PRESSURE MANIFOLD SYSTEM
FOR WASTEWATER TREATMENT

Owner: SPEAR BUILDERS, INC.

Address: 109-C Williamson Road
Mooresville, NC 28115
Phone: 704-663-4050
County: Iredell
Location: ROSELAND HEIGHTS Lot # 57

Source of Wastewater Flow: 3 Bedroom Single Family Residence
Estimated Daily Wastewater Production: 360 gpd
System Flow: 27.4

Design Specifications

Drainfield Size: 275
Loading Rate: 0.4
Depth of Gravel in Trench: NA (25% reduction)
Gravel Size: NA (25% reduction)
Trench Depth: 36 in.
Trench Width: 36 in.
Septic Tank Size: 1000
Pump Tank Size: 1000

Estimated Supply Line Length: 420
Supply Line Diameter: 2 in. SCH 40 PVC
Supply Line Volume: 73.08
Dosing Volume: 161.62
Supply Manifold: 4 in. SCH 80 PVC
Supply Manifold Length: 4 ft. (minimum)
Supply Manifold Volume: N/A

Recommended Float Controls: SJE Sensor Float Control Switches as Required for Control Panel or County Approved Equivalents
Recommended Control Panel: SJE-Rhombus Model 112 (NEMA 4x) Control Panel or County Approved Control Panel.

Pressure Head: 2 ft.
Friction Head: 9.95
Elevation Head: 9.60
Total Dynamic Head: 24.79

Threaded Union: In Tank
Gate Valves: 1 in Tank
1 at Pressure Manifold
Check Valves: In Tank
Anti-Siphon Hole: NA
Additional Comments: Soil suitability was performed by Rollans Soil & Environmental Services.

ROSELAND HEIGHTS Lot # 57
PRESSURE MANIFOLD DESIGN

DESIGN FLOW:	360	
SOIL APPLICATION RATE:	0.4	
TOTAL AREA TRENCH BOTTOM:	825	
TOTAL LATERAL LENGTH:	275	
NUMBER OF FIELDS:	1	
LATERAL LENGTH REQUIRED PER FIELD:	225	
SUPPLY LINE LENGTH:	420	
TOTAL DYNAMIC HEAD:	24.79	
MANIFOLD SIZE:	4 in.SCH 80 PVC	
DOSING VOLUME:	161.62	
PUMP TANK DRAW DOWN*:	5.2	
SEPTIC TANK SIZE:		1000
PUMP TANK SIZE:		1000

ROSELAND HEIGHTS LOT # 57

Project #: 01-1373

LAYOUT FOR 3 BEDROOM HOME

July 15, 2008

LINE #	FLAG COLOR	BS	HI	FS	ELEVATION	FLAGGED LINE LENGTH	DESIGN LINE LENGTH
TBM		3.7			100.00		
INSTR. 1			103.70				
HOUSE CNR				3.00	100.70		
P. TANK				5.00	98.70		
1	*PINK*			*2.40*	*101.30*	*55*	*55*
2	*PINK*			*2.40*	*101.30*	*60*	*55*
3	*DARK PINK*			*3.90*	*99.80*	*65*	*55*
4	*DARK PINK*			*3.90*	*99.80*	*65*	*55*
5	*BLUE*			*5.60*	*98.10*	*56*	*55*
DRIP	**REPAIR**			**N/A**	**N/A**	**3765**	**3600**
					Total	**301**	**275**

	LINE LENGTH	LTAR GPD/FT^2	SYSTEM TYPE	SOIL LTAR GPD/FT^2	TRENCH SYSTEM	DISTRIBUTION
** System*	*275*	*0.400*	*ACCEPT.*	*0.400*	*25% RED.*	**PRESSURE**
Repair	3600	0.100	INNOV.	0.100	DRIP IRR	**MANIFOLD** LOW PRESSURE

Notes:

** TBM located on angle point of lot (see site plan)
**TBM is assumed to be 100'
**All measures in feet
**Nitrification lines are demonstrated on contour via colored pin flags
**BS, HI, and FS indicate rod readings

PRESSURE MANIFOLD TAPSHEET - ROSELAND HEIGHTS LOT# 57

SYSTEM

Line #	Color	Elevation	Length	Hole Size	Flow/Tap	Trench Ar	Line LTAR
1	***PINK***	101.3	*55*	SCH 80 1/2	**5.48**	165	0.32
2	***PINK***	101.3	*55*	SCH 80 1/2	**5.48**	165	0.32
3	***DARK PINK***	99.8	*55*	SCH 80 1/2	**5.48**	165	0.32
4	***DARK PINK***	99.8	*55*	SCH 80 1/2	**5.48**	165	0.32
5	***BLUE***	98.1	*55*	SCH 80 1/2	**5.48**	165	0.32
	total	**feet =**	**275**	**gal/min =**	**27.4**		
			Des. Flow	**360**			
			Pump Run=	**5.90**			
			soil LTAR	**0.25**			
			LTAR +5%	**0.2625**			
			LTAR with ACCEPTED	**0.333333333**			
			LTAR with ACCEPTED + 5%	**0.35**			

CALCULATIONS

Location ROSELAND HEIGHTS

Project Number 01-1373

Lot No: Lot 57

No. of Bedrooms	3	
Design Flow	360	$^{gal}/_{day}$
LTAR	0.4	$^{gpd/ft^2}$
25% RED.? (YES OR NO)	YES	
Supply Line Length	420	ft.
Supply Line Volume	73.08	gal.
Required Feet of Line	225	ft.
Amount of Line from Layout	275	ft.
Gallons per Minute	27.4	$^{gal}/_{min}$
Required Septic Tank Capacity	1000	gal.
Minimum Standard Tank Size	1000	
Lateral Line Volume	179.575	gal.
Dosing Volume	161.62	gal.

Note: Dosing Volume based on70% of lateral line volume

Tank Draw Down	5.2	*Generic Draw Down of 31 gal.per in.*
Pump Run Time	5.90	minutes
Elevation Head	9.6	ft.
Pressure Head	2	ft.
Friction Factor	2.37	ft./100 ft. *(From the interpolater.)*
Friction Head	9.95	ft.
Total Dynamic Head (+15%)	24.79	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