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Attached is a proposed design for an upgrade of the 4BR PPBPS Septic System with GRAVITY distribution to a 4 bedroom single family residence on Lot # 448 CL&T (332 Grasshopper Circle), Iredell County, North Carolina.

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March 12, 2010
Project #: 01-1603
Design By: Rollans Soil & Environmental Services

LP PPBPS SYSTEM
FOR WASTEWATER TREATMENT

Owner/Applicant:	Wesley C. Mclemore
Address:	1027 SW Drive Davidson, NC 28036
Phone:	980-219-1211
County:	Iredell
Location:	CL&T SEC 8 LOT 448
Source of Wastewater Flow:	4 Bedroom Single Family Residence
Estimated Gallons Per Day Flow:	480
System Flow:	N/A

Design Specifications

Drainfield Size:	EXISTING
Loading Rate (gpd/ft.^{2}):	0.3
Depth of Gravel in Trench:	NA (PPBPS)
Gravel Size:	NA (PPBPS)
Trench Depth:	EXISTING
Trench Width:	EXISTING
Septic Tank Size:	EXISTING
Pump Tank Size:	EXISTING
Estimated Supply Line Length:	10
Supply Line Diameter:	2 in. SCH 40 PVC
Supply Line Volume:	1.74
Dosing Volume:	N/A
Supply Manifold:	N/A
Supply Manifold Length:	N/A
Supply Manifold Volume:	N/A
Recommended Float Controls:	N/A
Recommended Control Panel:	N/A
Pressure Head:	N/A
Friction Head:	N/A
Elevation Head:	N/A
Total Dynamic Head:	N/A
Threaded Union:	0.00
Gate Valves:	0.00
Check Valves:	N/A
Anti-Siphon Hole:	NA
Additional Comments:	Usable soil area and LTAR utilized for design based on improvements permit (see attached.)

CL&T SEC 8 LOT 448
LP PPBPS

DESIGN FLOW (gpd):	480
SOIL APPLICATION RATE (gpd/ft.^{2}):	0.3
TOTAL AREA TRENCH BOTTOM:	N/A
TOTAL LATERAL LENGTH:	EXISTING
NUMBER OF FIELDS:	1
LATERAL LENGTH REQUIRED PER FIELD:	EXISTING
SUPPLY LINE LENGTH:	10
TOTAL DYNAMIC HEAD:	N/A
MANIFOLD SIZE:	N/A
DOSING VOLUME:	N/A
PUMP TANK DRAW DOWN*:	N/A
SEPTIC TANK SIZE:	EXISTING
PUMP TANK SIZE:	N/A

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

CL&T SEC 8 LOT 448

Project #: 01-1603

LAYOUT FOR 4 BEDROOM HOME

March 12, 2010

LINE #	FLAG COLOR	BS	HI	FS	ELEVATION	FOUND LINE LENGTH	DESIGN LINE LENGTH
TBM		*N/A*			100.00		
INSTR. 1			*N/A*				
HOUSE CNR				*N/A*	*N/A*		
P. TANK				*N/A*	*N/A*		
1	***RED***	***(existing)***		*N/A*	*N/A*	***PPBPS***	*33*
2	***ORANGE***	***(existing)***		*N/A*	*N/A*	***PPBPS***	*33*
3	***PINK***	***(existing)***		*N/A*	*N/A*	***PPBPS***	*33*
4	***BLUE***			*N/A*	*N/A*	***BED***	*70*
5	***PINK***			*N/A*	*N/A*	***NEW REPAIR***	*100*

	LINE LENGTH	LTAR GPD/FT2	SYSTEM TYPE	SOIL LTAR GPD/FT2	TRENCH SYSTEM	DISTRIBUTION	
** System*	***EXISTING***	***0.300***	***MOD.***	***0.300***	***PPBPS***	***GRAVITY***	
					BED	***GRAVITY***	
Repair	100	0.300	MOD.	0.300	PPBPS	LOW PRESSURE	PRETREATED

Notes:
** TBM located top of ground at EIP at corner 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

CALCULATIONS

Location GRASSHOPPER CIRCLE

Project Number 01-1603

Lot No: 448

No. of Bedrooms 4

Design Flow 480 $^{gal}/_{day}$

LTAR 0.300 $^{gal}/_{ft^2\,day}$

PPBPS? (YES OR NO) YES

Supply Line Length 10 ft.

Supply Line Volume 1.74 gal.

Required Feet of Line EXISTING ft.
Amount of Line from Layout EXISTING ft.

Gallons per Minute N/A $^{gal}/_{min}$

Required Septic Tank Capacity EXISTING gal.
Minimum Standard Tank Size EXISTING

Panel Volume 3.6 gal.
# of Panels N/A
Dosing Volume N/A gal.

Note: Dosing Volume based on 67% of # of panels times 3.6 gal/panel

Tank Draw Down N/A *Generic Draw Down of 21 gal.per in.*

Pump Run Time N/A minutes

Elevation Head N/A ft.
Pressure Head N/A ft.
Friction Factor N/A ft./100 ft. *(From the interpolater.)*
Friction Head N/A ft.

Total Dynamic Head (+15%) N/A 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