

SOUTHEASTERN SOIL & ENVIRONMENTAL ASSOC., INC.

PROPOSED SUBSURFACE WASTE DISPOSAL SYSTEM DETAIL SHEET

SUBDIVISION Woodsdale LOT 102

INITIAL SYSTEM 25% reduction REPAIR SYSTEM pump to 15% reduction

BENCHMARK ELEV. 100.0 LOCATION rear corner 101/102

TYPE OF DISTRIBUTION O-box (GRAVITY FLOW)

LINE	ELEVATION	LENGTH	FLAG COLOR
1	109.08	50'	Green
2	107.25	50'	O
3	104.84	50'	R
4	102.08	90'	W
5	102.00	90'	B
		<u>330'</u>	
6	100.75	50'	R
7	99.75	90'	Blw
8	98.50	60'	Y/W
9	97.04	35'	B
		<u>295'</u>	

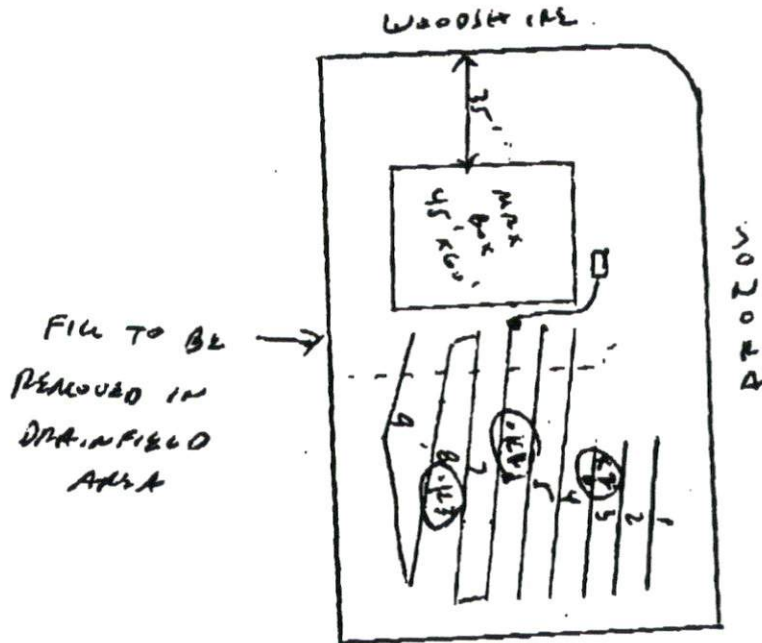
BY M EAKER DATE JAN 2006

FLAG COLOR: Y = YELLOW R = RED W = WHITE B = BLUE O = ORANGE P = PINK

# Southeastern Soil & Environmental Associates, Inc.

P.O. Box 9321  
Fayetteville, NC 28311  
Phone/Fax (910) 822-4540  
Email meaker3851@aol.com

Lot 102  
WOODHIRE



\* 3 BR MAX

\* MAX HOUSE SIZE = 45' x 60'

K1, K2, K3 =

REAT LOCATION

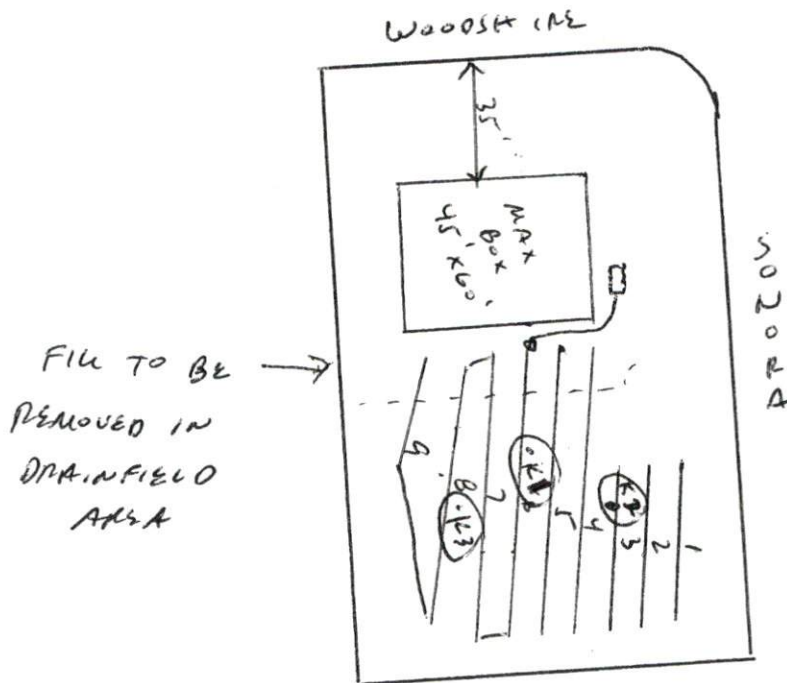
INITIAL PROPOSED LTAR = 0.4 gal/ft<sup>2</sup>

REPAIR PROPOSED LTAR = 0.3 gal/ft<sup>2</sup>

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Lot 102  
 Woodshire



\* 3 BR MAX

\* MAX HOUSE SIZE = 45' x 60'

K1, K2, K3 =

REAT LOCATIONS

INITIAL PROPOSED LTAR = 0.4 gpd/ft<sup>2</sup>

REPAIR PROPOSED LTAR = 0.3 gpd/ft<sup>2</sup>

SOUTHEASTERN SOIL & ENVIRONMENTAL ASSOC., INC.

PROPOSED SUBSURFACE WASTE DISPOSAL SYSTEM DETAIL SHEET

SUBDIVISION WOODRIDGE LOT 102

INITIAL SYSTEM 25% reduction REPAIR SYSTEM pump to 15% reduction

BENCHMARK ELEV. 100.0 LOCATION rear corner 101/102

TYPE OF DISTRIBUTION D-box (GRAVITY FLOW)

INITIAL LTAR = 0.4 gpd/ft<sup>2</sup>  
 REPAIR " = 0.3 gpd/ft<sup>2</sup>

LINE	ELEVATION	LENGTH	FLAG COLOR
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8	98.50	60'	Y/W
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		<u>275'</u>	

BY M EAKER DATE JAN 2006

FLAG COLOR: Y = YELLOW R = RED W = WHITE B = BLUE O = ORANGE P = PINK

SITE/SOIL EVALUATION  
FOR  
ON-SITE WASTE WATER

APPLICANT: LWS PHONE: \_\_\_\_\_ APPLICATION DATE: \_\_\_\_\_  
ADDRESS: \_\_\_\_\_  
COUNTY: Harnett PROPERTY SIZE: \_\_\_\_\_ PROPOSED FACILITY: 3 BR  
LOCATION OF SITE: \_\_\_\_\_  
WATER SUPPLY: On-Site Well \_\_\_\_\_ Community \_\_\_\_\_ Public  Other \_\_\_\_\_ EVALUATION BY: Auger Boring  Pit. \_\_\_\_\_ Cut \_\_\_\_\_

FACTORS		TYPICAL @ KIAT				PROFILES								
		1	2	3	4	5	6	7	8	9	10			
LANDSCAPE POSITION	.1940	LS	LS	LS										
SLOPE (%)	.1940	12%	12%	12%										
HORIZON 1 DEPTH		0-12	0-8	0-15										
Texture Group	.1941(A)(1)	LS	LS	LS										
Consistence	.1941	VF	VF	VF										
Structure	.1941(A)(2)	WGR	WGR	WGR										
Mineralogy	.1941(A)(3)	NEX	NEX	NEX										
HORIZON 2 DEPTH		12-33	8-32	15-48										
Texture Group	.1941(A)(1)	SCL	SCL	SCL										
Consistence	.1941	F	F	F										
Structure	.1941(A)(2)	SHK	SHK	SHK										
Mineralogy	.1941(A)(3)	JEX	JEX	JEX										
HORIZON 3 DEPTH		33+	32+											
Texture Group	.1941(A)(1)	PM	PM											
Consistence	.1941													
Structure	.1941(A)(2)													
Mineralogy	.1941(A)(3)													
HORIZON 4 DEPTH														
Texture Group	.1941(A)(1)													
Consistence	.1941													
Structure	.1941(A)(2)													
Mineralogy	.1941(A)(3)													
SOIL WETNESS	.1942													
RESTRICTIVE HORIZON	.1944													
SAPROLITE	.1943/1956													
CLASSIFICATION	.1948													
LONG TERM ACCEPTANCE RATE	.1955	0.3	0.4	0.4										

AVAILABLE SPACE (1945): \_\_\_\_\_ SITE LONG TERM ACCEPTANCE RATE: \_\_\_\_\_  
OTHER FACTORS (1946): \_\_\_\_\_ SYSTEM TYPE: \_\_\_\_\_  
SITE CLASSIFICATION (1948): \_\_\_\_\_

EVALUATED BY: \_\_\_\_\_ OTHERS PRESENT: \_\_\_\_\_

COMMENTS:  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

# Southeastern Soil & Environmental Associates, Inc.

P.O. Box 9321  
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Email meaker3851@aol.com

January 18, 2007

Harnett County Health Department  
PO Box 09  
Lillington, NC 27546

Re: Hydraulic conductivity (Ksat) analysis for subsurface waste disposal, Woodshire  
Subdivision, Lot 102, Harnett County, North Carolina

To whom it may concern,

An evaluation of soil and hydraulic conductivity (Ksat) has been conducted, at the request of the LWS Homes of Fayetteville, on the aforementioned property. The purpose of the investigation was to determine soil absorption rates for a proposed 25 % reduction gravelless septic system to serve a 3 bedroom single family residence. All ratings and determinations were made in accordance with "Laws and Rules for Sanitary Sewage Collection, Treatment, and Disposal, 15A NCAC 18A .1900".

3 compact constant head permeameter (CCHP) measurements were made to determine a Ksat rate at depths of 32 inches. The three Ksat measurement in the Bt and BC horizons were 0.73, 0.98 & 1.46 cm/hr. The lowest measurement (in the areas of the proposed repair system) equates to 4.28 gpd/sq.ft. Using 10% of this average (typical for systems without pretreatment), Ksat measurement equates to 0.428 gpd/sq.ft.

Our initial system is based on a proposed 0.40 gpd/sq. ft. which is considerably less than the measured rate (repair area is proposed at 0.3 gpd/ft<sup>2</sup>). In my professional opinion, this rate should allow for sufficient drainage from the proposed system.

Sincerely,



Mike Eaker  
President



### SAMPLE DATA SHEET

Measurement No. 1 Conducted by M. FAKER  
 Location Woodshire lot 102 date 1/11/07  
 Weather Condition SUNNY Temperature 60°  
 Horizon Bt Source of Water TAP

Hole depth 81 cm Measured (Actual) water level in hole  
 Distance between reference level and soil surface + 11 cm Initial 15 cm  
 Distance from the hole bottom to the reference level (D) = 92 cm Final 15 cm  
 Desired water depth in hole (H) - 15 cm Clock time  
 Constant-head tube setting (d) = 77 cm Start saturation \_\_\_\_\_  
 Steady-state reading \_\_\_\_\_

**Reservoirs Used for Measurement of the Steady-State Flow Rate**

Flow Measuring Reservoir Only \_\_\_\_\_ Conversion Factor (C.F.) = 20 cm<sup>2</sup>  
 Both Flow Measuring and Main Reservoirs  Conversion Factor (C.F.) = 105 cm<sup>2</sup>

(To obtain flow volume multiply change in water level by the appropriate C.F. from above )

Clock Time h:min	Reservoir Reading cm	Δt min	Change in Water Level cm	Flow Volume cm <sup>3</sup>	Q cm <sup>3</sup> /min	Q cm <sup>3</sup> /h	K <sub>sat</sub> cm/h
<u>9:53</u>	<u>30.7</u>	<u>3</u>	<u>0.0</u>	_____	_____	_____	_____
<u>9:56</u>	<u>30.3</u>	<u>3</u>	<u>0.4</u>	_____	_____	_____	_____
<u>9:59</u>	<u>29.9</u>	<u>3</u>	<u>0.4</u>	_____	_____	_____	_____
<u>10:02</u>	<u>29.5</u>	<u>3</u>	<u>0.4</u>	_____	_____	_____	_____
<u>10:05</u>	<u>29.1</u>	<u>3</u>	<u>0.4</u>	_____	_____	_____	_____
<u>10:08</u>	<u>28.7</u>	<u>3</u>	<u>0.4</u>	_____	_____	_____	_____
<u>10:11</u>	<u>28.3</u>	<u>3</u>	<u>0.4</u>	<u>42</u>	<u>14</u>	<u>840</u>	<u>98</u>

Average of last three measurements: K<sub>sat</sub> = 0.98 cm/h \_\_\_\_\_ (other units)

COMMENTS: Equip to 5.75 gpd/ft<sup>2</sup>  
 \_\_\_\_\_  
 \_\_\_\_\_

### SAMPLE DATA SHEET

Measurement No. 2 Conducted by M Eaker  
 Location Woodshire lot 102 date 1/11/67  
 Weather Condition SUNNY Temperature 60°  
 Horizon BE Source of Water TAP

Hole depth 81 cm Measured (Actual) water level in hole  
 Distance between reference level and soil surface + 11 cm Initial 15 cm  
 Final 15 cm  
 Distance from the hole bottom to the reference level (D) = 92 cm Clock time  
 Desired water depth in hole (H) - 15 cm Start saturation \_\_\_\_\_  
 Constant-head tube setting (d) = 77 cm Steady-state reading \_\_\_\_\_

**Reservoirs Used for Measurement of the Steady-State Flow Rate**

Flow Measuring Reservoir Only \_\_\_\_\_ Conversion Factor (C.F.) = 20 cm<sup>2</sup>  
 Both Flow Measuring and Main Reservoirs  Conversion Factor (C.F.) = 105 cm<sup>2</sup>

(To obtain flow volume multiply change in water level by the appropriate C.F. from above )

Clock Time h:min	Reservoir Reading cm	Δt min	Change in Water Level cm	Flow Volume cm <sup>3</sup>	Q cm <sup>3</sup> /min	Q cm <sup>3</sup> /h	K <sub>sat</sub> cm/h
<u>10:40</u>	<u>25.1</u>	_____	_____	_____	_____	_____	_____
<u>10:43</u>	<u>24.8</u>	<u>3</u>	<u>0.3</u>	_____	_____	_____	_____
<u>10:46</u>	<u>24.4</u>	<u>3</u>	<u>0.4</u>	_____	_____	_____	_____
<u>10:49</u>	<u>24.1</u>	<u>3</u>	<u>0.3</u>	_____	_____	_____	_____
<u>10:52</u>	<u>23.6</u>	<u>3</u>	<u>0.5</u>	_____	_____	_____	_____
<u>10:55</u>	<u>23.3</u>	<u>3</u>	<u>0.3</u>	_____	_____	_____	_____
<u>10:58</u>	<u>23.0</u>	<u>3</u>	<u>0.3</u>	<u>31.5</u>	<u>10.5</u>	<u>630</u>	<u>0.73</u>

Average of last three measurements: K<sub>sat</sub> = 0.73 cm/h \_\_\_\_\_ (other units)

COMMENTS: equiv to 4.28 gpd/ft<sup>2</sup>  
 \_\_\_\_\_  
 \_\_\_\_\_



### SAMPLE DATA SHEET

Measurement No. 3 Conducted by M Eaker  
 Location Woodshire lot 102 date 1/11/07  
 Weather Condition Sunny Temperature 60°  
 Horizon BT Source of Water TAP

Hole depth 81 cm Measured (Actual) water level in hole  
 Distance between reference level and soil surface + 11 cm Initial 15 cm  
 Final 15 cm  
 Distance from the hole bottom to the reference level (D) = 92 cm Clock time  
 Desired water depth in hole (H) - 15 cm Start saturation \_\_\_\_\_  
 Constant-head tube setting (d) = 77 cm Steady-state reading \_\_\_\_\_

**Reservoirs Used for Measurement of the Steady-State Flow Rate**

Flow Measuring Reservoir Only \_\_\_\_\_ Conversion Factor (C.F.) = 20 cm<sup>2</sup>  
 Both Flow Measuring and Main Reservoirs  Conversion Factor (C.F.) = 105 cm<sup>2</sup>

(To obtain flow volume multiply change in water level by the appropriate C.F. from above )

Clock Time h:min	Reservoir Reading cm	Δt min	Change in Water Level cm	Flow Volume cm <sup>3</sup>	Q cm <sup>3</sup> /min	Q cm <sup>3</sup> /h	K <sub>sat</sub> cm/h
<u>11:15</u>	<u>32.4</u>	_____	_____	_____	_____	_____	_____
<u>11:18</u>	<u>31.6</u>	<u>3</u>	<u>0.8</u>	_____	_____	_____	_____
<u>11:21</u>	<u>29.8</u>	<u>3</u>	<u>0.8</u>	_____	_____	_____	_____
<u>11:24</u>	<u>29.2</u>	<u>3</u>	<u>0.6</u>	<u>63</u>	<u>21</u>	<u>1260</u>	<u>1.46</u>
<u>11:27</u>	<u>28.5</u>	<u>3</u>	<u>0.7</u>	_____	_____	_____	_____
<u>11:30</u>	<u>27.8</u>	<u>3</u>	<u>0.7</u>	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____

Average of last three measurements: K<sub>sat</sub> = 1.46 cm/h \_\_\_\_\_ (other units)

COMMENTS: Eq = 8.56 gal/ft<sup>2</sup>  
to