ROLLANS *Soil & Environmental Services, PA.*

P.O. Box 832 Mooresville, NC 28115 Phone: (704) 658-1723 Fax: (704) 278-0989

Ashley Rollans, NC Licensed Soil Scientist
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Attached is a proposed design for an Accepted Septic System with gravity dist. for a 3 bedroom single family residence on Lot 19, LakeView Shores, at 111 Aqua Dr. (PIN 4635901779), Iredell County, North Carolina.

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4/19/16

April 15, 2016
Project #: 01-3151
Design By: Rollans Soil & Environmental Services, PA

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 NC DENR, 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 gravity 25% reduction (Accepted) installation.
- Partial Repair is specified as a low pressure PPBPS (50% reduction) installation.

GRAVITY ACCEPTED SYSTEM FOR WASTEWATER TREATMENT

Applicant: Rollans Soil

Address: P.O. Box 832
Mooresville, NC 28115

Phone: 704.746.5046
County: Iredell
Location: LakeView Shores Lot 19
PIN (4635901779)
Source of Wastewater Flow: 3 Bedroom Single Family Residence
Estimated Gallons Per Day Flow: 360
System Flow: N/A

Approved
MD
5/3/16

Design Specifications

Drainfield Size: 336
Loading Rate (gpd/ft.^{2}): 0.275
Depth of Gravel in Trench: N/A
Gravel Size: N/A
Trench Depth: 30 in. Repair Trench Bottom 30 in.
Trench Width: 36 in.
Septic Tank Size: 1000

Estimated Supply Line Length: 7.8
Supply Line Diameter: 4 in. SCH 40 PVC
Supply Line Volume: 5.09
Dosing Volume: N/A
Supply Manifold: N/A
Supply Manifold Length: N/A
Supply Manifold Volume: N/A

Recommended Float Controls: N/A

Recommended Control Panel: N/A

Pressure Head: N/A
Friction Head: N/A
Elevation Head: N/A
Total Dynamic Head: N/A

Threaded Union: N/A
Gate Valves: N/A

Check Valves: N/A
Anti-Siphon Hole: N/A
Additional Comments: Soil suitability was performed by Rollans Soil & Environmental Services

LakeView Shores Lot 19

ACCEPTED SYSTEM

DESIGN FLOW (gpd):	360
SOIL APPLICATION RATE (gpd/ft.^{2}):	0.275
TOTAL AREA TRENCH BOTTOM:	1020
TOTAL LATERAL LENGTH:	340
NUMBER OF FIELDS:	1
LATERAL LENGTH REQUIRED PER FIELD:	300
SUPPLY LINE LENGTH:	7.8
TOTAL DYNAMIC HEAD:	N/A
MANIFOLD SIZE:	N/A
DOSING VOLUME:	N/A
PUMP TANK DRAW DOWN*:	N/A
SEPTIC TANK SIZE:	1000

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5/3/16

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Layout Specifications - LakeView Shores Lot 19

Project #: 01-3151

LAYOUT FOR 3 BEDROOM HOME

April 15, 2016

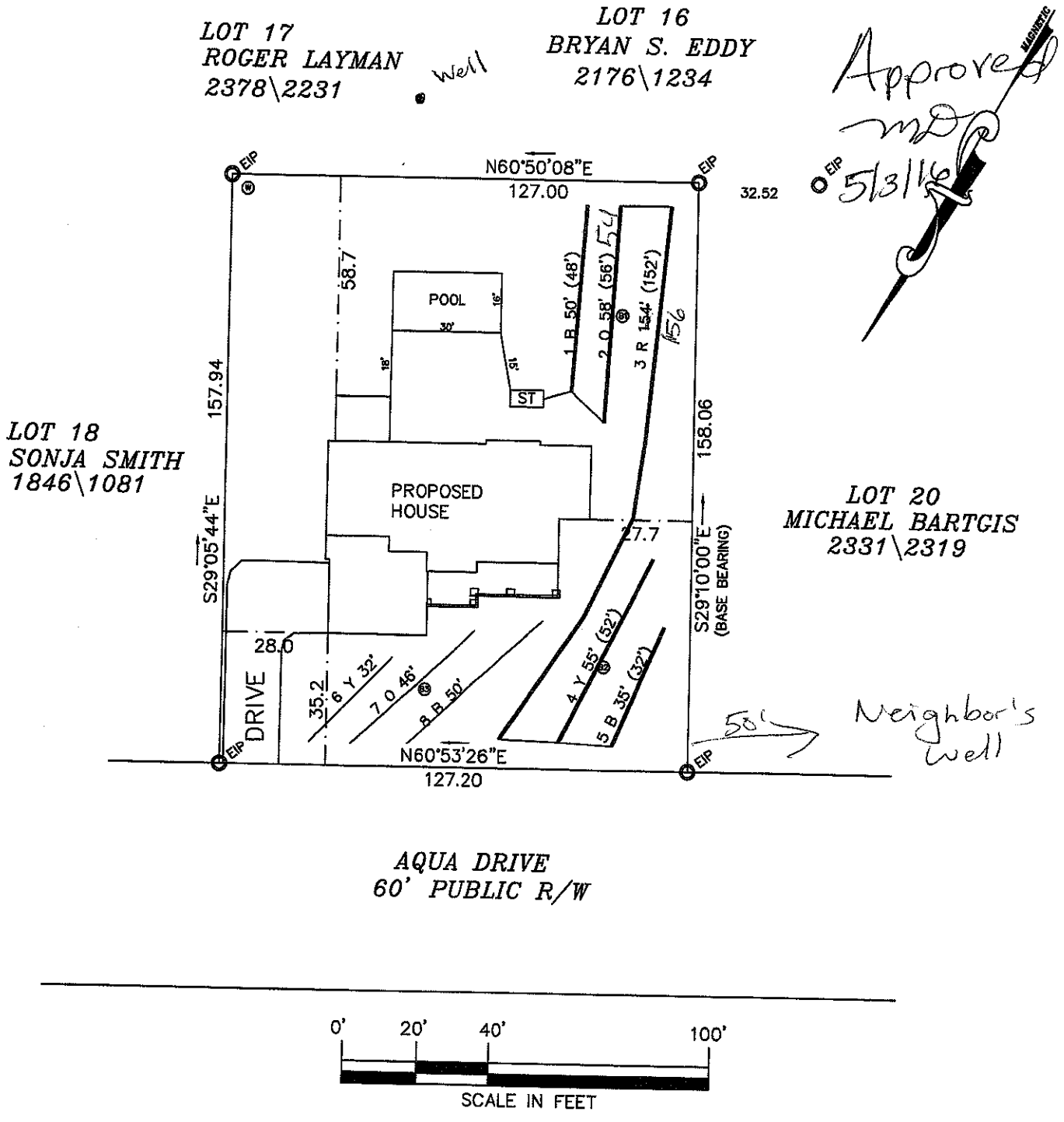
LINE #	FLAG COLOR	BS	HI	FS	ELEVATION	FLAGGED LINE LENGTH	DESIGN LINE LENGTH
TBM							
INSTR. 1							
1	***BLUE***					*50*	*48*
2	***ORANGE***					*58*	*56*
3	***RED***					*154*	*152*
4	***YELLOW***					*55*	*52*
5	***BLUE***					*35*	*32*
6	YELLOW					32	32
7	ORANGE					46	46
8	BLUE					50	50
					Total	**480**	**468**

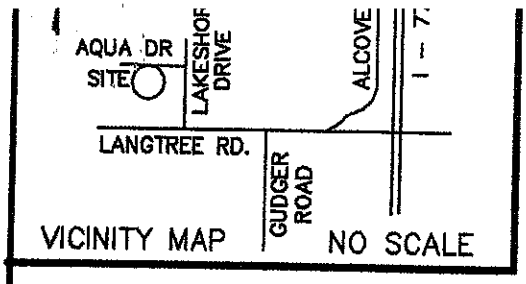
	LINE LENGTH	LTAR GPD/FT2	SYSTEM TYPE	SOIL LTAR GPD/FT2	TRENCH SYSTEM	DISTRIBUTION
** System*	*340*	*0.275*	*ACCEPT.*	*0.275*	*25% RED*	*GRAVITY*
Repair	128	0.250	MOD.	0.250	PPBPS	LOW PRESSURE

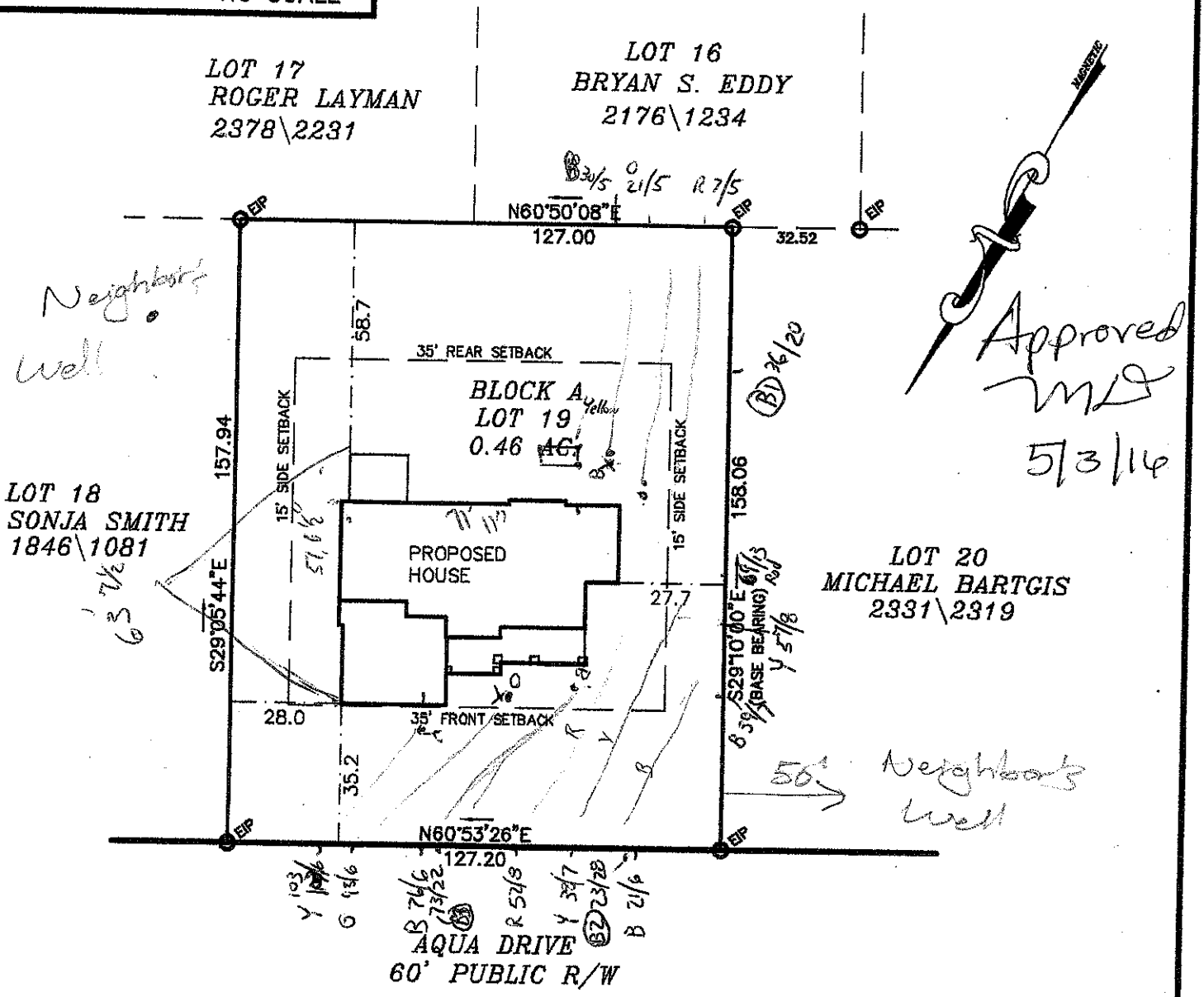
Notes: **All measures in feet

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

****Lot recorded in 1963 - REPAIR EXEMPT**


LOT 17
ROGER LAYMAN
2378\2231
Well
LOT 16
BRYAN S. EDDY
2176\1234
Approved
MD
5/3/16
MAGNETIC
EIP
N60°50'08"E
127.00
32.52
58.7
POOL
30'
16'
18'
31'
ST
1 R 50' (48')
2 O 58' (56')
3 R 154' (152')
157.94
158.06
LOT 18
SONJA SMITH
1846\1081
PROPOSED
HOUSE
27.7
S29°05'44"E
S29°10'00"E
(BASE BEARING)
LOT 20
MICHAEL BARTGIS
2331\2319
28.0
DRIVE
35.2
6 Y 32'
7 O 46'
8 B 50'
4 Y 55' (52')
5 B 35' (32')
50'
Neighbor's
Well
N60°53'26"E
127.20
AQUA DRIVE
60' PUBLIC R/W
0'
20'
40'
100'
SCALE IN FEET





NOTES
1) THIS PROPERTY MAY BE SUBJECT TO ANY EASEMENTS AND/OR RIGHTS OF WAY OF RECORD.
2) ACREAGE COMPUTED BY THE COORDINATE METHOD.
3) OVERHEAD POWER
4) NO GRID MONUMENT FOUND WITHIN 2000 FEET.

0' 20' 40' 100'
SCALE IN FEET

LEGEND
P.P. = POWER POLE
□ = POWER TRANS.
E.I.P. = EXISTING IRON FOUND
I.P.S. = #4 REBAR SET
R/W = RIGHT-OF-WAY

PLOT PLAN SURVEY

OF
111 AQUA DRIVE
LOT 19 LAKEVIEW SHORES, BLOCK A
DAVIDSON TWSP., IREDELL CO., N.C.
RICHARD J. & MORIAH S. KOCH

SCALE 1" = 40'
ACQUIRED BY:

FIELD BOOK:
FILE: LAKEVIEW SHORES 19
DC FILE:
TAX MAP NO: 4635901779

CALCULATIONS

Location LakeView Shores

Project Number 01-3151

Lot No: 19

No. of Bedrooms 3

Design Flow 360 $^{gal}/_{day}$

LTAR 0.275 $^{gal}/_{ft^2\ day}$

PPBPS? (YES OR NO) NO

Supply Line Length 7.8 ft.

Supply Line Volume 5.0934 gal.

Required Feet of Line 300 ft.
Amount of Line from Layout 340 ft.

Gallons per Minute N/A $^{gal}/_{min}$

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

Panel Volume N/A gal.
# of Panels N/A
Dosing Volume N/A gal.

Tank Draw Down N/A

Pump Run Time

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.

Approved
MD
5/3/16

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 HEALTH AND HUMAN SERVICES
DIVISION OF PUBLIC HEALTH, ENVIRONMENTAL HEALTH SECTION
ON-SITE WATER PROTECTION BRANCH

Sheet 1 of 1
PROPERTY ID #: 4635901179
COUNTY: Iredell

SOIL/SITE EVALUATION
for ON-SITE WASTEWATER SYSTEM
(Complete all fields in full)

OWNER: Richard & Marian Koch
ADDRESS: 151 Gage Dr. Mooresville NC 28115
APPLICATION DATE 4/2016
PROPOSED FACILITY: 3 BR Single-Family PROPOSED DESIGN FLOW (.1949): 360 gpd
DATE EVALUATED: 4/2016
LOCATION OF SITE: 111 Aqua Dr. Mooresville NC 28117
PROPERTY SIZE: .46AC
WATER SUPPLY: ☒ Private ☐ Public ☒ Well ☐ Spring ☐ Other
PROPERTY RECORDED: 1963
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
B 1	4/5%	0-8	Bl Gr	Fr SS SP		48"			PS .275-.3
		8-12	BRCL wfsbk	Fr SS SP					
		12-30	RBC mmsbk	Fr SS SP					
		30-48	RC mmsbk/Mbk	Fr SS SP	Few Fe Depl 30-32"				
B 2	4/5%	0-9	BL Gr	Fr SS SP		48"			PS .275
		9-12	BRCL wfsbk	Fr SS SP					
		12-32	RBC wmsbk	Fr SS SP					
		32-48	RBC wmsbk/Mbk	Fr SS SP	Few Fe Depl 32"+				
B 3	4/5%	0-6	BL Gr	Fr SS SP		48"			PS .25
		6-15	RBC wmsbk	Fr SS SP					
		15-35	RC wmAbk	F SS P	C. Fe Depl.				
		35-42	RYC wmAbk/sbk	Fr SS SP	C. Fe Depl				
		42-48	RYCL wfsbk	Fr SS SP	Few SAP				
4									

DESCRIPTION	INITIAL SYSTEM	REPAIR SYSTEM
Available Space (.1945)	"PS"	"PS"
System Type(s)	"Accepted 25%"	"PPBPS Partial"
Site LTAR	.275	.25

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

COMMENTS: Lot Recorded in 1963 and is Repair Exempt. See Attached Plat & Existing Septic Permit

Department of Environment, Health, and Natural Resources
Division of Environmental Health
On-site Wastewater Section

Sheet: 1 OF 2
PIN #: 4635-90-1779
Lot #: 19
Permit #: 202626
AppID:

SOIL/SITE EVALUATION
for ON-SITE WASTEWATER SYSTEM

Owner: MICHELLE GREIR
Applicant: MORIAH KOCH
Address: 111 AQUA DR.
Date Evaluated: 6/13/2014
Proposed Facility: SFR Design Flow (.1949) 480
Property Size: NA
Location of Site: LAKEVIEW SHORES-2-19
Property Recorded: YES
Water Supply: [ ] Public [X] Individual [X] Well [ ] Spring [ ] Other
Evaluation Method: [X] Auger Boring [ ] Pit [ ] Cut
Type of Wastewater: [X] Sewage [ ] Industrial Process [ ] Mixed

PROFILE #	.1940 Landscape Position/ Slope%	Horizon Depth (IN.)	SOIL MORPHOLOGY .1941 .1941 Structure/ Texture	.1941 Consistence Mineralogy	b PROFILE FACTORS .1942 Soil Wetness/ Color	.1943 Soil Depth (IN.)	.1956 Sapro Class	.1944 Restr Horiz	Profile Class & LTAR
AB 1	LINEAR <2%	0-18	BRSCL	SS	NA	48"	NA	48+	.3
		18-48	RD	SS					
AB 2	LINEAR <2%	0-26	SCL,W,SBK	SS	FEW YB	48"	NA	48+	.275
		26-48	RC,M,SBK	SS					
AB 3	LINEAR <2%	0-12	SCL,W,SBK	SS	NA	48"	NA	48+	.3
		12-48	RC,M,SBK	SS					
AB 4	LINEAR <2%	0-34	SCL,M,SBK	SS	NA	48"	NA	48+	.275
		34-48	SC,M,SBK	SS					

Description	Initial System	Repair System
Available Space (.1945)	PS	NOT REQUIRED
System Type(s)	LP PANEL	
Site LTAR	.275	

Other Factors (.1946):
Soil Evaluation By: BEN ALDRIDGE
Others Present: NONE
Site Classification (.1948): PS
Site Evaluation By: BEN ALDRIDGE
Others Present: NONE

Department of Environment, Health, and Natural Resources
Division of Environmental Health
On-site Wastewater Section

Sheet:
File #:

SOIL/SITE EVALUATION
for ON-SITE WASTEWATER SYSTEM
CONTINUED

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 (IN.)	.1956 Sapro Class	.1944 Restr Horiz	Profile Class & LTAR
AB 5	LINEAR <2%	0-18	SCL,W,SBK	SS	NA	48"	NA	48+	.275
		18-48	SC,M,SBK	SS					