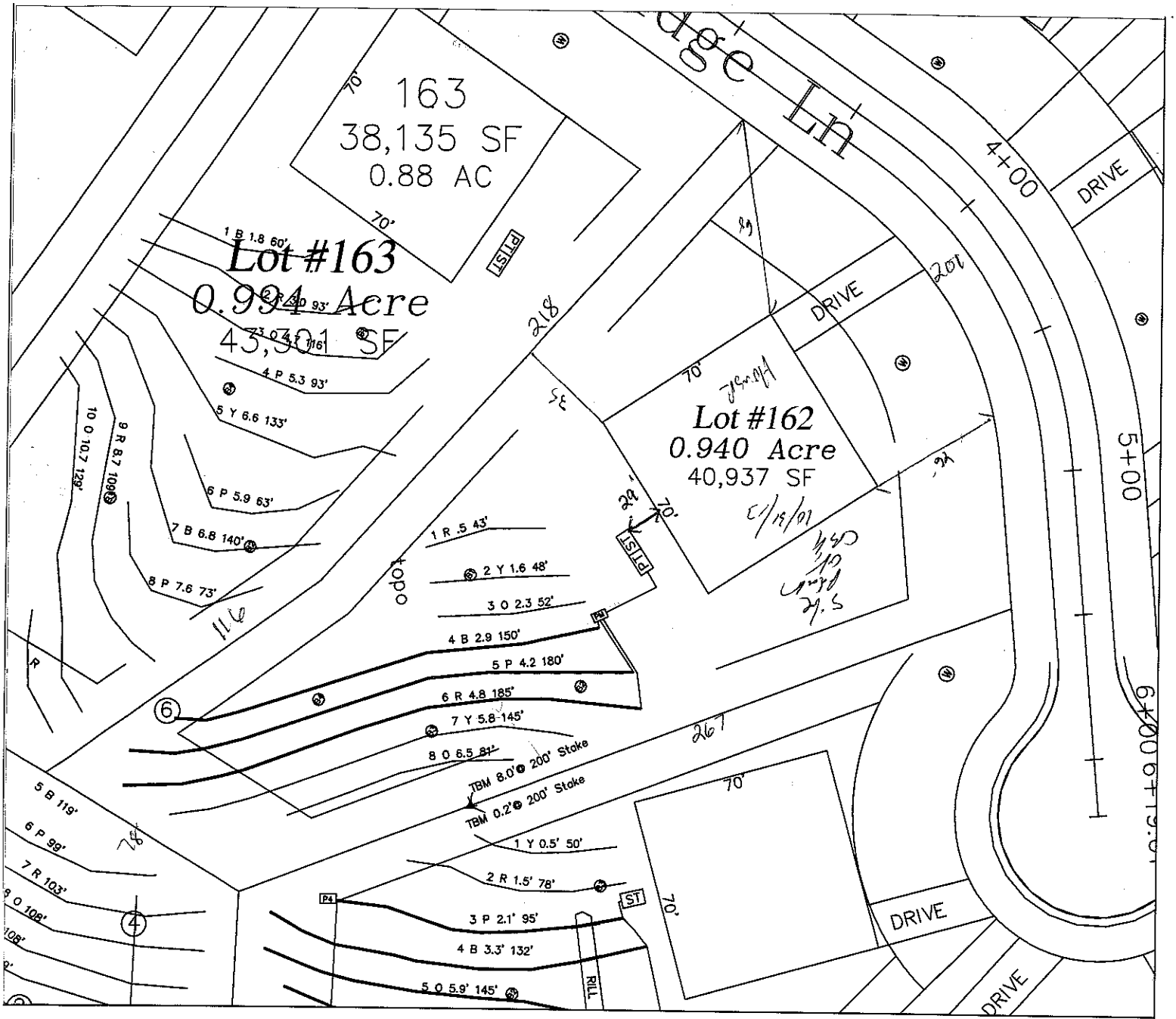


LEGEND

- Areas contain soils with 24 inches or more of useable material and have potential for conventional, modified conventional and low-pressure pipe (lpp) septic systems.
- House Footprint
- System lines.
- Repair lines.
- Temporary Bench Mark (TBM)
- (W) Well Location. (25) Pit/Boring Location.

GRAPHIC SCALE
1" = 50'

50 0 50 100

Site Plan OK CAF 10/31/13

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

ROLLANS SOIL & ENVIRONMENTAL SERVICES, PA
P.O. BOX 832
MOORESVILLE, NC 28115
PHONE/FAX: (704) 278-0989
ASHLEY ROLLANS, NC LICENSED SOIL SCIENTIST
MOBILE: (704) 746-5046
EMAIL: rollans.ashley@yahoo.com

MAP TITLE: SITE PLAN & DRAINFIELD AREAS

PROJECT NAME: ANNISTON II, LLC / ANNISTON SUBDIVISION

LOCATION/DATE: SHEARER CHAPEL ROAD IREDELL COUNTY, NORTH CAROLINA SEPTEMBER 2013

JOB # : 01-1005
FILE: C:\JOBS\01-1005
PROJECT MGR.: S.A.R.
FIELD WORK: S.A.R.
DRAWN BY: S.A.R.

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 Accepted (25% reduction) Septic System with Pressure Manifold distribution for a 4 bedroom single family residence on Lot # 162 Anniston Subdivision, Iredell County, North Carolina.

Contents:

	Page
Information for the Installer	1
Design Information	
Design Specifications	2-3
Layout Specifications	4
System Tapsheet	5
Pressure Manifold Diagram	6
Site Plan/System Plan	7
Calculations	8
Profile Descriptions	9

October 24, 2013
Project No. 01-1005
Design By: Rollans Soil and Environmental Services, PA

OM
CM
10/24/13

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 an innovative 25% reduction installation w/pressure manifold.
- Repair is specified as a PPBPS with low pressure distribution installation.
- Rake trench walls, lime sidewalls, install trenches 36" wide and have no more than 1/4" fall in 10 feet.

PRESSURE MANIFOLD SYSTEM FOR WASTEWATER TREATMENT

Owner: Anniston II, LLC

Address: P.O. Box 39
Cornelius, NC 28031

Phone: 704.622.3569

County: Iredell

Location: ANNISTON Lot # 162

Source of Wastewater Flow: 4 Bedroom Single Family Residence

Estimated Daily Wastewater Production: 480 gpd

System Flow: 21.33

Design Specifications

Drainfield Size: 405

Loading Rate: 0.3

Depth of Gravel in Trench: NA (25% reduction)

Gravel Size: NA (25% reduction)

Trench Depth: 24 in.

Trench Width: 36 in.

Septic Tank Size: 1000

Pump Tank Size: 1000

Estimated Supply Line Length: 30

Supply Line Diameter: 2 in. SCH 40 PVC

Supply Line Volume: 5.22

Dosing Volume: 185.13

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: 0.38

Elevation Head: 9.60

Total Dynamic Head: 13.78

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.

GVI
CHF
10/31/13

ANNISTON Lot # 162
PRESSURE MANIFOLD DESIGN

DESIGN FLOW:	480	
SOIL APPLICATION RATE:	0.3	
TOTAL AREA TRENCH BOTTOM:	1215	
TOTAL LATERAL LENGTH:	405	
NUMBER OF FIELDS:	1	
LATERAL LENGTH REQUIRED PER FIELD:	400	
SUPPLY LINE LENGTH:	30	
TOTAL DYNAMIC HEAD:	13.78	
MANIFOLD SIZE:	4 in.SCH 80 PVC	
DOSING VOLUME:	185.13	
PUMP TANK DRAW DOWN*:	8.8	
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.*

OK
CAP
10/31/13

ANNISTON LOT # 162

Project #: 01-1005

LAYOUT FOR 4 BEDROOM HOME

October 24, 2013

LINE #	FLAG COLOR	BS	HI	FS	ELEVATION	FLAGGED LINE LENGTH	DESIGN LINE LENGTH
TBM		8.0			100.00		
INSTR. 1			108.00				
HOUSE CNR				3.50	104.50		
P. TANK				7.50	100.50		
1	RED			0.50	107.50	43	43
2	YELLOW			1.60	106.40	48	48
3	ORANGE			2.30	105.70	52	52
4	***BLUE***			***2.90***	***105.10***	***150***	***135***
5	***PINK***			***4.00***	***104.00***	***182***	***135***
6	***RED***			***4.80***	***103.20***	***185***	***135***
7	YELLOW			5.80	102.20	145	145
8	ORANGE			6.50	101.50	81	81
					Total	**886**	**774**

	LINE LENGTH	LTAR GPD/FT^2	SYSTEM TYPE	SOIL LTAR GPD/FT^2	TRENCH SYSTEM	DISTRIBUTION
**** System***	***405***	***0.300***	***ACCEPT.***	***0.300***	***25% RED.***	**PRESSURE**
Repair	369	0.300	*MOD.*	0.300	PPBPS	**MANIFOLD** LOW PRESSURE

Notes:

** TBM located on top of ground at stake 200.00' from R/W on left hand line
**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

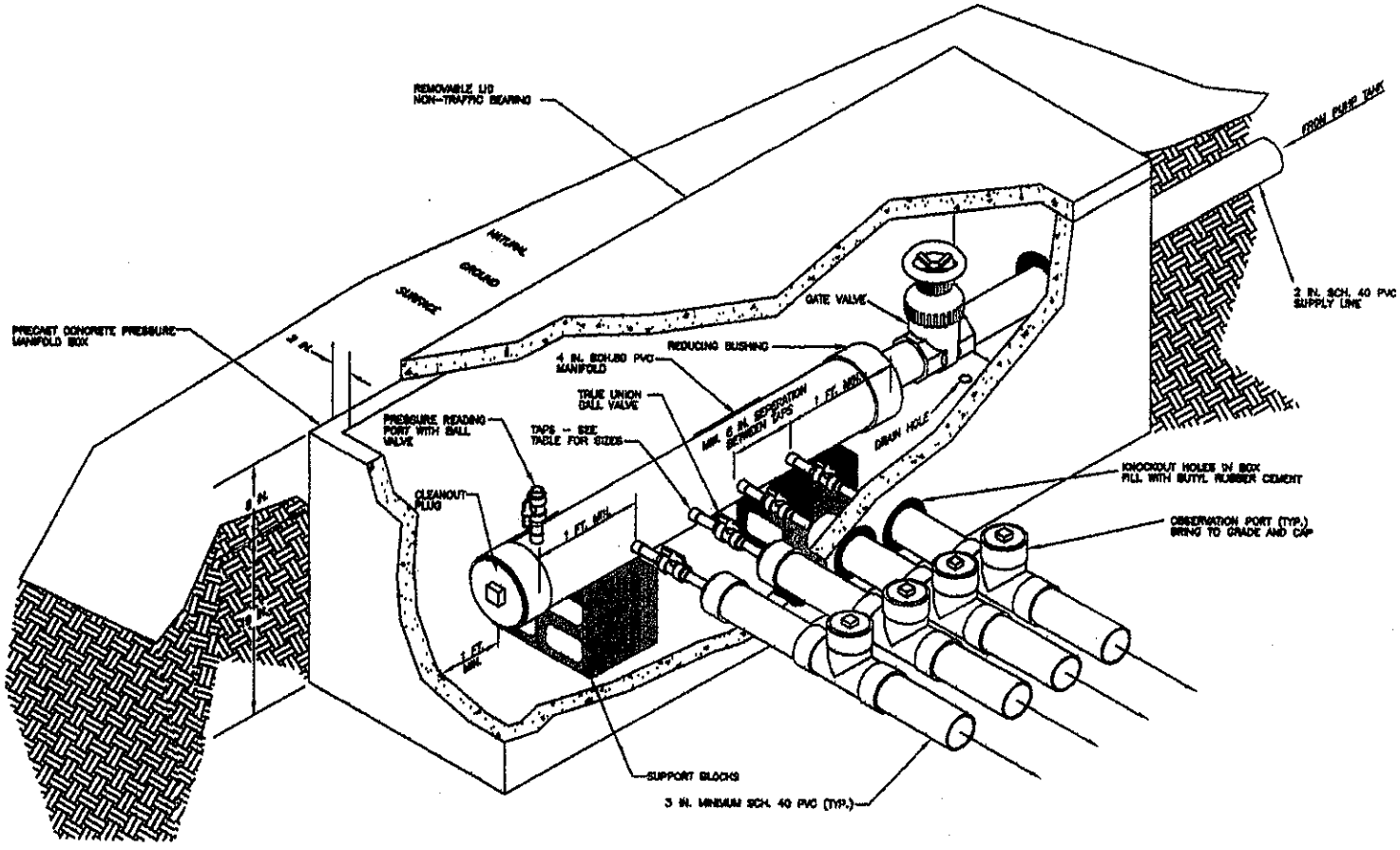
OM CMM 10/21/13

PRESSURE MANIFOLD TAPSHEET - ANNISTON LOT# 162

SYSTEM

Line #	Color	Elevation	Length	Hole Size	Flow/Tap	Trench Area	Line LTAR
4	***BLUE***	105.1	*135*	SCH 40 1/2	**7.11**	405	0.15
5	***PINK***	104	*135*	SCH 40 1/2	**7.11**	405	0.15
6	***RED***	103.2	*135*	SCH 40 1/2	**7.11**	405	0.15
	total	**feet =**	**405**	**gal/min =**	**21.33**		
			Des. Flow	~~600~~ 480			
			Pump Run=	**8.68**			
			soil LTAR	**0.3**			
			LTAR +5%	**0.315**			
			LTAR with ACCEPTED	**0.4**			
			LTAR with ACCEPTED + 5%	**0.42**			

TYPICAL PRESSURE MANIFOLD DETAIL



CALCULATIONS

Location ANNISTON PH4

Project Number 01-1005

Lot No: 162

No. of Bedrooms	4	
Design Flow	480	$^{gal}/_{day}$
LTAR	0.30	$^{gpd/ft^2}$
25% RED.? (YES OR NO)	YES	
Supply Line Length	30	ft.
Supply Line Volume	5.22	gal.
Required Feet of Line	400	ft.
Amount of Line from Layout	405	ft.
Gallons per Minute	21.33	$^{gal}/_{min}$
Required Septic Tank Capacity	1000	gal.
Minimum Standard Tank Size	1000	
Lateral Line Volume	264.465	gal.
Dosing Volume	185.13	gal.

Note: Dosing Volume based on70% of lateral line volume

Tank Draw Down	8.8	*Generic Draw Down of 21 gal.per in.*
Pump Run Time	8.68	minutes
Elevation Head	9.6	ft.
Pressure Head	2	ft.
Friction Factor	1.27	ft./100 ft. *(From the interpolater.)*
Friction Head	0.38	ft.
Total Dynamic Head (+15%)	13.78	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 #: 46649734 11.162
COUNTY: Iredell

SOIL/SITE EVALUATION
for ON-SITE WASTEWATER SYSTEM

OWNER: Anniston, LLC — APPLICATION DATE: 10/13
ADDRESS: Lot 102 Anniston — DATE EVALUATED: 5/22/13
PROPOSED FACILITY: 4BR — PROPOSED DESIGN FLOW (.1949): 480gpd — PROPERTY SIZE: 10.940
LOCATION OF SITE: — 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	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
P1	4/6%	0-8	BR sl gr	FrSSSPSSAP					PS
		8-44	Rem sbk	" " " "					0.3
		44-48	Rel wfsbk	" " " "	Fmp	48	-	-	
P2	4/7%	0-7	BR-dl silty	FrSSSPSSAP					PS
		7-40	Rem sbk	" " " "					0.3
		40-46	Rel wfsbk	" " " "	Fmp	46	PS	-	
		46-49	var limy	" " " "					
P3	4/3%	0-8	BR sl gr	FrSSSPSSAP					PS
		8-45	Rem sbk	FrFrSSSPSSAP					0.3
		45-48	Rel wfsbk	FrSSSPSSAP	Fmp	48	-	-	
P4	4/10%	0-8	BR sl gr	FrSSSPSSAP					PS
		8-49	Rem sbk	FrFrSSSPSSAP		48	-	-	0.3

Soils look good 5/22/13

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

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

COMMENTS: