ROLLANS *Soil & Environmental Services, Inc.*

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Attached is a proposed design for an Accepted (25% reduction) Septic System with gravity distribution for a 4 bedroom single family residence on Lot # 74 BELLSCROSSING Subdivision, Iredell County, North Carolina.

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September 4, 2008
Project No. 01-1429
Design By: Rollans Soil and Environmental Services

PRESSURE MANIFOLD SYSTEM
FOR WASTEWATER TREATMENT

Owner:	Bells Crossing, LLC
Address:	127B Promenade Dr. Mooresville, NC 28117
Phone:	704 361 1084
County:	Iredell
Location:	BELLS CROSSING LOT 74
Source of Wastewater Flow:	4 Bedroom Single Family Residence
Estimated Daily Wastewater Production:	480 gpd
System Flow:	N/A

Design Specifications

Drainfield Size:	370
Loading Rate:	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:	N/A
Estimated Supply Line Length:	9
Supply Line Diameter:	3 in. SCH 40 PVC
Supply Line Volume:	1.57
Dosing Volume:	N/A
Supply Manifold:	DROP BOX
Supply Manifold Length:	N/A
Supply Manifold Volume:	N/A
Recommended Float Controls:	N/A
	N/A
Recommended Control Panel:	N/A
	N/A
Pressure Head:	N/A
Friction Head:	N/A
Elevation Head:	N/A
Total Dynamic Head:	N/A
Threaded Union:	NA
Gate Valves:	NA
	NA
Check Valves:	NA
Anti-Siphon Hole:	NA
Additional Comments:	Soil suitability was performed by Rollans Soil & Environmental Services.

BELLS CROSSING LOT 74
GRAVITY DISTRIBUTION DESIGN

DESIGN FLOW:	480	
SOIL APPLICATION RATE:	0.35	
TOTAL AREA TRENCH BOTTOM:	1110	
TOTAL LATERAL LENGTH:	370	
NUMBER OF FIELDS:	1	
LATERAL LENGTH REQUIRED PER FIELD:	342.8571429	
SUPPLY LINE LENGTH:	9	
TOTAL DYNAMIC HEAD:	N/A	
MANIFOLD SIZE:	N/A	
DOSING VOLUME:	N/A	
PUMP TANK DRAW DOWN*:	N/A	
SEPTIC TANK SIZE:		1000
PUMP TANK SIZE:	N/A	

BELLS CROSSING LOT # 74

Project #: 01-1429

LAYOUT FOR 4 BEDROOM HOME

September 2, 2008

LINE #	FLAG COLOR	BS	HI	FS	ELEVATION	FLAGGED LINE LENGTH	DESIGN LINE LENGTH
TBM		N/A			N/A		
INSTR. 1			N/A				
HOUSE CNR				N/A	N/A		
P. TANK				N/A	N/A		
1	BLUE			N/A	N/A	50	50
2	RED			N/A	N/A	65	65
3	***PINK***			***N/A***	***N/A***	***85***	***85***
4	***ORANGE***			***N/A***	***N/A***	***96***	***95***
5	***BLUE***			***N/A***	***N/A***	***95***	***95***
6	***RED***			***N/A***	***N/A***	***95***	***95***
7	PINK			N/A	N/A	95	95
8	ORANGE			N/A	N/A	95	95
9	BLUE			N/A	N/A	95	95
					Total	**771**	**770**

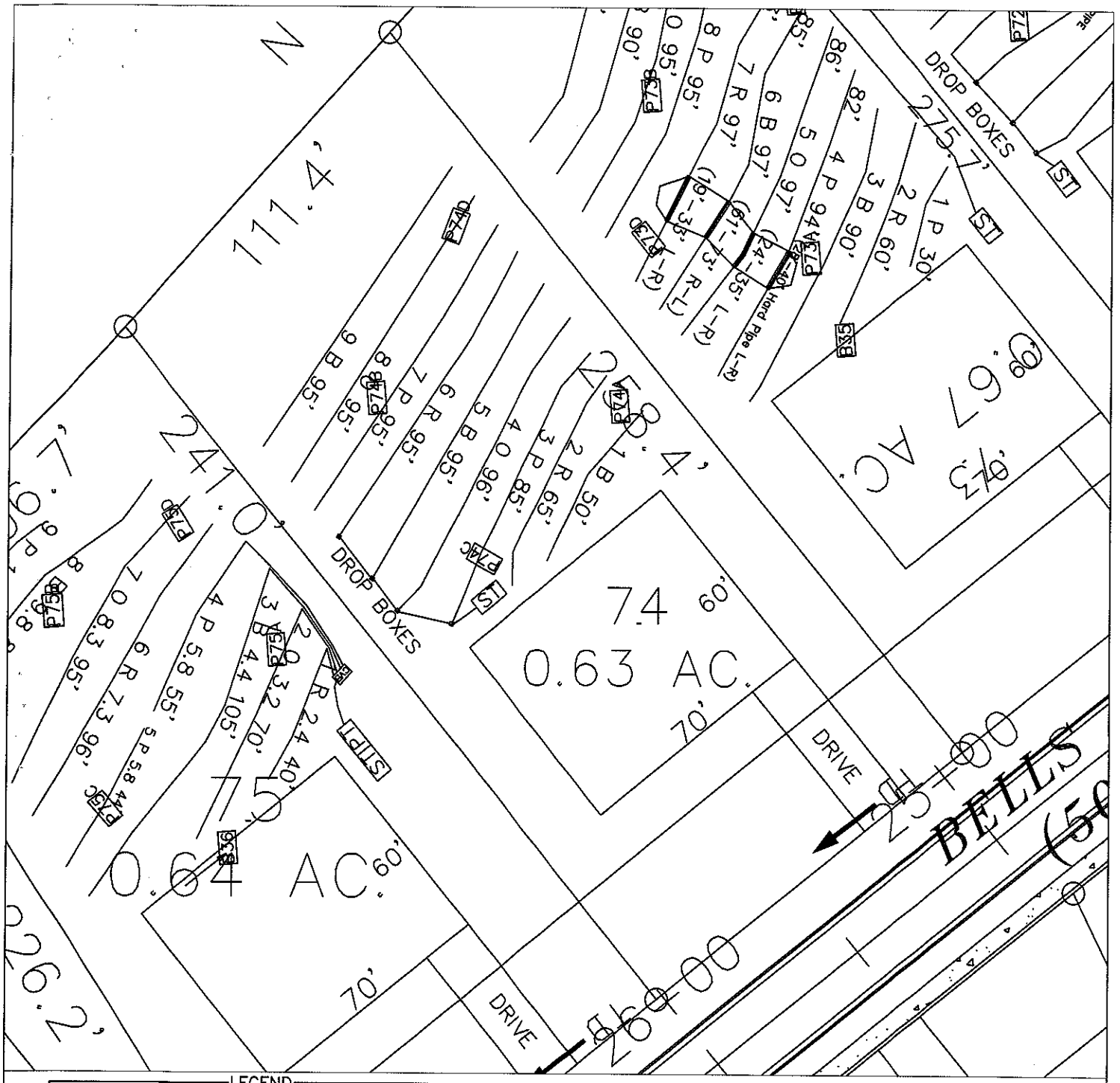
	LINE LENGTH	LTAR GPD/FT^2	SYSTEM TYPE	SOIL LTAR GPD/FT^2	TRENCH SYSTEM	DISTRIBUTION
****System***	***370***	***0.350***	***ACCEPT.***	***0.350***	***25% RED.***	**GRAVITY**
Repair	400	0.300	*ACCEPT.*	0.300	25% RED.	**DISTRIBUTION** GRAVITY DISTRIBUTION

Notes:

**All measures in feet

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

**BS, HI, and FS indicate rod readings



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: BELLS CROSSING, LLC / BELLS CROSSING

LOCATION/DATE: PERTH RD IREDELL COUNTY, NORTH CAROLINA SEP 2006

JOB # : 01-1429
FILE: C:\JOBS\01-1429
PROJECT MGR.: C.B.F.
FIELD WORK: C.B.F., A.L.P. & M.D.B.
DRAWN BY: C.B.F. & M.D.B.

CALCULATIONS

Location BELLS CROSSING

Project Number 01-1429

Lot No: Lot 74

No. of Bedrooms	4	
Design Flow	480	$^{gal}/_{day}$
LTAR	0.35	$^{gpd}/_{ft^2}$
25% RED.? (YES OR NO)	YES	
Supply Line Length	9	ft.
Supply Line Volume	1.566	gal.
Required Feet of Line	342.8571	ft.
Amount of Line from Layout	370	ft.
Gallons per Minute	N/A	$^{gal}/_{min}$
Required Septic Tank Capacity	1000	gal.
Minimum Standard Tank Size	1000	
Lateral Line Volume	241.61	gal.
Dosing Volume	N/A	gal.

Note: Dosing Volume based on70% of lateral line volume

Tank Draw Down	N/A	*Generic Draw Down of 31 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

DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES
DIVISION OF ENVIRONMENTAL HEALTH
ON-SITE WASTEWATER SECTION

Sheet ___ of
PROPERTY ID #:
COUNTY: Iredell

SOIL/SITE EVALUATION
for ON-SITE WASTEWATER SYSTEM

OWNER: Bells Lot 74
ADDRESS:
PROPOSED FACILITY:
LOCATION OF SITE: See Zoning
PROPOSED DESIGN FLOW (.1949):
APPLICATION DATE: 9/5/08
DATE EVALUATED:
PROPERTY SIZE:
PROPERTY RECORDED:
WATER SUPPLY: ❑ Private ☒ Public ❑ Well ❑ Spring ❑ Other
EVALUATION METHOD: ❑ Auger Boring ☒ Pit ❑ Cut
TYPE OF WASTEWATER: ❑ Sewage ❑ Industrial Process ❑ Mixed

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	OTHER PROFILE FACTORS .1943 SOIL DEPTH	OTHER PROFILE FACTORS .1956 SAPRO CLASS	OTHER PROFILE FACTORS .1944 RESTR HORIZ	PROFILE CLASS & LTAR
P 1	L/10-15%	0-21	RBC m1sbk	Fr SS SP SE XP	-C sap	33	PS	-	0.35-0.4
		21-33	RYCl wfsbk	" " " "					
		33-60	Verg / mass	" " " "					
P 2	L/10-15%	0-7	RRC l wsbk	Fr SS SP SE XP	2 Rock veins -C sap	40	PS	-	0.3-0.35
		7-23	RBC wmsbk	" " " "					
		23-40	RBC l vwsbk	" " " "					
		40-63	Verg / mass	" " " "					
P 3	SS 10-15%	0-10	BRC mfsbk	SS, SP Fr, SE XP	many Sap	30	PS	-	.35-.4
		10-20	YRCL wfsbk	" " " "					
		20-40	Var L Sap mass	" " " "					
		40-60	Var YLS sap mass	NS, NP, Fr, NE P					
P 4	SS 10-15%	0-16	BRC mfsbk	SS, SP, Fr SE XP		45"	PS	-	.3
		16-28	RBC wFsbk	" " " "					
		28-43	RBC l wfsbk	" " " "	Iron sap				
		43-60	Var SL sap mass	" " " "	few clay				

DESCRIPTION	INITIAL SYSTEM	REPAIR SYSTEM
Available Space (.1945)		
System Type(s)		
Site LTAR		

OTHER FACTORS (.1946):
SITE CLASSIFICATION (.1948):
EVALUATED BY: Rollins Soil & Environmental
OTHER(S) PRESENT:

COMMENTS: