

HALLOWEN & ASSOCIATES INC.

SOIL & ENVIRONMENTAL SCIENTISTS

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16 September 2005

Mr. Keith Hinshaw
Middleton Homes, LLC
P.O. Box 20
Elon, NC 27244

Reference: Existing System Investigation and Comprehensive Soil Investigation
Heatherbrook Subdivision – Lots 70A, 70B, and 70C

Dear Mr. Hinshaw,

A soil investigation has been conducted at the above referenced property, located on the southwest corner of Judi Lee Road and Eisler Road, Barbecue Township, Harnett County, North Carolina. The purpose of this investigation was two-fold. The first purpose was to determine the existence of a subsurface sewage waste disposal system on Lot 70A and to make surface observations relative to its apparent operation. The second purpose of the investigation was to determine the ability Lots 70B and 70C to each support a subsurface sewage waste disposal system and repair area for a typical three-bedroom home. All ratings and determinations were made in accordance with "Laws and Rules for Sewage Treatment and Disposal Systems, 15A NCAC 18A .1900". It is our understanding that individual septic systems and public water supplies will be utilized at this site.

Lot 70A has an existing residence with an existing septic system that appeared to be functioning properly on the day of the investigation. This existing septic system appeared to be located within any setback requirements for this property. A soil investigation was conducted and it appears that an adequate amount of provisionally suitable soil exists on this lot to 100 % repair the system if it should fail.

A portion of Lot 70B was observed to have soils rated as provisionally suitable soils for subsurface sewage waste disposal. These provisionally suitable soils were observed to be friable sandy clay loams to greater than 30 inches and appear adequate to support a long-term acceptance rate of 0.5 gal/day/sqft. It appears that the soils on this lot are adequate to support an innovative septic system and repair area for one three-bedroom residence.

A portion of Lot 70C was observed to have soils rated as suitable for subsurface sewage waste disposal. These suitable soils were observed to be very friable loamy sands and sandy loams to greater than 42 inches and appear adequate to support long term acceptance rates of 0.6 to 0.8 gal/day/sqft. It appears that the soils on this lot are adequate to support a conventional septic system and repair area for one three-bedroom residence.

This soil investigation report and map with attachments, when provided to the Harnett County Health Department should allow them to sign the maps for recordation. I appreciate the opportunity to provide this service and hope to be allowed to assist you again in the future. If you have any questions or need additional information, please contact me at your convenience.



Sincerely,

Laura J Fortner

Laura J. Fortner
Licensed Soil Scientist

Lot 70B, Heatherbrook Estates

Initial System: Pump Innovative (3 x 60-ft)
on contour @: 18 inches
Soil LTAR: 0.5 gpd/sqft

Repair System: Pressure-Manifold Innovative (180-ft)
on contour @: 18 inches
Soil LTAR: 0.5 gpd/sqft

Lines flagged at site on 9-ft centers.

Initial/ Repair	Line #	Color	Drainline Length(ft)	Measured Field Line Length (ft)
Initial	1	Y	60	60
Initial	2	B	60	61
Initial	3	W	60	60
Repair	4	R	45	46
Repair	5	Y	55	55
Repair	6	B	45	47
Repair	7	W	35	35
		Total:	360	364

Pressure Manifold Design Criteria

Repair System

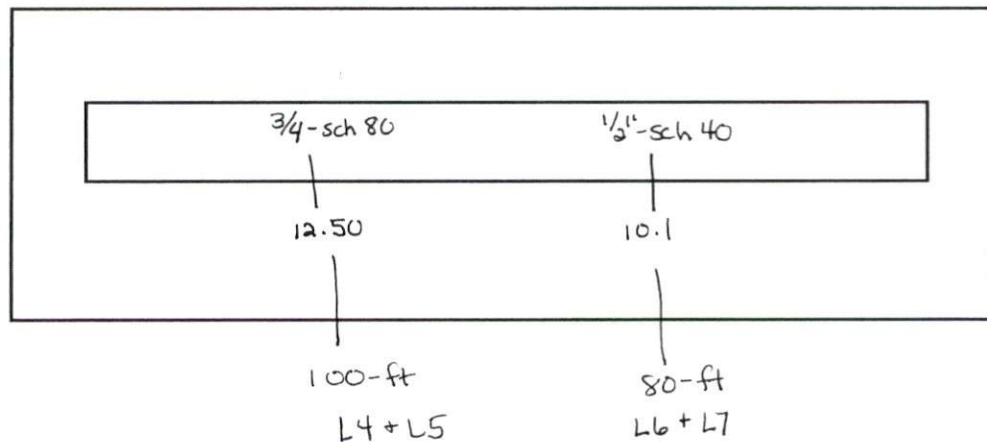
Line Number	Line Color	Drainline Length(ft)	Tap Size/ Schedule	Flow/tap (gpm)	gpd/ft	LTAR (gpd/sqft)
4	R	100	3/4"sch 80	12.50	1.991	0.664
5	Y					
6	B	80	1/2"sch 40	10.10	2.011	0.670
7	W					

180
Total Flow= 22.60

Pressure Head (ft)= <u>2</u>	Daily Flow <u>360</u>	% Pipe Volume = <u>75</u>
Target LTAR (gpd/sqft)= <u>0.667</u>	Total Flow (gpm)= <u>22.60</u>	Dose Volume (gal)= <u>88.16</u>
LTAR + 5% <u>0.700</u>	Daily PRT(min)= <u>15.93</u>	Dose PRT (min)= <u>3.90</u>

Manifold Diagram:

4 Inch Schedule 80 Manifold



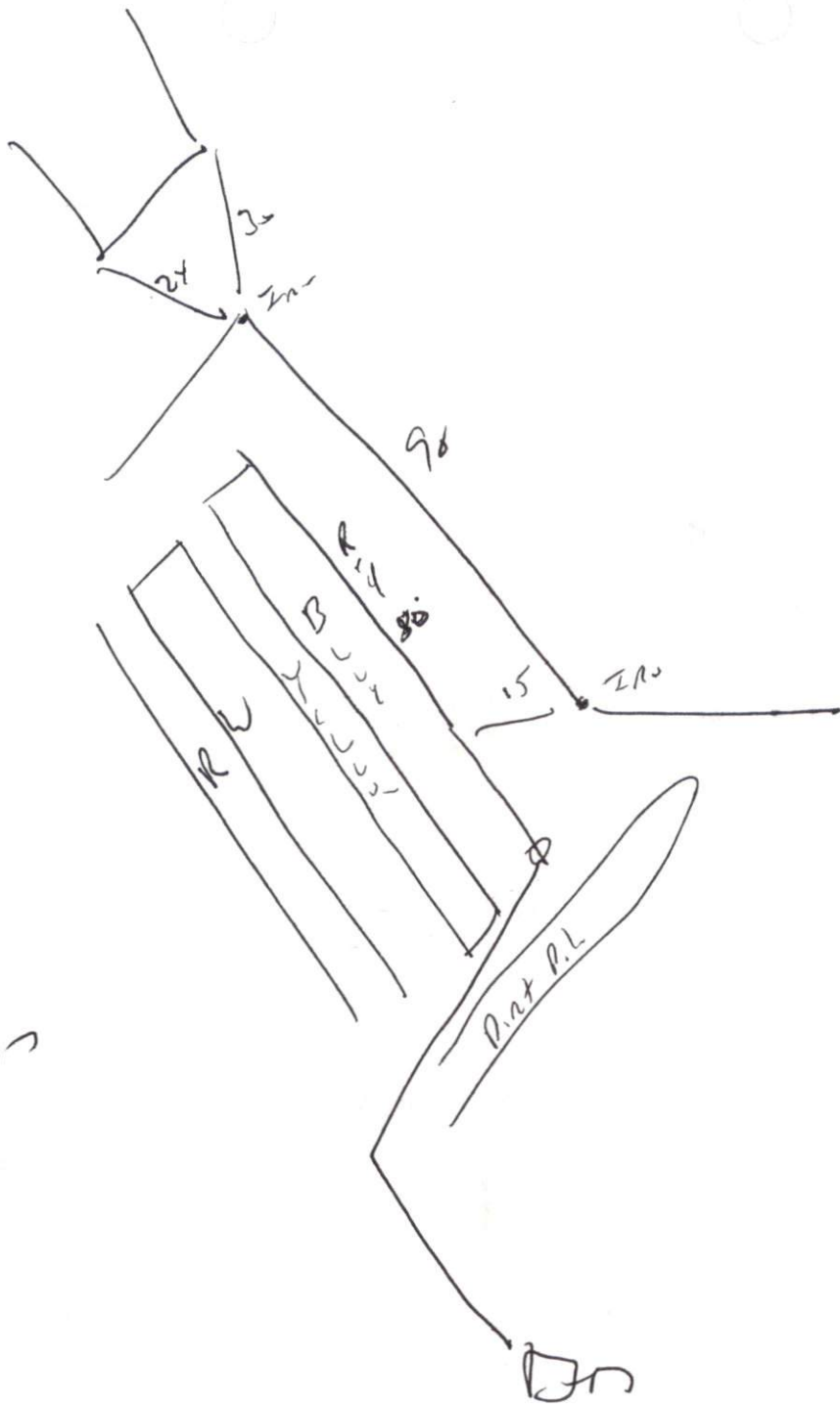
Lot 70C, Heatherbrook Estates

Initial System: Pump Conventional (2 x 100')
on contour @: 18 inches
Soil LTAR: 0.6 gpd/sqft

Repair System: Pump Conventional (4 x 50')
on contour @: 18 inches
Soil LTAR: 0.6 gpd/sqft

Lines flagged at site on 9-ft centers.

Initial/ Repair	Line #	Color	Drainline Length(ft)	Measured Field Line Length (ft)
Repair	1	R	50	95
Repair	2	B	50	99
Initial	3	Y	100	107
Initial	4	W	100	100
Repair	5	R	50	69
Repair	6	B	50	55
		Total:	400	525



Range to
 1x210 of
 20% tol. 5%
 next one
 L11 Rys
 320 LF