App# EH2108-0002

Harnett County Department of Public Health

Improvement Permit

A building permit cannot be issued with only an Improvement Permit

PROPERTY LOCATION: 4055 NC 55 W

ISSUED TO: John Roberts / Tony Warren SUBDIVISION _____ LOT # _____

NEW ☐ REPAIR ☐ EXPANSION ☐

Site Improvements required prior to Construction Authorization Issuance:

Type of Structure: Ext. 3-Bedroom SFD

Proposed Wastewater System Type: 25% Reduction Sys.

Projected Daily Flow: 360 GPD

Number of bedrooms: 3 Number of Occupants: 6 max

Basement ☐ Yes ☒ No

Pump Required: ☒ Yes ☐ No ☐ May be required based on final location and elevations of facilities

Type of Water Supply: ☐ Community ☒ Public ☐ Well Distance from well 50+ feet

Permit valid for: ☒ Five years ☐ No expiration

Permit conditions: _____

Authorized State Agent:: _____ Date: 08/17/2021 SEE ATTACHED SITE SKETCH

The issuance of this permit by the Health Department in no way guarantees the issuance of other permits. The permit holder is responsible for checking with appropriate governing bodies in meeting their requirements. This site is subject to revocation if the site plan, plat, or the intended use changes. The Improvement Permit shall not be affected by a change in ownership of the site. This permit is subject to compliance with the provisions of the Laws and Rules for Sewage Treatment and Disposal and to conditions of this permit.

Construction Authorization

(Required for Building Permit)

The construction and installation requirements of Rules .1950, .1952, .1954, .1955, .1956, .1957, .1958, and .1959 are incorporated by references into this permit and shall be met. Systems shall be installed in accordance with the attached system layout.

ISSUED TO: John Roberts / Tony Warren PROPERTY LOCATION: 4055 NC 55 W

SUBDIVISION _____ LOT # _____

Facility Type: Ext. 3-Bedroom SFD ☐ New ☐ Expansion ☐ Repair

Basement? ☐ Yes ☒ No Basement Fixtures? ☐ Yes ☐ No

Type of Wastewater System** 25% Reduction System (Initial) Wastewater Flow: 360 GPD

(See note below, if applicable ☐)

25% Reduction System (Repair)

Installation Requirements/Conditions

Septic Tank Size 1000 gallons

Pump Tank Size 1000 gallons

Number of trenches 3

Exact length of each trench 86 (min) feet

Trenches shall be installed on contour at a Maximum Trench Depth of: 20 inches (Trench bottoms shall be level to +/-1/4" in all directions)

Trench Spacing: 9 Feet on Center

Soil Cover: 8 inches (Maximum soil cover shall not exceed 36" above the trench bottom)

Pump Requirements: _____ ft. TDH vs. _____ GPM

Aggregate Depth: NA inches below pipe

NA inches above pipe

NA inches total

Conditions: FOLLOW CONSULTANTS PROPOSAL

WATER LINES (INCLUDING IRRIGATION) MUST BE 10FT. FROM ANY PART OF SEPTIC SYSTEM OR REPAIR AREA.
NO UTILITIES ALLOWED IN INITIAL OR REPAIR DRAIN FIELD AREA.

**If applicable: *I understand the system type specified is different from the type specified on the application. I accept the specifications of this permit.*

Owner/Legal Representative Signature: _____ Date: _____

This Construction Authorization is subject to revocation if the site plan, plat, or the intended use changes. The Construction Authorization shall not be transferred when there is a change in ownership of the site. This Construction Authorization is subject to compliance with the provisions of the Laws and Rules for Sewage Treatment and Disposal and to the conditions of this permit. SEE ATTACHED SITE SKETCH

Authorized State Agent: _____ Date: 08/17/2021

ANDREW CUMMIN Construction Authorization Expiration Date: 08/17/2026

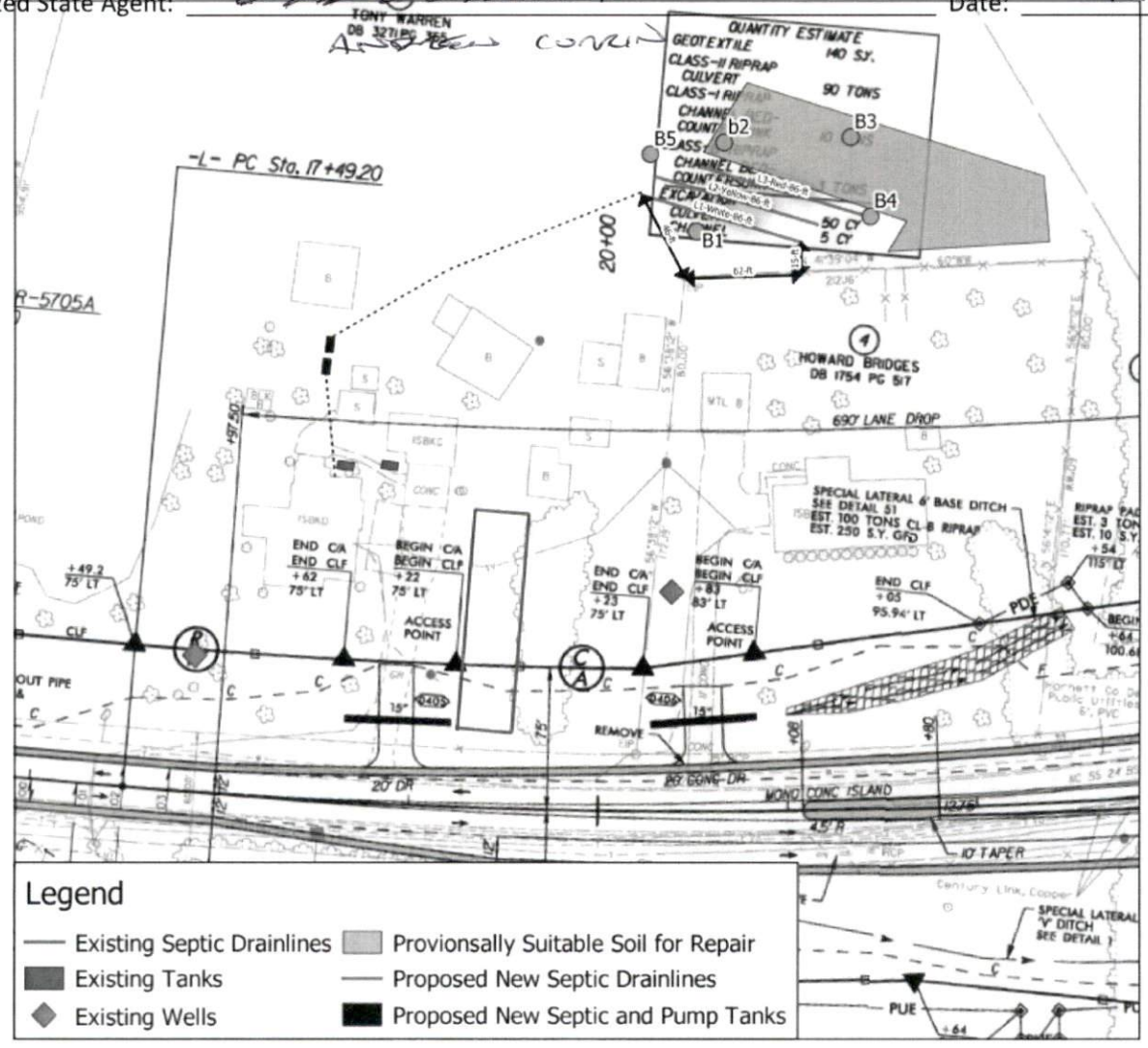
Application # EH2108-0002

Harnett County Department of Public Health
Site Sketch

Property Location: 4055 NC 55 W

Issued To: John Roberts / Tony Warren Subdivision Lot #

Authorized State Agent: Date: 08/17/2021



EXT TANKS SHALL BE SAFELY ADANDONED

1. PUMP, CRUSH, AND BACKFILL ONSITE
2. FILL ENTIRE TANK W/ CONCRETE
3. FILL ENTIRE TANK W/ SAND OR PEA GRAVEL

This drawing is for illustrative purposes only. System installation must meet all pertinent laws, rules, and regulations.

Residential Subsurface Wastewater Treatment and Disposal System Proposal

Property:
4055 NC 55 W
Angier, NC
PIN: 0682-94-0324.000
Harnett County, NC
Ground Truth Job # 21-147

Prepared For:

The Right of Way Group, LLC
225 Green Street, Suite 910
Fayetteville, NC 28301

Prepared By:

Ground Truth Soil Consulting, PLLC
1302 Roberts Road
Newport, NC 28570
(252) 725-1320

August 3, 2021

John C. Roberts

LICENSED SOIL SCIENTIST
JOHN C. ROBERTS
1292
STATE OF NORTH CAROLINA

INTRODUCTION & SITE DESCRIPTION

A Soil & Site Evaluation was performed for NCDOT Parcel 003 located at 4055 NC 55 W, Angier, NC (PIN: 0682-94-0324.000). Ground Truth Soil Consulting, PLLC (Ground Truth) was retained to prepare a proposal for an on-site wastewater treatment and disposal system that would allow for the relocation of a subsurface septic system for an existing 3-bedroom home (360 GPD). The lot was evaluated in accordance with North Carolina statutes for waste disposal ("Laws and Rules for Sewage Treatment and Disposal Systems", amended December 6, 2018").

The NCDOT project R5705A is proposed to impact the existing septic drainfield. A relocation permit is requested to relocate the septic tank, pump tank and septic drainfield. The existing drainfield utilizes a pump tank to properly transport wastewater to the drainfield. It is assumed the existing septic system is a repair. As such, repair area is not required to be allocated.

The field survey was conducted in May and June 2021 by John C. Roberts, LSS. Soil borings were advanced via a hand auger and evaluated under moist conditions using procedures listed in the *Field book for Describing and Sampling Soils, Version 3.0*. Soil color was determined using a Munsell Soil Color Chart. Observations of the landscape as well as soil properties (depth, texture, structure, soil wetness, restrictive horizons, etc.) were recorded. It was determined sufficient amount of Provisionally Suitable Group III soils are available within the project area for installation of a Pump to Accepted System initial system for a 3-bedroom system. Sufficient area of Provisionally Suitable soils also exists to support a Pump to Accepted System repair system.

LOCATION

The lot is located at 4055 NC 55 W ANGIER, NC 27501.

PLANS AND SPECIFICATIONS

A. Septic Tank

1. The septic tank shall be State approved (Section .1953 of 15A NCAC 18A), watertight, structurally sound, and 1,000 gallons in capacity (at minimum).
2. The septic tank shall be fitted with an approved effluent filter.
3. It is the responsibility of the septic contractor to thoroughly inspect the septic tank prior to accepting delivery to assure that the tanks have had time to properly cure and are free of cracks or other structural deficiencies.

B. Pump Tank

1. The pump tank shall be State approved, of one-piece construction, watertight, structurally sound and 1,000 gallons in capacity (at minimum). Again, it is the responsibility of the septic tank contractor to thoroughly inspect each pump tank prior to accepting delivery.
2. All pipe penetrations into the tank shall be booted (i.e., C-293 boot with a stainless-steel strap).
3. The pump tank shall have access risers that extend, at a minimum, 6 inches above finished grade and must have less than 36 inches of fill over its top once finished grade has been established (a reinforced concrete tank will be required if finished soil cover is 36 inches or greater in depth).

4. Floats, pump and control circuits, and the control panel shall meet the requirementsof Rule .1952(c). Panel and control equipment shall include lightning protection, be protected from unauthorized access, and always remain accessible to the systemoperator.
5. The pump and alarm controls shall be provided with manual circuit disconnects within a watertight, corrosion resistant, Nema 4x rated control panel. The control panel must be securely mounted outside, adjacent to the pump tank riser and at a minimum of 18 inches above finished grade. Pump and float control wiring shouldbe long enough to reach from the tank to the control panel without splicing, routed through wire conduit, and sealed at the openings within the pump tank as well as the control panel enclosure. It is paramount that the conduit is properly sealed to prevent the escape of flammable gases from the pump tank. Furthermore, there must be two electrical circuits for the pump tank controls: one for the pump and one for the alarm controls.
6. Float switch tie downs must be made of a corrosion resistant material (per OWPS,all metal in the tanks shall be stainless steel). Floats should be mounted on a separate "float tree" rather than the pump supply line (see pump tank detail).
7. The pump removal system will be via a pump tether made of nylon rope or its equivalent. The tether material should be resistant to mildew and rot.

C. Pipes and Fittings

1. All discharge piping, connectors and supply lines should be made of SCH 40 PVC.
2. All joints must be properly "welded" utilizing the appropriate PVC cement for each application.
3. The supply line will be approximately 270 feet long from the septic tank to the upper septic drainline.

D. Distribution Method

1. Drainlines will be fed via pump to serial distribution.
2. The supply manifold conveys effluent from the pump to the lateral distribution lines.
3. The supply manifold can be prefabricated or constructed. The manifold shallhave a gate valve on the inlet side and a threaded PVC plug on the opposite end fora threaded standpipe.

E. Drainfield Installation-Initial

1. The drainfield has been previously laid out on-site utilizing metal stemmed flags. The property owner/builder should mark this area and isolate it as much as possible from construction traffic.
2. Under no circumstances shall any construction take place within the drainfield area while the soil is in a wet condition.
3. The specified system is a gravity-flow system. Accepted Systems, Infiltrator Quick4 chambers or equivalent will be utilized. Drainlines shall be installed no deeper than 20 inches.
4. The drainfield consists of three (3) lateral trenches to be constructed 3-foot wide by 86 feet in length. Total drainline length is 258 feet.
5. The maximum trench depth for this system shall be 20 inches.
6. The laterals are to be installed keeping the individual trench bottoms level from beginning to end.
7. The trenches should be left open for the final inspection by the HCEH.

F. Final Landscaping

1. Final cover over the drainfield shall be at least 6 inches deep. If additional cover is needed, Group II (sandy loam) or Group III (sandy clay loam) soil shall be utilized.
2. The drainfield shall be shaped to shed rainwater and be free from low spots.
3. The drainfield area should be planted with grass as soon as possible to prevent erosion. The soil should be limed (if necessary) and fertilized prior to planting. After applying grass seed, the area should be heavily mulched with straw or other suitable material.

G. Utility Conflicts

1. The builder and property owner must take special care in planning for water, power, gas, telephone and cable lines. These utilities shall be kept clear of all parts of the septic system and its proposed repair area. Improper planning for underground utilities can negatively impact the installation and, in some cases, cause irreparable damage and permit revocation. If there are any questions regarding preferred routes, contact the HCEH as soon as possible.
2. Lawn irrigation should not be placed over the drainfield area.

MAINTENANCE

H. In General

1. The owner must maintain the drainfield area through periodic mowing. The drainfield must not be allowed to become overgrown.
2. The septic tank should be pumped every 4 years or when the solids within the septic tank reach an elevation that is equivalent to 25 percent of the volume of the tank. In some situations, the tanks may need to be pumped more frequently. If using a garbage disposal, it is recommended that the homeowner has the septic and pump tanks cleaned out annually.
3. When it becomes necessary to clean the effluent filter, the filter should be removed and the accumulated debris washed back into the septic tank – not onto the lawn.
4. Any damp areas, leakages or malfunctions in the drainfield area should be addressed immediately.
5. Divert gutter downspouts and surface water runoff away from the septic tanks and septic drainfield.

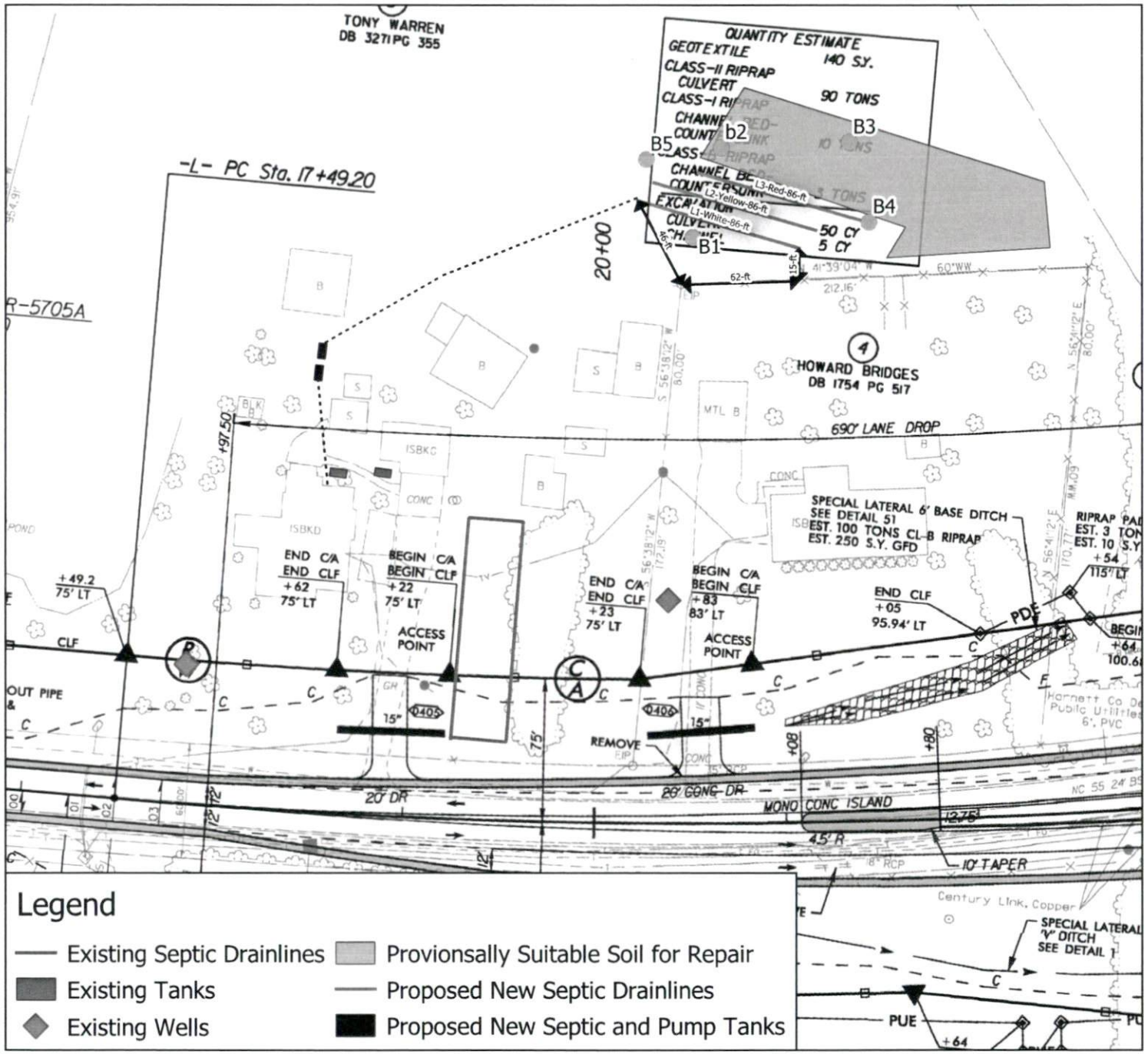
DESIGN SPECIFICS

Initial System

Daily Design Flow:	360 GPD – 3-bedroom house
Septic Tank Size:	1,000 Gallons (minimum)
Pump Tank Size:	1,000 Gallons (minimum)
Effluent Loading Rate:	0.35 GPD per sq. ft.
Drainfield Type:	Accepted Systems Quick 4 Chambers or Equivalent
Distribution Method:	Pump to Serial Distribution
Number of Drainlines:	(3) 3' Wide x 86' Long
Total Trench Length:	258 Linear Feet
Maximum Trench Depth:	20 inches
Final Cover Requirement:	6 Inches

Repair Specifics

Effluent Loading Rate:	0.35 GPD per sq. ft.
Drainfield Type:	Accepted Systems Quick 4 Chambers or Equivalent
Distribution Method:	Pump to Serial Distribution
Total Trench Length:	258 Linear Feet
Maximum Trench Depth:	20 Inches
Final Cover Requirement:	6 Inches



Ground Truth Soil Consulting, PLLC

4055 NC 55 Angier, NC
PIN:
0682-94-0324.000

Soil and Site Evaluation

Harnett County

Scale:
1"= 75'

Figure	Date: August 2021
1	GT Job No. 21-148

LICENSED SOIL SCIENTIST
JOHN C. ROBERTS
1292
STATE OF NORTH CAROLINA

Parcel 003

Pump System Design Criteria

Mailing Address: 4055 HWY 55 Angier, NC 27501

D# : PIN: S/D: Lot#:

Site Address: 4055 HWY 55 Angier, NC 27501

Bedrooms: 3 Daily Flow: 360 gallons

Septic Tank: 1000 gallons Pump Tank: 1000 gallons

LTAR: 0.35 gpd/sqft Effective (trench) LTAR 0.46667 gpd/sqft

Amt. of Drainline: 771 sqft or 257 linear ft

TRENCHES Length (ft): 258 Depth (in): 20 Stone Depth (in): N/A

SUPPLY LINE Length (ft): 270 Diameter: 2" sch 40 pvc

CALCULATIONS:

Dose Volume (gal): 126 with Pipe Vol @ 75 Total Flow: 23 gpm

Dose Pump Run Time (min): 5.48 Daily Pump Run Time (min): 15.65

Drawdown: 126 gallons divided by 21 gal/ inch = 6.00 inches

Pump Tank Elevation(ft): 102.48 Pump Elevation (ft): 97.48

Friction Head (ft): 3.70 (supply line length + 70' for fittngs in pump tank)

Elevation Head (ft): 1

Total Head (ft): 4.70

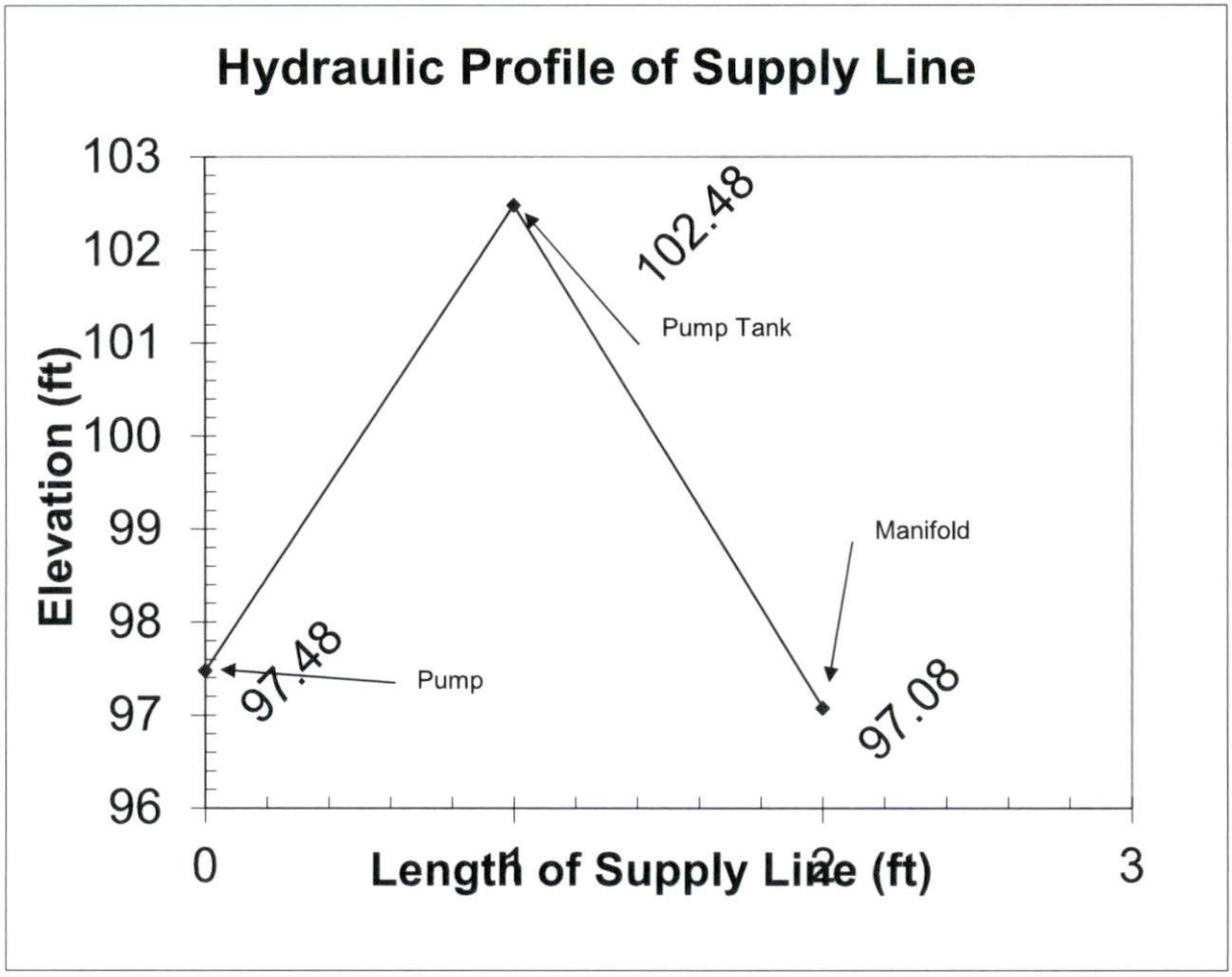
Pump to Deliver: 23 gpm @ 4.70 ft head

Simplex Control Panel (SJE Rhombus 112 or equal) with elapsed time meter, cycle counter, alarm, and pump on separate circuits is required. Floats to be determined by type of pump tank used. A septic filter (Polylok PL-122 or equal) is required.

Possible Pumps Include:

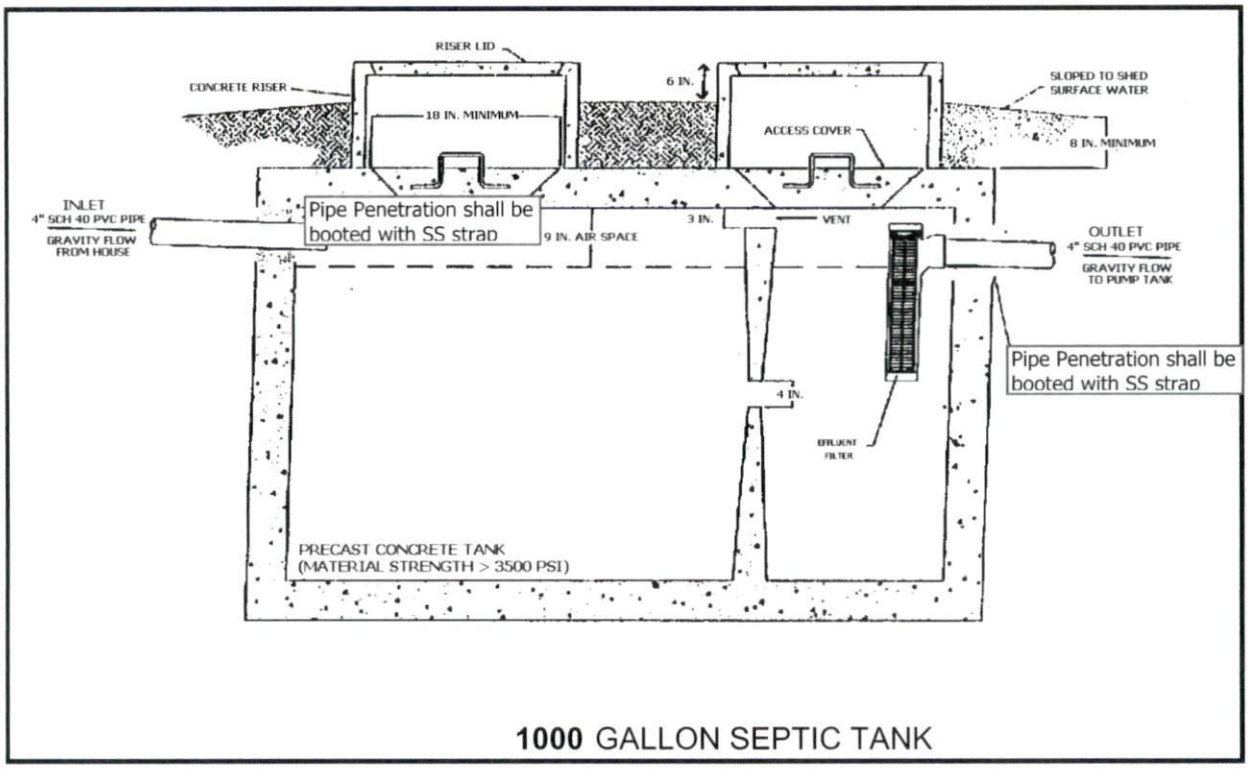
Liberty Pumps FL-30 Series 1/3HP

Parcel 003

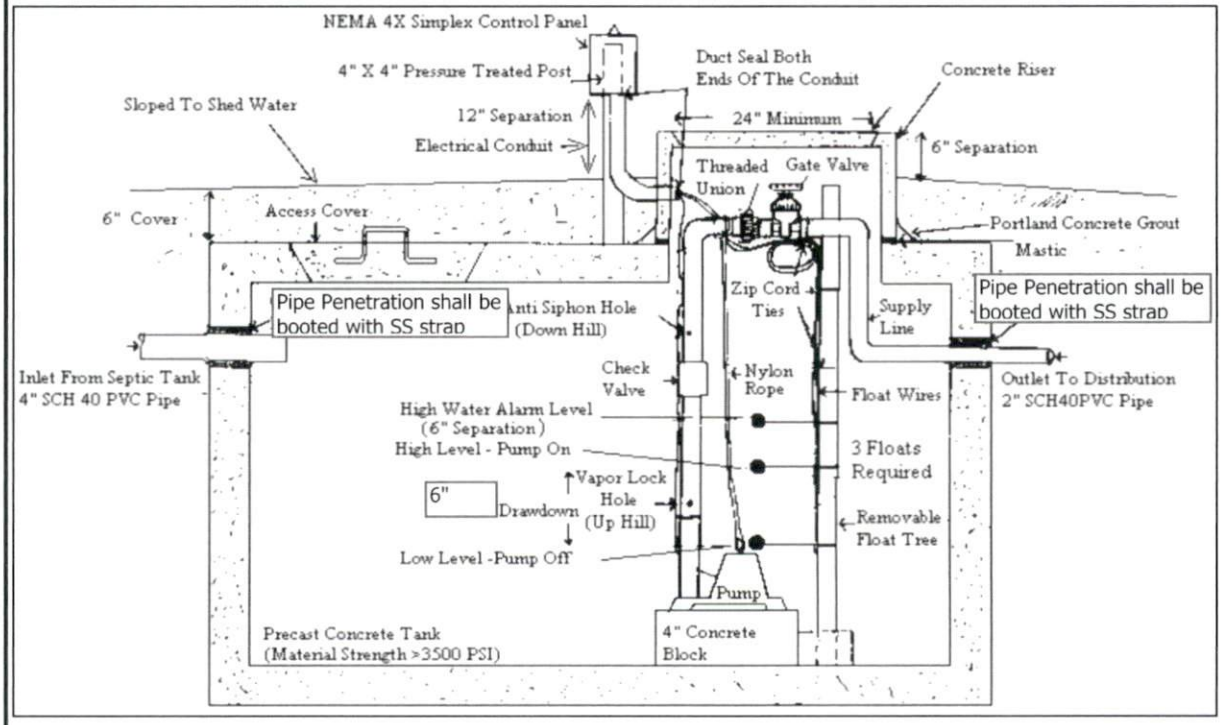


	Distance	Elevation
Pump Elevation	0	97.48
Pump Tank Elevation	1	102.48
Top Drainline	2	97.08

Parcel 003



1000 GALLON SEPTIC TANK



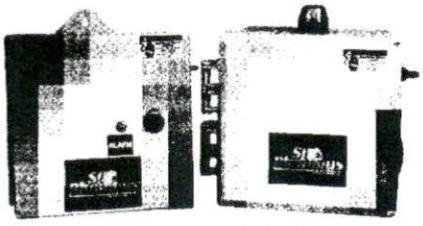
1000 GALLON PUMP TANK

Parcel 003

MODEL 112 Control Panel

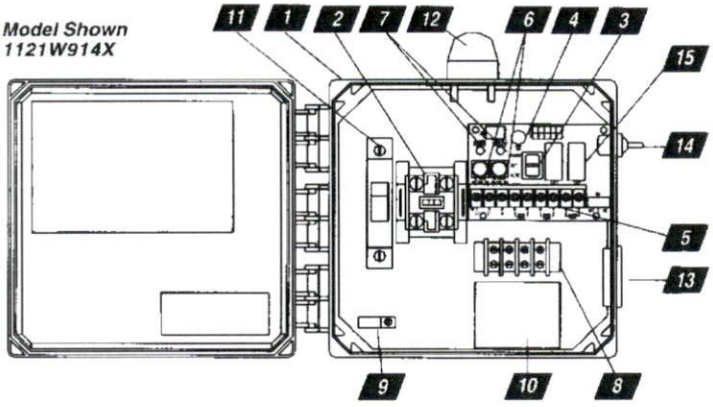
Single phase, simplex motor contactor control.

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.



indoor *indoor/outdoor*

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. 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

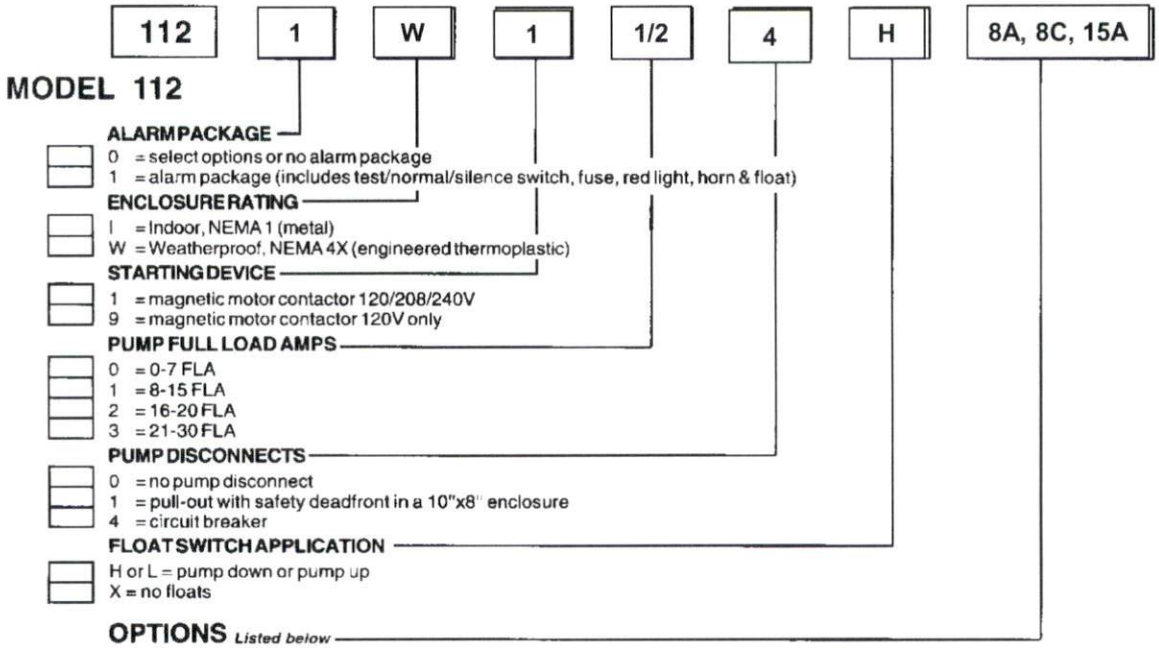
- Entire control system (panel and switches) is UL Listed to meet and/or exceed industry safety standards
- Dual safety certification for the United States and Canada
- Standard package includes three 20' Sensor Float® control switches
- Complete with step-by-step installation instructions
- Three year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

c UL us LISTED

SJE-Rhombus CONTROLS 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

Parcel 003



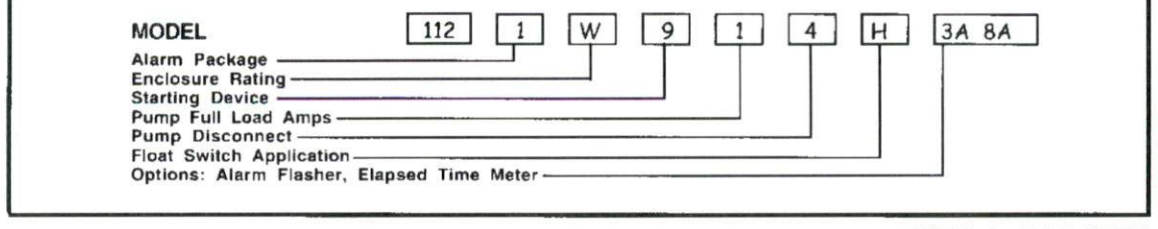
If additional features are required, call the factory for a quote on either a Pro-Line or Engineered Custom control panel system.

	CODE	DESCRIPTION
☐	1A	Red beacon only / no audio *must select 1E if floats included*
☐	1C	Horn only / no visual *must select 1E if floats included*
☐	1E	Alarm float
☐	3A	Alarm flasher
☐ ★	4A	Low level cutout *select option 4D if floats included*
☐ ★	4B	Red low-level indicator & alarm *must select 4A also*
☐	4D	Low-level float
☐	6A	Auxiliary alarm contact, form C type
☐ ★	8A	Elapsed time meter
☐ ★	8C	Event (cycle) counter
☐	10E	Lockable latch - NEMA 4X
☐	10E	Lockable latch - NEMA 1
☐ ★	10F	Lightning arrester
☐ ★	10K	Anti-condensation heater

	CODE	DESCRIPTION
☐	11C	NEMA 1 alarm panel *must select option 6A*
☐	11D	NEMA 4X alarm panel *must select option 6A*
☐	15A	Control / alarm circuit breaker *Does not include the circuit board as in standard.*
☐	16A	10' cord in lieu of 20'
☐	16B	15' cord in lieu of 20'
☐	16C	30' cord in lieu of 20'
☐	16D	40' cord in lieu of 20'
☐	17A	SJE SignalMaster® / mounting strap ●
☐	17B	SJE SignalMaster® / externally weighted ●
☐	17C	Sensor Float® / internally weighted ▲
☐	17D	Sensor Float® / externally weighted ▲
☐	17E	Sensor Float® Mini / pipe clamp ▲
☐	17F	Sensor Float® Mini / externally weighted ▲
☐	19X	Door mounted pump run indicator
☐	21A	Pumpmaster® in lieu of on/off switches ●
☐	21B	PumpMaster® Plus in lieu of on/off switches ●
☐	21C	Super Single® in lieu of on/off switches ▲
☐	21D	Double Float™ in lieu of on/off switches ▲

● Mechanically-activated ▲ Mercury-activated

SAMPLE



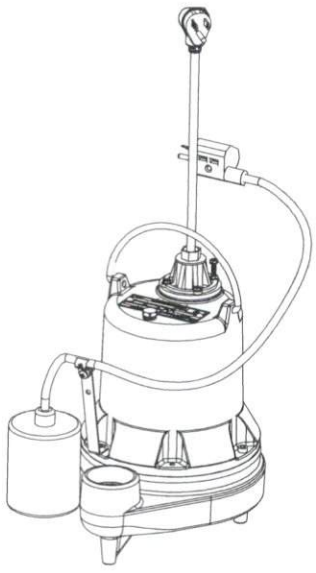
Liberty Pumps®

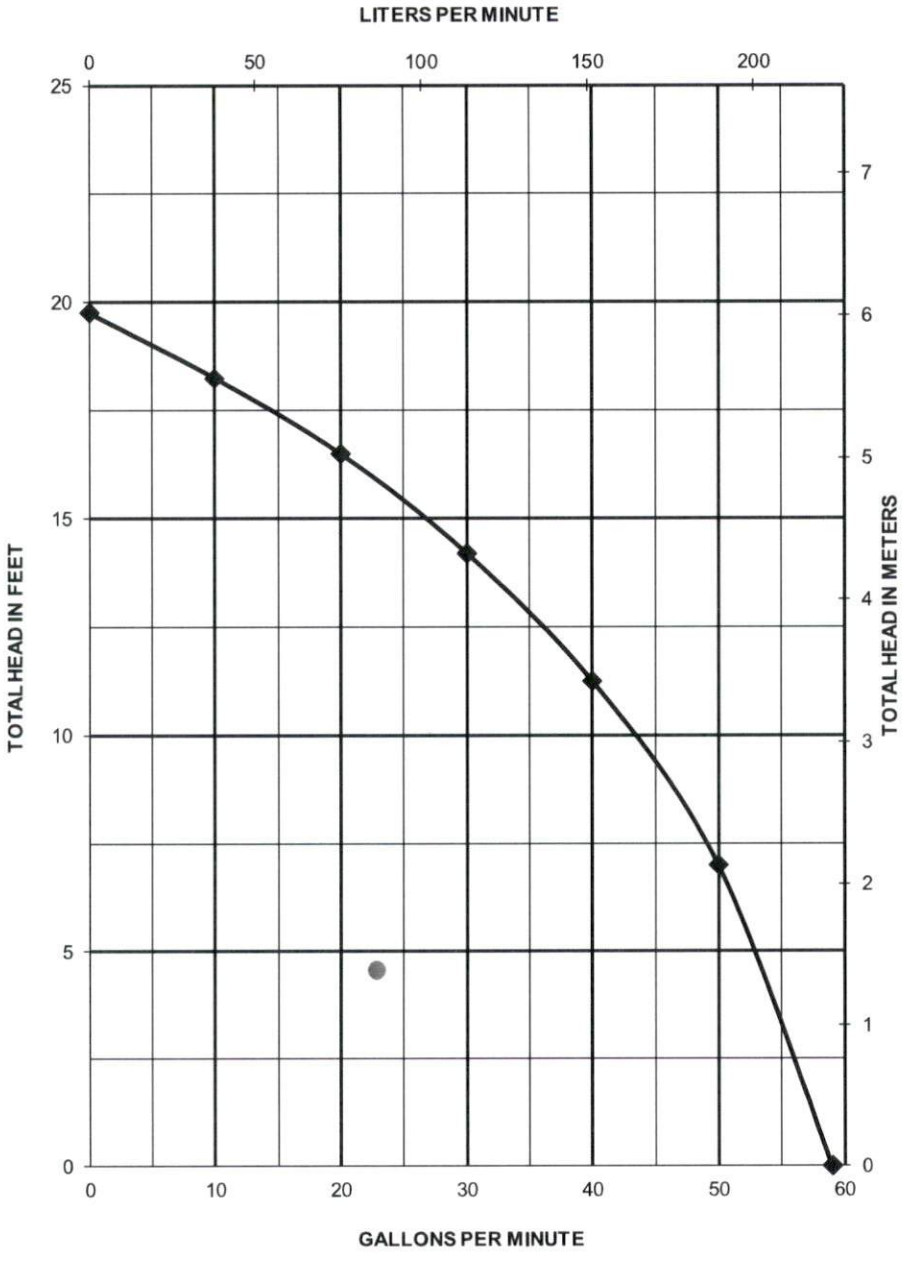
A Family and Employee Owned Company

Pump **Specification**

FL30-Series

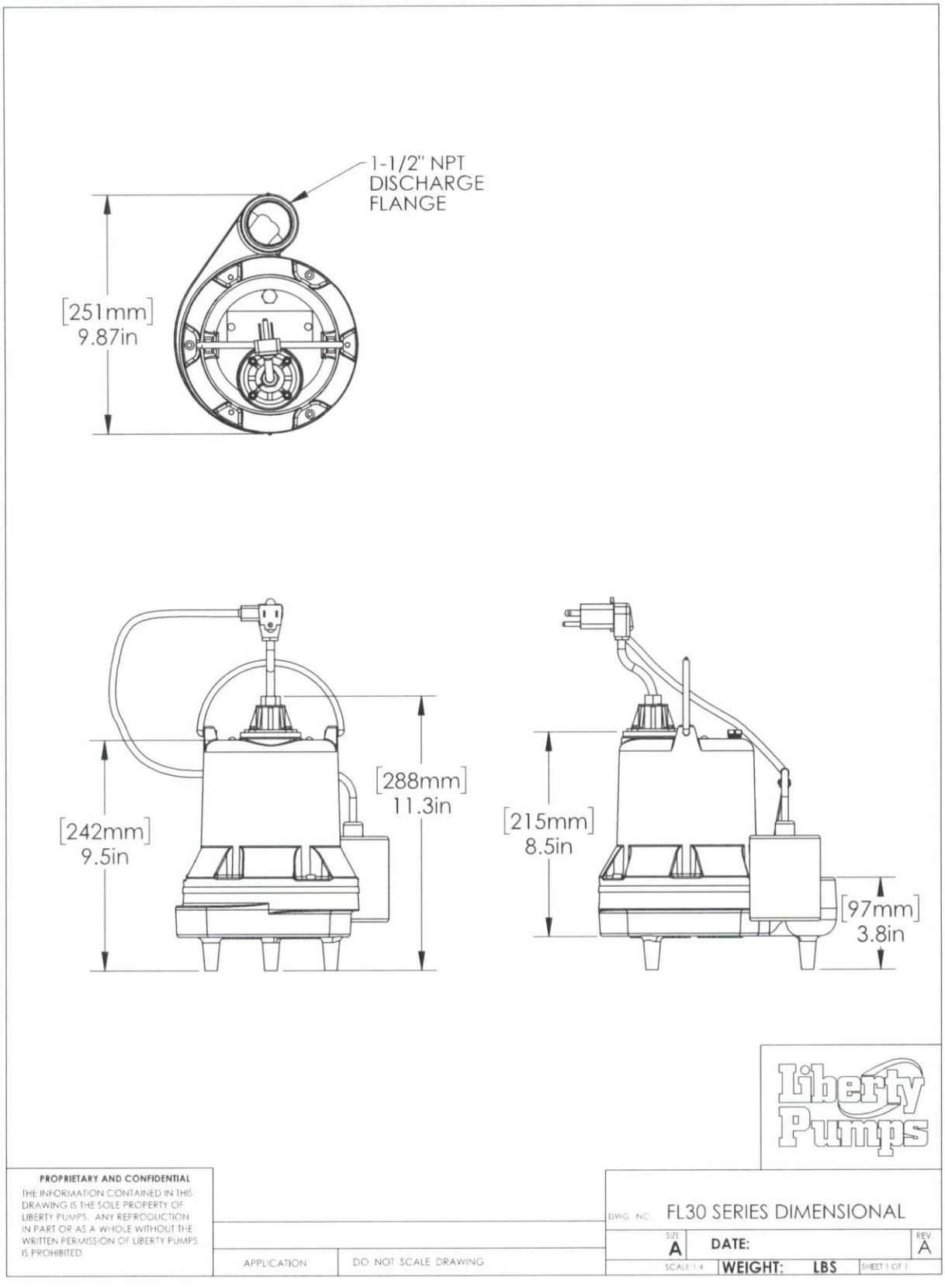
1/3 HP Submersible Effluent Pumps





7000 Apple Tree Avenue Bergen NY 14416 ■ ***Phone*** *800-543-2550* ■ ***Fax*** *585-494-1839* ■ ***Email*** *Liberty@LibertyPumps.com* ■ ***Web*** *www.LibertyPumps.com*

FL30-Series Dimensional Data



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FL30-Series Electrical Data

MODEL	HP	VOLTAGE	PHASE	FULL LOAD AMPS	LOCKED ROTOR AMPS	THERMAL OVERLOAD TEMP	STATOR WINDING CLASS	CORD LENGTH	PUMP DISCHARGE	AUTOMATIC
FL31A	1/3	115	1	10.5	26	105°C / 221°F	B	10′	1-1/2″ NPT	YES
FL31A-2	1/3	115	1	10.5	26	105°C / 221°F	B	25′	1-1/2″ NPT	YES
FL31A-3	1/3	115	1	10.5	26	105°C / 221°F	B	35′	1-1/2″ NPT	YES
FL31M	1/3	115	1	10.5	26	105°C / 221°F	B	10′	1-1/2″ NPT	NO
FL31M-2	1/3	115	1	10.5	26	105°C / 221°F	B	25′	1-1/2″ NPT	NO
FL31M-3	1/3	115	1	10.5	26	105°C / 221°F	B	35′	1-1/2″ NPT	NO
FL31M-5	1/3	115	1	10.5	26	105°C / 221°F	B	50′	1-1/2″ NPT	NO
FL32A	1/3	208–230	1	5.5	12	105°C / 221°F	B	10′	1-1/2″ NPT	YES
FL32A-2	1/3	208–230	1	5.5	12	105°C / 221°F	B	25′	1-1/2″ NPT	YES
FL32A-3	1/3	208–230	1	5.5	12	105°C / 221°F	B	35′	1-1/2″ NPT	YES
FL32M	1/3	208–230	1	5.5	12	105°C / 221°F	B	10′	1-1/2″ NPT	NO
FL32M-2	1/3	208–230	1	5.5	12	105°C / 221°F	B	25′	1-1/2″ NPT	NO
FL32M-3	1/3	208–230	1	5.5	12	105°C / 221°F	B	35′	1-1/2″ NPT	NO
FL32M-5	1/3	208–230	1	5.5	12	105°C / 221°F	B	50′	1-1/2″ NPT	NO

*7000 Apple Tree Avenue Bergen NY 14416 ■ **Phone** 800-543-2550 ■ **Fax** 585-494-1839 ■ **Email** Liberty@LibertyPumps.com ■ **Web** www.LibertyPumps.com*

FL30-Series Technical Data

IMPELLER	MULTI-VANE ENGINEERED POLYMER
PAINT	POWDER COATING
MAX LIQUID TEMP	60˚C / 140˚F
MAX STATOR TEMP (1-PHASE)	130˚C / 250˚F
THERMAL OVERLOAD	105˚C / 221˚F
POWER CORD TYPE	SJTW
MOTOR HOUSING	CLASS 25 CAST IRON
VOLUTE	CLASS 25 CAST IRON
SHAFT	STAINLESS
HARDWARE	STAINLESS
O-RINGS	BUNA-N
MECHANICAL SEAL	UNITIZED CERAMIC CARBON
WEIGHT	37 LBS / 16.8 KG

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FL30-Series Specifications

1.01 GENERAL

The contractor shall provide labor, material, equipment, and incidentals required to provide _____ (QTY) centrifugal pumps as specified herein. The pump models covered in this specification are FL30-Series single-phase pumps. The pump furnished for this application shall be model _____ as manufactured by Liberty Pumps.

2.01 OPERATING CONDITIONS

Each submersible pump shall be rated at 1/3 hp, _____ volts, single-phase, 60 Hz, 1725 RPM. The unit shall produce _____ GPM at _____ feet of total dynamic head.

The submersible pump shall be capable of handling effluent with 3/4" solids handling capability. The submersible pump shall have a shut-off head of 19.8 feet and a maximum flow of 58 GPM @ 5 feet of total dynamic head.

The pump shall be controlled with:

_____ Piggyback style ON/OFF float switch

_____ NEMA 4X outdoor simplex control panel with three float switches and a high water alarm

_____ NEMA 1 indoor simplex control panel with three float switches and a high water alarm

_____ NEMA 4X outdoor simplex control panel with four float switches and a high water alarm

_____ NEMA 1 indoor simplex control panel with four float switches and a high water alarm

_____ NEMA 4X outdoor duplex control panel with three float switches and a high water alarm

_____ NEMA 1 indoor duplex control panel with three float switches and a high water alarm

_____ NEMA 4X outdoor duplex control panel with four float switches and a high water alarm

_____ NEMA 1 indoor duplex control panel with four float switches and a high water alarm

3.01 CONSTRUCTION

Each centrifugal effluent pump shall be equal to the $_{C}$SP$_{US}$ certified FL30-Series pumps as manufactured by Liberty Pumps, Bergen NY. The castings shall be constructed of class 25 cast iron. The motor housing shall be oil filled to dissipate heat. Air filled motors shall not be considered equal since they do not properly dissipate heat from the motor. All mating parts shall be machined and sealed with a Buna-N O-ring. All fasteners exposed to the liquid shall be stainless steel. The motor shall be protected on the top side with sealed cord entry plate with molded pins to conduct electricity, eliminating the ability of water to enter internally through the cord. The motor shall be protected on the lower side with a unitized ceramic/carbon seal with stainless steel housings and spring. The pump shall be furnished with stainless steel handle.

4.01 ELECTRICAL POWER CORD

The submersible pump shall be supplied with 10, 25, 35, or 50 feet of multiconductor power cord. It shall be cord type SJTW, capable of continued exposure to the pumped liquid. The power cord shall be sized for the rated full load amps of the pump in accordance with the National Electric Code. The power cable shall not enter the motor housing directly but will conduct electricity to the motor by means of a watertight compression fitting cord plate assembly, with molded pins to conduct electricity. This will eliminate the ability of water to enter internally through the cord by means of a damaged or wicking cord.

*7000 Apple Tree Avenue Bergen NY 14416 ■ **Phone** 800-543-2550 ■ **Fax** 585-494-1839 ■ **Email** Liberty@LibertyPumps.com ■ **Web** www.LibertyPumps.com*

5.01 MOTORS

Single-phase motors shall be oil filled, permanent split capacitor, class B insulated NEMA B design, rated for continuous duty. Since air filled motors are not capable of dissipating heat as effectively, they shall not be considered equal. At maximum load, the winding temperature shall not exceed 130°C unsubmerged. The pump motor shall have an integral thermal overload switch in the windings for protecting the motor. The capacitor circuit shall be mounted internally in the pump.

6.01 BEARINGS AND SHAFT

Upper and lower ball bearings shall be required. The bearings shall be a single ball/race type bearing. Both bearings shall be permanently lubricated by the oil that fills the motor housing. The motor shaft shall be made of 300 or 400 series stainless steel and have a minimum diameter of 0.500".

7.01 SEALS

The pump shall have a unitized carbon/ceramic seal with stainless steel housings and spring equal to Crane Type 6a. The motor plate/ housing interface shall be sealed with a Buna-N O-ring.

8.01 IMPELLER

The impeller shall be engineered polymer, with pump out vanes on the back shroud to keep debris away from the seal area. It shall be threaded to the motor shaft.

9.01 CONTROLS

All units can be supplied with CSA and UL approved automatic wide angle tilt float switches. The switches shall be equipped with piggyback style plug that allows the pump to be operated manually without the removal of the pump in the event that a switch becomes inoperable. Manual pumps are operable by means of a pump control panel.

10.01 PAINT

The exterior of the casting shall be protected with powder coat paint.

11.01 SUPPORT

The pump shall have cast iron support legs, enabling it to be a freestanding unit. The legs will be high enough to allow 3/4" solids to enter the volute.

12.01 SERVICEABILITY

Components required for the repair of the pump shall be shipped within a period of 24 hours.

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13.01 FACTORY ASSEMBLED TANK SYSTEMS WITH GUIDE RAIL AND QUICK DISCONNECT DISCHARGE

_____ Factory mounted guide rail system with pump suspended by means of bolt-on quick disconnect that is sealed by means of nitrile grommets or O-rings. The discharge piping shall be schedule 80 PVC and furnished with a PVC check valve and shut-off ball valve. The tank shall be wound fiberglass or roto-molded plastic. An inlet hub shall be provided with the fiberglass systems.

_____ Stainless steel guide rail

_____ Zinc plated steel guide rail

_____ " diameter of basin

_____ " height of basin

_____ " distance from top of tank to discharge pipe outlet

_____ Fiberglass cover

_____ Structural foam polymer cover

_____ Steel cover

_____ Simplex system with outdoor panel and alarm

_____ Duplex system with outdoor panel and alarm

_____ Separate outdoor alarm

_____ Remote outdoor alarm

14.01 TESTING

The pump shall have a ground continuity check and the motor chamber shall be hi-potted to test for electrical integrity, moisture content, and insulation defects. The motor and volute housing shall be pressurized, and an air leak decay test performed to ensure integrity of the motor housing. The pump shall be run, voltage current monitored, and checked for noise or other malfunction.

15.01 QUALITY CONTROL

The pump shall be manufactured in an ISO 9001 certified facility.

16.01 WARRANTY

Standard limited warranty shall be 3 years.

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