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
E-mail: Rollansfortcj@aol.com

Brady Freeman, Registered Sanitarian
Mobile: (704) 746-6497
E-mail: bfree209@yahoo.com

Attached is a design proposal for a gravity 25% reduction Septic System for a 3 bedroom single family residence on Lot #1 of Shepherd's Bluff Subdivision in Iredell County, North Carolina.

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LICENSED SOIL SCIENTIST
Samuel A. Rollans
1231
STATE OF NORTH CAROLINA
9/26/05

September 26, 2005
Project No. 01-1064
Design By: Samuel A. Rollans, LSS

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.
- Septic tank riser shall be a minimum of 6" above finished grade.
- System is specified as a 25% reduction installation with gravity distribution.
- Repair is specified as a 25% reduction installation with gravity distribution.
- Rake trench walls, lime side-walls, install trenches 36" wide and have no more than 1/4" fall in 10 feet.

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: Billy Allen APPLICATION DATE 9/05
ADDRESS: Shepherd's Bluff Drive DATE EVALUATED: 9/05
PROPOSED FACILITY: Res PROPOSED DESIGN FLOW (.1949): 360 PROPERTY SIZE: _____
LOCATION OF SITE: Shepherd's Bluff lot 1 PROPERTY RECORDED: Y
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	.1943 SOIL DEPTH	.1956 SAPRO CLASS	.1944 RESTR HORIZ	PROFILE CLASS & LTAR
P 1	Linear 5-10%	0-17	RCL MFSBK	FRI SSSP SEXP	NA	17	PS	NA	PS .4GPD/FTSQ
		17-60	VERSL SAP M	FRI NSNP NEXP					
P 2	Linear 5-10%	0-30	RSC MFSBK	FRI SSSP SEXP	NA	30	PS	NA	PS .4GPD/FTSQ
		30-60	VERSL SAP M	FRI NSNP NEXP					
P 3	Linear 5-10%	0-8	BSCL WFSBK	FRI SSSP SEXP	NA	8	PS	NA	PS .4GPD/FTSQ
		8-60	VERSL SAP M	FRI NSNP NEXP					
P 4	Linear 5-10%	0-6	BSCL WFSBK	FRI SSSP SEXP	NA	6	PS	NA	PS .4GPD/FTSQ
		6-60	VERSL SAP M	FRI NSNP NEXP					

DESCRIPTION	INITIAL SYSTEM	REPAIR SYSTEM
Available Space (.1945)	846 sq ft	765 sq ft
System Type(s)	25% red	25% red
Site LTAR	4GPD/FTSQ	4GPD/FTSQ

OTHER FACTORS (.1946): _____
SITE CLASSIFICATION (.1948): PS
EVALUATED BY: Ashley Rollans
OTHER(S) PRESENT: _____

COMMENTS: _____

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

Sheet ___ of ___
PROPERTY ID #: ___
COUNTY: ___

SOIL/SITE EVALUATION
for ON-SITE WASTEWATER SYSTEM

OWNER: Shepherd & Bimbach APPLICANT: ___
ADDRESS: ___ APPLICATION DATE: ___ DATE EVALUATED: 9/24/2
PROPOSED FACILITY: ___ PROPOSED DESIGN FLOW (.1949): ___ PROPERTY SIZE: ___
LOCATION OF SITE: [illegible] Blvd 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	.1941 CONSISTENCE/ MINERALOGY	OTHER PROFILE FACTORS .1942 SOIL WETNESS/ COLOR	.1943 SOIL DEPTH	.1956 SAPRO CLASS	.1944 RESTR HORIZ	PROFILE CLASS & LTAR
1		0-30"	Rd SC m, w SBK FR	FR, SS, SP, SE					PS .25 to .3 to 35" .4+ >30"
		30"+	LSAP m	FR, NS, NP, NE					
2									
3									
4									

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

OTHER FACTORS (.1946): ___
SITE CLASSIFICATION (.1948): ___

EVALUATED BY: ___
OTHER(S) PRESENT: ___

GRAVITY 3-BEDROOM SYSTEM
FOR WASTEWATER TREATMENT

Owner: Shepherd's Bluff, LLC
Attn: Billy Allen
Address: 111-B Raceway Dr.
Mooresville, NC 28117
Phone: (704) 664 - 7029
County: Iredell
Location: Shepherd's Bluff Subdivision Lot #1

Source of Wastewater Flow: 3 Bedroom Single Family Residence
Estimated Daily Wastewater Production: 360 gpd
System Flow: Gravity/On-Demand

Design Specifications

System Type: 25% Reduction
Drainfield Size: 282 Linear feet
Loading Rate: 0.4 gpd/ft.^{2}
Depth of Gravel in Trench: NA
Gravel Size: NA
Trench Depth: 36 in.
Trench Width: 36 in.
Septic Tank Size: 1000 min.
Pump Tank Size: NA

Estimated Supply Line Length: 20
Supply Line Diameter: 3 in. SCH 40 PVC
Supply Line Volume: NA
Dosing Volume: NA
Supply Manifold: NA
Supply Manifold Length: NA
Supply Manifold Volume: NA

Recommended Float Controls: NA

Recommended Control Panel:

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

Recommended Pump: NA

NA
NA

Additional Comments: Soil suitability was performed by Rollans Soil & Environmental Services

SHEPHERD'S BLUFF LOT #1
DESIGN INFORMATION

DESIGN FLOW:	360
SOIL APPLICATION RATE:	0.4 gpd/ft.^{2}
TOTAL AREA TRENCH BOTTOM:	846sf
TOTAL LATERAL LENGTH:	282
NUMBER OF FIELDS:	1
LATERAL LENGTH REQUIRED PER FIELD:	225
DISTRIBUTION METHOD	Drop Boxes
SUPPLY LINE LENGTH:	20'
TOTAL DYNAMIC HEAD:	NA
MANIFOLD SIZE:	NA
DOSING VOLUME:	NA
PUMP TANK DRAW DOWN*:	NA
SEPTIC TANK SIZE:	1000 min.
PUMP TANK SIZE:	NA
RECOMMENDED PUMP:	NA

SHEPHERD'S BLUFF/LOT #1

Project #: 01-1064

LAYOUT FOR 3 BEDROOM HOME — Sept. 26, 2005

LINE #	FLAG COLOR	BS	HI	FS	ELEVATION	FLAGGED LINE LENGTH	DESIGN LINE LENGTH
TBM		12.5			100.00		
INSTR. 1			112.50				
HOUSE CNR				1.10	111.40		
S. TANK				6.50	106.00		
1	***BLUE***			***9.00***	***103.50***	***87***	***87***
2	***PINK***			***11.30***	***101.20***	***95***	***95***
3	***GREEN***			***12.30***	***100.20***	***100***	***100***
4	ORANGE			13.30	99.20	90	90
5	BLUE			14.30	98.20	85	85
6	PINK			16.00	96.50	80	80
					Total	**537**	**537**

	LINE LENGTH	LTAR GPD/FT^2	SYSTEM TYPE	SOIL LTAR GPD/FT^2	INNOVATIVE SYSTEM	DISTRIBUTION
**** System***	***282***	***0.32***	***ACCEPT.***	***0.40***	***25% RED.***	***DROP BOXES***
Repair	255	0.35	ACCEPT.	0.40	25% RED.	DROP BOXES

Notes:

** TBM located on top of ground @ eip (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

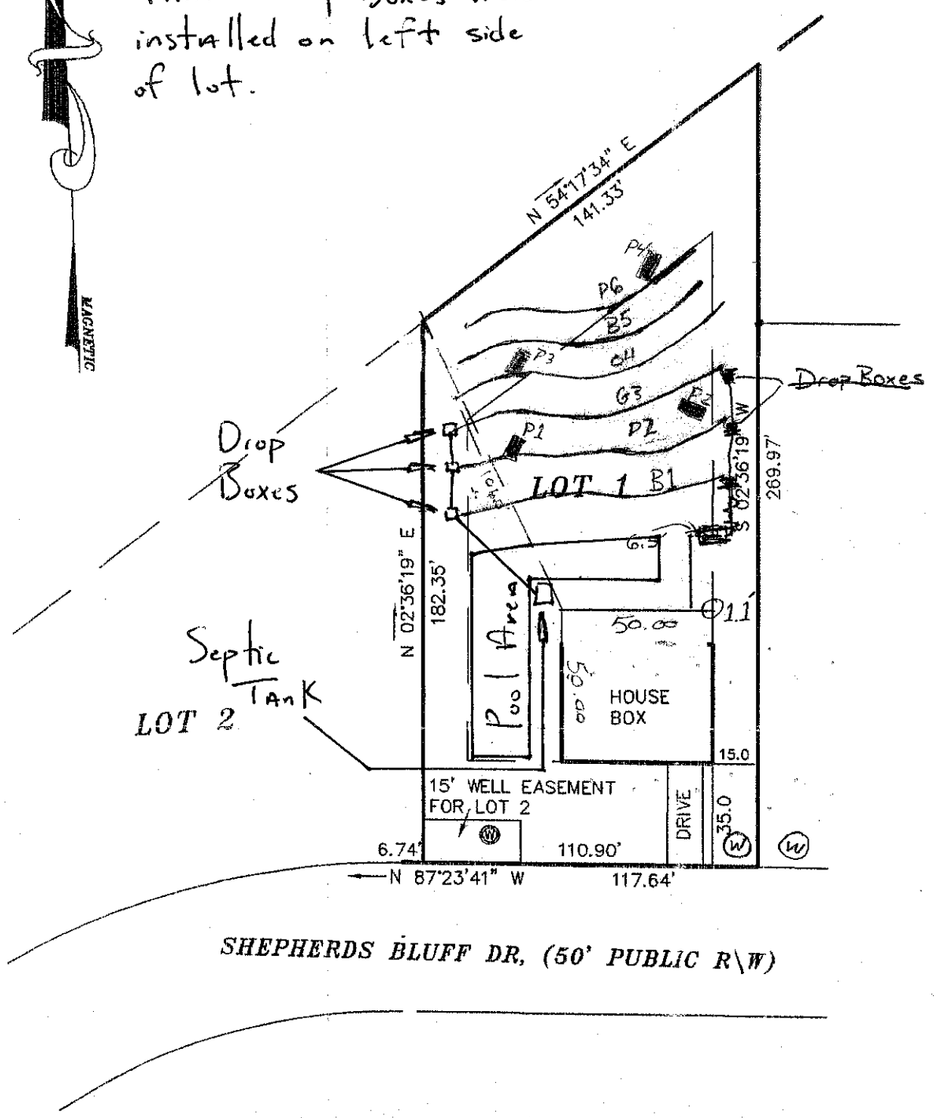
DAS DON ALLEN & ASSOCIATES, P. A.
"Since 1971"
Commercial * Residential * Mortgage Surveys * Multi-Family
Construction Staking * Subdivision Design * Topographical
(704) 664-7029 (704) 664-8041 Fax

I, certify that this map was drawn under my supervision from an actual survey made under my supervision recorded in deed book_____, page_____, and/or plat book_____, page_____, that the ratio of precision is 1':10,000, that this map was prepared in accordance with the General Statutes of North Carolina Chapter 89C. my hand and seal on the 11, day of JULY, A.D. 20 05

WILLIAM M. ALLEN, PLS

SEAL L-3499 LAND SURVEYOR WILLIAM M. ALLEN

Tank + Drop Boxes were installed on left side of lot.



PLOT PLAN SURVEY

OF

LOT 1 SHEPHARDS BLUFF (PHASE 1)

SCALE 1" = 50'

BARRINGER TWSP., IREDELL CO., N.C.

ACQUIRED BY: SHEPHERDS BLUFF LLC

FIELD BOOK:
FILE: 10329PT
DC FILE:
TAX MAP NO:

DAS DON ALLEN & ASSOCIATES, P. A.
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WILLIAM M. ALLEN, PLS

NORTH CAROLINA SEAL L-3499 LAND SURVEYOR WILLIAM M. ALLEN



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LOT 1 SHEPHARDS BLUFF (PHASE 1)

SCALE 1" = 50'

BARRINGER TWSP., IREDELL CO., N.C.

ACQUIRED BY: SHEPHERDS BLUFF LLC

FIELD BOOK:
FILE: 10329PT
DC FILE:
TAX MAP NO:

* Check with Building on set back from house

Needed 225' - have 282'

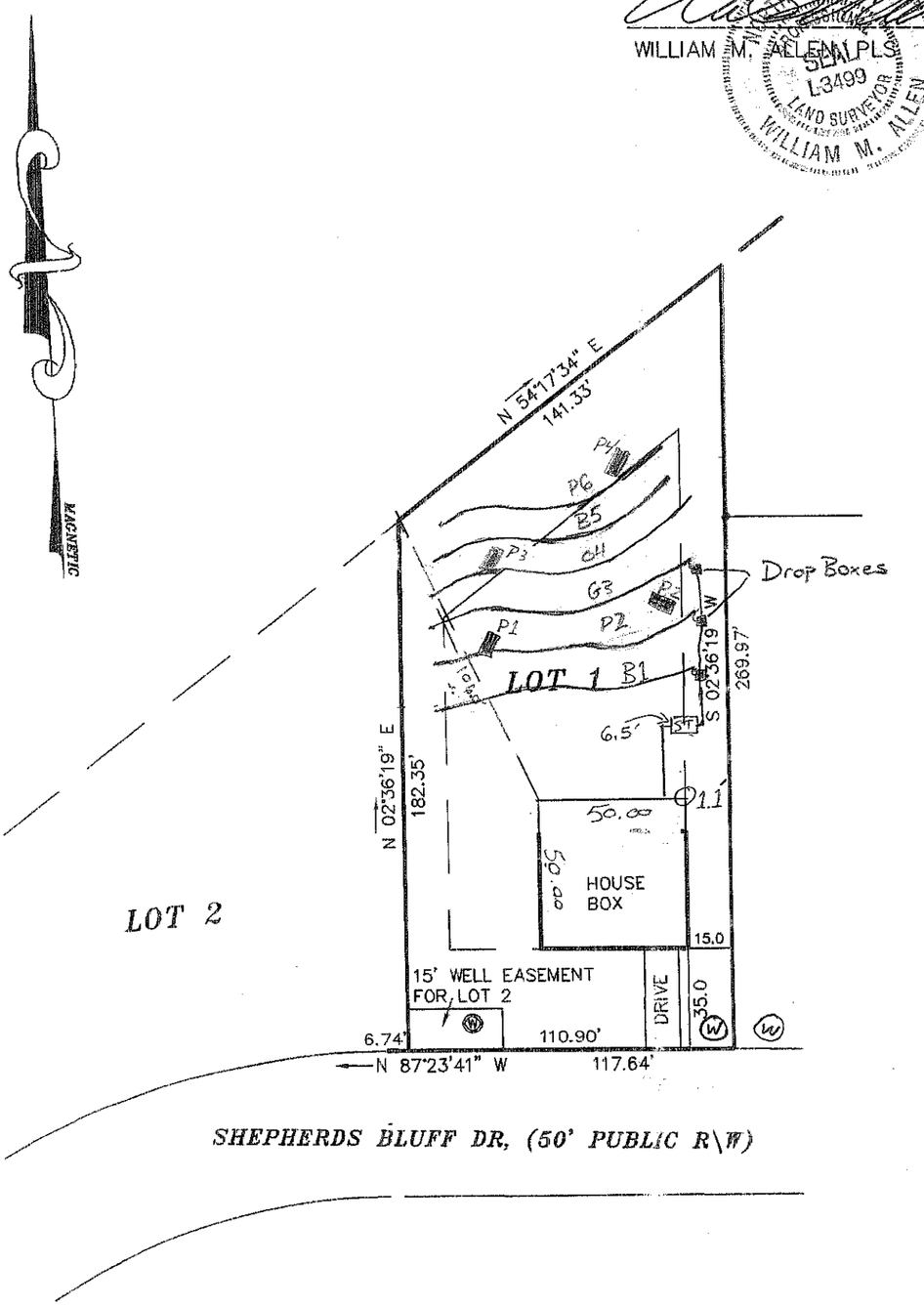
25% - Initial - 282'

50% - Repair - 188'

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WILLIAM M. ALLEN PLS
L-3499
NORTH CAROLINA
SEAL
L3499
LAND SURVEYOR
WILLIAM M. ALLEN



PLOT PLAN SURVEY

OF

LOT 1 SHEPHARDS BLUFF (PHASE 1)

SCALE 1" = 50' BARRINGER TWSP., IREDELL CO., N.C.

ACQUIRED BY: SHEPHERDS BLUFF LLC

FIELD BOOK:
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TAX MAP NO: