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 #8 in Northlake Subdivision, Iredell County, North Carolina.

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October 6, 2008
Project #: 01-1391
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 NCDENR, 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 a gravity innovative 25% reduction installation.
- Repair is specified as a PPBPS low pressure installation.
- Rake trench walls, lime sidewalls, install trenches 36" wide and have no more than 1/4" fall in 10 feet.
- Backfill against house to achieve positive drainage.
- All gullies near system and repair areas must be filled with provisionally suitable material.

Gravity 25% Reduction
FOR WASTEWATER TREATMENT

Owner:	ABMS Development, Inc
Address:	111-B Raceway Drive Mooresville, NC 28117
Phone:	704-664-7029
County:	Iredell
Location:	Northlake LOT #8
Source of Wastewater Flow:	4 Bedroom Single Family Residence
Estimated Gallons Per Day Flow:	480
System Flow:	NA

Design Specifications

Drainfield Size:	400
Loading Rate (gpd/ft.^{2}):	0.30
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:	23
Supply Line Diameter:	3 in. SCH 40 PVC
Supply Line Volume:	4.00
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.

Northlake LOT #8

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:	23
TOTAL DYNAMIC HEAD:	NA
MANIFOLD SIZE:	NA
DOSING VOLUME:	NA
PUMP TANK DRAW DOWN*:	NA
SEPTIC TANK SIZE:	1000
PUMP TANK SIZE:	NA

Northlake LOT #8

Project #: 01-1391

LAYOUT FOR 4 BEDROOM HOME

October 6, 2008

LINE #	FLAG COLOR	BS	HI	FS	ELEVATION	FLAGGED LINE LENGTH	DESIGN LINE LENGTH
TBM		NA			NA		
INSTR. 1			NA				
HOUSE CRN				NA	NA		
P. TANK				NA	NA		
1	***PINK***			*NA*	*NA*	*49*	*45*
2	***ORANGE***			*NA*	*NA*	*75*	*75*
3	***BLUE***			*NA*	*NA*	*111*	*110*
4	***DARK PINK***			*NA*	*NA*	*128*	*125*
5	***PINK***			*NA*	*NA*	*45*	*45*
5	PINK			NA	NA	64	64
6	BLUE			NA	NA	88	88
7	ORANGE			NA	NA	65	65
8	DARK PINK			NA	NA	40	40
9	PINK			NA	NA	22	22
					Total	**687**	**679**

	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.*	**GRAVITY DISTRIBUTION**
Repair	279	0.30	*MOD.*	0.30	PPBPS	LOW PRESSURE

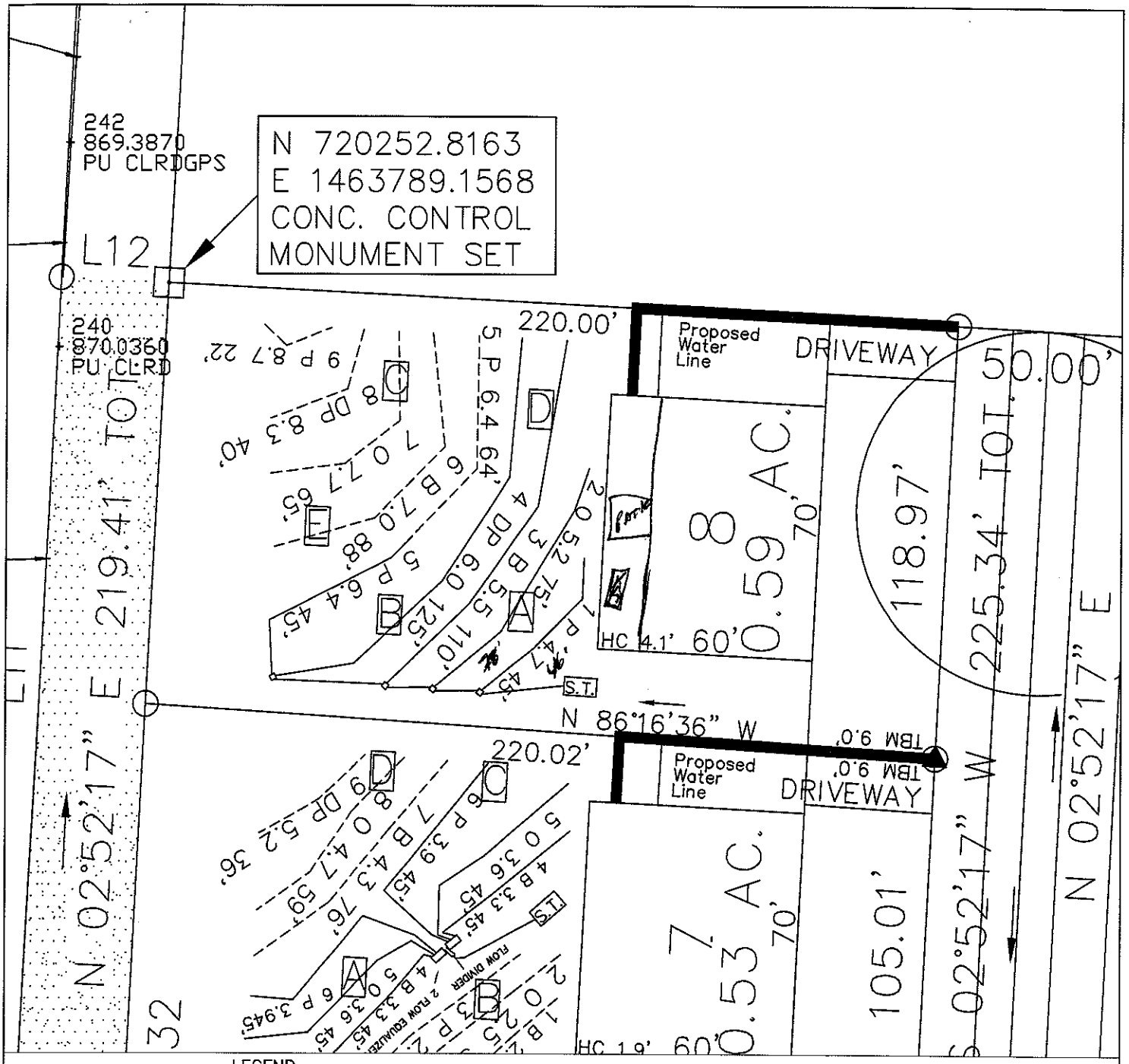
Notes:

** TBM Is Not Required.

**All measures in feet

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

**BS, HI, and FS indicate rod readings



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

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MAP TITLE: SITE PLAN & DRAINFIELD AREAS

PROJECT NAME: NORTHLAKE SUBDIVISION

LOCATION/DATE: BETHESDA RD IREDELL COUNTY, NORTH CAROLINA AUG 2008

JOB # : 01-1391
FILE: C:\JOBS\01-1391
PROJECT MGR.: A.L.P
FIELD WORK: A.L.P.
DRAWN BY: A.L.P.

CALCULATIONS

Location Northlake

Project Number 01-1391

Lot No: Lot 8

No. of Bedrooms 4

Design Flow 480 $^{gal}/_{day}$

LTAR 0.30 $^{gal}/_{ft^2\,day}$

25% RED.? (YES OR NO) YES

Supply Line Length 23 ft.

Supply Line Volume 4.002 gal.

Required Feet of Line 400 ft.
Amount of Line from Layout 400 ft.

Gallons per Minute NA $^{gal}/_{min}$

Required Septic Tank Capacity 1000 gal.
Minimum Standard Tank Size 1000

Lateral Line Volume 261.2 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

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

Sheet 1 of 1
PROPERTY ID #:
COUNTY: Iredell

SOIL/SITE EVALUATION
for ON-SITE WASTEWATER SYSTEM

OWNER: ABMS Development Inc
ADDRESS: 111-B Raceway Drive Mooresville, NC 28117
PROPOSED FACILITY: 4 BRM PROPOSED DESIGN FLOW (.1949): 480 gpd
LOCATION OF SITE: Northlake Subdivision Lot 8
WATER SUPPLY: ☐ Private ☒ Public ☐ Well ☐ Spring ☐ Other
EVALUATION METHOD: ☐ Auger Boring ☒ Pit ☐ Cut

APPLICATION DATE
DATE EVALUATED: 6/08
PROPERTY SIZE: 0.59 ac
PROPERTY RECORDED: Yes
TYPE OF WASTEWATER: ☒ Sewage ☐ Industrial Process ☐ Mixed

PROFILE #	.1940 LANDSCAPE POSITION/ SLOPE %	HORIZON DEPTH (IN.)	SOIL MORPHOLOGY (.1941) .1941 STRUCTURE/ TEXTURE	.1941 CONSISTENCE/ MINERALOGY	OTHER PROFILE FACTORS .1942 SOIL WETNESS/ COLOR	.1943 SOIL DEPTH	.1956 SAPRO CLASS	.1944 RESTR HORIZ	PROFILE CLASS & LTAR
P8A	SS 0-5%	0-7	B SCL WFSBk	SS, SP, Fr SExP	—	61"	—	—	PS
		7-22	RC MMSBk	SS, SP, Fr SExP					
		22-30	RC WFSBk	SS, SP, Fr SExP					
		30-61	RCL WFSBk	SS, SP, Fr SExP	Com Sap				.3
P8B	SS 0-5%	0-6	B SCL WFSBk	SS, SP, Fr SExP	—	43"	PS	—	PS
		6-24	RC MMSBk	SS, SP, Fr SExP					
		24-43	RCL WFSBk	SS, SP, Fr SExP	Com Sap				
		43-62	Var. L Sap Mass	SS, SP, Fr SExP	Com RCL incl.				.3-.35
P8C	SS 0-5%	0-6	B SCL WFSBk	SS, SP, Fr SExP	—	63"	—	—	PS
		6-19	RB CM FFABk	SS, SP, Fr SExP	few Y minerals				
		19-56	RC WFSBk	SS, SP, Fr SExP	few Sap				
		56-63	RCL WFSBk	SS, SP, Fr SExP	com Sap				.3
P8D	SS 0-5%	0-6	B SCL Gr	SS, SP, Fr SExP	—	28"	PS	—	PS
		6-23	RC MASBk	SS, SP, Fr SExP					
		23-28	RCL WFSBk	SS, SP, Fr SExP	many Sap				
		28-60	Var. L/SL Sap Mass	SS, SP, Fr SExP	com RCL incl.				.35

DESCRIPTION	INITIAL SYSTEM	REPAIR SYSTEM
Available Space (.1945)	PS	PS
System Type(s)	Gravity 25% RED. LP PPBPS	
Site LTAR	0.3	0.3

OTHER FACTORS (.1946): None
SITE CLASSIFICATION (.1948): PS
EVALUATED BY: ALP
OTHER(S) PRESENT: None

COMMENTS:

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	OTHER PROFILE FACTORS .1943 SOIL DEPTH	OTHER PROFILE FACTORS .1956 SAPRO CLASS	OTHER PROFILE FACTORS .1944 RESTR HORIZ	PROFILE CLASS & LTAR
P	SS	0-9	B scl gr	SS, SP, Fr SExP	slightly compacted		—	—	P5
SE	0-5%	9-32	BR CmFSBk/MFSBk	SS, SP, Fr SExP		67"			
		32-49	RC MFSBk/ABk	SS, SP, Fr SExP					.3
		49-67	RY CL WFSBk	SS, SP, Fr SExP	Com sep				

COMMENTS: _____