ROLLANS *Soil & Environmental Services, Inc.*

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Attached is a proposed design for a PPBPS Septic System with low pressure distribution for a 4 bedroom single family residence on Lot #65 in Autumn Grove Subdivision, Iredell County, North Carolina.

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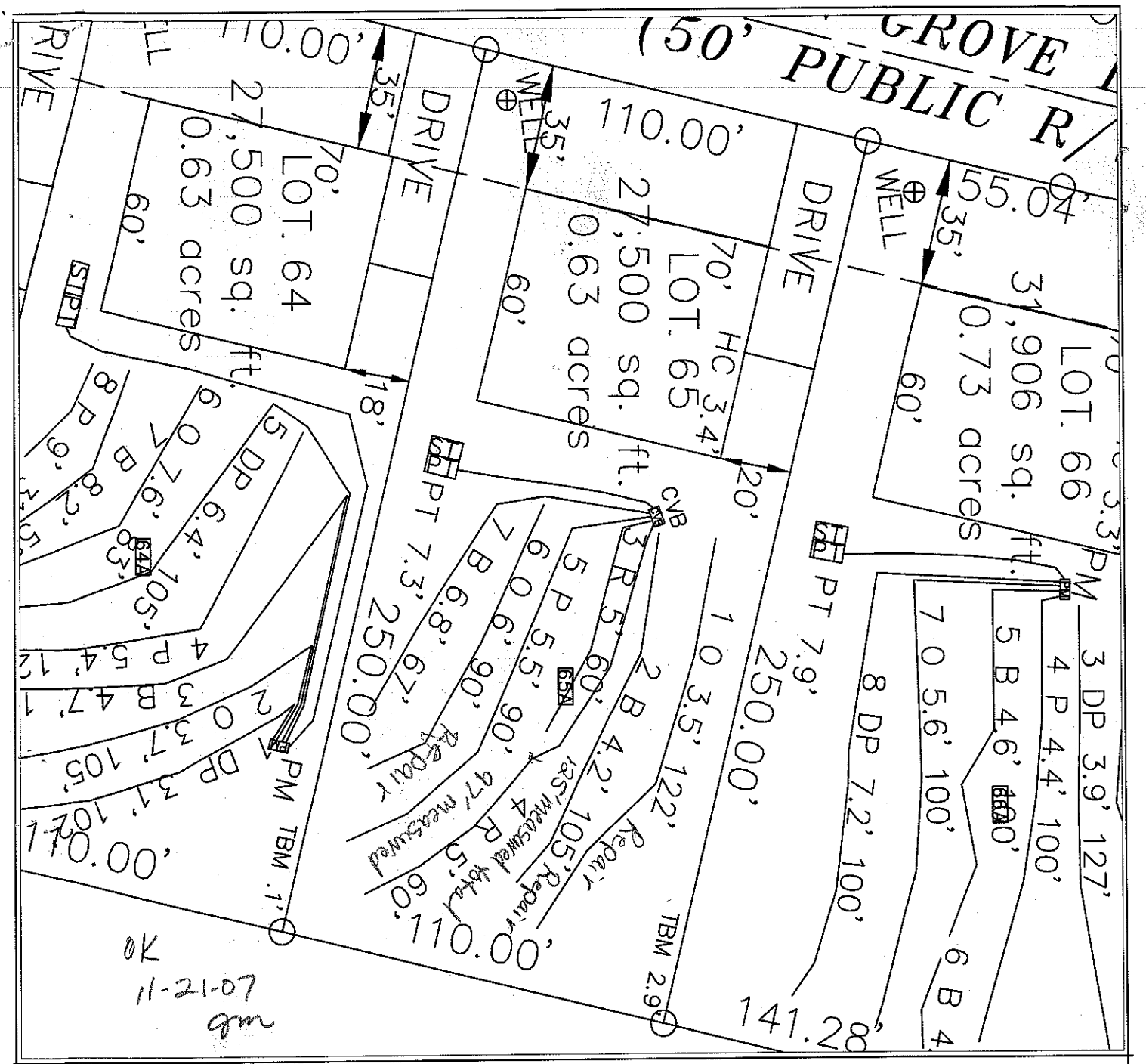
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August 30, 2007
Project #: 01-1043
Design By: Rollans Soil & Environmental Services



LEGEND

House Box.

System lines.

Repair lines.

GRAPHIC SCALE
1" = 40'

40 0 40 80

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

ROLLANS SOIL & ENVIRONMENTAL SERVICES
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MAP TITLE: SITE PLAN & DRAINFIELD AREAS

PROJECT NAME: E&J DEVELOPMENT/AUTUMN GROVE SUBDIVISION

LOCATION/DATE: HWY 21/115 IREDELL COUNTY, NORTH CAROLINA AUGUST 2007

JOB # : 01-1043
FILE: C:\JOBS\01-1043
PROJECT MGR.: C.B.F.
FIELD WORK: C.B.F., A.L.P. & M.D.B.
DRAWN BY: C.B.F. & M.D.B.

LP PPBPS SYSTEM
FOR WASTEWATER TREATMENT

Owner/Applicant: E&J DEVELOPMENT

Address: 227 Hideaway Lane
Mooresville, NC 28117

Phone: 704-201-6465

County: Iredell

Location: AUTUMN GROVE LOT 65

Source of Wastewater Flow: 4 Bedroom Single Family Residence

Estimated Gallons Per Day Flow: 480

System Flow: 26.24

Design Specifications

Drainfield Size: 275

Loading Rate (gpd/ft.^{2}): 0.3

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: 57

Supply Line Diameter: 2 in. SCH 40 PVC

Supply Line Volume: 9.92

Dosing Volume: 154.37

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: 1.01

Elevation Head: 7.30

Total Dynamic Head: 11.86

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

AUTUMN GROVE LOT 65

LP PPBPS

DESIGN FLOW (gpd):	480
SOIL APPLICATION RATE (gpd/ft.^{2}):	0.3
TOTAL AREA TRENCH BOTTOM:	825
TOTAL LATERAL LENGTH:	275
NUMBER OF FIELDS:	1
LATERAL LENGTH REQUIRED PER FIELD:	266.6666667
SUPPLY LINE LENGTH:	57
TOTAL DYNAMIC HEAD:	11.86
MANIFOLD SIZE:	N/A
DOSING VOLUME:	154.37
PUMP TANK DRAW DOWN*:	7.4
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.*

AUTUMN GROVE LOT 65

Project #: 01-1043

LAYOUT FOR 4 BEDROOM HOME — August 30, 2007

LINE #	FLAG COLOR	BS	HI	FS	ELEVATION	FLAGGED LINE LENGTH	DESIGN LINE LENGTH
TBM		2.9			100.00		
INSTR. 1			102.90				
HOUSE CNR				3.40	99.50		
P. TANK				7.30	95.60		
1	ORANGE			3.50	99.40	122	122
2	BLUE			4.20	98.70	105	105
3	***RED***			***5.00***	***97.90***	***62***	***60***
4	***RED***			***5.00***	***97.90***	***62***	***60***
5	***PINK***			***5.50***	***97.40***	***112***	***90***
6	ORANGE			6.00	96.90	90	90
7	***BLUE***			***6.80***	***96.10***	***67***	***65***
					Total	**620**	**592**

	LINE LENGTH	LTAR GPD/FT2	SYSTEM TYPE	SOIL LTAR GPD/FT2	TRENCH SYSTEM	DISTRIBUTION
**** System***	***275***	***0.3***	***MOD.***	***0.300***	***PPBPS***	***LOW PRESSURE***
Repair	317	0.3	MOD.	0.300	PPBPS	LOW PRESSURE

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 -AUTUMN GROVE LOT#65

SYSTEM

Line #	Color	Elevation	Length	Hole Size	Flow/hole	Trench Area	Number of Panels
3	***RED***	97.9	***60***	0.156	**0.41**	180	14
4	***RED***	97.9	***60***	0.156	**0.41**	180	14
5	***PINK***	97.4	***90***	0.156	**0.41**	270	21
7	***BLUE***	96.1	***65***	0.156	**0.41**	195	15
							64
	total	**feet =**	**275**	**gal/min =**	**26.24**		

Des. Flow	**480**
Pump Run=	**5.88**
soil LTAR	**0.3**
LTAR +5%	**0.315**
LTAR with mod.	**0.6**
LTAR with mod.. + 5%	**0.63**

.156 equals 5/32 inch hole

CALCULATIONS

Location AUTUMN GROVE

Project Number 01-1043

Lot No: Lot 65

No. of Bedrooms	4	
Design Flow	480	$^{gal}/_{day}$
LTAR	0.300	$^{gal}/_{ft^2\,day}$
PPBPS? (YES OR NO)	YES	
Supply Line Length	57	ft.
Supply Line Volume	9.918	gal.
Required Feet of Line	266.6667	ft.
Amount of Line from Layout	275	ft.
Gallons per Minute	26.24	$^{gal}/_{min}$
Required Septic Tank Capacity	1000	gal.
Minimum Standard Tank Size	1000	
Panel Volume	3.6	gal.
# of Panels	64	
Dosing Volume	154.37	gal.

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

Tank Draw Down	7.4	*Generic Draw Down of 21 gal.per in.*
Pump Run Time	5.88	minutes
Elevation Head	7.3	ft.
Pressure Head	2	ft.
Friction Factor	1.78	ft./100 ft. *(From the interpolater.)*
Friction Head	1.01	ft.
Total Dynamic Head (+15%)	11.86	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

SOIL/SITE EVALUATION

(Continuation Sheet)

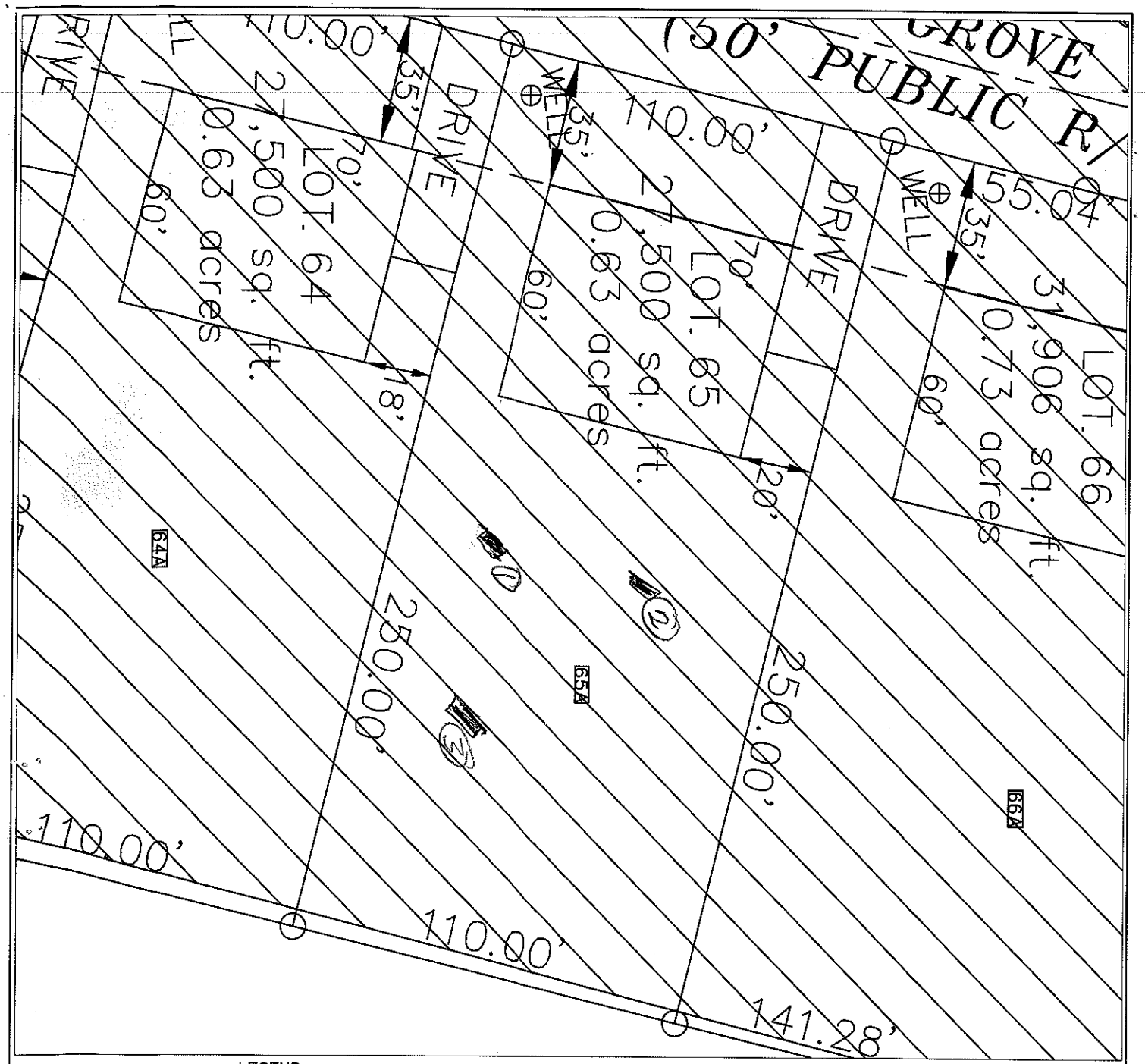
Sheet ___ of ___

DEPARTMENT OF ENVIRONMENT
AND NATURAL RESOURCES
DIVISION OF ENVIRONMENTAL HEALTH

PROPERTY ID #: _____
DATE OF EVALUATION: _____
COUNTY: _____

PROFILE #	.1940 LANDSCAPE POSITION/ SLOPE %	HORIZON DEPTH (IN.)	SOIL MORPHOLOGY (.1941) .1941 STRUCTURE/ TEXTURE	SOIL MORPHOLOGY (.1941) .1941 CONSISTENCE/ MINERALOGY	OTHER PROFILE FACTORS .1942 SOIL WETNESS/ COLOR	.1943 SOIL DEPTH	.1956 SAPRO CLASS	.1944 RESTR HORIZ	PROFILE CLASS & LTAR
P	SS	0-10	BSCL WFSBK	SS,SP,FR SEXP	—	57"	PS	—	PS
		10-33	RCL MFSBK	SS,SP,FR SEXP					
65A	0-5%	33-57	RCL WFSBK	SS,SP,FR SEXP	common sap				
		57-62	Ver SL Sap Rock	SS,SP,FR SEXP	common RCL rock				.3
2		0-6	gr SL	frns np		47"			
		6-28	wk sbk C	fr SSSP	Red				
		28-47	wk sbk CL	fr SSSP	Red f-sap				.3
		47-52	SL sap	massive					
		0-10	BSCL wk	fri SSSPSeap					
		10-28	RC MFSBK	fri SSSPSeap					
		28-44	RCL WSBK	fri SSSPSeap		44"			.3
		44-53	SL SAP M	fri NSNP Mat					
		0-8	sbk SL	fr ns np					
		8-32	mo sbk C	fr SSSP		52			
		32-52	wk sbk CL	fr SSSP	c-sap @ 50"				.3

COMMENTS: _____



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