

HALLOWEN & ASSOCIATES, INC.

SOIL & ENVIRONMENTAL SCIENTISTS

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13 January 2003

Mr. Oliver Tolksdorf
Harnett County Environmental Health
307 West Cornelius Harnett Blvd.
Lillington, NC 27546

Reference: Site Investigation and Septic System Design 03-5-5810
Mark & Anne Rene Wallace

Dear Mr. Tolksdorf,

A site investigation and septic system design has been conducted at the above referenced property, located on an easement road off the east side of Raynor-McLamb Road (NCSR 2042), Stewart's Creek Township, Harnett County, North Carolina. The purpose of the investigation was to determine the property's ability to support a subsurface sewage waste disposal system and repair area for a typical three-bedroom home. All ratings and determinations were made in accordance with "Laws and Rules for Sanitary Sewage Collection, Treatment and Disposal, 15A NCAC 18A .1900." It is our understanding that individual septic systems and public water supplies will be utilized at this site.

This lot and septic easement contains two areas of useable soils that are rated as provisionally suitable soils for modified or alternative systems due to limited soil depths. These provisionally suitable soils were observed to be firm sandy clay loams to greater than 24 inches and appear adequate to support long-term acceptance rates of 0.4 to 0.45 gal/day/sqft for innovative drainlines. It appears that the soils on this lot and easement are adequate to support an innovative septic system and repair area for one three-bedroom residence (see attached septic system design).

Annie Jane McDougald's property has an existing residence with an existing septic system that appeared to be functioning properly on the day of the investigation. This existing septic system appeared to be located within any setback requirements for this property. A soil investigation was conducted and it appears that an adequate amount of provisionally suitable soil exists on this lot to 100 % repair the system if it should fail.

I appreciate the opportunity to provide this service and hope to be allowed to assist you again in the future. If you have any questions or need additional information, please contact me at your convenience.

Sincerely,



Laura J. Fortner
Licensed Soil Scientist

Copy to CP-

Pressure Manifold Design Criteria

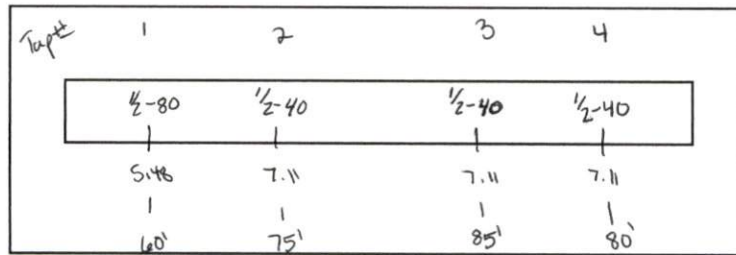
Repair System

Line Number	Line Color	Drainline Length(ft)	Tap Size/Schedule	gpm/tap	gpd/ft	LTAR (gpd/sqft)
7	B	60	1/2" sch 80	5.48	1.226	0.41
8	W	75	1/2" sch 40	7.11	1.273	0.42
9	R	85	1/2" sch 40	7.11	1.123	0.37
10	B	80	1/2" sch 40	7.11	1.193	0.40

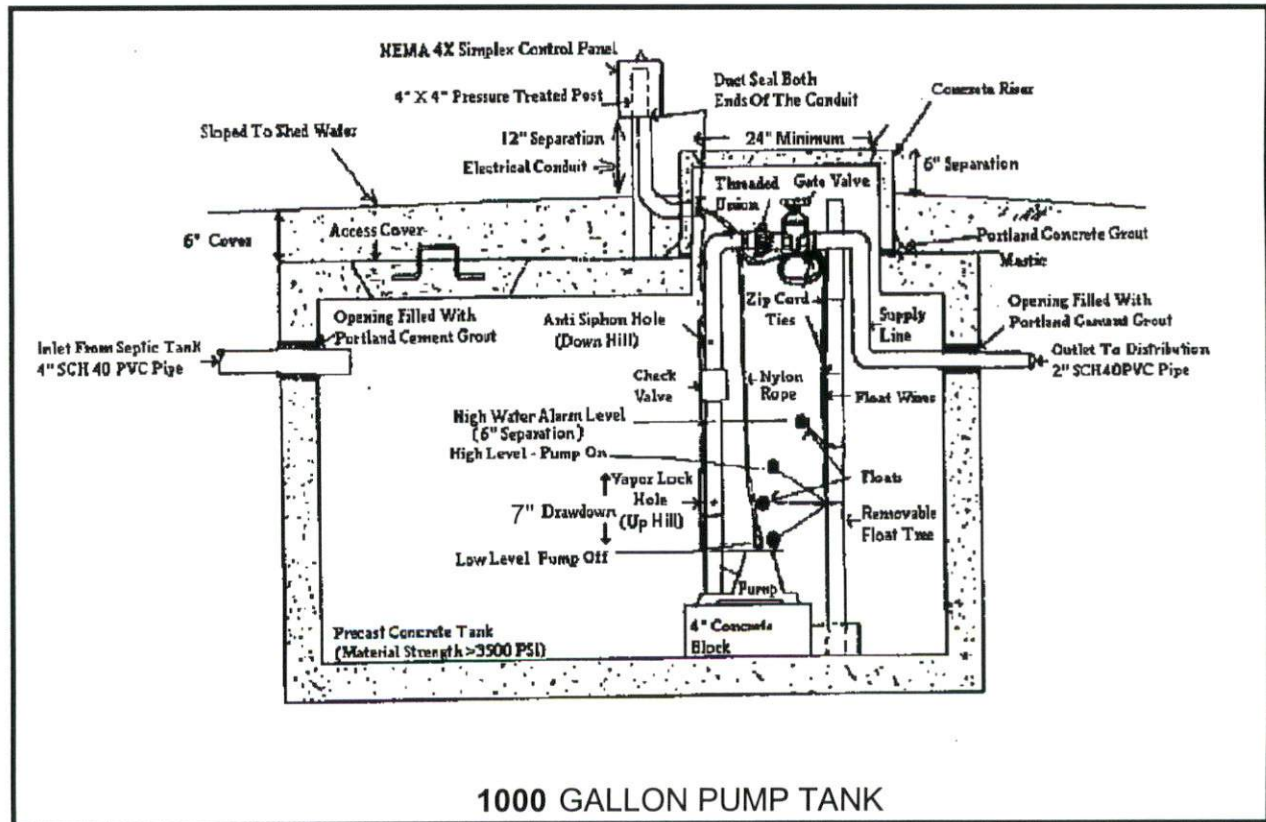
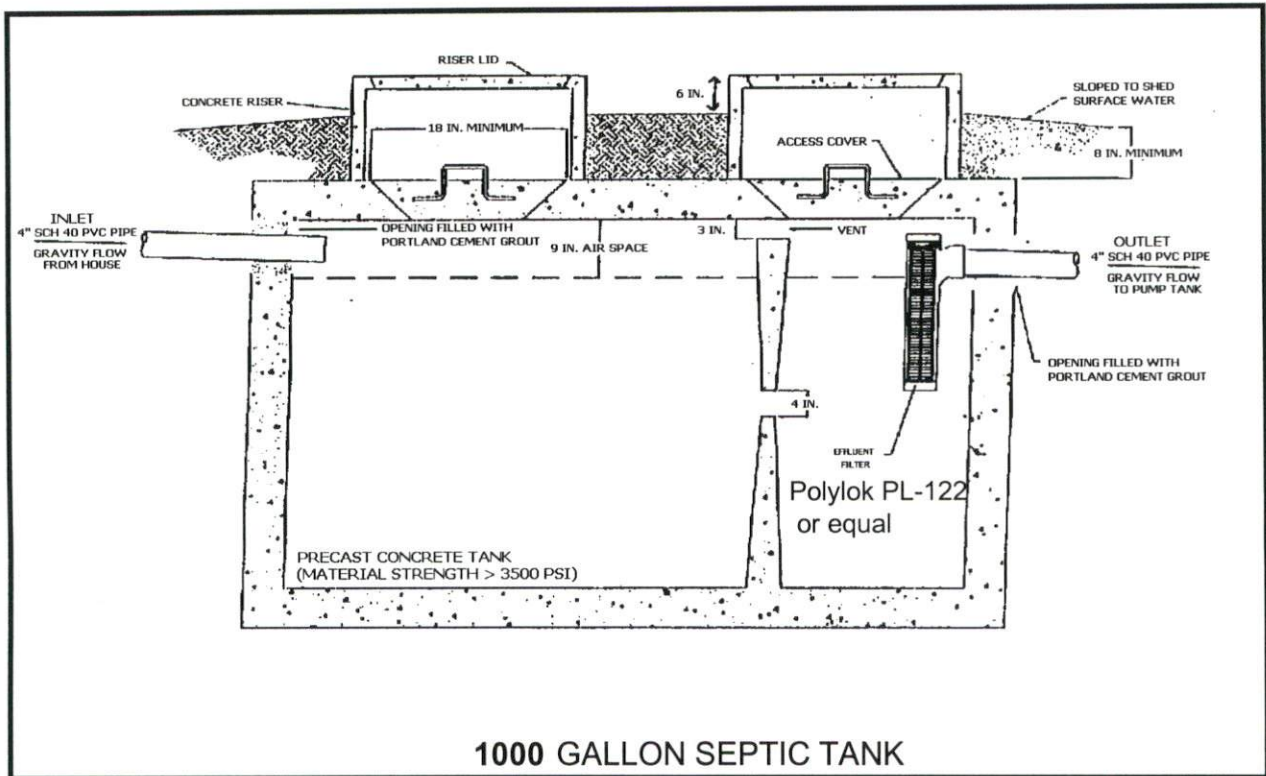
Total Drainline= 300 Total Flow= 26.81

Pressure Head (ft)=	2
Daily Flow	360
Total Flow (gpm)=	26.81
Target LTAR (gpd/sqft)=	0.4
LTAR + 5%	0.42
Daily PRT(min)=	13.43
Dose Vol (gal)=	146.93
Dose PRT (min)=	5.48

4 Inch Schedule 80 Manifold



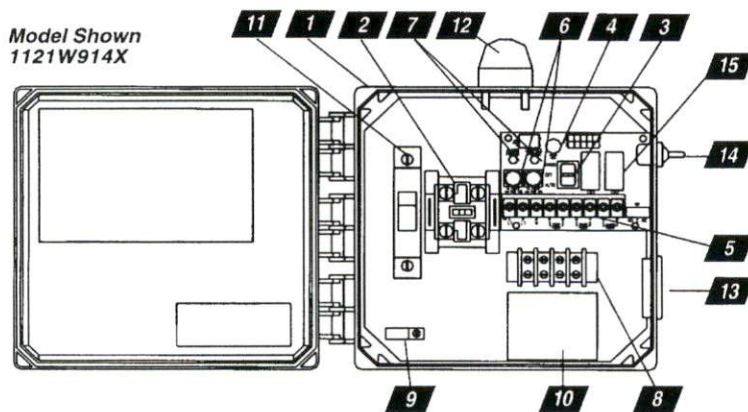
with Pipe
Vol at % 75



MODEL 112 Control Panel

Single phase, simplex motor contactor control.

The Model 112 control panel provides a reliable means of controlling one 120, 208, or 240 VAC single-phase pump in pump chambers, sump pump basins, irrigation systems and lift stations. Two control switches activate a magnetic motor contactor to turn the pump on and off. If an alarm condition occurs, an additional alarm switch activates the audio/visual alarm system.



Model Shown
1121W914X

1. **Enclosure** measures 8 x 8 x 4 inches (20.32 X 20.32 X 10.16 cm). Choice of NEMA 1 (steel for indoor use), or NEMA 4X (ultraviolet stabilized thermoplastic with removable flanges for outdoor or indoor use).
* Options selected may increase enclosure size and change component layout.
 2. **Magnetic Motor Contactor** controls pump by switching hot electrical lines.
 3. **HOA Switch** for manual pump control (mounted on circuit board).
 4. **Green Pump Run Indicator Light** (mounted on circuit board).
 5. **Float Switch Terminal Block** (mounted on circuit board).
 6. **Alarm and Control Fuses** (mounted on circuit board).
 7. **Alarm and Control Power Indicators** (mounted on circuit board).
 8. **Pump Input Power and Pump Connection Terminal Block**
 9. **Ground Lug**
 10. **Terminal Block Installation Label**
 - ☆ 11. **Circuit Breaker** (optional) provides pump disconnect and branch circuit protection. ~~optional~~ required (2X)
- STANDARD ALARM PACKAGE** (other options available)
12. **Red Alarm Beacon** provides 360° visual check of alarm condition.
Note: NEMA 1 style utilizes a door mounted indicator in lieu of a beacon.
 13. **Alarm Horn** provides audio warning of alarm condition (83 to 85 decibel rating).
Note: NEMA 1 style utilizes an internally mounted buzzer (83 to 85 decibel) in lieu of horn.
 14. **Exterior Horn Test/Normal/Silence Switch** allows alarm horn to be silenced and testing of horn and light to ensure proper operation of alarm system.
 15. **Horn Silence Relay** automatically resets alarm after alarm condition has been resolved (mounted on circuit board).

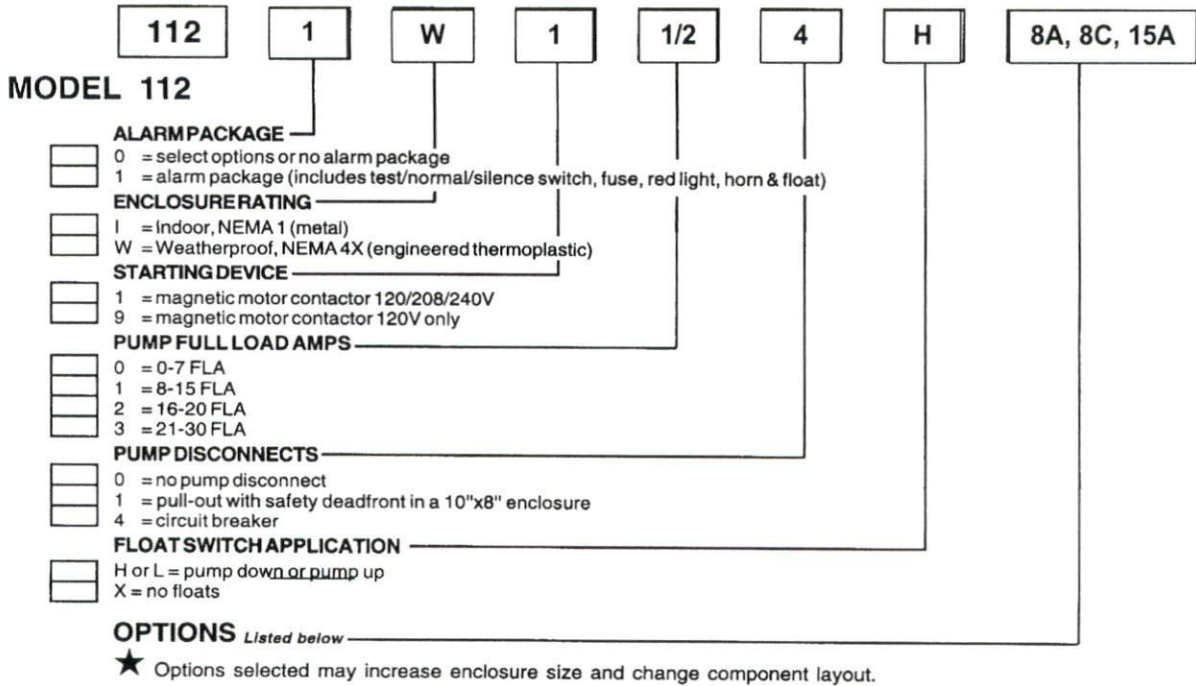
FEATURES

- Entire control system (panel and switches) is UL Listed to meet and/or exceed industry safety standards
- Dual safety certification for the United States and Canada
- Standard package includes three 20' Sensor Float® control switches
- Complete with step-by-step installation instructions
- Three-year limited warranty



SJE Rhombus
SJ ELECTRO SYSTEMS, INC.

PO Box 1708, Detroit Lakes, MN 56502
1-888-DIAL-SJE • 1-218-847-1317
1-218-847-4617 Fax
email: sje@sjerhombus.com
www.sjerhombus.com



If additional features are required, call the factory for a quote on either a Pro-Line or Engineered Custom control panel system.

CODE	DESCRIPTION	CODE	DESCRIPTION
<input type="checkbox"/> 1A	Red beacon only / no audio <i>must select 1E if floats included</i>	<input type="checkbox"/> 11C	NEMA 1 alarm panel <i>must select option 6A</i>
<input type="checkbox"/> 1C	Horn only / no visual <i>must select 1E if floats included</i>	<input type="checkbox"/> 11D	NEMA 4X alarm panel <i>must select option 6A</i>
<input type="checkbox"/> 1E	Alarm float	<input type="checkbox"/> 15A	Control / alarm circuit breaker <i>Does not include the circuit board as in standard.</i>
<input type="checkbox"/> 3A	Alarm flasher	<input type="checkbox"/> 16A	10' cord in lieu of 20'
<input type="checkbox"/> ★ 4A	Low level cutout <i>select option 4D if floats included</i>	<input type="checkbox"/> 16B	15' cord in lieu of 20'
<input type="checkbox"/> ★ 4B	Red low-level indicator & alarm <i>must select 4A also</i>	<input type="checkbox"/> 16C	30' cord in lieu of 20'
<input type="checkbox"/> 4D	Low-level float	<input type="checkbox"/> 16D	40' cord in lieu of 20'
<input type="checkbox"/> 6A	Auxiliary alarm contact, form C type	<input type="checkbox"/> 17A	SJE SignalMaster® / mounting strap ●
<input type="checkbox"/> ★ 8A	Elapsed time meter	<input type="checkbox"/> 17B	SJE SignalMaster® / externally weighted ●
<input type="checkbox"/> ★ 8C	Event (cycle) counter	<input type="checkbox"/> 17C	Sensor Float® / internally weighted ▲
<input type="checkbox"/> 10E	Lockable latch - NEMA 4X	<input type="checkbox"/> 17D	Sensor Float® / externally weighted ▲
<input type="checkbox"/> 10E	Lockable latch - NEMA 1	<input type="checkbox"/> 17E	Sensor Float® Mini / pipe clamp ▲
<input type="checkbox"/> ★ 10F	Lightning arrester	<input type="checkbox"/> 17F	Sensor Float® Mini / externally weighted ▲
<input type="checkbox"/> ★ 10K	Anti-condensation heater	<input type="checkbox"/> 19X	Door mounted pump run indicator
		<input type="checkbox"/> 21A	Pumpmaster® in lieu of on/off switches ●
		<input type="checkbox"/> 21B	PumpMaster® Plus in lieu of on/off switches ●
		<input type="checkbox"/> 21C	Super Single® in lieu of on/off switches ▲
		<input type="checkbox"/> 21D	Double Float™ in lieu of on/off switches ▲

● Mechanically-activated ▲ Mercury-activated

