ROLLANS *SOIL & ENVIRONMENTAL SERVICES*

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Attached is a proposed design for a MODIFIED (PPBPS) Septic System with Gravity distribution for a 4 bedroom single family residence on Lot #9 Norman Woods Subdivision, Iredell County, North Carolina.

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July 6, 2006
Design By: Rollans Soil and Environmental Services

Gravity PPBPS
FOR WASTEWATER TREATMENT

Owner:	PRIDE HOMES
Address:	578 NORMANDY RD. Mooresville, NC 28117
Phone:	704-664-71808
County:	Iredell
Location:	Norman Woods Subdivision Lot #9
Source of Wastewater Flow:	4 Bedroom Single Family Residence
Estimated Daily Wastewater Production:	480 gpd
System Flow:	NA

Design Specifications

Drainfield Size:	280
Loading Rate:	0.3
Depth of Gravel in Trench:	NA (PPBPS)
Gravel Size:	NA (PPBPS)
Trench Depth:	36 in.
Trench Width:	24 in.
Septic Tank Size:	1000
Pump Tank Size:	NA
Estimated Supply Line Length:	10
Supply Line Diameter:	3 in. SCH 40 PVC
Supply Line Volume:	1.74
Dosing Volume:	NA
Supply Manifold:	D-BOX
Supply Manifold Length:	NA
Supply Manifold Volume:	N/A
Recommended Float Controls:	NA
Recommended Control Panel:	NA
Pressure Head:	NA
Friction Head:	NA
Elevation Head:	NA
Total Dynamic Head:	NA
Threaded Union:	NA
Gate Valves:	NA NA
Check Valves:	NA
Anti-Siphon Hole:	NA
Additional Comments:	Soil suitability was performed by Rollans Soil & Environmental Services.

NORMAN WOODS SUBDIVISION LOT 9

DESIGN FLOW:	480
SOIL APPLICATION RATE:	0.3
TOTAL AREA TRENCH BOTTOM:	840
TOTAL LATERAL LENGTH:	280
NUMBER OF FIELDS:	1
LATERAL LENGTH REQUIRED PER FIELD:	270
SUPPLY LINE LENGTH:	10
TOTAL DYNAMIC HEAD:	NA
MANIFOLD SIZE:	NA
DOSING VOLUME:	NA
PUMP TANK DRAW DOWN*:	NA
SEPTIC TANK SIZE:	1000
PUMP TANK SIZE:	NA

NORMAN WOODS LOT 9

LAYOUT FOR 4 BEDROOM HOME — July 6, 2006

LINE #	FLAG COLOR	BS	HI	FS	ELEVATION	FLAGGED LINE LENGTH	DESIGN LINE LENGTH
TBM		N/A			100.00		
TANK		N/A	N/A				
HOUSE		N/A	N/A				
INSTR. 1			N/A				
1	***RED***			*N/A*	*N/A*	*35*	*35*
2	***RED***			*N/A*	*N/A*	*35*	*35*
3	***BLUE***			*N/A*	*N/A*	*35*	*35*
4	***BLUE***			*N/A*	*N/A*	*35*	*35*
5	***PINK***			*N/A*	*N/A*	*35*	*35*
6	***ORANGE***			*N/A*	*N/A*	*35*	*35*
7	***RED***			*N/A*	*N/A*	*35*	*35*
8	***BLUE***			*N/A*	*N/A*	*35*	*35*
					Total	**280**	**280**

	LINE LENGTH	LTAR GPD/FT^2	SYSTEM TYPE	SOIL LTAR GPD/FT^2	TRENCH SYSTEM	DISTRIBUTION
** System*	*280*	*0.30*	***MOD.***	*0.30*	***PPBPS***	**GRAVITY**
Repair	0	0.30	*MOD.*	0.30	PPBPS	**DISTRIBUTION NOT REQUIRED**

Notes: ** TBM NOT REQUIRED
**All measures in feet
**Nitrification lines are demonstrated on contour via colored pin flags
**BS, HI, and FS indicate rod readings

TAPSHEET - NORMAN WOODS LOT 9

SYSTEM

Line #	Color	Elevation	Length	Hole Size	# of Panels	gpd
1	***RED***	N/A	**35**	N/A	**8**	N/A
2	***RED***	N/A	**35**	N/A	**8**	N/A
3	***BLUE***	N/A	**35**	N/A	**8**	N/A
4	***BLUE***	N/A	**35**	N/A	**8**	N/A
5	***PINK***	N/A	**35**	N/A	**8**	N/A
6	***ORANGE***	N/A	**35**	N/A	**8**	N/A
7	***RED***	N/A	**35**	N/A	**8**	N/A
8	***BLUE***	N/A	**35**	N/A	**8**	N/A
	total	**feet =**	**280**	**gal/min =**	N/A	
			Des. Flow	N/A		
			Pump Run=	N/A		
			soil LTAR	**0.3**		
			LTAR +5%	**0.315**		
			LTAR with ACCEPTED	**0.4**		
			LTAR with ACCEPTED + 5%	**0.42**		

CALCULATIONS

Location NORMAN WOODS

Project Number

Lot No: Lot 9

No. of Bedrooms	4	
Design Flow	480	$^{gal}/_{day}$
LTAR	0.3	$^{gal}/_{ft^2\ day}$
50% RED.? (YES OR NO)	YES	
Supply Line Length	10	ft.
Supply Line Volume	1.74	gal.
Required Feet of Line	270	ft.
Amount of Line from Layout	280	ft.✓
Gallons per Minute	NA	$^{gal}/_{min}$
Required Septic Tank Capacity	1000	gal.
Minimum Standard Tank Size	1000	
Lateral Line Volume	182.84	gal.
Dosing Volume	NA	gal.

Note: Dosing Volume based on70% of lateral line volume

Tank Draw Down	NA	*Generic Draw Down of 21 gal.per in.*
Pump Run Time	NA	minutes
Elevation Head	NA	ft.
Pressure Head	NA	ft.
Friction Factor	NA	ft./100 ft. *(From the interpolater.)*
Friction Head	NA	ft.
Total Dynamic Head (+15%)	NA	ft.

FRICTION FACTOR INTERPOLATER
2" SCH 40 PVC

GPM	*f*
20	0.84
	-0.88
25	1.27
	-1.28
30	1.78
	-1.76
35	2.37
	-2.25
40	3.03
43.07	3.48
45	3.77
48.14	4.28
50	4.58
57.11	5.89
60	6.42