

**Mitchell Environmental, P.A.**

**SITE EVALUATION FOR USE OF ON-SITE SEWAGE  
DISPOSAL SYSTEMS  
for  
PARKER SPRINGS SUBDIVISION  
CHATHAM COUNTY, NORTH CAROLINA**

**Submitted to:**

Chatham County Public Health Department  
Environmental Health Division  
80 East Street  
Pittsboro, North Carolina 27312

**Prepared for:**

Parker Springs, LLC  
4441 Six Forks Road  
Suite 106-142  
Raleigh, North Carolina 27609

**Prepared by:**

Scott Mitchell, PE, LSS  
Rob Caron  
Jeff Bullard  
Robin Eddy

**DATE: January 9, 2008**  
**PROJECT NO.: 5506**



01-09-2008

## **I. Introduction**

On various dates in 2006, a preliminary site evaluation for use of on-site sewage disposal systems was completed for proposed Parker Springs Subdivision in east Chatham County. The 87 acre tract (*PIN 9773-60-6982.000*) evaluated for this proposed subdivision is located east of Mount Gilead Church Road, immediately east of the intersection of Mount Gilead Church Road and Silverberry Road. After the preliminary site evaluation was completed, proposed lot lines were flagged, and a more detailed evaluation was completed for each proposed lot. The detailed site evaluation was completed on various dates in 2007.

Concurrent with the detailed soil evaluation for each lot, proposed septic system nitrification fields were flagged on all lots. Several lots will utilize off-site or remote nitrification fields for waste treatment and disposal. Remote nitrification fields will be installed on individual parcels that are perpetually tied by deed to the lot served, as long as the remote nitrification field is required. Proposed nitrification lines for all remote systems have been flagged as well. Plans illustrating flagged nitrification fields and house locations are included with this report to illustrate that each lot does have sufficient space for a complete initial system and full repair if needed. Additionally, the large majority of nitrification fields (*45 of 50*) were flagged with individual lines spaced on 10-foot centers, regardless of soil depth. This purpose for this approach is to provide for an additional factor of safety in individual designs as well as to readily accommodate LPP or subsurface drip system layouts where required. The 5 remaining lots have individual nitrification lines flagged on 9-foot centers, due to exceptional soil depth that should easily accommodate conventional nitrification trenches.

## **II. Status of Site Improvements and Vegetative Cover**

The entire tract is covered with forest vegetation of various ages and degrees of maturity. The only improvements observed on the site include remnants of an abandoned structure and cemetery near the east boundary of the site. A soil road leads to the observed improvements. Other improvements may be present but were not observed.

## **III. Method of Evaluation and Soil Moisture Conditions**

Soils on the site were evaluated using a combination of hand auger borings and soil pits installed using a tracked excavator. The entire detailed evaluation was completed during drought conditions, hence observed soil moisture was minimal. Outside of jurisdictional streams, no standing water was observed at any location on the site.

## **IV. Soils Analysis**

According to the Chatham County Soil Survey, the site is covered by soils of the Badin-Nanford Complex, Cid-Lignum Complex, Georgeville Series, Georgeville-Badin Complex and Nanford-Badin Complex. Each of these soils has moderate limitations for septic system nitrification fields due to slow percolation rates. Provisionally suitable soils represented by the above listed soil series have formed in Carolina Slate Belt rocks and other fine grained rocks.

Floodprone areas of the site were not evaluated due to their unsuitable landscape position. Additionally, several areas on the property were found to be unsuitable or potentially unsuitable for conventional nitrification fields due to improvements listed above, shallow depth to expansive or mixed-mineralogy clays, saprolite or bedrock, landscape position, compaction, gullies, remnant ditches from past land use activities and/or evidence of a shallow seasonal high water table. Soil suitability observations for each auger boring and soil pit are detailed on high

visibility flagging. Mitchell Environmental staff utilize a color coding system to indicate the provisionally suitable soil depth range as follows:

- Red : 36"+
- Pink and Black stripe : 30" to < 36"
- Blue and White stripe : 24" to < 30"
- Yellow : 18" to < 24"
- Orange and Yellow combination : 12" to < 18"
- Orange : < 12"

The attached map indicates the approximate boundary of provisionally suitable soil depth ranges on the site. Observed soils on this site exhibit various controlling textures including clay loam, silty clay loam, silty clay and clay. Conventional sewage systems for proposed lots should be designed for a long-term acceptance rate of 0.3-0.275 gpd/ft<sup>2</sup> for conventional trench systems and 0.15-0.075 gpd/ft<sup>2</sup> for nitrification fields that utilize pressure distribution and LPP or subsurface drip dispersal.

#### V. Proposed Use and Source of Water Supply

Upon approval, the site will be subdivided into 50 lots for 4 or 5 bedroom, single-family homes. Individual septic systems will be installed on each lot or on off-site/remote nitrification fields. Potable water will be supplied by a connection to the Chatham County public water supply system.

#### VI. Certification Statement

##### CERTIFICATION OF REVIEW BY LICENSED SOIL SCIENTIST

I HEREBY CERTIFY THAT LOT(S) 1-50 SHOWN ON THIS PLAT FOR PARKER SPRINGS SUBDIVISION HAVE BEEN REVIEWED AS APPROPRIATE AND WITH RESPECT TO THE LAWS AND RULES FOR SEWAGE TREATMENT AND DISPOSAL SYSTEMS IN NORTH CAROLINA (*15A NCAC 18A .1900*) AS AMENDED FROM TIME TO TIME. AS OF THIS DATE, AND BASED ON THIS REVIEW OF EXISTING SITE CONDITIONS THE LOTS NUMBERED ABOVE ON THIS PLAT WILL PRESUMABLY MEET THESE REGULATIONS.

PRELIMINARY CERTIFICATION DOES NOT REPRESENT APPROVAL OR A PERMIT FOR ANY SITE WORK, NOR DOES IT GUARANTEE ISSUANCE OF AN IMPROVEMENT PERMIT FOR ANY LOT. FINAL SITE APPROVAL FOR ISSUANCE OF IMPROVEMENT PERMITS IS BASED ON REGULATIONS IN FORCE AT THE TIME OF PERMITTING AND IS DEPENDENT ON SATISFACTORY COMPLETION OF INDIVIDUAL SITE EVALUATIONS FOLLOWING APPLICATION FOR AN IMPROVEMENT PERMIT DETAILING A SPECIFIC USE AND SITING.

ANY CHANGE IN USE OR ANY SITE ALTERATION MAY RESULT IN SUSPENSION OR REVOCATION OF CERTIFICATION.

DATE



\_\_\_\_\_  
LICENSED SOIL SCIENTIST (SEAL)

01-09-2008

**Representative Soil Profile Descriptions**

# Soil Profile Description

Project: Parker Springs #5506  
 Date: 11/3/2007  
 Location ID: Lot # 49  
 Landscape Position: Flat Coastal Drive  
 Completed By: Jeff Bullard  
 Weather Conditions: Sunny  
 Slope: 2-6%

Mitchell Environmental, PA  
 Sunny  
 2-6%

Horizon	Depth (inches)	Texture	Matrix Color (Munsell Moist)	Mottles or Redoximorphic Features		Structure			Consistence			
				Color (Munsell Moist)	Abundance	Type	Grade	Class	Moist	Stickiness	Plasticity	
O	0-1	Rooty	7.5YR 3/2	-	-							
AB	1-8	SIC	7.5YR 5/6	-	-	SBK	2	F	FR	MS	MP	
B1	8-29	SIC	2.5YR 4/8	10YR 5/8	3%	SBK	2	F	FR	MS	MP	
B2	29 - 36	SIC	2.5YR 4/8	10YR 5/8	30%	SBK	2	F	FR	MS	MP	

Suitability Class							

Restrictive Horizons Encountered? \_\_\_\_\_  
 If So, At What Depth(s)? \_\_\_\_\_  
 Overall Suitability: \_\_\_\_\_  
 Comments: \_\_\_\_\_



### Soil Profile Description

Project: Parker Springs #5506  
 Date: 11/3/2007  
 Location ID: Off Site - K  
 Landscape Position: Ridge top  
 Completed By: Jeff Bullard  
 Weather Conditions: Sunny  
 Slope: 0-6%

Mitchell Environmental, PA

Horizon	Depth (inches)	Texture	Matrix Color (Munsell Moist)	Mottles or Redoximorphic Features		Structure			Consistence		
				Color (Munsell Moist)	Abundance	Type	Grade	Class	Moist	Stickiness	Plasticity
A	0-10	CL	7.5YR 5/6	-	-	SBK	2	VF	FR	SS	SP
B1	10 - 30	SIC L	2.5YR 4/8	-	-	SBK	2	VF	FR	SS	SP
B2	30 - 36+	SIC L	2.5YR 4/8	10YR 5/6	20%	SBK	2	VF	FR	SS	SP

Suitability Class											
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Restrictive Horizons Encountered? \_\_\_\_\_

If So, At What Depth(s)? \_\_\_\_\_

Overall Suitability: \_\_\_\_\_

Comments: \_\_\_\_\_

# Soil Profile Description

Project: Parker Springs #5506  
 Date: 11/3/2007  
 Location ID: Grave yard area (near lot 19)  
 Landscape Position: Ridge top

Completed By: Jeff Bullard  
 Mitchell Environmental, PA  
 Weather Conditions: Sunny  
 Slope: 0-2%

Horizon	Depth (inches)	Texture	Matrix Color (Munsell Moist)	Mottles or Redoximorphic Features		Structure			Consistence			
				Color (Munsell Moist)	Abundance	Type	Grade	Class	Moist	Stickiness	Plasticity	
O	0-2		10YR 3/2	-	-					FR	SO	PO
A	2-10	SIC	7.5YR 5/4	2.5YR 6/2 // 5YR 4/4	multicolor	GR	1	F	FR	FR	MS	MP
B	10-24	SC	7.5YR 5/8	2.5YR 6/2 // 5YR 4/6	multicolor	PR	3	2-2.5"	FI	FI	VS	VP
C	24+	SC	10YR 6/6	multicolor		MA	0	2-2.5"	FI	FI	MS	PO

Suitability Class

Restrictive Horizons Encountered? \_\_\_\_\_

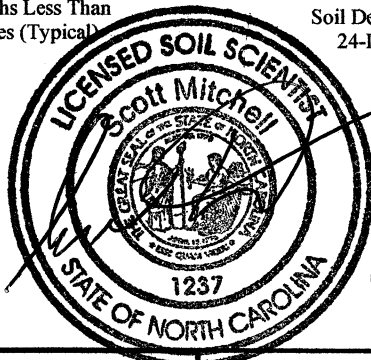
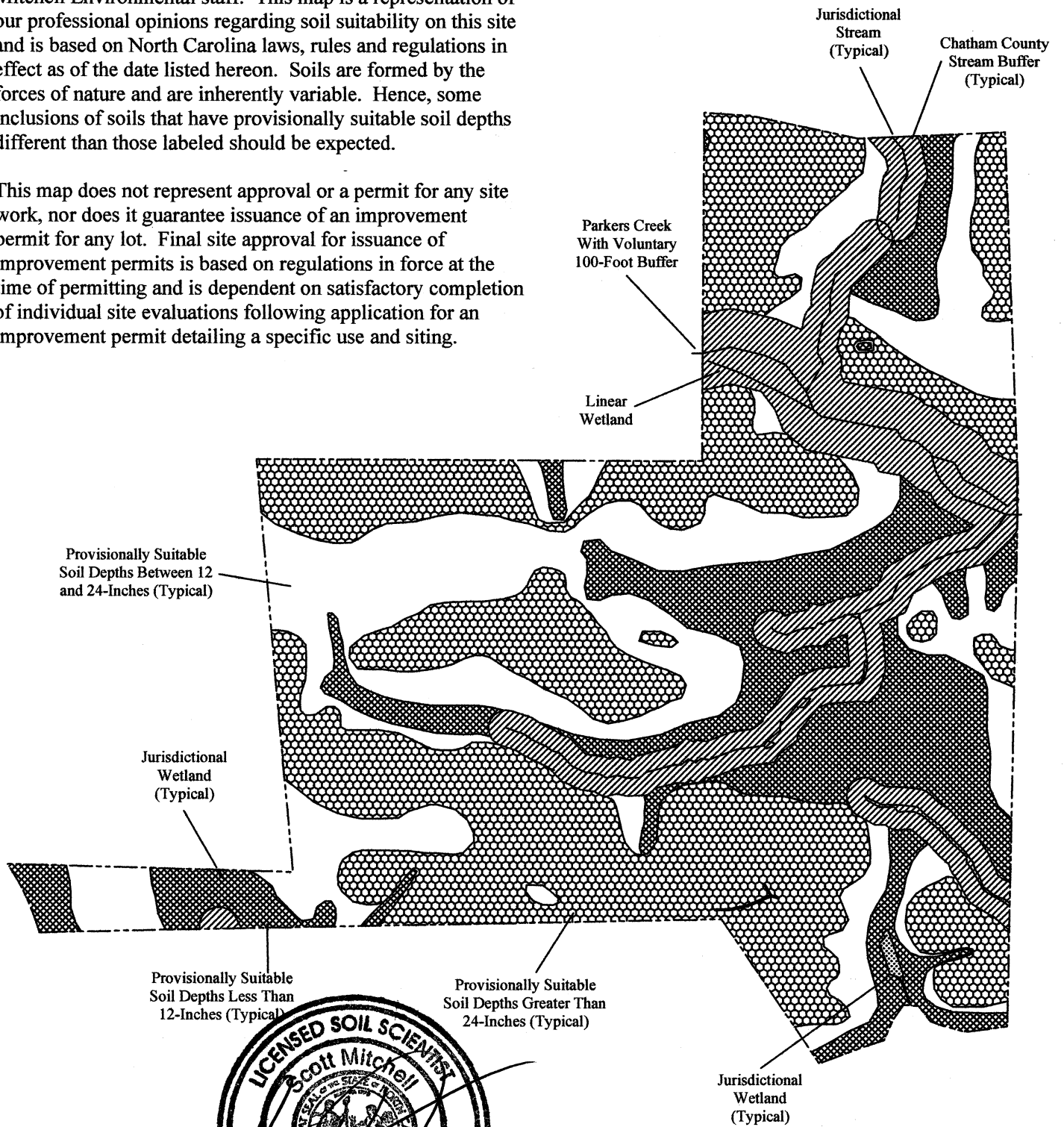
If So, At What Depth(s)? \_\_\_\_\_

Overall Suitability: \_\_\_\_\_

Comments: \_\_\_\_\_

This map illustrates soil suitability observations made by Mitchell Environmental staff. This map is a representation of our professional opinions regarding soil suitability on this site and is based on North Carolina laws, rules and regulations in effect as of the date listed hereon. Soils are formed by the forces of nature and are inherently variable. Hence, some inclusions of soils that have provisionally suitable soil depths different than those labeled should be expected.

This map does not represent approval or a permit for any site work, nor does it guarantee issuance of an improvement permit for any lot. Final site approval for issuance of improvement permits is based on regulations in force at the time of permitting and is dependent on satisfactory completion of individual site evaluations following application for an improvement permit detailing a specific use and siting.



01-08-2008



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 FAX: 919-557-4683

PREPARED FOR: Parker Springs, LLC  
 318 West Millbrook Road  
 Raleigh, North Carolina 27609

DATE: January 8, 2007      SCALE: 1" = 400'

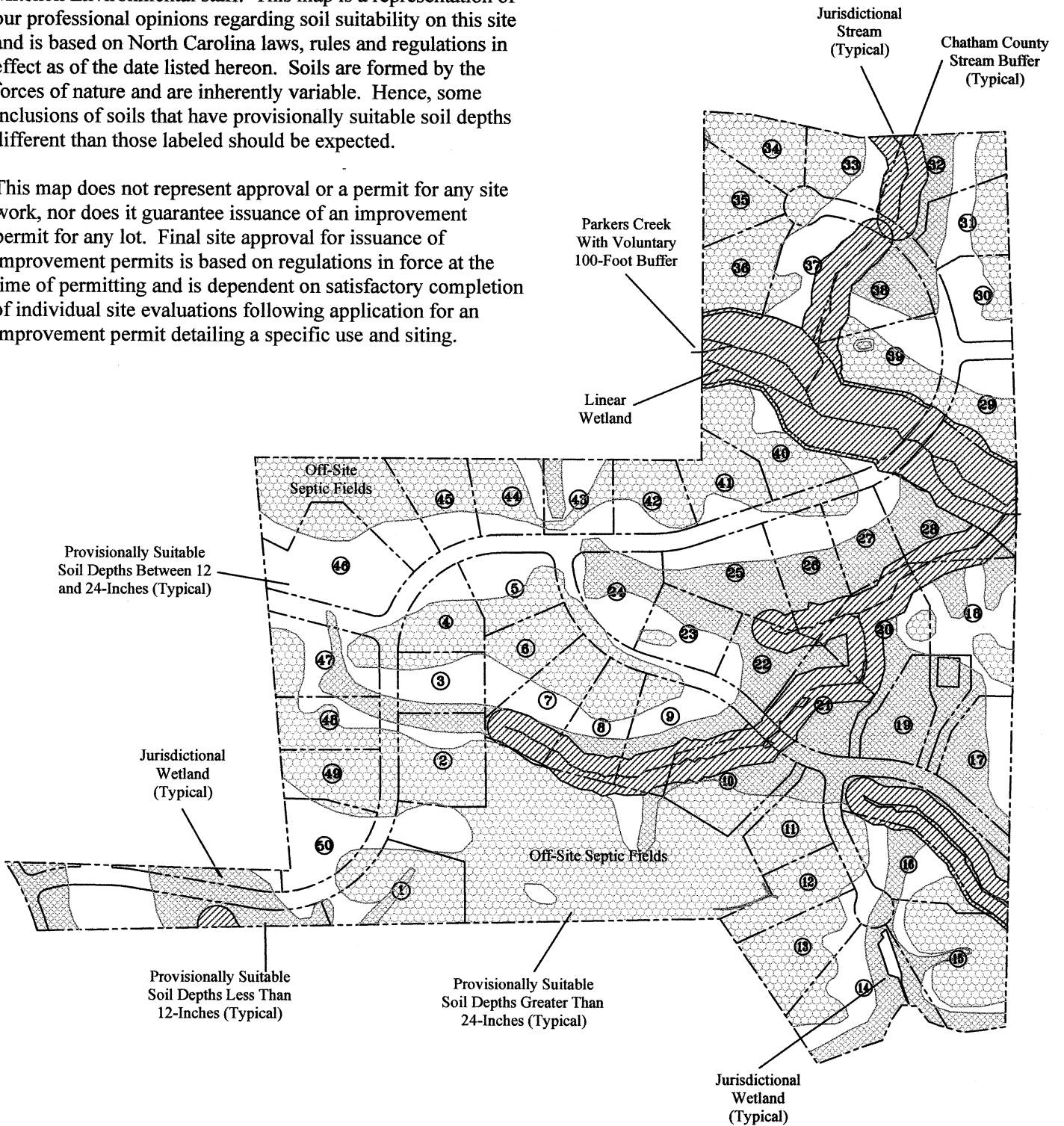
SOIL SCIENTIST CONTACT:  
 SCOTT MITCHELL, PE, LSS

**PARKER SPRINGS S/D**  
**CHATHAM COUNTY**

**OVERALL SOIL**  
**SUITABILITY MAP**

This map illustrates soil suitability observations made by Mitchell Environmental staff. This map is a representation of our professional opinions regarding soil suitability on this site and is based on North Carolina laws, rules and regulations in effect as of the date listed hereon. Soils are formed by the forces of nature and are inherently variable. Hence, some inclusions of soils that have provisionally suitable soil depths different than those labeled should be expected.

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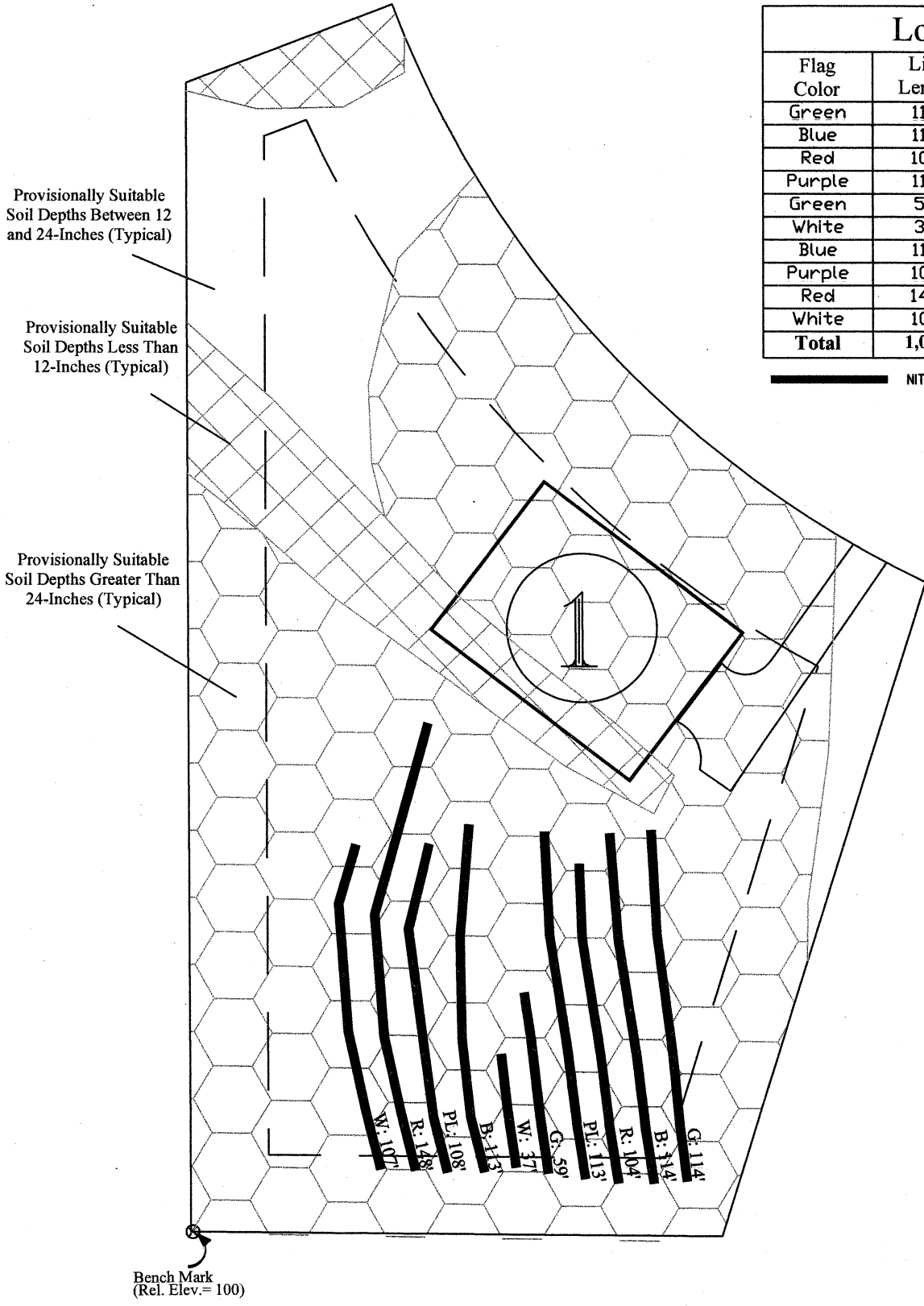
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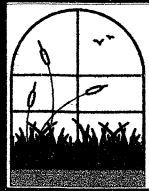
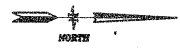
**PARKER SPRINGS S/D**  
**CHATHAM COUNTY**  
**OVERALL SOIL SUITABILITY**  
**MAP (WITH LOTS)**



Lot 1		
Flag Color	Line Length	Relative Elevation
Green	114'	105.9
Blue	114'	105.8
Red	104'	105
Purple	113'	104.6
Green	59'	104.6
White	37'	104.2
Blue	113'	103.6
Purple	108'	102.8
Red	148'	102
White	107'	101.7
<b>Total</b>	<b>1,017'</b>	

————— NITRIFICATION LINES

Note: Nitrification Lines Flagged on 10-Foot Centers.



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PREPARED FOR: *Parker Springs, LLC*  
 c/o Rusty Ammons

DATE: JAN 8, 2008      SCALE: 1" = 50'

SOIL SCIENTIST CONTACT:  
 SCOTT MITCHELL, PE, LSS

**PARKER SPRINGS**  
 CHATHAM COUNTY, NC

**LOT 1**  
 INITIAL & REPAIR SYSTEM

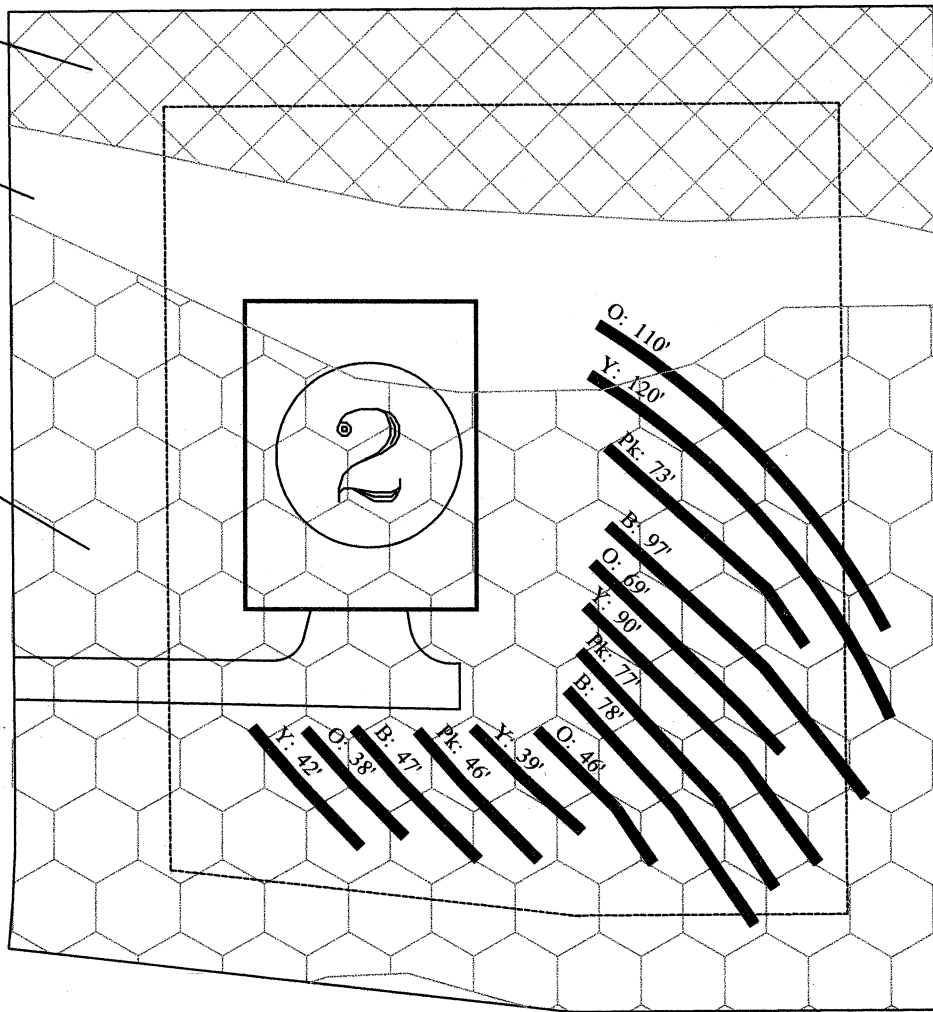
Lot 2		
Flag Color	Line Length	Relative Elevation
Yellow	42'	105.8
Orange	38'	105.3
Blue	47'	105
Pink	46'	104.6
Yellow	39'	103.9
Orange	46'	103.8
Blue	78'	103.2
Pink	77'	102.9
Yellow	90'	102.2
Orange	70'	101.8
Blue	100'	101.1
Pink	75'	100.7
Yellow	130'	99.6
Orange	120'	98.7
<b>Total</b>	<b>993'</b>	

————— NITRIFICATION LINES

Provisionally Suitable  
Soil Depths Less Than  
12-Inches (Typical)

Provisionally Suitable  
Soil Depths Between 12  
and 24-Inches (Typical)

Provisionally Suitable  
Soil Depths Greater Than  
24-Inches (Typical)



Note: Nitrification  
Lines Flagged on  
10-Foot Centers.

Bench Mark  
(Rel. Elev. = 100)



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**PARKER SPRINGS**  
CHATHAM COUNTY, NC

**LOT 2**  
**INITIAL SYSTEM**