S&EC

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Attached is a proposed design for a 3 bedroom single family residence innovative system using pressure manifold distribution, lot 79 Wheatfield S/D Iredell County, North Carolina.

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Mar-10
S & EC Project No. 5-1862
Design By: W. Overby

704-873-1765

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 DEHNR, 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 specified as innovative system (infiltrator chambers); pressure panel repair
- House can not contain a basement
- Design requires 1/2 hp pump
- System utilizes 5 tap pressure manifold (sch40 1/2" taps)

Wheatfield Lot 79

Project No. 5-1862

LAYOUT FOR 3 BEDROOM HOME — Mar-10

LINE #	FLAG COLOR	BS	HI	FS	ELEVATION	FLAGGED LINE LENGTH
TBM		7.2			100.0	
INSTR. 1			107.2			
			REPAIR			
1	Pink			0.50	106.7	80
2	Orange			1.45	105.8	80
3	Yellow			2.00	105.2	80
			SYSTEM			
4	Red			2.60	104.6	80
5	Blue			3.10	104.1	80
6	Pink			3.70	103.5	80
7	Orange			3.65	103.6	80
8	Yellow			4.50	102.7	80

	LINE LENGTH	Soil LTAR GPD/FT^2	SYSTEM TYPE	Design LTAR	DISTRIBUTION	Trench Depth
SYSTEM	400	0.25	INNOV	0.250	MANIFOLD	24
REPAIR	240	0.25	PPBPS	0.250	LPP	30

Notes:

** TBM of system = Front left stake

**TBM is assumed to be 100'

**All measures in feet

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

**BS and FS indicate rod readings

**Repair lines longer than 70' will be center distributed

Wheatfield Lot 79

SYSTEM

Pressure Manifold to Innovative Trenches

Line #	Color	Elevation	Length	Hole Size	Flow/Tap	gpd	Trench Area	Line LTAR
4	RED	104.6	**80**	SCH 40 1/2	**7.11**	72.00	240	0.30
5	BLUE	104.1	**80**	SCH 40 1/2	**7.11**	72.00	240	0.30
6	PINK	103.5	**80**	SCH 40 1/2	**7.11**	72.00	240	0.30
7	ORANGE	103.6	**80**	SCH 40 1/2	**7.11**	72.00	240	0.30
8	YELLOW	102.7	**80**	SCH 40 1/2	**7.11**	72.00	240	0.30
	total	**feet =**	**400**	**gal/min =**	**35.55**			
			Des. Flow	**360**				
			Pump Run=	**10.13**				
			soil LTAR	**0.25**				
			LTAR with INNOV.	**0.33**				

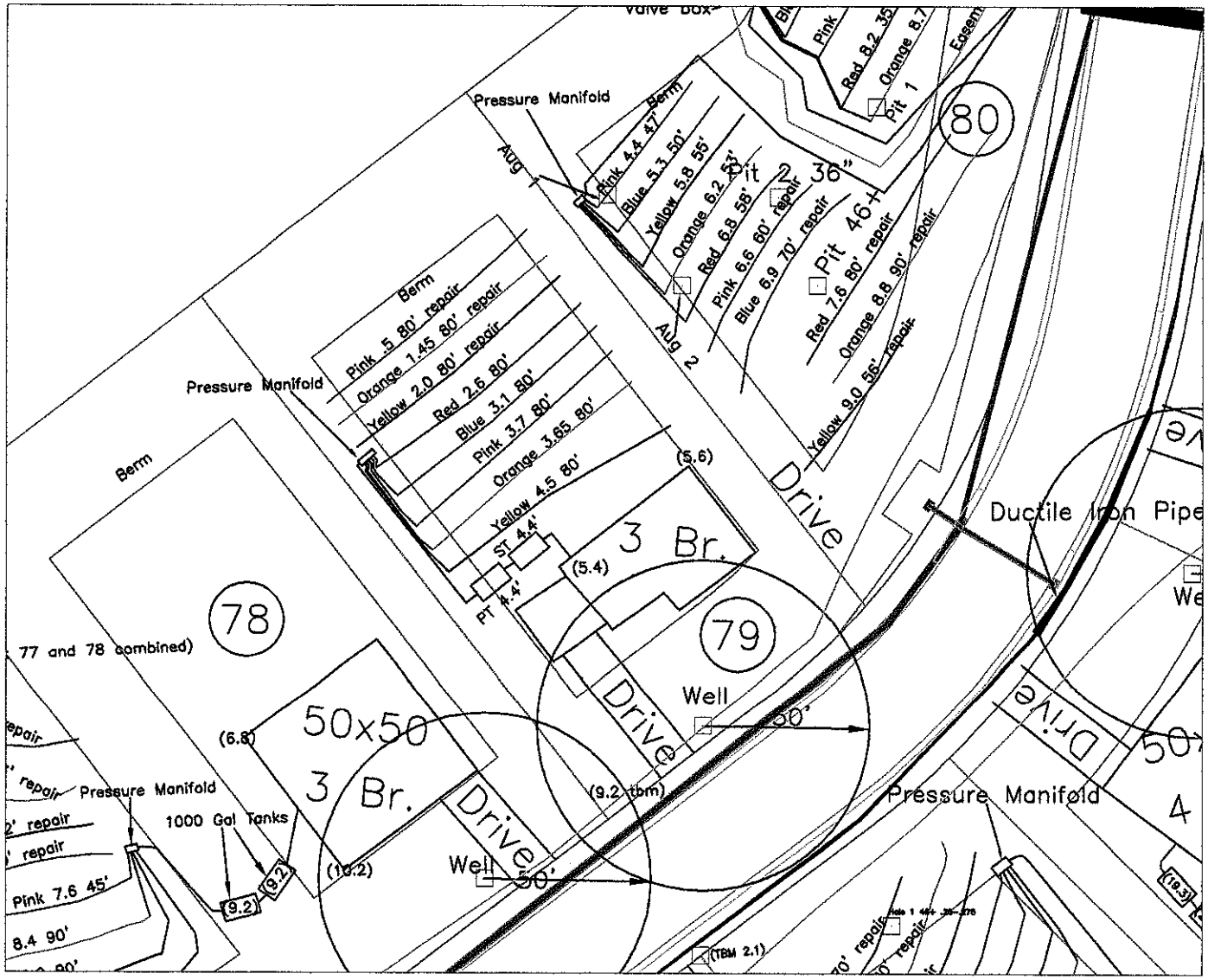
LAYOUT FOR 3 BEDROOM HOME

REPAIR

DESIGN SPECIFICATIONS

Line #	Color	#Panels	#Holes Panel	Line Length	Hole Size	Line Head	Line Flow
1	Pink	18	1	80	5/32"	2	7.38
2	Orange	18	1	80	5/32"	2	7.38
3	Yellow	18	1	80	5/32"	2	7.38
	Total	54		240			22.14

Lines longer than 70' will be center distributed



**SUITABLE FOR PRELIMINARY PLANNING PURPOSES ONLY. ALL LOTS WILL REQUIRE 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 TOPOGRAPHIC IRREGULARITIES. THIS MAP ONLY REFLECTS EXISTING SOIL SUITABILITY FOR ON-SITE SEPTIC TANK SYSTEMS. SOME OTHER CONSIDERATIONS THAT AFFECT SITE SUITABILITY THAT SHOULD BE CONSIDERED IN DEVELOPMENT DESIGN ARE:

1) 10' SETBACK FROM PROPERTY LINE
2) 100' SETBACK FROM ANY WELL
3) 50' SETBACK FROM STREAMS, PONDS OR LAKES.

See accompanying S&EC report.

NOT A SURVEY

GRAPHIC SCALE
1" = 50'

50 0 50 100

PROJECT NO.	#5-1862
PROJECT MGR.	WO
DRAWN BY	WO
FIELD WORK	WO
SCALE	1" =50
FILE	Y:\Jobs\1862

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S&EC

Wheatfield - Wheatfield lot 79 - IREDELL COUNTY, NORTH CAROLINA MARCH 2010

SHEET TITLE: 3 BEDROOM SEPTIC SYSTEM LAYOUT SKETCH MAP

SHEET 1 OF 1

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CALCULATIONS

Location Wheatfield

Project Number 5-1862

Lot No: 79

No. of Bedrooms	3	
Design Flow	360.00	$^{gal}/_{day}$
LTAR	0.25	$^{gal}/_{ft^2\ day}$
25% reduction (YES OR NO)	YES	
Supply Line Length	60	ft.
Supply Line Diameter	2	
Supply Line Volume	10.44	gal.
Required Feet of Line	360	ft.
Amount of Line from Layout	400	ft.
Gallons per Minute	35.55	$^{gal}/_{min}$
Required Septic Tank Capacity	1000	gal.
Minimum Standard Tank Size	1000	
Lateral Line Volume	261.2	gal.
Dosing Volume	182.84	gal.

Note: Dosing Volume based on 70% of the lateral line volume

Tank Draw Down	8.7	*Generic Draw Down of 21 gal.per in.*
Pump Run Time	5.14	minutes
Elevation Head	7.5	ft.
Pressure Head	2	ft.
Friction Factor	2.44	ft./100 ft. *(From the interpolater.)*
Friction Head	1.46	ft.
Total Dynamic Head (+15%)	12.61	ft.

FRICTION FACTOR INTERPOLATER
2" SCH 40 PVC

GPM	*f*
19.27	0.84
22.14	1.06
25	1.27
26.24	1.40
30	1.78
31.57	1.97
35	2.37
35.55	2.44
40	3.03
	-2.89
45	3.77
	-3.52
50	4.58
	-4.62
60	6.42