ROLLANS ***SOIL & ENVIRONMENTAL SERVICES***

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Attached is a proposed design for a PPBPS Septic System with low pressure distribution for a 3 bedroom single family residence on Lot #20 in HIGHLAND RIDGE Subdivision, Iredell County, North Carolina.

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March 8, 2007
Project #: 01-1329
Design By: Rollans Soil & Environmental Services

LP PPBPS SYSTEM
FOR WASTEWATER TREATMENT

Owner/Applicant:	Orchard Farms LLC
Address:	227 Hideaway Lane Mooresville, NC 28117
Phone:	704-201-6465
County:	Iredell
Location:	HIGHLAND RIDGE LOT#20
Source of Wastewater Flow:	3 Bedroom Single Family Residence
Estimated Gallons Per Day Flow:	360
System Flow:	28.29

Design Specifications

Drainfield Size:	240
Loading Rate (gpd/ft.^{2}):	0.25
Depth of Gravel in Trench:	NA (PPBPS)
Gravel Size:	NA (PPBPS)
Trench Depth:	36 in.
Trench Width:	36 in.
Septic Tank Size:	1000
Pump Tank Size:	1000
Estimated Supply Line Length:	35
Supply Line Diameter:	2 in. SCH 40 PVC
Supply Line Volume:	6.09
Dosing Volume:	166.43
Supply Manifold:	N/A
Supply Manifold Length:	N/A
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:	0.62
Elevation Head:	6.20
Total Dynamic Head:	10.15
Threaded Union:	In Tank
Gate Valves:	1 in Tank 1 per lateral
Check Valves:	In Tank
Anti-Siphon Hole:	NA
Additional Comments:	Soil suitability was performed by Rollans Soil & Environmental Services

HIGHLAND RIDGE LOT#20

Project #: 01-1329

LAYOUT FOR 3 BEDROOM HOME

March 8, 2007

LINE #	FLAG COLOR	BS	HI	FS	ELEVATION	FLAGGED LINE LENGTH	DESIGN LINE LENGTH
TBM		4.5			100.00		
INSTR. 1			104.50				
HOUSE CNR				3.70	100.80		
P. TANK				6.80	97.70		
1	DARK PINK			3.20	101.30	37	37
2	ORANGE			3.60	100.90	59	59
3	BLUE			4.20	100.30	87	87
4	PINK			4.30	100.20	42	42
5	DARK PINK			4.50	100.00	84	84
6	PINK			4.80	99.70	80	80
7	*ORANGE*			*5.60*	*98.90*	*80*	*80*
8	*BLUE*			*6.20*	*98.30*	*80*	*80*
9	*DARK PINK*			*7.00*	*97.50*	*80*	*80*
					Total	629	629

	LINE LENGTH	LTAR GPD/FT2	SYSTEM TYPE	SOIL LTAR	TRENCH SYSTEM	DISTRIBUTION
** System*	*240*	*0.25*	*MOD.*	*0.250*	*PPBPS*	*LOW PRESSURE*
Repair	389	0.25	MOD.	0.250	PPBPS	LOW PRESSURE

360 - 25%

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

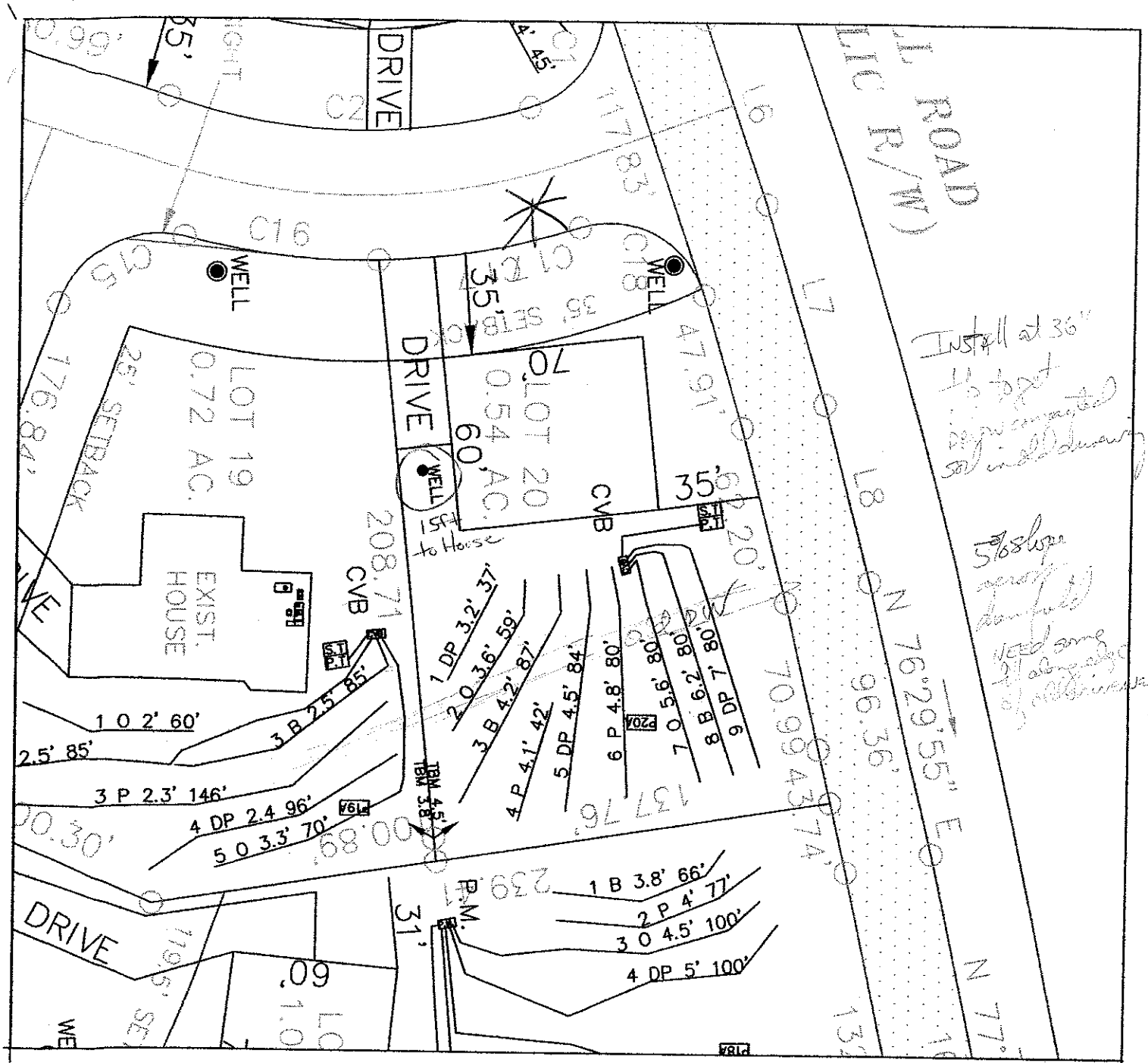
LP PPBPS TAPSHEET -Highland Ridge LOT 20

SYSTEM

Line #	Color	Elevation	Length	Hole Size	Flow/hole	Trench Area	Number of Panels
7	*ORANGE*	98.9	*80*	0.156	**0.41**	240	18
8	*BLUE*	98.3	*80*	0.156	**0.41**	240	18
9	*DARK PINK*	97.5	*80*	0.156	**0.41**	240	18
							69
	total	**feet =**	**240**	**gal/min =**	**28.29**		

Des. Flow	**360**
Pump Run=	**5.88**
soil LTAR	**0.25**
LTAR +5%	**0.2625**
LTAR with mod.	**0.5**
LTAR with mod.. + 5%	**0.525**

.156 equals 5/32 inch hole



LEGEND

House Box.

System lines.

Repair lines.

House Corner Shot.

T.B.M.

GRAPHIC SCALE
1" = 50'

50 0 50 100

FOR PRELIMINARY PLANNING PURPOSES ONLY. ALL LOTS WILL REQUIRE FINAL APPROVAL BY THE COUNTY HEALTH DEPARTMENT ON A LOT BY LOT BASIS. THIS MAP SHOULD BY USED AS A GENERAL GUIDE, SOME ADJUSTMENTS WILL BE NECESSARY IN THE FIELD DUE TO SOIL VARIABILITY AND COMPLEX TOPOGRAPHIC FEATURES.
THIS MAP ONLY REFLECTS EXISTING SOIL SUITABILITY FOR ON-SITE SEPTIC TANK SYSTEMS.

PLEASE REFER TO ATTACHED SOIL REPORT FOR ADDITIONAL SITE SPECIFIC INFORMATION

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MAP TITLE: SITE PLAN & DRAINFIELD AREAS

PROJECT NAME: ORCHARDS OF LC / HIGHLAND RIDGE

LOCATION/DATE: PERTH ROAD, RIDGELL COUNTY, NORTH CAROLINA

JOB # : 01--1329
FILE: C:\JOBS\01-1329
PROJECT MGR.: C.S.F.
FIELD WORK: C.S.F. & A.L.P.
DRAWN BY: C.S.F.

CALCULATIONS

Location HIGHLAND RIDGE

Project Number 01-1329

Lot No: Lot 20

No. of Bedrooms	3	
Design Flow	360	$^{gal}/_{day}$
LTAR	0.250	$^{gal}/_{ft^2\ day}$
PPBPS? (YES OR NO)	YES	
Supply Line Length	35	ft.
Supply Line Volume	6.09	gal.
Required Feet of Line	240	ft.
Amount of Line from Layout	240	ft.
Gallons per Minute	28.29	$^{gal}/_{min}$
Required Septic Tank Capacity	1000	gal.
Minimum Standard Tank Size	1000	
Panel Volume	3.6	gal.
# of Panels	69	
Dosing Volume	166.43	gal.

Note: Dosing Volume based on 33% of # of panels times 3.6 gal/panel

Tank Draw Down	7.9	*Generic Draw Down of 21 gal.per in.*
Pump Run Time	5.88	minutes
Elevation Head	6.2	ft.
Pressure Head	2	ft.
Friction Factor	1.78	ft./100 ft. *(From the interpolater.)*
Friction Head	0.62	ft.
Total Dynamic Head (+15%)	10.15	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