ROLLANS *SOIL & ENVIRONMENTAL SERVICES*

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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 #11 THE ORCHARDS Subdivision, Iredell County, North Carolina.

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August 7, 2006
Project No. 01-1195
Design By: Rollans Soil and Environmental Services

INFORMATION FOR THE INSTALLER:

- The permit should be read very carefully prior to bidding. The following are details that must be considered along with all other considerations.
- Tanks shall be approved by DEHNR, and certification supplied by the manufacturer.
- Tanks shall be water tested prior to installation.
- The installer shall be responsible to the owner for placement of the tanks and to insure that final grades are returned to the original natural grade, with exception of added structural features.
- The supply trench shall be compacted to eliminate cavities left during initial fill placement.
- Installation of the system shall be during dry conditions in order to protect the soil structure.
- All fittings shall be pressure rated fittings.
- All joints shall be cleaned with PVC pipe cleaner and a heavy bodied glue applied to weld all joints.
- Where required by the county health department, post installation inspections by the designer must be scheduled 5 week days in advance.
- Trenches shall be carefully excavated so the bottom is within 2" from the highest to . the lowest points of elevation within the trench. If the bottom elevation needs adjusting after it has been trenched, it will be done by removing high points rather than filling low points. It is extremely important to insure that trenches are not over excavated during initial trenching. All fine grading within the trench will be hand done with a shovel. No loose material will be left in the trench
- All pipe openings in the tanks shall be properly grouted. This also applies to the joints around the riser.
- All tanks shall be properly back filled and compacted to prevent slump at a later date.
- Earth dams, constructed of relatively impervious material, shall be installed at the beginning and end of each lateral.
- No heavy equipment shall be used on the field during or after installation. The use of a small loader (i.e. Bobcat) or a trencher (i.e. Ditch Witch 2300/2310) may be used for installation.
- Elevations at pinflag locations should be checked by the installer prior to beginning trenches.
- Pumptank riser should be 6" above grade, control panel should be 12" above grade.
- Septic tank riser shall be a minimum of 6" above finished grade.
- Design precludes use of foundation drains on the residence.
- System is specified as an innovative 25% reduction installation.
- Repair is specified as a PPBPS installation.
- Rake trench walls, lime sidewalls, install trenches 36" wide level but have no more than 1/4" fall in 10 feet.

Gravity 25% Reduction
FOR WASTEWATER TREATMENT

Owner: THE ORCHARDS LLC

Address: 227 Hideaway Lane
Mooresville, NC 28117
Phone: 704-201-6465
County: Iredell
Location: THE ORCHARDS SUBDIVISION Lot #11

Source of Wastewater Flow: 4 Bedroom Single Family Residence
Estimated Daily Wastewater Production: 480 gpd
System Flow: NA

Design Specifications

Drainfield Size: 399
Loading Rate: 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: NA

Estimated Supply Line Length: 10
Supply Line Diameter: 3 in. SCH 40 PVC
Supply Line Volume: 1.74
Dosing Volume: NA
Supply Manifold: Drop Boxes
Supply Manifold Length: NA
Supply Manifold Volume: N/A

Recommended Float Controls: NA

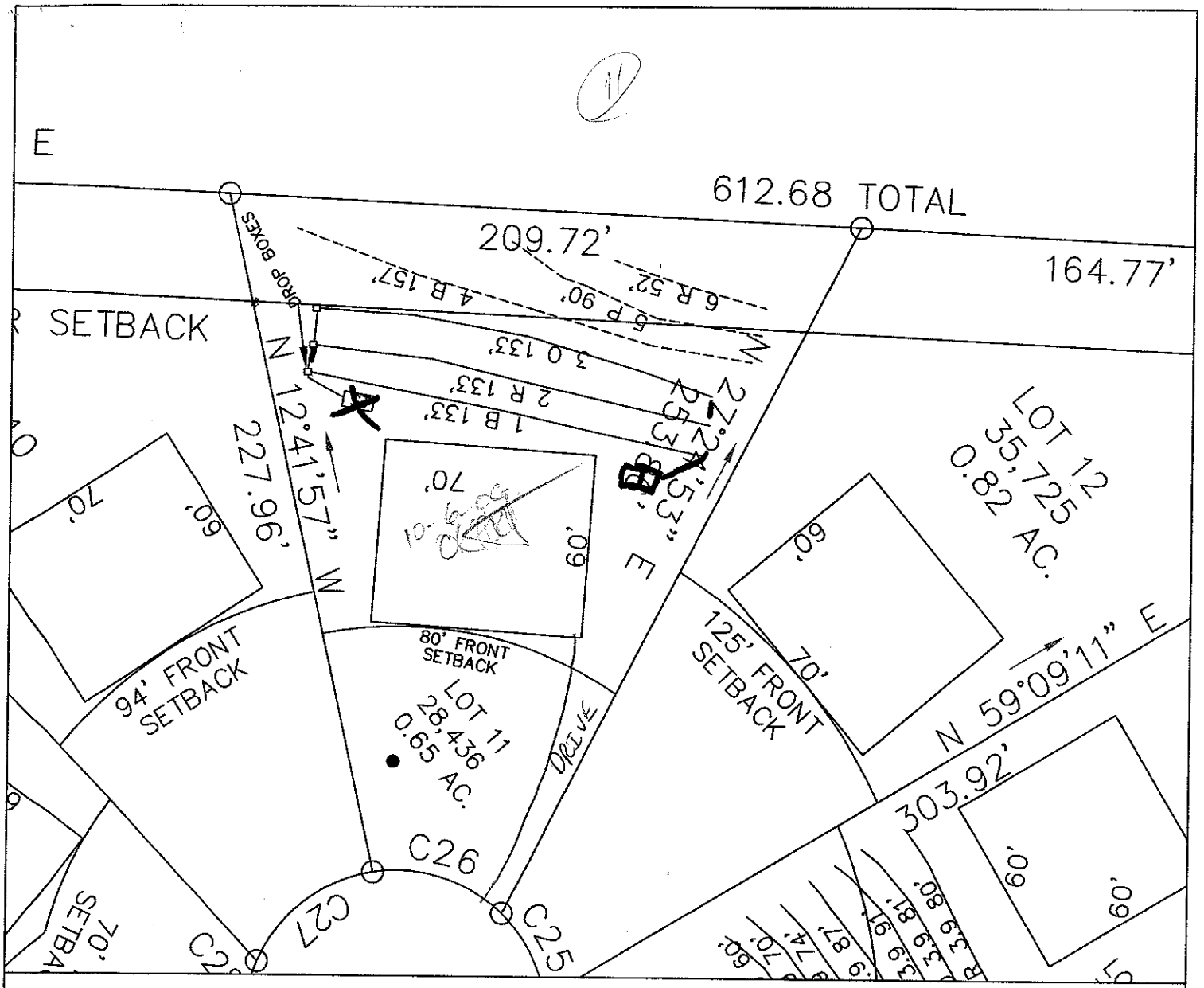
Recommended Control Panel: NA

Pressure Head: NA
Friction Head: NA
Elevation Head: NA
Total Dynamic Head: NA

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.

THE ORCHARDS SUBDIVISION Lot #11

DESIGN FLOW:	480
SOIL APPLICATION RATE:	0.3
TOTAL AREA TRENCH BOTTOM:	1197
TOTAL LATERAL LENGTH:	399
NUMBER OF FIELDS:	1
LATERAL LENGTH REQUIRED PER FIELD:	400
SUPPLY LINE LENGTH:	10
TOTAL DYNAMIC HEAD:	NA
MANIFOLD SIZE:	NA
DOSING VOLUME:	NA
PUMP TANK DRAW DOWN*:	NA
SEPTIC TANK SIZE:	1000
PUMP TANK SIZE:	NA



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

PROJECT NAME: THE ORCHARDS LLC./THE ORCHARDS SUBDIVISION

LOCATION/DATE: PERTH ROAD, IREDELL COUNTY, NORTH CAROLINA, AUGUST 2006

JOB # : 01-1195
FILE: C:\JOBS\01-1195
PROJECT MGR.: C.B.F.
FIELD WORK: C.B.F.
DRAWN BY: C.B.F.

THE ORCHARDS LOT 11

Project #: 01-1152

LAYOUT FOR 4 BEDROOM HOME

August 7, 2006

LINE #	FLAG COLOR	BS	HI	FS	ELEVATION	FLAGGED LINE LENGTH	DESIGN LINE LENGTH
TBM		N/A			100.00		
TANK		N/A	N/A				
HOUSE		N/A	N/A				
INSTR. 1			N/A				
1	***BLUE***			*N/A*	*N/A*	*133*	*133*
2	***RED***			*N/A*	*N/A*	*133*	*133*
3	***ORANGE***			*N/A*	*N/A*	*133*	*133*
4	BLUE			N/A	N/A	157	157
5	PINK			N/A	N/A	90	90
6	RED			N/A	N/A	52	52
					Total	**698**	**698**

	LINE LENGTH	LTAR GPD/FT^2	SYSTEM TYPE	SOIL LTAR GPD/FT^2	TRENCH SYSTEM	DISTRIBUTION
** System*	*399*	*0.30*	*ACCEPT.*	*0.30*	*25% RED.*	**GRAVITY**
Repair	299	0.30	*MOD.*	0.30	PPBPS	**DISTRIBUTION** LOW PRESSURE

Notes:

** TBM NOT REQUIRED

**All measures in feet

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

**BS, HI, and FS indicate rod readings

CALCULATIONS

Location THE ORCHARDS

Project Number 01-1195

Lot No: Lot 11

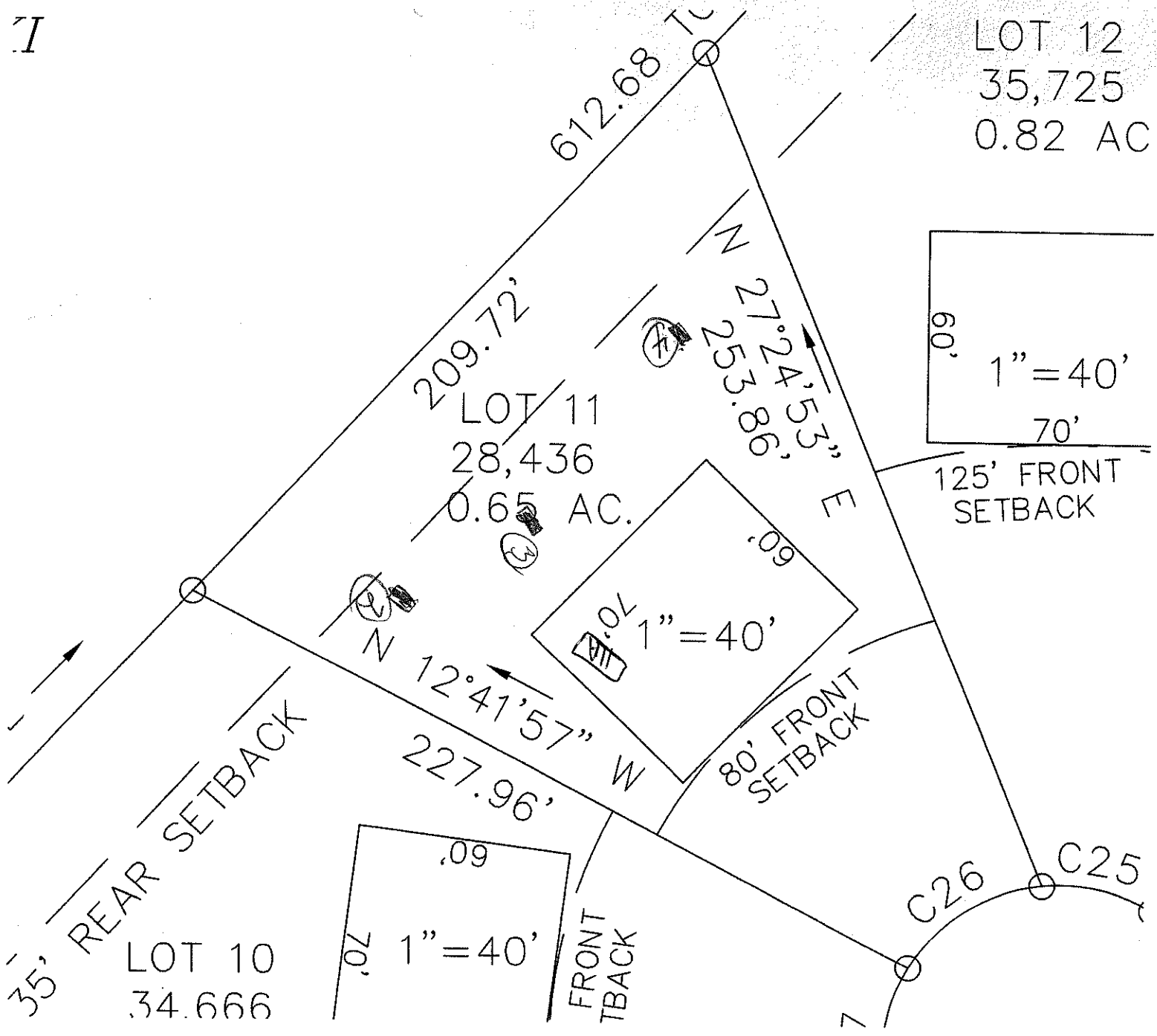
No. of Bedrooms	4	
Design Flow	480	$^{gal}/_{day}$
LTAR	0.3	$^{gal}/_{ft^2\ day}$
25% RED.? (YES OR NO)	YES	
Supply Line Length	10	ft.
Supply Line Volume	1.74	gal.
Required Feet of Line	400	ft.
Amount of Line from Layout	399	ft.
Gallons per Minute	NA	$^{gal}/_{min}$
Required Septic Tank Capacity	1000	gal.
Minimum Standard Tank Size	1000	
Lateral Line Volume	260.547	gal.
Dosing Volume	NA	gal.

Note: Dosing Volume based on70% of lateral line volume

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


LOT 12
35,725
0.82 AC
612.68'
209.72'
LOT 11
28,436
0.65 AC.
N 27°24'53" E
253.86'
1"=40'
70'
60'
125' FRONT SETBACK
1"=40'
70'
60'
80' FRONT SETBACK
N 12°41'57" W
227.96'
35' REAR SETBACK
LOT 10
34,666
1"=40'
70'
60'
FRONT TBACK
C26
C25

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

Sheet 1 of ___
PROPERTY ID #: _____
COUNTY: IREDELL

SOIL/SITE EVALUATION
for ON-SITE WASTEWATER SYSTEM

OWNER: THE ORCHARDS LLC APPLICATION DATE 4/06
ADDRESS: HIDEAWAY LANE MOORESVILLE DATE EVALUATED: _____
PROPOSED FACILITY: RES PROPOSED DESIGN FLOW (.1949): 480gpd PROPERTY SIZE: _____
LOCATION OF SITE: THE ORCHARDS LOT 11 PROPERTY RECORDED: Y
WATER SUPPLY: X Private ☐ Public ☐ Well ☐ Spring ☐ Other _____
EVALUATION METHOD: ☐ Auger Boring X Pit ☐ Cut TYPE OF WASTEWATER: X 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	.1943 SOIL DEPTH	.1956 SAPRO CLASS	.1944 RESTR HORIZ	PROFILE CLASS & LTAR
CIA 1	LSS 10-15%	0-6	BSCL WSCN	friSSSPSoP	N/A	63"	N/A	N/A	PS .3
		6-26	RCL mFABK	SBK friSSSPSoP					
		26-63	RCL mFSCN	friSSSPSoP					
2		0-8	mgr brwscl	frSSSP					.3
		8-38	SBK red c	frSSSP SOXP					
		38-55	WKSBK red cl	frSSSP few yel mottles					
3	19%	0-6	gr brwscl	frSSSP					.3
		6-29	MSBK red c	frSSSP SOXP					
		29-53	mWKSBK red cl	frSSSP common mica					
4		0-8	WKSBK brwscl	frSSSP					.3
		8-23	SBK Red C	frSSSPSoP					
		23-58	WKSBK Cl Lt Sap	frSSSP					

DESCRIPTION	INITIAL SYSTEM	REPAIR SYSTEM
Available Space (.1945)	PS	PS
System Type(s)	Conv 25% Red	LPP PS
Site LTAR	.3	.3

OTHER FACTORS (.1946): PS
SITE CLASSIFICATION (.1948): PS
EVALUATED BY: B. Freeman, DEH
OTHER(S) PRESENT: _____

COMMENTS: