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NC Certified Septic Installer
NC Certified Subsurface Operator
NC Certified Septic Inspector

Attached is a proposed design for an upgrade of an existing 4 Bedroom Conv. System to a 5 bedroom using gravity PPBPS Drainlines. Upgrade is for an existing 5 bedroom residence at 623 Normandy Road (PIN#: 4638324815), Mooresville, North Carolina. A proposed pool and garage are illustrated on the Site Plan (See Attached Zoning Permit).

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October 28, 2015
Project No.01-3046
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 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.
- 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.
- System is specified as a Hybrid Installation (Gravity PPBPS and an Existing 4BR Conv.)
- Repair is specified as a PPBPS installation with Low Pressure Distribution
- Backfill 4 - 6" of material (Excavation material) over panels, lime sidewalls install trenches 24" wide to be level but have no more than 1/4" fall in 10 feet.
- **Distribution Devices must be bedded on level pads.**
- **4/5th's of the effluent from the Septic Tank must be distributed to the existing system and 1/5th to the proposed new PPBPS laterals.**

GRAVITY PPBPS SYSTEM
FOR WASTEWATER TREATMENT

Approved
MD
11/20/15

Owner/Applicant:	David & Gesica Dileo
Address:	623 Normandy Road Mooresville, NC 28117
Phone:	631.774.5521
County:	Iredell
Location:	623 Normandy Road

Source of Wastewater Flow:	5 Bedroom Single Family Residence
Estimated Daily Wastewater Production:	600 gpd
System Flow:	NA

Design Specifications

Drainfield Size:	68
Loading Rate:	0.3
Depth of Gravel in Trench:	NA
Gravel Size:	NA
Trench Depth:	30 in.
Trench Width:	24 in.
Septic Tank Size:	1500 gal.
Pump Tank Size:	NA
Estimated Supply Line Length:	4
Supply Line Diameter:	3 in. SCH 40 PVC
Supply Line Volume:	0.76
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

623 Normandy Road
GRAVITY PPBPS

DESIGN FLOW (Upgrade Only):	120
SOIL APPLICATION RATE:	0.3
TOTAL AREA TRENCH BOTTOM:	136
TOTAL LATERAL LENGTH:	68
NUMBER OF FIELDS:	1
LATERAL LENGTH REQUIRED PER FIELD:	67.00
SUPPLY LINE LENGTH:	2
TOTAL DYNAMIC HEAD:	N/A
MANIFOLD SIZE:	N/A
DOSING VOLUME:	N/A
PUMP TANK DRAW DOWN*:	N/A
SEPTIC TANK SIZE:	1500 gal.
PUMP TANK SIZE:	N/A

Approved
11/20/15
MD

623 Normandy Road

Project #:01-3046

LAYOUT FOR 5 BEDROOM HOME

10/28/2015

LINE #	FLAG COLOR	BS	HI	FS	ELEVATION	FLAGGED LINE LENGTH	DESIGN LINE LENGTH
TBM							
INSTR. 1 HOUSE CNR P. TANK							
1	PINK					30	30
2	RED					50	50
3	***ORANGE***		*EXISTING*			***85***	***85***
4	***YELLOW***		*EXISTING*			***85***	***85***
5	***BLUE***		*EXISTING*			***85***	***85***
6	***PINK***		*EXISTING*			***85***	***85***
7	***ORANGE***		*EXISTING*			***85***	***85***
8A	***YELLOW***					***34***	***34***
8B	YELLOW					52	52
9A	***PINK***					***34***	***34***
9B	PINK					55	55
10	BLUE					92	92
11	PINK					45	45
12	RED					17	17
					Total	834	834

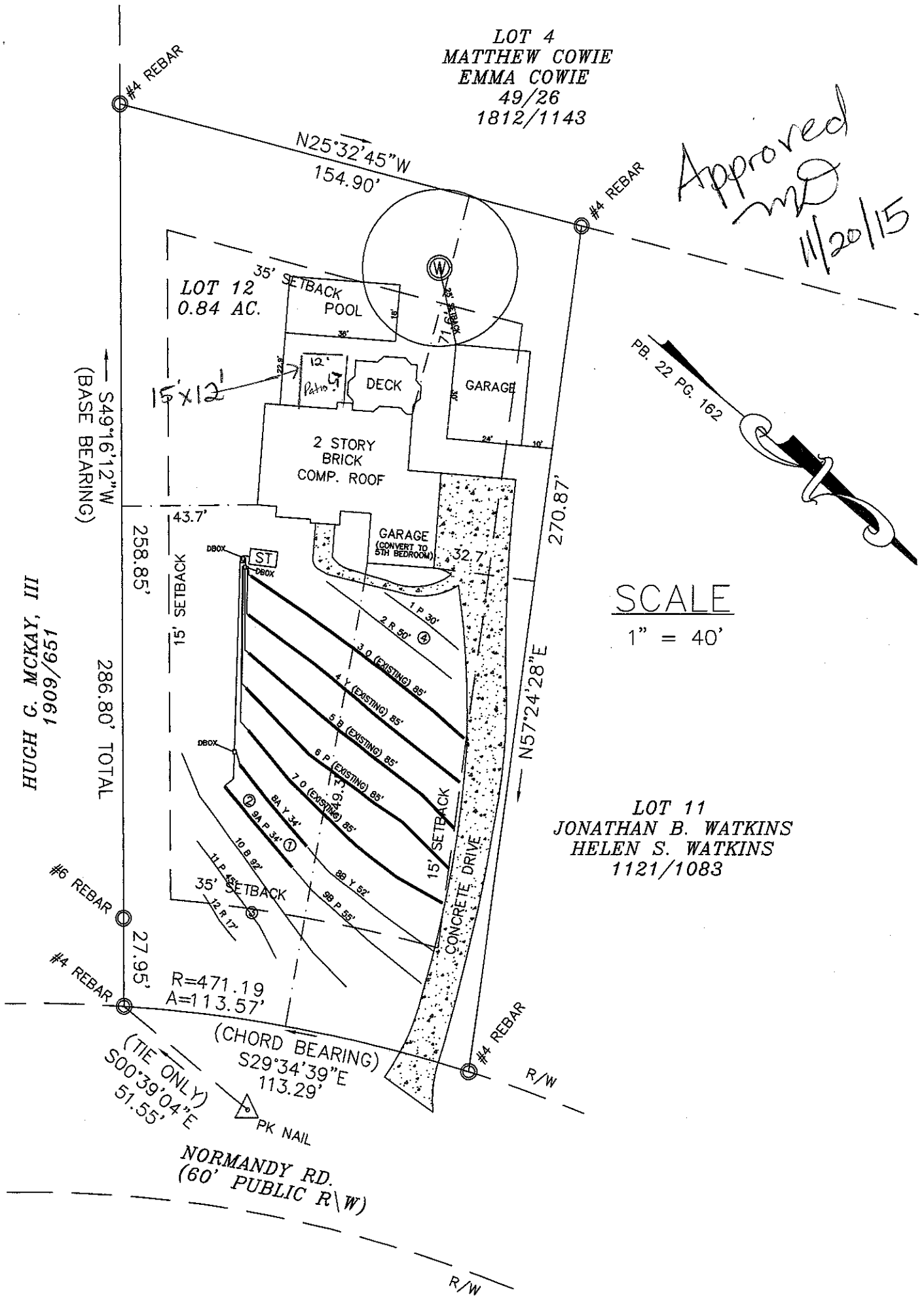
	LINE LENGTH	LTAR GPD/FT2	SYSTEM TYPE	SOIL LTAR GPD/FT2	TRENCH SYSTEM	DISTRIBUTION
Existing System	**425**	**NA**	**Conv. Bed**	**NA**	**CONV.**	**GRAVITY**
****System*** (upgrade only)	***68***	***0.3***	MOD.	***0.300***	PPBPS	***GRAVITY***
Repair	341	0.3	MOD.	0.300	PPBPS	LOW PRESSURE

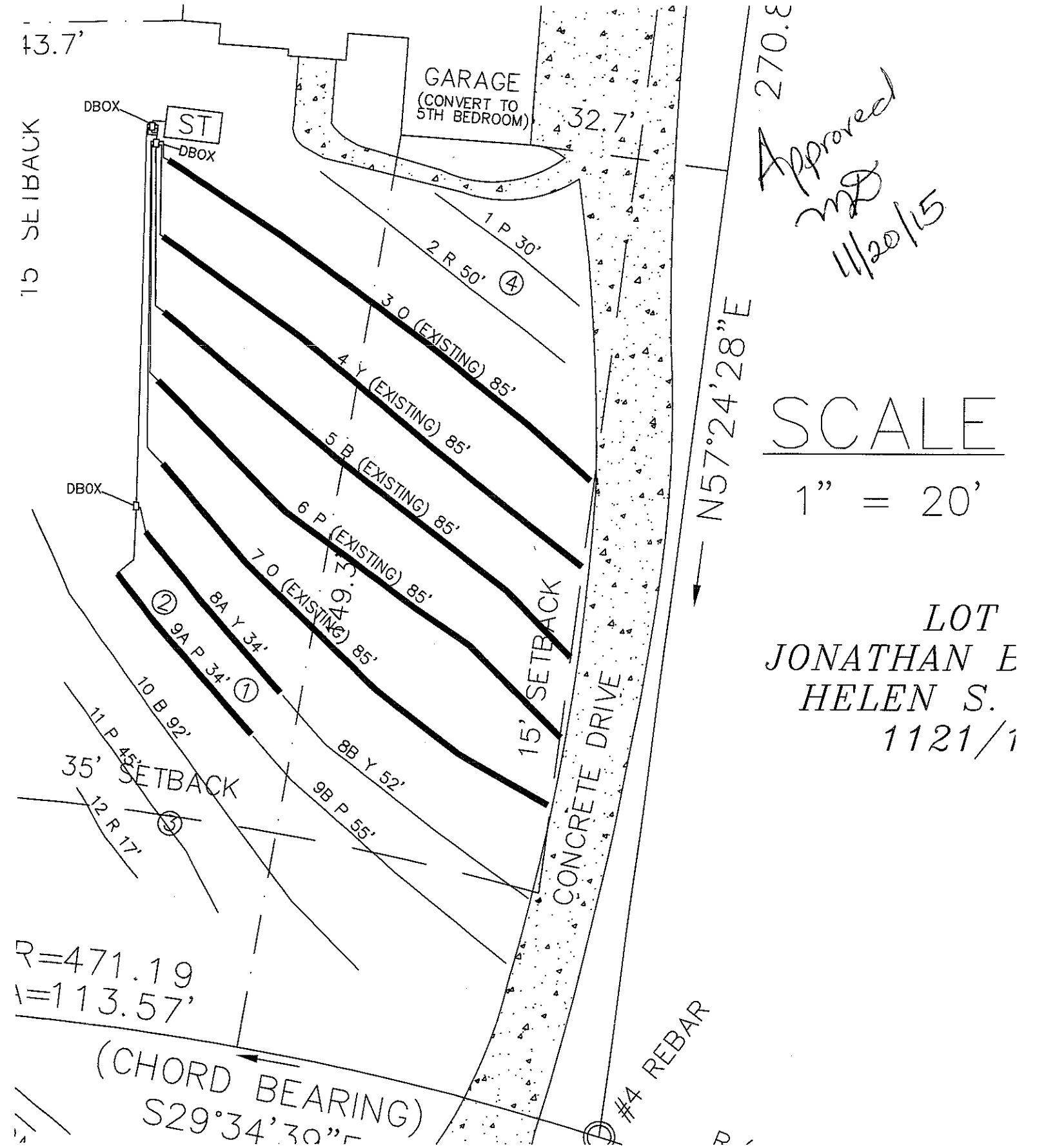
Notes: ****Distribution proposed to be parallel (See Site Plan)**

****Septic Permits (2) Attached - Existing Conventional System illustrated as 4 bedroom.**

**All measures in feet

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


LOT 4
MATTHEW COWIE
EMMA COWIE
49/26
1812/1143
#4 REBAR
N25°32'45"W
154.90'
#4 REBAR
Approved
MD
11/20/15
35' SETBACK
LOT 12
0.84 AC.
POOL
71.64'
PB. 22 PG. 162
12'
Patio
DECK
GARAGE
15'x12'
2 STORY
BRICK
COMP. ROOF
S49°16'12"W
(BASE BEARING)
43.7'
258.85'
GARAGE
(CONVERT TO
5TH BEDROOM)
32.7'
270.87'
DBOX
ST
DBOX
SCALE
1" = 40'
15' SETBACK
1 P 30'
2 R 50'
3 Q (EXISTING) 85'
4 Y (EXISTING) 85'
5 B (EXISTING) 85'
6 P (EXISTING) 85'
7 Q (EXISTING) 85'
8A Y 34'
9A P 34'
10 B 92'
11 P 45'
88 Y 52'
99 P 55'
12 R 17'
35' SETBACK
15' SETBACK
CONCRETE DRIVE
N57°24'28"E
HUGH C. MCKAY, III
1909/651
286.80' TOTAL
LOT 11
JONATHAN B. WATKINS
HELEN S. WATKINS
1121/1083
#6 REBAR
27.95'
#4 REBAR
R=471.19
A=113.57'
(CHORD BEARING)
S29°34'39"E
113.29'
#4 REBAR
R/W
(TIE ONLY)
S00°39'04"E
51.55'
PK NAIL
NORMANDY RD.
(60' PUBLIC R\W)
R/W


43.7'
15' SETBACK
GARAGE
(CONVERT TO
5TH BEDROOM)
32.7'
270.3
DBOX
ST
DBOX
DBOX
1 P 30'
2 R 50' ④
3 O (EXISTING) 85'
4 Y (EXISTING) 85'
5 B (EXISTING) 85'
6 P (EXISTING) 85'
7 O (EXISTING) 85'
8A Y 34'
② 9A P 34' ①
10 B 92'
11 P 45'
8B Y 52'
9B P 55'
12 R 17' ③
35' SETBACK
15' SETBACK
CONCRETE DRIVE
N57°24'28"E
R=471.19
=113.57'
(CHORD BEARING)
S29°34'30"E
#4 REBAR
Approved
MB
11/20/15
SCALE
1" = 20'
LOT
JONATHAN E
HELEN S.
1121/1

CALCULATIONS

Approved
MD
11/20/15

Location	623 Normandy Road	
Project Number	01-3046	
Lot No:	12	Normandy Hill Subdivision
Total No. of Bedrooms	5	
Design Flow for Upgrade (1 BR)	120	$^{gal}/_{day}$
LTAR	0.3	$^{gal}/_{ft^2\ day}$
PPBPS? (YES OR NO)	YES	
Supply Line Length	2	ft.
Supply Line Volume	0.76	gal.
Required Feet of Line (Upgrade)	67	ft.
Amount of Line from Layout	68	ft.
Gallons per Minute	NA	$^{gal}/_{min}$
Required Septic Tank Capacity	1500	gal.
Minimum Standard Tank Size	1500 gal.	(see Attached Permit)
Panel Volume	N/A	gal.
# of Panels	N/A	
Dosing Volume	N/A	gal.
Tank Draw Down	N/A	
Pump Run Time	N/A	minutes
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.

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 #: 4638324815
COUNTY: Iredell

SOIL/SITE EVALUATION
for ON-SITE WASTEWATER SYSTEM

OWNER: David & Gesica Dilee
APPLICATION DATE: Oct/Nov 2015
ADDRESS: 623 Normandy Rd, Mooresville, NC 28117
DATE EVALUATED: 10/2015
PROPOSED FACILITY: Single-Family Residence PROPOSED DESIGN FLOW (.1949): 600 gpd
PROPERTY SIZE: ~.84 AC
LOCATION OF SITE: 623 Normandy Rd, Mooresville, NC 28117
PROPERTY RECORDED: 1991
WATER SUPPLY: ☐ Private ☐ Public ☑ Well ☐ Spring ☐ Other
EVALUATION METHOD: ☑ Auger Boring ☐ Pit ☐ Cut
TYPE OF WASTEWATER: ☑ Sewage ☐ Industrial Process ☐ Mixed

Approved MD 11/20/15

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
B 1	4/20% Correction 4.8	0-3	BL Gr	FrSS SP		48"	-	-	PS .3-.325
		3-8	BRCL wmsbk	Fr SS SP					
		8-36	RC mmsbk	Fr SS SP					
		36-48	RCL wmsbk	Fr SS SP	Few SAP				
B 2	4/17% Correction 4.3	0-11	BL Gr	FrSS SP		48"	-	-	PS .3
		11-17	BCL wfsbk	Fr SS SP					
		17-24	BBC mmsbk	Fr SS SP					
		24-45	RBC mmsbk	Fr SS SP	Few S.A.P.				
		45-48	RYCL wfsbk	Fr SS SP	Few S.A.P.				
B 3	4/17%	0-4	BL Gr	FrSSSP		44"	-	44"	PS 0.3
		4-44	BC mmsbk/Rock	FrSSSP					
		44-AR	Quartz Vein	Floater					
B 4	4/12%	0-5	BL Gr	FrSS SP		48"	-	-	PS .3
		5-45	RC mmsbk	Fr SS SP					
		45-48	RYCL wmsbk/Rock	Fr SSSP	Few to Common S.A.P				

DESCRIPTION	INITIAL SYSTEM	REPAIR SYSTEM
Available Space (.1945)	PS	PS
System Type(s)	Hybrid (Conv/PPBPS)	PP BPS
Site LTAR	0.3	0.3

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

COMMENTS: