 75% = 178 gallons/Dose

Iron Gate Subdivision

Owner: Reserve Properties Inc.

Tax Map: Lot 20 Parcel #: 19713103 Date: 9/3/07

Panels

Line #	Tap Diameter(in)	Tap (Sch)	Tap Flow (gpm)	Line Length (ft)	Flow / foot	
1	1/2	40	7.1	55	0.129	12
2	3/4	80	10.1	80	0.126	18
3	3/4	80	10.1	80	0.126	18
4	3/4	80	10.1	80	0.126	18
5			37.4 gpm	295'		66
6						
7						
8						
9						
10						

PPBPS SYSTEM

_____ ft of line x 65 gal. per 100 ft = _____ ÷ 100 = _____ gal

75% x _____ gal = 178 gal per dose 37.4 gal per minute (gpm) = Flow Rate

Friction Head

Loss: 2.7 ft per 100 ft of supply line x 130 ft of supply line ÷ 100 = 3.5 ft

3.5 ft x 1.2 = 4.2 ft of friction head

Manifold Size: 3 " **Force Main Size:** 2 " PVC

Total Dynamic Head = 18 ft of Elevation head + 2 ft of Pressure head + 4.2 ft of Friction Head = 24.2 TDH

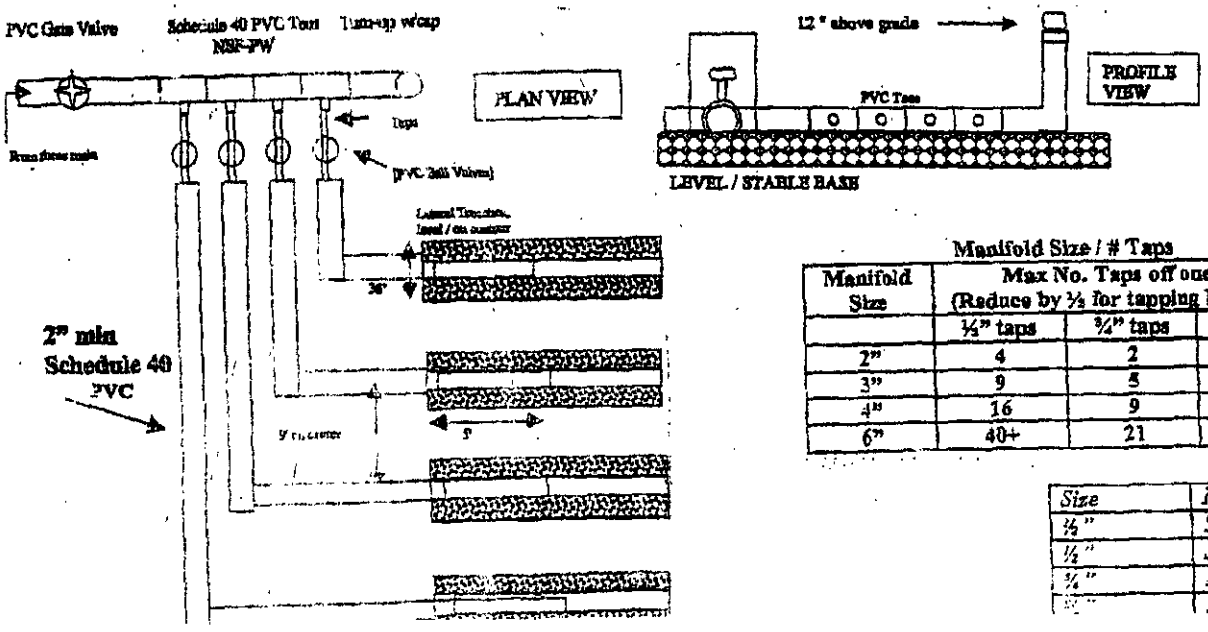
Pump Requirement: 37.4 GPM @ 24.2 ft of Head

Drawdown: 178 gal per dose ÷ 21 gal per inch = 8.5 inch drawdown per dose

Pump: Zoeller 153 or Equivalent

4.8 minute Pump Run Time

General Design Information



Manifold Size / # Taps

Manifold Size	Max No. Taps off one side (Reduce by ½ for tapping both sides)		
	½" taps	¾" taps	1" taps
2"	4	2	
3"	9	5	3
4"	16	9	5
6"	40+	21	12

Flow per Tap

Size	Material	Flow GPM
½"	Sched 80	5.5
½"	Sched 40	7.1
¾"	Sched 80	10.1
¾"	Sched 40	12.5

DAN SPANGLER
802 BRADFORD PLACE, MONROE, NC 28110
MOBILE: (704) 291-1909 OFFICE/ FAX: (704) 282-2319

PROPERTY ID #: 19713/03
PROPERTY RECORDED:
COUNTY: Mecklenburg

SOIL/SITE EVALUATION
FOR
ON-SITE WASTEWATER SYSTEM

APPLICANT: Reserve Properties Inc. OWNER: ☐ AGENT: ☑ PHONE: 704-641-5898
ADDRESS: 1101 East of Mullis Road DATE EVALUATED: 5/17/07
Indian Trail, NC 28079 PROPOSED FACILITY: 4-Bedroom
PROPERTY SIZE: ~1 Acre
LOCATION OF SITE: Lot 20, Frangote Subdivision, Brief Road
WATER SUPPLY: On-Site Well ☐ Comm. Well ☐ Public ☑ Other _____ EVALUATION METHOD: Auger Boring ☑ Pit

PROFILE #	.1940 LANDSCP POS./ SLOPE %	HORIZON DEPTH (IN.)	.1941 (a)(1) TEXTURE	.1941 (a)(2) STRUCTURE	.1941 (a)(3) MINEROLOGY		
1	Ridge	0-2" A	Brown SSL	Gr. 2 fgr	SO/PO	.1942 WETNESS CONDITION	- 74811
	6%	2-48" Bt	2.5YR 4/6 C	Gr. 3 fsbk	SS/SP	.1943/.1956 SAPROLITE	- 74811
						.1944 RESTRICTIVE HORIZON	- 74811
						.1948 PROFILE CLASSIFICATION	- Suitable
						PROFILE LTAR	- 0.3
						SYSTEM TYPE	- Conventional / TJP.
		COMMENTS: Cecil Soil					
2	SS	0-3" A	Brown FSL	fr. 2 fgr	SO/PO	.1942 WETNESS CONDITION	- 74811
	7%	3-48" Bt	2.5YR 4/2 C	fr. 2 fsbk	SO/PO	.1943/.1956 SAPROLITE	- 74811
						.1944 RESTRICTIVE HORIZON	- 74811
						.1948 PROFILE CLASSIFICATION	- Suitable
						PROFILE LTAR	- 0.3
						SYSTEM TYPE	- Conventional / TJ Panel
		COMMENTS: Cecil Soil					
3	SS	0-4" A	Red CL	fr. 1 msbk	SO/SP	.1942 WETNESS CONDITION	- 74811
	7%	4-48" Bt	2.5YR 4/8 C	fr. 2 fsbk	SS/SP	.1943/.1956 SAPROLITE	- 74811
						.1944 RESTRICTIVE HORIZON	- 74811
						.1948 PROFILE CLASSIFICATION	- Suitable
						PROFILE LTAR	- 0.3
						SYSTEM TYPE	- Conventional / TJ Panel
		COMMENTS: Cecil Soil					
4						.1942 WETNESS CONDITION	-
						.1943/.1956 SAPROLITE	-
						.1944 RESTRICTIVE HORIZON	-
						.1948 PROFILE CLASSIFICATION	-
						PROFILE LTAR	-
						SYSTEM TYPE	-
		COMMENTS:					

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

Sheet: 1 of 2
Property ID: PO 197-131-05
Lot #: 17
File #: 6499B
Code: 2

SOIL/SITE EVALUATION
for ON-SITE WASTEWATER SYSTEM

Owner: Angela B. Page
Applicant: J. Scot Collins
Address: 9900 Brief Road, Charlotte, N. C. 28227
Date Evaluated: 6/7/06
Proposed Facility: Residence
Design Flow (.1949): 480gpd
Property Size: .74a
Location of Site: 9820Brief Road
Property Recorded:
Water Supply: [ ] Public [x] Individual [x] Well [ ] Spring [ ] Other
Evaluation Method: [x] Auger Boring [ ] Pit [ ] Cut
Type of Wastewater: [x] 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 (IN.)	.1956 Sapro Class	.1944 Restr Horiz	Profile Class & LTAR
1	LS, 10	0-4	GR/CL	FR/SEXP/SS/SP	>21" TO SOIL WETNESS	21	N/A	NONE	US, IV
		4-21	SBK/C	FI/SEXP/S/P					.12GPD/FT^2
2	"	0-4	GR/CL	FR/SEXP/SS/SP	>48" TO SOIL WETNESS	48+	"	"	PS, IV
		4-9	SBK/CL	"					.275GPD/FT^2
		9-48	SBK/C	FI/SEXP/S/P					

Description	Initial System	Repair System
Available Space (.1945)	PS	PS
System Type(s)	Iva	Iva
Site LTAR	.3GPD/FT^2	.3GPD/FT^2

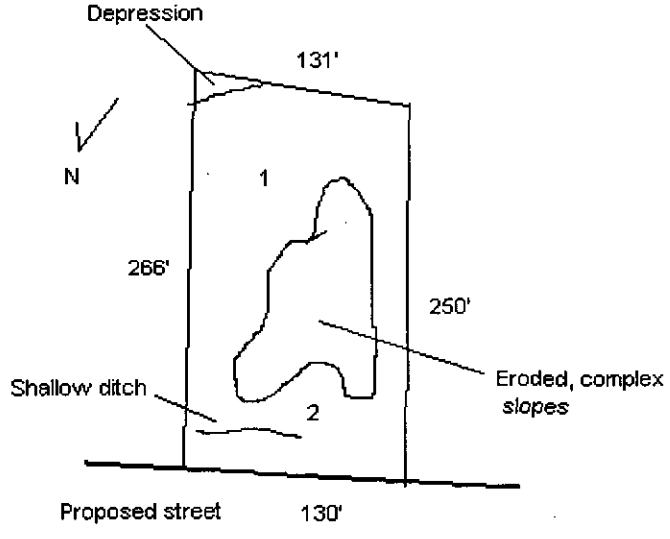
Other Factors (.1946):
Site Classification (.1948): Provisionally Suitable
Evaluated By: W. R. Martin, LSS, 6/8/2006
Others Present:
Site Evaluation by: David Cornelius & Kelly Randall

COMMENTS:
100% repair

Landscape Position	Group	Texture	.1955 LTAR	Structure
R-Ridge	I	S-Sand	1.2 - 0.8	SG-Single Grain
SS-Shoulder Slope		LS-Loamy Sand		M-Massive
LS-Linear Slope				CR-Crumb
FS-Food Slope	II	SL-Sandy Loam	0.8 - 0.6	GR-Granular
NS-Nose Slope		L-Loam		SBK-Subangular Blocky
HS-Head Slope				ABK-Angular Blocky
CC-Concave Slope	III	SI-Silt	0.6 - 0.3	PL-Platy
CV-Convex Slope		SICL-Silty Clay Loam		PR-Prismatic
T-Terrace		CL-Clay Loam		
FP-Flood Plain		SCL-Sandy Clay Loam		
	IV	SC-Sandy Clay	0.4 - 0.1	
		SIC-Silty Clay		
		C-Clay		

Consistence Moist	Consistence Wet	Mineralogy
VFR-Very Friable	NS-Non-Sticky	SEXP-Slightly Expansive
FR-Friable	SS-Slightly Sticky	EXP-Expansive
FI-Firm	S-Sticky	
VFI-Very Firm	VS-Very Sticky	
EFI-Extremely Firm	NP-Non-Plastic	
	SP-Slightly Plastic	
	P-Plastic	
	VP-Very Plastic	

Sketch of Soil Evaluation Locations



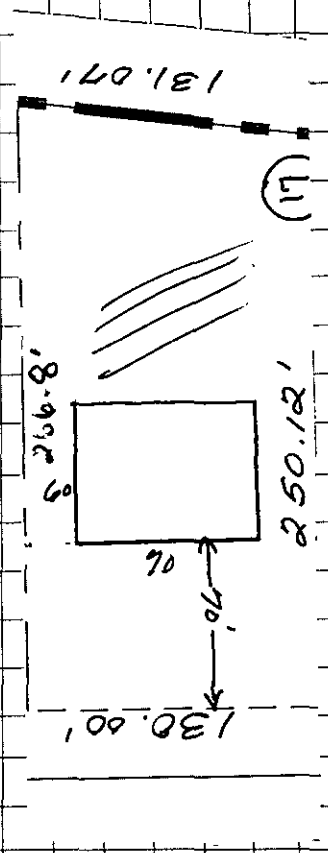
PROPOSED PLOT PLAN

HEALTH DEPARTMENT
ENVIRONMENTAL HEALTH DIVISION
700 NORTH TRYON ST., SUITE 211
CHARLOTTE, NC 28202
PHONE (704) 336-5103

FILE: 6499B

TC: _____

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.



APPROVAL DATE _____

OWNER/AGENT SIGNATURE

DATE

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

MECKLENBURG COUNTY
Health Department

August 4, 2006

J. Scot Collins
1101 Lester Mullis Road
Indian Trail NC 28079

Re: Application for improvement permit for
Property Site: Lot 17 20
Health Department file number: **6499B**

Dear Property Owner or Owner's Agent:

The Mecklenburg County Health Department, Environmental Health Division on June 8, 2006 evaluated the above-referenced property at the site designated on the plat that accompanied your improvement permit application. According to your application the site is to serve 4 bedroom house, with a daily design flow of 480 gallons per day. The evaluation was done in accordance with the laws and rules governing wastewater systems in North Carolina General Statute 130A-333 and related statutes and Title 15A, Subchapter 18A, of the North Carolina Administrative Code, Rule .1900 and related rules.

Based on the criteria set out in Title 15A, Subchapter 18A, of the North Carolina Administrative Code, Rules .1940 through .1948, the evaluation indicated that the site is **UNSUITABLE** for a ground absorption sewage system. Therefore, your request for an improvement permit is **DENIED.** A copy of the site evaluation is enclosed. The site is unsuitable based on the following:

- ☒ Unsuitable soil topography and/or landscape position (Rule .1940)
- ☐ Unsuitable soil characteristics (structure or clay mineralogy) (Rule .1941)
- ☐ Unsuitable soil wetness condition (Rule .1942)
- ☐ Unsuitable soil depth (Rule .1943)
- ☐ Presence of restrictive horizon (Rule .1944)
- ☒ Insufficient space for septic system and repair area (Rule .1945)
- ☒ Unsuitable for meeting required setbacks (Rule .1950)
- ☐ Other (Rule .1946)

These severe soil or site limitations could cause premature system failure, leading to the discharge of untreated sewage on the ground surface, into surface waters, directly to ground water or inside your structure.

The site evaluation included consideration of possible site modifications, and modified, innovative or alternative systems. However, the Health Department has determined that none of the above options will overcome the severe conditions on his site. A possible option might be a system designed to dispose of sewage to another area of suitable soil or offsite to additional property.

For the reasons set out above, the property is currently classified **UNSUITABLE,** and an improvement permit shall not be issued for this site in accordance with Rule .1948 (c).

However, the site classified as **UNSUITABLE** may be classified as **PROVISIONALLY SUITABLE** if written documentation is provided that meets the requirements of Rule .1948(d). A copy of this rule is enclosed. You may hire a consultant to assist you if you wish to try to develop a plan under which your site could be reclassified as **PROVISIONALLY SUITABLE.**

You have a right to an informal review of this decision. You may request an informal review by the soil scientist or environmental health supervisor at the local health department. You may also request an informal review by the N. C. Department of Environment and Natural Resources regional soil specialist. A request for informal review must be made in writing to the local health department.

You also have a right to a formal appeal of this decision. To pursue a formal appeal, you must file a petition for a contested case hearing with the Office of Administrative Hearings, 6714 Mail Center, Raleigh, NC 27699-6714. To get a copy of a petition form, you may write the Office of Administrative Hearings or call the office at (919) 733-0926 or from the OAH web site at www.oah.state.nc.us/form.htm. The petition for a contested case hearing must be filed in accordance with the provision of North Carolina General Statutes 130A-24 and 150B-23 and all other applicable provisions of Chapter 150B. N. C. General Statue 130A-335(g) provides that your hearing would be held in the county where your property is located.

Please note: If you wish to pursue a formal appeal, you must file the petition form with the Office of Administrative Hearings **WITHIN 30 DAYS OF THE DATE OF THIS LETTER.** The date of this letter is August 4, 2006. Meeting the 30-day deadline is critical to your right to a formal appeal. Beginning a formal appeal within 30 days will not interfere with any informal review that you might request. Do not wait for the outcome of any informal review if you wish to file a formal appeal.

If you file a petition for a contested case hearing with the Office of Administrative Hearings, you are required by law (N.C. General Statute 150B-23) to send a copy of your petition to the North Carolina Department of Environment and Natural Resources. Send the copy to: Office of General Counsel, N. C. Department of Environment and Natural Resources, 1601 Mail Service Center, Raleigh, NC. 27699-1601. Do **NOT** send the copy of the petition to your local health department. Sending a copy of your petition to the local health department will **NOT** satisfy the legal requirement in N.C. General Statute 150B-23 that you send a copy to the Office of General Counsel, NCDENR.

You may call or write the local health department if you need any additional information or assistance.

Sincerely,

David Cornelius, R.S.
Authorized Agent - DENR

Encl: (2)