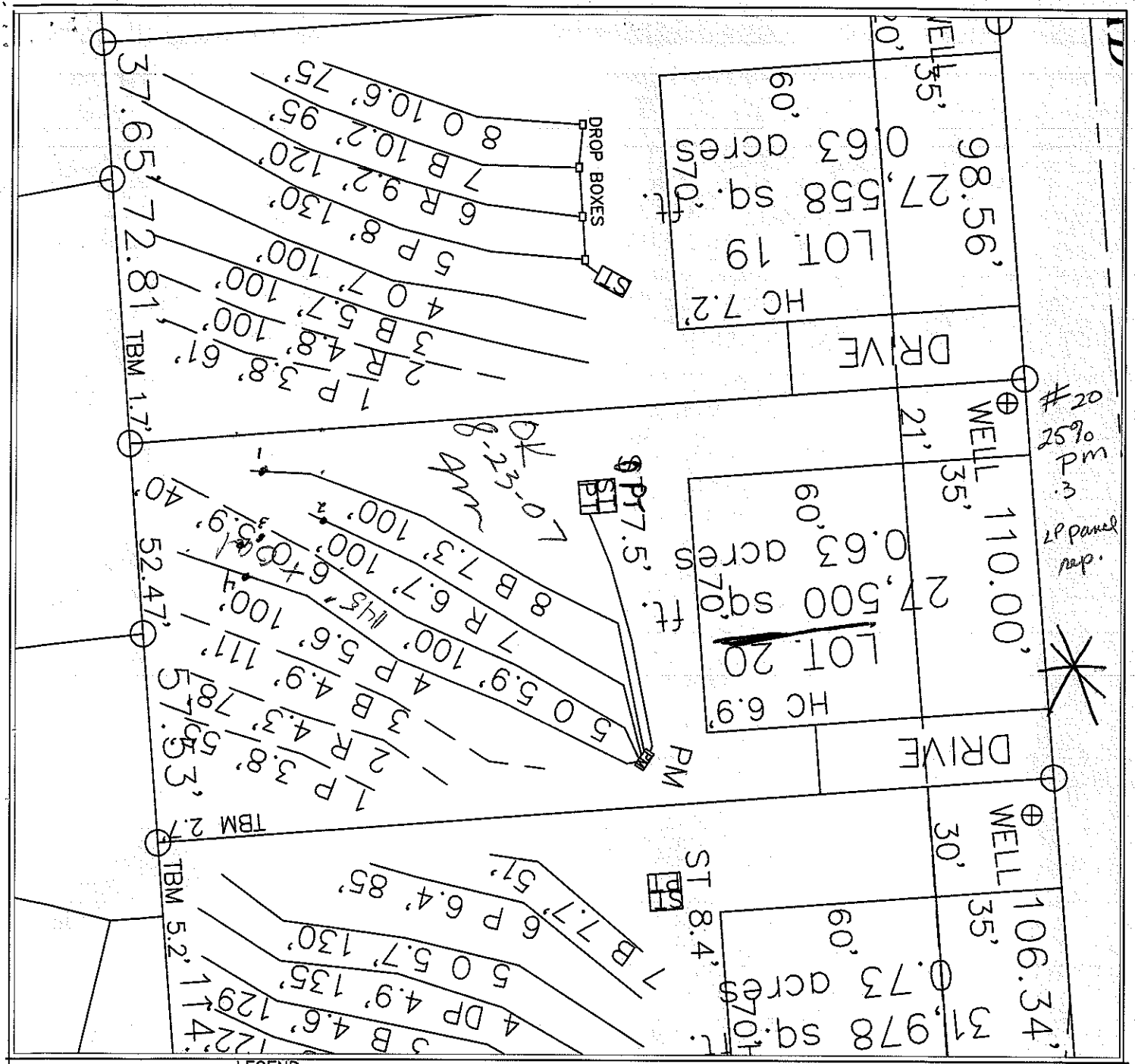


LEGEND

- House Box.
- System lines.
- Repair lines.
- House Corner Shot.
- T.B.M.

GRAPHIC SCALE
1" = 40'

40 0 40 80

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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
2120 GRAHAM ROAD
MOUNT ULLA, NC 28125
PHONE/FAX: (704) 278 - 0989
ASHLEY ROLLANS, NC LICENSED SOIL SCIENTIST
MOBILE: (704) 746 - 5046
EMAIL: ROLLANSFORTCJ@AOL.COM

MAP TITLE: SITE PLAN & DRAINFIELD AREAS

PROJECT NAME: Orchard Farms LLC/ AUTUMN GROVE

LOCATION/DATE: FERNHILL, BULLFINCH RD IREDELL COUNTY, NORTH CAROLINA FEBRUARY 2007

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

PRESSURE MANIFOLD SYSTEM
FOR WASTEWATER TREATMENT

Owner:	E&J Development
Address:	227 Hideaway Lane Mooresville, NC 28117
Phone:	704-201-6465
County:	Iredell
Location:	Autumn Grove LOT 20
Source of Wastewater Flow:	4 Bedroom Single Family Residence
Estimated Gallons Per Day Flow:	480
System Flow:	28.44

Design Specifications

Drainfield Size:	400
Loading Rate (gpd/ft.^{2}):	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:	68
Supply Line Diameter:	2 in. SCH 40 PVC
Supply Line Volume:	11.83
Dosing Volume:	195.90
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:	1.21
Elevation Head:	6.90
Total Dynamic Head:	11.63
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.

Autumn Grove LOT 20
PRESSURE MANIFOLD DESIGN

DESIGN FLOW (gpd):	480
SOIL APPLICATION RATE (gpd/ft.^{2}):	0.3
TOTAL AREA TRENCH BOTTOM:	1200
TOTAL LATERAL LENGTH:	400
NUMBER OF FIELDS:	1
LATERAL LENGTH REQUIRED PER FIELD:	400
SUPPLY LINE LENGTH:	68
TOTAL DYNAMIC HEAD:	11.63
MANIFOLD SIZE:	4 in.SCH 80 PVC
DOSING VOLUME:	195.90
PUMP TANK DRAW DOWN*:	9.3
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 20

Project #: 01-1043

LAYOUT FOR 4 BEDROOM HOME

August 17, 2007

LINE #	FLAG COLOR	BS	HI	FS	ELEVATION	FLAGGED LINE LENGTH	DESIGN LINE LENGTH
TBM		2.7			100.00		
INSTR. 1			102.70				
HOUSE			95.80	6.90			
TANK			95.20	7.50			
1	PINK			3.80	98.90	55	55
2	RED			4.30	98.40	78	78
3	BLUE			4.90	97.80	111	100
4	**PINK**			**5.60**	**97.10**	**138**	**100**
5	***ORANGE***			***5.90***	***96.80***	***100***	***100***
6	*ORANGE*			*5.90*	*96.80*	*40*	*40*
7	***RED***			***6.70***	***96.00***	***100***	***100***
8	***BLUE***			***7.30***	***95.40***	***114***	***100***
					Total	**736**	**673**

	LINE LENGTH	LTAR GPD/FT^2	SYSTEM TYPE	SOIL LTAR GPD/FT^2	TRENCH SYSTEM	DISTRIBUTION
****System***	***400***	***0.30***	***ACCEPT.***	***0.30***	***25% RED.***	**PRESSURE MANIFOLD**
Repair	273	0.30	MOD.	0.30	PPBPS	LOW PRESSURE

Notes: *

**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 - Autumn Grove LOT#20

SYSTEM

Line #	Color	Elevation	Length	Hole Size	Flow/Tap	Trench Area
4	PINK	97.1	100	SCH 40 1/2	7.11	300
5	*ORANGE*	96.8	100	SCH 40 1/2	7.11	300
7	*RED*	96	100	SCH 40 1/2	7.11	300
8	*BLUE*	95.4	100	SCH 40 1/2	7.11	300
	total	feet =	400	gal/min =	28.44	
			Des. Flow	480		
			Pump Run=	6.89		
			soil LTAR	0.30		
			LTAR +5%	0.315		
			LTAR with ACCEPTED	0.33075		
			LTAR with ACCEPTED + 5%	0.3472875		

CALCULATIONS

Location Autumn Grove

Project Number 01-1043

Lot No: Lot 20

No. of Bedrooms	4	
Design Flow	480	$^{gal}/_{day}$
LTAR	0.3	$^{gpd/ft^2}$
25% RED.? (YES OR NO)	YES	
Supply Line Length	68	ft.
Supply Line Volume	11.832	gal.
Required Feet of Line	400	ft.
Amount of Line from Layout	400	ft.
Gallons per Minute	28.44	$^{gal}/_{min}$
Required Septic Tank Capacity	1000	gal.
Minimum Standard Tank Size	1000	
Lateral Line Volume	261.2	gal.
Dosing Volume	195.90	gal.

Note: Dosing Volume based on75% of lateral line volume

Tank Draw Down	9.3	*Generic Draw Down of 21 gal.per in.*
Pump Run Time	6.89	minutes
Elevation Head	6.9	ft.
Pressure Head	2	ft.
Friction Factor	1.78	ft./100 ft. *(From the interpolater.)*
Friction Head	1.21	ft.
Total Dynamic Head (+15%)	11.63	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)

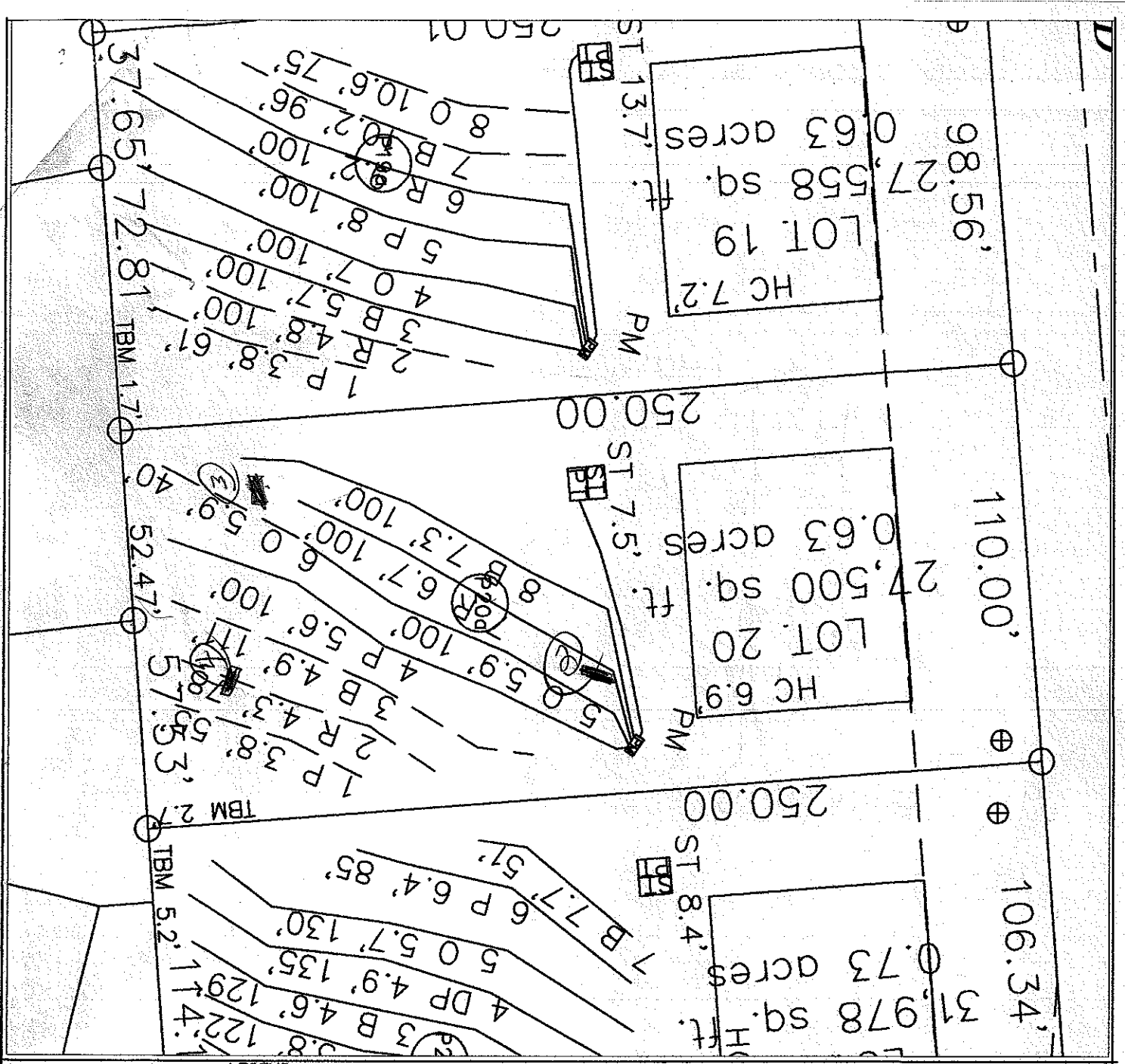
Sheet ___ of ___

DEPARTMENT OF ENVIRONMENT
AND NATURAL RESOURCES
DIVISION OF ENVIRONMENTAL HEALTH

PROPERTY ID #: #20
DATE OF EVALUATION:
COUNTY: Autumn Grove

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	LSS	0-8	B scl WFSBK	SS,SP,FR SEXP	—	58"	—	—	PS
20A	0-5%	8-32	RC MFSBK/A/BK	SS,SP,FR SEXP					
	4%	32-58	RCL WFSBK	SS,SP,FR SEXP	Common Sap				.3
2		0-6	gr SL (LOAM)	FR SSSP					
		6-22	MFSBK red C	FR SSSP SEXP					
		22-46	WKSBK red CL	FI FR SSP Additional Sap					.3
		46-59	WKSBK red CL	FR SSP Common Sap					
3		0-5	gr scl						
		5-20	mo sbk RC	fr ss spse					
		20-52	wksbk R cl	fr ss spse			C-sap		.3
21		0-6	gr LtBr sl/scl	fr SSSP					
		6-27	mo fsbk RC	fr SSSP					
		27-59	WKSBK Rcl	fr SSSP			f/c-sap		.3

COMMENTS: _____



LEGEND

- House Box.
- System lines.
- Repair lines.
- House Corner Shot.
- T.B.M.

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			PROJECT MGR.: C.B.F.
			FIELD WORK: C.B.F. & A.L.P.
			DRAWN BY: C.B.F.