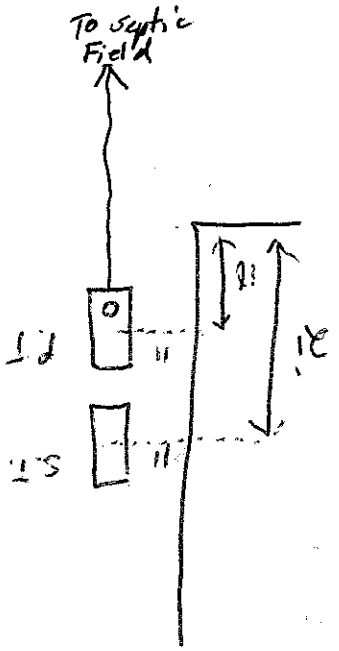
2-8-16

Septic Line Elevations + manifold setup + tank locations



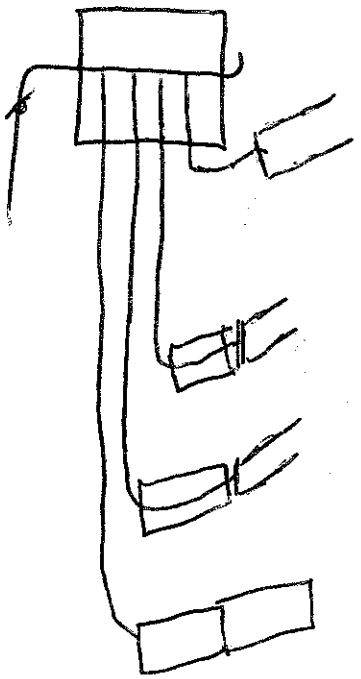
4 lines (120' each)

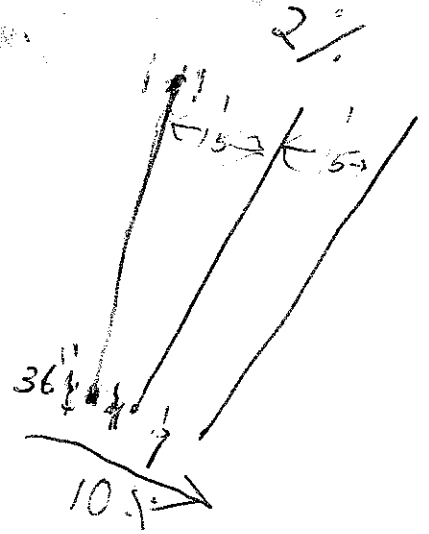
Line #1 (120') 5'8" ✓ OK

Line #2 (120') 6.0' ✓ OK

Line #3 (120') 6' 3.5" ✓ OK

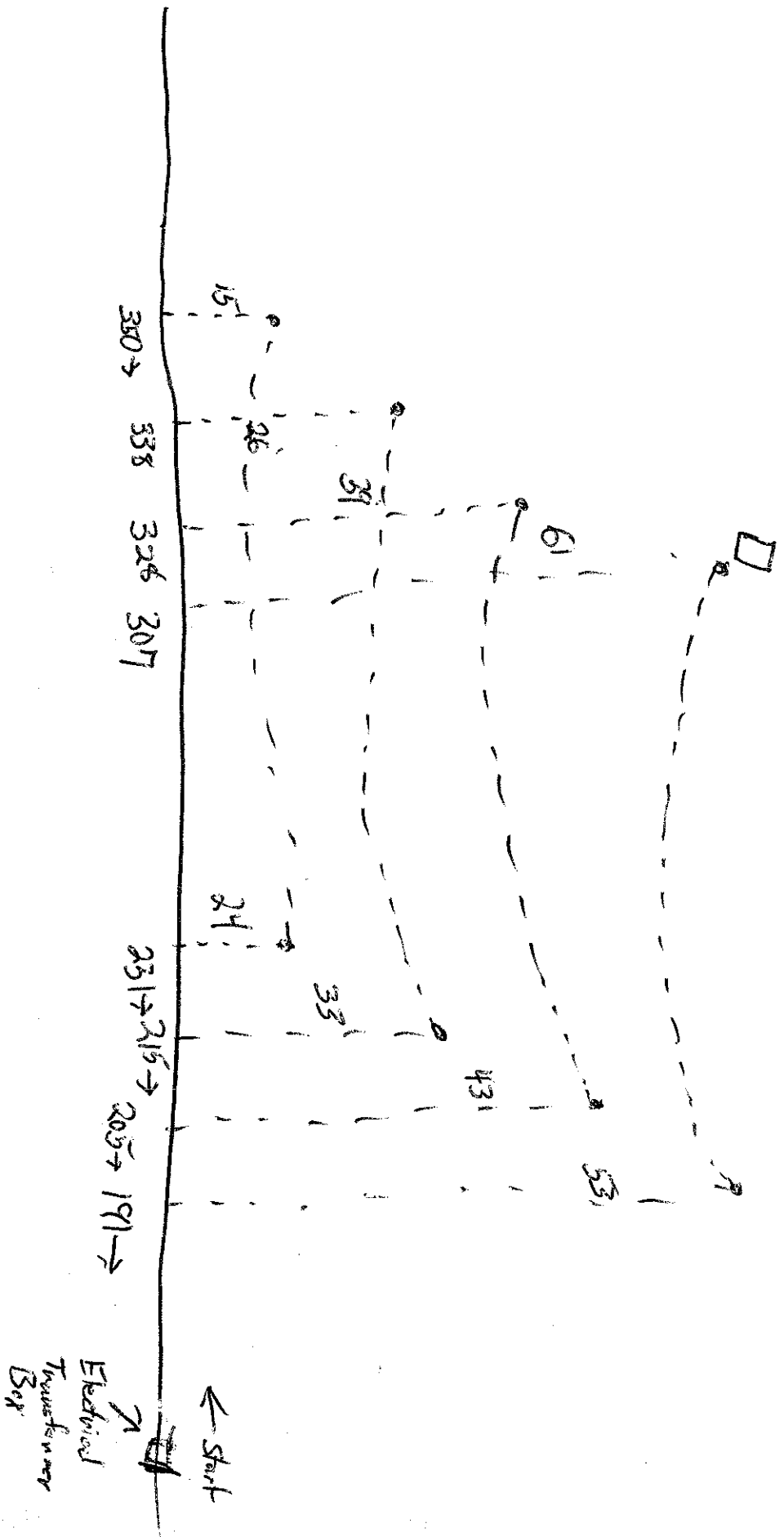
Line #4 (120') 6' 7" ✓ OK





2-8-16

Septic Line Locations



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 Intermediate Relayout of an Accepted (25% reduction) Septic System (Existing) with Pressure Manifold distribution for a 4 bedroom single family residence at Highland Ridge Lot # 2 (PIN# 4639981005), Iredell County, NC.

Contents:

APPROVED APR 26 2016

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Zoning Permit & Receipt	SUBMITTED
Application	SUBMITTED
Agent Authorization Form	SUBMITTED
Green Sheet	SUBMITTED
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LICENSED SOIL SCIENTIST Samuel A. Rollans 1231 STATE OF NORTH CAROLINA

4/19/16

4/19/2016
Project No. 01-3126
Design By: Rollans Soil and Environmental Services, PA

PRESSURE MANIFOLD SYSTEM
FOR WASTEWATER TREATMENT

APPROVED APR 26 2016

Owner:	Adams Homes
Address:	10115 Kincey Ave (Suite 160) Charlotte, NC 28078
Phone:	704.497.5566
County:	Iredell
Location:	Highland Ridge Lot #2

Source of Wastewater Flow:	4 Bedroom Single Family Residence
Estimated Daily Wastewater Production:	480 gpd
System Flow:	28.44

Design Specifications

Drainfield Size:	480
Loading Rate:	0.25
Depth of Gravel in Trench:	NA (25% reduction)
Gravel Size:	NA (25% reduction)
Trench Depth:	33-40" (Depth of Ex.Trenches) - Repair - 36" TB
Trench Width:	36 in.
Septic Tank Size:	1000
Pump Tank Size:	1000

Estimated Supply Line Length:	256
Supply Line Diameter:	2 in. SCH 40 PVC
Supply Line Volume:	44.54
Dosing Volume:	219.41
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:	4.56
Elevation Head:	9.10
Total Dynamic Head:	18.01

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 & ICHD.

Highland Ridge Lot #2
PRESSURE MANIFOLD DESIGN

DESIGN FLOW:	480	
SOIL APPLICATION RATE:	0.25	
TOTAL AREA TRENCH BOTTOM:	1440	
TOTAL LATERAL LENGTH:	480	
NUMBER OF FIELDS:	1	
LATERAL LENGTH REQUIRED PER FIELD:	480	
SUPPLY LINE LENGTH:	256	
TOTAL DYNAMIC HEAD:	18.01	
MANIFOLD SIZE:	4 in.SCH 80 PVC	
DOSING VOLUME:	219.41	
PUMP TANK DRAW DOWN*:	10.4	
SEPTIC TANK SIZE:		1000
PUMP TANK SIZE:		1000

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

HIGHLAND RIDGE LOT # 2

Project #: 01-3126

LAYOUT FOR 4 BEDROOM HOME

4/19/2016

LINE #	FLAG COLOR	BS	HI	FS	ELEVATION	FLAGGED LINE LENGTH	DESIGN LINE LENGTH
TBM		4.1			100.00		
INSTR. 1			104.10				
HOUSE CNR				4.40	99.70		
P. TANK				7.90	96.20		
1	BLUE			2.50	101.60	53	53
2	RED			2.60	101.50	83	83
3	WHITE			2.80	101.30	65	65
4	ORANGE			3.10	101.00	67	67
5	BLUE			3.30	100.80	47	47
6	PINK			3.50	100.60	43	43
7	*ORANGE*		*EXISTING*	*3.80*	*100.30*	*120*	*120*
8	*PINK*		*EXISTING*	*3.90*	*100.20*	*120*	*120*
9	*RED*		*EXISTING*	*4.50*	*99.60*	*120*	*120*
10	*YELLOW*		*EXISTING*	*4.70*	*99.40*	*120*	*120*
					Total	**838**	**838**

	LINE LENGTH	LTAR GPD/FT^2	SYSTEM TYPE	SOIL LTAR GPD/FT^2	TRENCH SYSTEM	DISTRIBUTION
** System*	*480*	*0.250*	*ACCEPT.*	*0.250*	*25% RED.*	**PRESSURE**
Repair	358	0.250	*MOD.*	0.250	PPBPS	**MANIFOLD** LOW PRESSURE

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Notes:

** TBM located on top of ground at 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

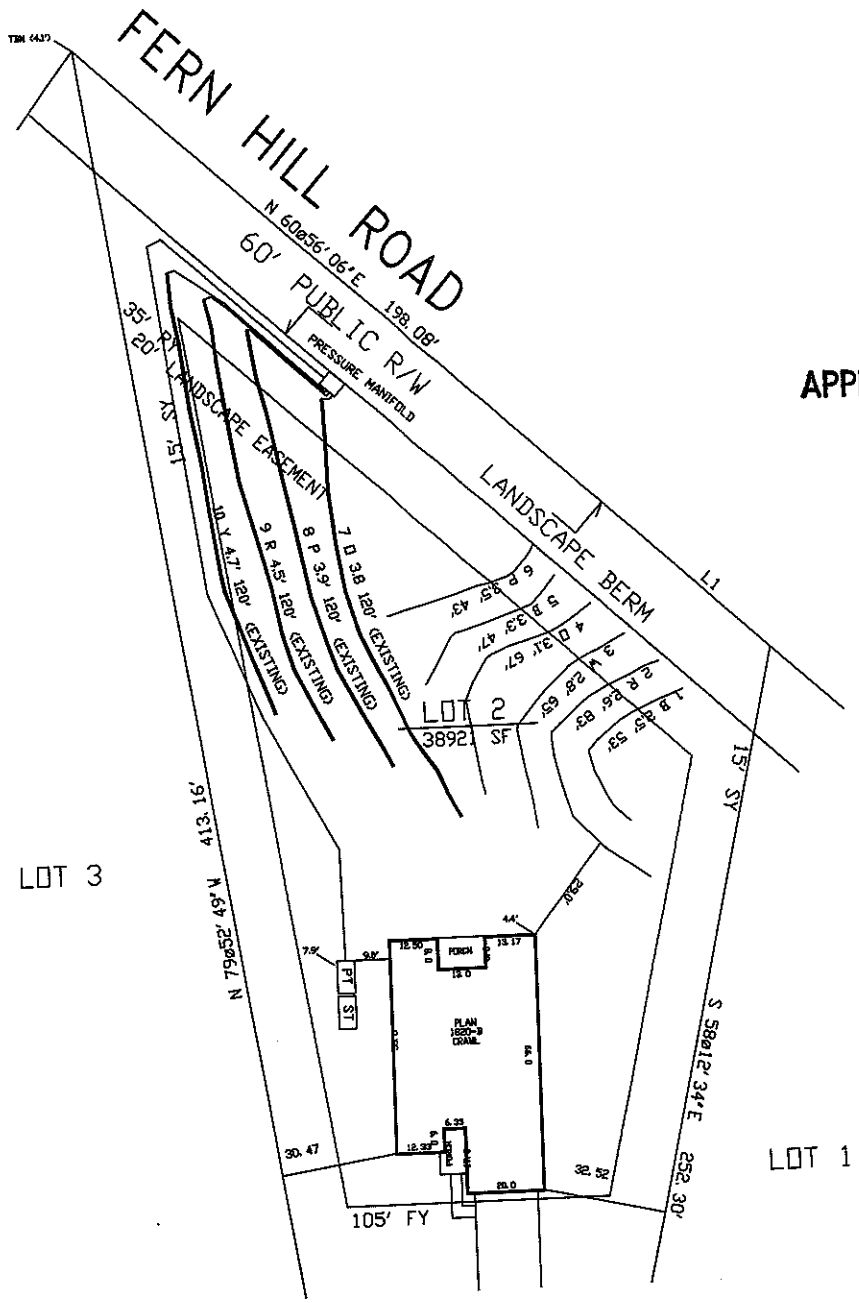
PRESSURE MANIFOLD TAPSHEET - HIGHLAND RIDGE LOT# 2

SYSTEM

Line #	Color	Elevation	Length	Hole Size	Flow/Tap	Trench Area	Line LTAR
7	*ORANGE*	100.30	120	SCH 40 1/2	7.11	360	0.15
8	*PINK*	100.20	120	SCH 40 1/2	7.11	360	0.15
9	*RED*	99.60	120	SCH 40 1/2	7.11	360	0.15
10	*YELLOW*	99.40	120	SCH 40 1/2	7.11	360	0.15

total	**feet =**	**480**	**gal/min =**	**28.44**
		Des. Flow	**480**
		Pump Run=	**7.71**
		soil LTAR	**0.25**
		LTAR +5%	**0.2625**
		LTAR with ACCEPTED	**0.333333333**
		LTAR with ACCEPTED + 5%	**0.35**

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CALCULATIONS

Location HIGHLAND RIDGE LOT 2

Project Number 01-3126

Lot No: 2

No. of Bedrooms 4

Design Flow 480 $^{gal}/_{day}$

LTAR 0.250 $^{gpd/ft^2}$

25% RED.? (YES OR NO) YES

Supply Line Length 256 ft.

Supply Line Volume 44.544 gal.

Required Feet of Line 480 ft.
Amount of Line from Layout 480 ft.

Gallons per Minute 28.44 $^{gal}/_{min}$

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

Lateral Line Volume 313.44 gal.

Dosing Volume 219.41 gal.
Note: Dosing Volume based on 70% of lateral line volume

Tank Draw Down 10.4 *Generic Draw Down of 21 gal.per in.*

Pump Run Time 7.71 minutes

Elevation Head 9.1 ft.
Pressure Head 2 ft.
Friction Factor 1.78 ft./100 ft. *(From the interpolater.)*
Friction Head 4.56 ft.

Total Dynamic Head (+15%) 18.01 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