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Attached is a proposed design for an Accepted (25% reduction) Septic System with Pressure Manifold distribution for a 3 bedroom single family residence on Lot #20 in Shepherds Bluff Subdivision, Iredell County, North Carolina.

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May 24, 2007
Project #: 01-1064
Design By: Rollans Soil and Environmental Services

PRESSURE MANIFOLD SYSTEM
FOR WASTEWATER TREATMENT

Owner: Shepherds Bluff, LLC

Address: 111-B Raceway Dr
Mooresville, NC 28117
Phone: 704-664-7029
County: Iredell
Location: Shepherds Bluff Lot 20

Source of Wastewater Flow: 3 Bedroom Single Family Residence
Estimated Gallons Per Day Flow: 360
System Flow: 21.92

Design Specifications

Drainfield Size: 272
Loading Rate (gpd/ft.^{2}): 0.35
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: 99
Supply Line Diameter: 2 in. SCH 40 PVC
Supply Line Volume: 17.23
Dosing Volume: 124.33
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: 1.26
Elevation Head: 7.40
Total Dynamic Head: 12.26

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.

Shepherds Bluff Lot 20
PRESSURE MANIFOLD DESIGN

DESIGN FLOW (gpd):	360
SOIL APPLICATION RATE (gpd/ft.^{2}):	0.35
TOTAL AREA TRENCH BOTTOM:	816
TOTAL LATERAL LENGTH:	272
NUMBER OF FIELDS:	1
LATERAL LENGTH REQUIRED PER FIELD:	257.1428571
SUPPLY LINE LENGTH:	99
TOTAL DYNAMIC HEAD:	12.26
MANIFOLD SIZE:	4 in.SCH 80 PVC
DOSING VOLUME:	124.33
PUMP TANK DRAW DOWN*:	5.9
SEPTIC TANK SIZE:	1000
PUMP TANK SIZE:	1000

**Pump tank draw down based on a volume basis of 21 gallons per inch. Draw down may vary among pump tank manufacturers.*

Shepherds Bluff Lot 20

Project #: 01-1064

LAYOUT FOR 3 BEDROOM HOME — May 24, 2007

LINE #	FLAG COLOR	BS	HI	FS	ELEVATION	FLAGGED LINE LENGTH	DESIGN LINE LENGTH
TBM					200.00		
INSTR. 1					200.00		
HOUSE CNR					207.10		
P. TANK					204.90		
1	*WHITE*				*207.30*	*68*	*68*
2	*PINK*				*207.20*	*68*	*68*
3	*ORANGE*				*206.90*	*69*	*68*
4	*WHITE*				*206.50*	*68*	*68*
5	PINK				205.90	67	67
6	ORANGE				205.20	68	68
7	WHITE				204.50	69	69
8	PINK				203.70	29	29
					Total	**506**	**505**

	LINE LENGTH	LTAR GPD/FT^2	SYSTEM TYPE	SOIL LTAR GPD/FT^2	TRENCH SYSTEM	DISTRIBUTION
** System*	*272*	*0.35*	*ACCEPT.*	*0.35*	*25% RED.*	**PRESSURE**
Repair	233	0.35	*MOD.*	0.35	PPBPS	**MANIFOLD** LOW PRESSURE

Notes:

**Elevations Obtained by Don Allen & Associates Surveying

**All measures in feet

**Nitrification lines are demonstrated on contour via colored pin flags

**BS, HI, and FS indicate rod readings

PRESSURE MANIFOLD TAPSHEET - Shepherds Bluff Lot 20

SYSTEM

Line #	Color	Elevation	Length	Hole Size	Flow/Tap	Trench Area
1	*WHITE*	*207.30*	*68*	SCH 80 1/2	5.48	204
2	*PINK*	*207.20*	*68*	SCH 80 1/2	5.48	204
3	*ORANGE*	*206.90*	*68*	SCH 80 1/2	5.48	204
4	*WHITE*	*206.50*	*68*	SCH 80 1/2	5.48	204
	total	feet =	272	gal/min =	21.92	
			Des. Flow	360		
			Pump Run=	5.67		
			soil LTAR	0.35		
			LTAR +5%	0.3675		
			LTAR with ACCEPTED	0.466666667		
			LTAR with ACCEPTED + 5%	0.49		

CALCULATIONS

Location Shepherds Bluff

Project Number 01-1064

Lot No: Lot 20

No. of Bedrooms	3	
Design Flow	360	$^{gal}/_{day}$
LTAR	0.35	$^{gpd/ft^2}$
25% RED.? (YES OR NO)	YES	
Supply Line Length	99	ft.
Supply Line Volume	17.226	gal.
Required Feet of Line	257.1429	ft.
Amount of Line from Layout	272	ft.
Gallons per Minute	21.92	$^{gal}/_{min}$
Required Septic Tank Capacity	1000	gal.
Minimum Standard Tank Size	1000	
Lateral Line Volume	177.616	gal.
Dosing Volume	124.33	gal.

Note: Dosing Volume based on70% of lateral line volume

Tank Draw Down	5.9	*Generic Draw Down of 21 gal.per in.*
Pump Run Time	5.67	minutes
Elevation Head	7.4	ft.
Pressure Head	2	ft.
Friction Factor	1.27	ft./100 ft. *(From the interpolater.)*
Friction Head	1.26	ft.
Total Dynamic Head (+15%)	12.26	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