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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 14 in Oak Ridge Subdivision, Iredell County, North Carolina.

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August 23, 2007
Project #: 01-1296
Design By: Rollans Soil and Environmental Services

PRESSURE MANIFOLD SYSTEM FOR WASTEWATER TREATMENT

Owner: Corinthian Development LTD

Address: P.O. Box 3421
Mooresville, NC 28117
Phone: 704-664-4822
County: Iredell
Location: Oak Ridge Subdivision Lot #14

Source of Wastewater Flow: 3 Bedroom Single Family Residence
Estimated Daily Wastewater Production: 360 gpd
System Flow: 21.33

Design Specifications

Drainfield Size: 300
Loading Rate: 0.3
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: 81
Supply Line Diameter: 2 in. SCH 40 PVC
Supply Line Volume: 14.09
Dosing Volume: 137.13
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: 1.03
Elevation Head: 8.10
Total Dynamic Head: 12.80

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.

Oak Ridge Subdivision Lot #14
PRESSURE MANIFOLD DESIGN

DESIGN FLOW:	360
SOIL APPLICATION RATE:	0.3
TOTAL AREA TRENCH BOTTOM:	900
TOTAL LATERAL LENGTH:	300
NUMBER OF FIELDS:	1
LATERAL LENGTH REQUIRED PER FIELD:	300
SUPPLY LINE LENGTH:	81
TOTAL DYNAMIC HEAD:	12.80
MANIFOLD SIZE:	4 in.SCH 80 PVC
DOSING VOLUME:	137.13
PUMP TANK DRAW DOWN*:	6.5
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.*

OAK RIDGE LOT #14

Project #: 01-1296

LAYOUT FOR 3 BEDROOM HOME

August 23, 2007

LINE #	FLAG COLOR	BS	HI	FS	ELEVATION	FLAGGED LINE LENGTH	DESIGN LINE LENGTH
TBM		2.4			100.00		
INSTR. 1			102.40				
HOUSE CNR				6.40	96.00		
P. TANK				6.30	96.10		
1	***BLUE***			***3.20***	***99.20***	***100***	***100***
2	***PINK***			***4.00***	***98.40***	***100***	***100***
3	***ORANGE***			***4.70***	***97.70***	***100***	***100***
4	RED			5.40	97.00	100	100
5	BLUE			6.30	96.10	100	100
6	RED			6.60	95.80	100	100
					Total	**600**	**600**

* System	LINE LENGTH	LTAR GPD/FT²	SYSTEM TYPE	SOIL LTAR GPD/FT²	TRENCH SYSTEM	DISTRIBUTION
System	***300***	***0.300***	***ACCEPT.***	***0.300***	***25% RED.***	**PRESSURE MANIFOLD**
Repair	300	0.300	*MOD.*	0.300	25% RED.	PRESSURE MANIFOLD

Notes:

** TBM located on angle point of lot 13/14 (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 - OAK RIDGE LOT #14

SYSTEM

Line #	Color	Elevation	Length	Hole Size	Flow/Tap	Trench Area
1	***BLUE***	99.2	***100***	SCH 40 1/2	**7.11**	300
2	***PINK***	98.4	***100***	SCH 40 1/2	**7.11**	300
3	***ORANGE***	97.7	***100***	SCH 40 1/2	**7.11**	300
	total	**feet =**	**300**	**gal/min =**	**21.33**	
			Des. Flow	**360**		
			Pump Run=	**6.43**		
			soil LTAR	**0.275**		
			LTAR +5%	**0.28875**		
			LTAR with ACCEPTED	**0.366666667**		
			LTAR with ACCEPTED + 5%	**0.385**		

CALCULATIONS

Location OAK RIDGE

Project Number 01-1296

Lot No: Lot 14

No. of Bedrooms	3
Design Flow	360 $^{gal}/_{day}$
LTAR	0.3 gpd/ft²
25% RED.? (YES OR NO)	YES
Supply Line Length	81 ft.
Supply Line Volume	14.094 gal.
Required Feet of Line	300 ft.
Amount of Line from Layout	300 ft.
Gallons per Minute	21.33 $^{gal}/_{min}$
Required Septic Tank Capacity	1000 gal.
Minimum Standard Tank Size	1000
Lateral Line Volume	195.9 gal.
Dosing Volume	137.13 gal.

Note: Dosing Volume based on70% of lateral line volume

Tank Draw Down	6.5 *Generic Draw Down of 21 gal.per in.*
Pump Run Time	6.43 minutes
Elevation Head	8.1 ft.
Pressure Head	2 ft.
Friction Factor	1.27 ft./100 ft. *(From the interpolater.)*
Friction Head	1.03 ft.
Total Dynamic Head (+15%)	12.80 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