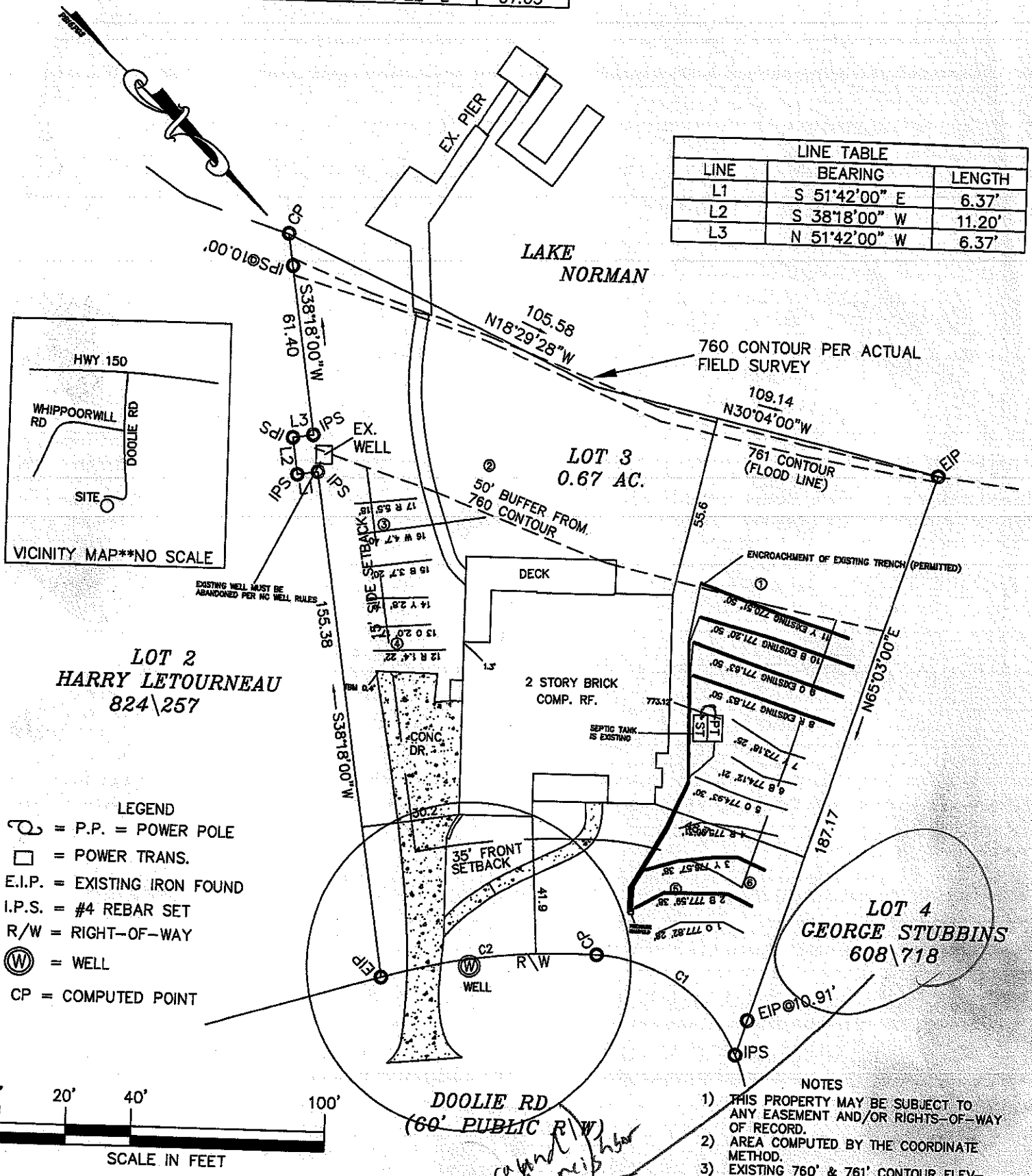
CURVE TABLE				
CURVE	RADIUS	LENGTH	BEARING	CHORD
C1	50.00'	55.07'	S 09°04'54" E	52.33'
C2	204.82'	67.36'	S 50°10'22" E	67.05'

LINE TABLE		
LINE	BEARING	LENGTH
L1	S 51°42'00" E	6.37'
L2	S 38°18'00" W	11.20'
L3	N 51°42'00" W	6.37'



LEGEND

- P.P. = POWER POLE
- POWER TRANS.
- E.I.P. = EXISTING IRON FOUND
- I.P.S. = #4 REBAR SET
- R/W = RIGHT-OF-WAY
- (W) = WELL
- CP = COMPUTED POINT

0' 20' 40' 100'

SCALE IN FEET

NOTES

1) THIS PROPERTY MAY BE SUBJECT TO ANY EASEMENT AND/OR RIGHTS-OF-WAY OF RECORD.
2) AREA COMPUTED BY THE COORDINATE METHOD.
3) EXISTING 760' & 761' CONTOUR ELEVATION BASED ON LAKE NORMAN LAKE LEVEL AT COWAN'S FORD DAM (READING ON 6\14\2016.
4) UNDERGROUND POWER
5) NO GRID MONUMENT FOUND WITHIN 2000 FEET.

Spoke w/ neighbor Well is under ground (10 meters) 750' records
Walked Property no well found.

ROLLANS *Soil & Environmental Services, PA.*

P.O. Box 832, Mooresville, NC 28115 Phone: (704) 746-5046 Fax: (704) 278-0989

Ashley Rollans, NC Licensed Soil Scientist
Mobile: (704) 746-5046
Email: rollans.ashley@yahoo.com

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

Attached is a proposed design for an upgrade of a 3BR Existing PPBPS Gravity System to a 4BR PPBPS System with Pressure Manifold distribution on CL&T Lot#3 (PIN#: 4637541746) at 327 Doolie Road, Mooresville, NC 28117, Iredell County, NC.

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7/20/16

July 20, 2016
Project No. 01-3197
Design By: Rollans Soil and 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.
- 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 PPBPS System w/pressure manifold distribution**
- Repair is specified as a PPBPS system
- Rake trench walls, lime sidewalls, install trenches 24" wide and have no more than 1/4" fall in 10 feet.
- **Existing Well must be properly abandoned per NCDWR Rules.**
- **Upgrading an Existing 3 BR PPBPS System (200') by adding Lines 2 & 3 (76').**

PRESSURE MANIFOLD SYSTEM
FOR WASTEWATER TREATMENT

Owner:	Thomas R. Gregory
Address:	327 Doolie Road Mooresville, NC 28117
Phone:	704.618.1714
County:	Iredell
Location:	327 Doolie Road

Source of Wastewater Flow:	4 Bedroom Single Family Residence
Estimated Daily Wastewater Production:	480 gpd
System Flow:	39.4

Design Specifications

Drainfield Size:	276
Loading Rate:	0.3
Depth of Gravel in Trench:	NA
Gravel Size:	NA
Trench Depth:	30in. (New Lines) Repair - 30in.
Trench Width:	24 in.
Septic Tank Size:	1000
Pump Tank Size:	1000
Estimated Supply Line Length:	62
Supply Line Diameter:	2 in. SCH 40 PVC
Supply Line Volume:	10.79
Dosing Volume:	0.00
Supply Manifold:	4 in. SCH 80 PVC
Supply Manifold Length:	4 ft. (minimum)
Supply Manifold Volume:	N/A
Recommended Float Controls:	SJE Sensor Float Control Switches as Required for Control Panel or County Approved Equivalents
Recommended Control Panel:	SJE-Rhombus Model 112 (NEMA 4x) Control Panel or County Approved Control Panel.
Pressure Head:	2 ft.
Friction Head:	1.88
Elevation Head:	10.00
Total Dynamic Head:	15.96
Threaded Union:	In Tank
Gate Valves:	1 in Tank 1 at Pressure Manifold
Check Valves:	In Tank
Anti-Siphon Hole:	NA
Additional Comments:	Soil suitability was performed by Rollans Soil & Environmental Services.

327 Doolie Road
PRESSURE MANIFOLD DESIGN

DESIGN FLOW:	480	
SOIL APPLICATION RATE:	0.3	
TOTAL AREA TRENCH BOTTOM:	152	(Upgrade Only)
TOTAL LATERAL LENGTH:	76	(Upgrade Only)
NUMBER OF FIELDS:	1	
LATERAL LENGTH REQUIRED PER FIELD:	66.66666667	
SUPPLY LINE LENGTH:	62	
TOTAL DYNAMIC HEAD:	15.96	
MANIFOLD SIZE:	4 in.SCH 80 PVC	
DOSING VOLUME:	237.60	
PUMP TANK DRAW DOWN*:	11.3	
SEPTIC TANK SIZE:		1000
PUMP TANK SIZE:		1000

**Pump tank draw down based on a volume basis of 21 gallons per inch. Draw down may vary among pump tank manufacturers.*

CL&T LOT # 3

Project #: 01-3197

LAYOUT FOR 4 BEDROOM HOME

July 20, 2016

LINE #	FLAG COLOR	BS	HI	FS	ELEVATION	FLAGGED LINE LENGTH	DESIGN LINE LENGTH
TBM		0.4			100.00		
INSTR. 1			100.40				
HOUSE CNR				1.30	99.10		
P. TANK					773.12		
1	ORANGE				777.82	28	28
2	***BLUE***				***777.59***	***42***	***38***
3	***YELLOW***				***776.57***	***38***	***38***
4	RED				775.90	31	31
5	ORANGE				774.93	30	30
6	BLUE				774.12	21	21
7	YELLOW				773.18	25	25
8	***RED***				***771.83***	***50***	***50***
9	***ORANGE***				***771.63***	***50***	***50***
10	***BLUE***				***771.20***	***50***	***50***
11	***YELLOW***				***770.51***	***50***	***50***
12	RED			1.40	99.00	22	22
13	ORANGE			2.00	98.40	17	17
14	YELLOW			2.80	97.60	17	17
15	BLUE			3.70	96.70	20	20
16	WHITE			4.70	95.70	40	40
17	RED			5.50	94.90	18	18
					Total	**549**	**545**

	LINE LENGTH	LTAR GPD/FT^2	SYSTEM TYPE	SOIL LTAR GPD/FT^2	TRENCH SYSTEM	DISTRIBUTION
**** System***	***276***	***0.300***	***MOD.***	***0.300***	***PPBPS***	**PRESSURE MANIFOLD**
Repair	269	0.300	***MOD.***	0.300	***PPBPS***	LOW PRESSURE

Notes:

** Lines 1 - 11 & house envelope located via licensed surveyor w/elevations

** Lines 12-17 scaled on survey plat and rod readings recorded w/reference to TBM

**All measures in feet

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

PRESSURE MANIFOLD TAPSHEET - CL&T LOT# 3

SYSTEM

Line #	Color	Elevation	Length	Hole Size	Flow/Tap	Trench Area	Line LTAR	# of Panels
2	***BLUE***	PROPOSED	*38*	SCH 80 1/2	**5.48**	76	0.43	9
3	***YELLOW***	PROPOSED	*38*	SCH 80 1/2	**5.48**	76	0.43	9
8	***RED***	EXISTING	*50*	SCH 40 1/2	**7.11**	100	0.43	12
9	***ORANGE***	EXISTING	*50*	SCH 40 1/2	**7.11**	100	0.43	12
10	***BLUE***	EXISTING	*50*	SCH 40 1/2	**7.11**	100	0.43	12
11	***YELLOW***	EXISTING	*50*	SCH 40 1/2	**7.11**	100	0.43	12
								66
total	**panel**	**footage=**	**276**	**gal/min =**	**39.4**			
			Des. Flow	**480**				
			Pump Run=	**6.03**				
			soil LTAR	**0.3**				
			LTAR +5%	**0.315**				
			LTAR with ACCEPTED	**0.4**				
			LTAR with ACCEPTED + 5%	**0.42**				

CALCULATIONS

Location	327 Doolie Road	
Project Number	01-3197	
Lot No:	3	
No. of Bedrooms	4	
Design Flow	480	$^{gal}/_{day}$
LTAR	0.300	gpd/ft²
50% RED.? (YES OR NO)	YES	
Supply Line Length	62	ft.
Supply Line Volume	10.788	gal.
Required Feet of Line 1BR upgrade	66.66667	ft.
Amount of Line Proposed	76	ft.
Gallons per Minute	39.4	$^{gal}/_{min}$
Required Septic Tank Capacity	1000	gal.
Minimum Standard Tank Size	1000	gal.
Pump Tank Size	1000	gal.
Panel Volume	3.6	gal.
Number of Panels	66	
Dosing Volume	237.60	gal.

Note: Dosing Volume based on 100% of panel volume

Tank Draw Down	11.3	*Generic Draw Down of 21 gal.per in.*
Pump Run Time	6.03	minutes
Elevation Head	10	ft.
Pressure Head	2	ft.
Friction Factor	3.03	ft./100 ft. *(From the interpolater.)*
Friction Head	1.88	ft.
Total Dynamic Head (+15%)	15.96	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 HEALTH AND HUMAN SERVICES
DIVISION OF PUBLIC HEALTH, ENVIRONMENTAL HEALTH SECTION
ON-SITE WATER PROTECTION BRANCH

Sheet 1 of 2
PROPERTY ID #: 46375
COUNTY: Iredell

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

OWNER: Thomas & Gregory
ADDRESS: 327 Doolie Rd. Mooresville NC 28117 APPLICATION DATE 7/20/16
PROPOSED FACILITY: 4BR PROPOSED DESIGN FLOW (.1949): 480 GPD DATE EVALUATED: July 201
LOCATION OF SITE: 327 Doolie Rd Mooresville NC 28117 PROPERTY SIZE: 0.67 AC.
WATER SUPPLY: ☐ Private / ☐ Public ☑ Well ☐ Spring ☑ Other abandoned second well PROPERTY RECORDED: yes
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
B1	L/ls	0-3	BSLGr	Fr SS SP SE Exp		48	-	-	PS 0.3
		3-34	RbCL wmsbk	" " " "					
		34-48	RbCL wfsbk	" " " "	f blk min.				
B2	L/12	0-18	BSLGr	Fr SS SP SE Exp		48	-	-	PS 0.3
		18-44	RBL wmsbk	" " " " "					
		44-48	RCL wfsbk	" " " " "	f sap				
B3	L/12	0-3	BSCL wkgr.	Fr SS SP SE Exp		48	-	-	PS 0.3
		3-32	RCL mmsbk	" " " " "					
		32-48	RCL wfsbk	" " " " "					
B4	L/10	0-3	BSL msbk	Fr SS SP SE xp		48	-	-	PS 0.3
		3-32	RCL msbk	" " " " "					
		32-48	RCL wfsbk	" " " " "					

DESCRIPTION	INITIAL SYSTEM	REPAIR SYSTEM
Available Space (.1945)	PS	PS
System Type(s)	PPBPS	PPBPS
Site LTAR	0.3	0.3

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

COMMENTS:

SOIL/SITE EVALUATION

(Continuation Sheet-Complete all field in full)

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

PROPERTY ID #: 4637-5417
DATE OF EVALUATION: July 2016
COUNTY: Iredell

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
B5	L/8	0-3	bsl gr	Fr ss sp sex p		48	-	-	PS 0,3
		3-43	Rc wmsbk	" " " " "					
		43-48	Rcl wfsbk	" " " " "	-fsap				
B6	L/7	0-3	bsl gr	Fr ss sp sex p		48	-	-	PS 0,3
		3-44	rbc wmsbk	" " " " "					
		44-48	Rcl wfsbk	" " " " "	-fsap				

COMMENTS: