# GROUND ABSORPTION SEWAGE DISPOSAL SYSTEM

# USING PUMP TANK PRESSURE MANIFOLD

# AND CONVENTIONAL NITRIFICATION LINES

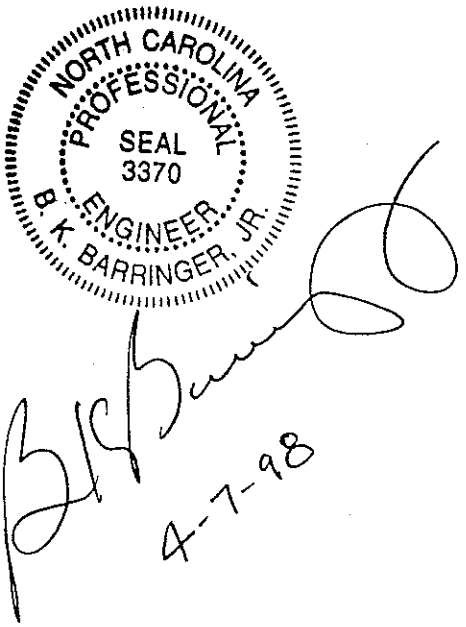
# FOR

# LOT 47- FARMSTEAD SUBDIVISION

# DAVIDSON TOWNSHIP

# IREDELL COUNTY, NC

April 2, 1998




OWNER:

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Mooresville, NC 28115
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PREPARED BY:

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## I. DESIGN CONSIDERATIONS

The scope of this project is to construct a septic system using a septic tank, pump tank, force main, pressure manifold and conventional nitrification field. The pressure manifold and infiltration field is located on a remote lot. The septic tank and pump tank are to be located at the residence. This system is for a three-bedroom residence. The system will require a septic tank, pump tank, pump and controls, force main, pressure manifold, and conventional nitrification field.

The nitrification field has been located and flagged by the Sanitarian, Brady Freeman. An LTAR of 0.3 GPD/SF has been established.

A 15' wide sewer easement has been established between Lot 47 and the area west of Inverness Loop which is to be used as the nitrification field area. The easement crosses an earthen dam. Force main piping within the easement must be buried a minimum of 36" and be no closer than 25' from the waters edge.

At the time of installation, the Owner proposed to install additional force main lines within the easement to accommodate future systems on Lot 48, Lot 49 and Lot 18. Size of piping shall be the same as called for herein.

The specifications herein are for conventional nitrification lines.

A North Carolina Department of Transportation encroachment permit will be required in addition to a septic system permit to encroach within the right-of-way Inverness Loop.

Reference Material:

(1) LAWS AND RULES FOR GROUND ABSORPTION SEWAGE TREATMENT & DISPOSAL SYSTEMS. N. C. Department of Environment, Health and Natural Resources; Division of Environmental Health, On-Site Waste Water Section; Administrative Code Section 15A N.C.A.C. 18A.1900, amended effective date February 1, 1992.

(2) PRESSURE MANIFOLD DESIGN FOR GROUND ABSORPTION SEWAGE SYSTEM. Steven J. Berkowitz; February, 1986.

(3) Memorandum from Steve J. Steinbeck, P.E. NC DEHNR Head of On-Site Wastewater Service Branch, February 16, 1996.

## II. COMPONENTS OF SYSTEM

- Collection systems
- Two-compartment septic tank
- Pump tank
- Pump and control system
- Alarm system
- Force main
- Pressure manifold
- Supply lines
- Nitrification field

A. COLLECTION SYSTEM: All waste water from the residence shall gravity flow into the septic tank.

B. SEPTIC TANK: The septic tank shall be a 1,000 gallon capacity, reinforced, precast concrete tank with full baffle and easy access to each chamber from ground level for checking and pumping. The first chamber of the septic tank shall consist 2/3 to 3/4 of the volume of the total tank, and the baffle shall contain a horizontal opening across the tank at about midway of the height of the tank. The septic tank should be located at such height as to provide approximately 8" of cover soil over the top of the tank. The tank shall be supplied by a manufacturer approved by D H S and bear the manufacturer's serial number. The septic tank shall be filled with water and allowed to set for 24 hours to determine possible leakage and any leak shall be corrected.

C. OUTFALL LINE from the septic tank to the pump tank shall be 4" diameter, Schedule 40 PVC pipe, ASTM D1785.

D. PUMP / DOSING TANK shall consist of a 1,000 gallon capacity, reinforced, precast concrete tank without baffle and shall have a concrete mounting pad (concrete blocks) for accommodating the pump. Access shall be provided for entry into the tank directly over the pump location, and extending 6" above final grade using a 30" diameter concrete well casing and concrete well cap. The tank shall be supplied by a manufacturer approved by D H S and bear the manufacturer's serial number. The tank shall be positioned to allow gravity flow of the effluent from the septic tank. The contractor shall provide positive anchoring of this tank to prevent floating due to ground water.

The pump/dosing tank shall be filled with water and allowed to set for 24 hours to determine possible leakage and any leak shall be corrected. The access hole shall provide entry into the tank directly over the pump location, and shall be covered with a precast riser and concrete lid.

Other than the pump, only stainless steel metal shall be allowed inside the septic tank or dosing tank. Any metal other than stainless steel allowed inside the septic tank shall be coated with a heavy layer of asphalt paint.

E. PUMP: The submerged pump shall be the Myers Model ME 50, 1/2 HP as manufactured by the F. E. Myers Company of Ashland, OH or equal, 120 volt/1 phase, capable of pumping 28.44 GPM at 26.7' TDH.

F. PUMP ON - OFF water level control switch shall be the Myers Model MLC-20, mercury switch, with three prong, piggy back plug or approved equal.

G. HIGH WATER ALARM SWITCH shall be equal to the Myers Model FLCA-30, mercury switch, red colored ball with support bracket.

H. HIGH WATER ALARM CONTROL BOX shall be equal to Myers Model FLCA CA-SS4 with connection box having buzzer alarm, on, off, test switch with terminal block for all connections.

I. A "HOMEOWNER'S WARNING SIGN" shall be located within the house to inform the Owner of what action to take in case the "High Water Alarm" is activated. This shall contain the name, address, telephone number, and emergency telephone number of the person to contact immediately upon malfunction of the system.

J. PUMP AND CONTROLS: Details of pump installation are shown on the plan. The pump must be placed on two concrete blocks next to each other on the bottom of the

tank. This prevents pumping of any solid particles which can clog the nitrification field. A piece of nylon rope or other non-corrodible material should be attached to the pump and the outlet pipe for lifting the pump in and out of the chamber. (The PVC outlet pipe is too fragile to support the pump).

Controls are fastened to "float tree" with clamps or brackets supplied by the manufacturer. he lower level control or "pump-off" must be positioned above the pump, so that the pump remains submerged at all times. The upper level control "pump-on" is positioned to pump a specified volume of effluent. The high water control float is then mounted about 3" above the upper pump-on control. (Note: Care must be taken to ensure that floats do not become fouled by other components in the tank such as the electric power cord or the lifting rope.)

The "float tree" can be constructed of an 1-1/2" diameter PVC pipe anchored in a gallon bucket filled with concrete. The PVC pipe shall be long enough to reach from about the tank extending into the access riser. The "tree" allows easy and quick access to the float switches for adjustment.

The pump outlet pipe should be connected to the force main with a threaded PVC union (or dresser coupling) to allow quick removal. The gate valve must also be installed in the force main (within the pump chamber) to allow final adjustment of the pressure. A 3/16" siphon-breaker hole shall be drilled in the force main approximately 24" above the pump. This hole breaks any vacuum in the system and prevents the inadvertent siphoning of effluent out of the tank. It also allows the pump to start against no head. This hole is very important.

K. ELECTRICAL CONNECTIONS: The pump and high water alarm must be placed on separate electrical circuits. (If the pump circuit fails, the alarm must still be able to operate.) Follow the manufacturers' recommendations for the proper fuses or circuit breakers. All electrical connections must be made outside the pumping chamber. Power cords from the pumps and controls should be plugged into a NEMA approved outdoor receptacle mounted outside of the pumping chamber. The receptacle must not be located inside the pumping chamber due to the corrosive and explosive gases that may form from the sewage.

   Wiring between the pumping chamber and the house shall meet State and local code requirements. A lightning arrester is recommended to protect the pump and controls from electrical surges.

L. PRESSURE FORCE MAIN from the pump to the manifold shall be 2" diameter SDR 21, Pressure Class 200 PVC. This pipe shall be buried with 18" minimum cover. A 2" valve shall be installed at the end of this pipe before the manifold to allow for final pressure adjustment at the manifold.

   PVC fittings for pressure force mains shall be Schedule 40 fittings furnished in accordance with ASTM D-2466 with solvent weld joints installed according to ASTM D-2855.

M. PRESSURE MANIFOLD shall be 4" diameter Schedule 80 PVC, constructed as detailed on the plan. The manifold shall be located above the nitrification field and placed in a precast manifold protective box as constructed by B & C Concrete Products, North Wilkesboro, NC (919) 838-4201, or approved equal. The box shall have a drain hole and be set in a bed of washed stone which shall function as a sump to allow any water that collects in the box to drain out of the box. The manifold shall have a

clean-out, a 1/2" pressure head monitoring port with plug and be securely anchored to the pressure manifold box. Pressure manifold taps shall be securely anchored to the pressure manifold box.

Pressure manifold box shall be precast concrete or masonry with a lockable steel removable lid as called for on the plans. A precast concrete lid, that cannot be readily removed, may be used. The box shall be sized and constructed to accommodate the pressure manifold, lateral supply lines and the flow adjustment valve. The precast box shall have a drain hole in the bottom over a bed of washed stone to allow the box to drain.

N. GRAVITY DISTRIBUTION LINE: The gravity flow distribution pipe from the distribution manifold to the nitrification lines may be 3" 160 psi PVC pipe. These lines shall be secured by the pressure manifold box, and have a slope of not less that ¼" per ft. to the chamber system. Each distribution pipe shall have an inspection port located within the middle of each line.

O. NITRIFICATION FIELDS: Nitrification trenches shall be constructed as level as possible, but in no case shall the fall in a single trench bottom exceed 1/4" in 10' as determined by an Engineer's level. The nitrification trenches shall not exceed a width of 3' and be 24" - 36", except as approved by the County Health Department. Trenches shall be placed a minimum of 9' on centers. An earthen dam shall separate the nitrification trench from the gravity supply pipe.

The soil cover over the nitrification fields shall be to a depth of at least 12" or as shown on the plan. The finished grade over the nitrification fields shall be landscaped to prevent the ponding of surface water; and runoff of surface water shall be diverted away from the nitrification fields.

P. CURTAIN DRAINS & SURFACE WATER DIVERSION SWALES: If called for on the site plan, curtain drains consist of a 4" diameter corrugated plastic tubing of the same standard as the nitrification lines. They shall be buried in a trench 24" wide and approximately 24" to 36" deep, and shall have a slope of 1/4" per foot towards the outlet.

Surface water diversion swales shall be parabolic in shape with a minimum depth of 2' and slope of 1%. Diversions shall be permanently stabilized by seeding as per seeding specs. Contractor shall use a temporary channel lining in any problem (steep) areas as necessary to establish 100% grass lining.

## III. CONSTRUCTION SEQUENCE

### A. GENERAL

1. Installation of the system shall be performed to the satisfaction of the design Engineer.
2. An Operation Permit may be issued by the local Health Department after all conditions of the improvement permit have been met, the design Engineer certifies in writing that the system has been installed in accordance with the approved plans and specifications.
3. The operation permit shall include description of facilities served and sewage system components, as-built plans and specifications, legal documents, operation and maintenance manual, monitoring and performance requirements, and other operating conditions deemed appropriate.

4. The Contractor shall install all components of the system in strict accordance with the manufacturer's specification. Upon completion of the system construction, the Contractor shall charge the system with water and go through a complete cycle. Any failure or discrepancy shall be corrected. The manufacturer of the component and the contractor shall warrant the component and system for one year from the date of acceptance by the owner.

5. A set of as-built plans and specifications shall be prepared by the Contractor and Engineer and provided to the local Health Department and Owner which shows actual location and design of all system components and contains a complete list of all mechanical equipment installed whenever any deviations have been made from the approved plans and specifications.

CONSTRUCTION SEQUENCE

Rule of Thumb: "If soil is too wet to plow, it is too wet to disturb for nitrification field excavation."

1. Lay out the nitrification field network area with stakes and flagging . As soon as the absorption area and repair areas are designated, they should be identified, barricaded and isolated from construction traffic. This barrier should be maintained until the system is accepted by the Owner. Refer to site plan for the size of absorption area.

2. Construct up slope interceptor ditch (grassed swale) and curtain drain as called for on the site plan and details and maintain.

3. Prior to actually beginning construction of the system, carefully locate, lay out and identify the nitrification field, manifold and the piping network, using a tripod mounted engineer's leveling instrument to accurately establish in relationship to each other.

4. Excavate nitrification network trenches 3' wide by 18" - 36" deep (see detail) following contour. Remove loose soil from bottom of trench. An earthen dam shall be maintained between the ends of the nitrification lines and supply piping. Any stumps that interfere with the alignment of the nitrification trenches shall be removed. Stumps that do not interfere shall remain. Install the nitrification lines or chamber system as per specifications.

5. Once the chamber system is installed carefully, backfill lateral trench with clean, debris free earth which shall be slightly mounded and raked uniform smooth for grassing.

6. Excavate for and install manifold box, manifold piping and gravity distribution lines, as called for on the plan, at a location higher than the nitrification lines to allow for gravity flow from the manifold to the chamber system. All lines shall be tested for leaks. (See item 10 for testing procedures.) The distribution lines shall be installed sufficiently deep so as to provide a minimum cover over the top of the pipe not less than 12 inches. Carefully backfill trenches to finish grade with clean, well-compacted debris free earth (no stone).

7. Installer shall excavate for and install all precast concrete tanks as per plans. Installer shall insure that the tank remains level and true to grade after placement and filling with water. All precast tanks shall be tested for water tightness by an approved method such as 24 hour water tightness test with maximum allowable leakage not to exceed ½ inch per 24 hours. Testing shall begin after the water level in the tank has stabilized.

8. Once testing of the tank has been completed, the tanks shall be backfilled in lifts with well compacted, debris free earth to a level which directs surface water away from the tanks. Tank access holes shall be installed and grouted water tight and the earth raked smooth for grassing. All tank lids shall be lockable or constructed of concrete to prevent easy removal.

9. Excavate for and install all gravity collection lines as per the North Carolina Plumbing Code, Local Plumbing Inspector, and in accordance with ASTM D2321 latest revision. Minimum depth of cover shall be 18 inches of cover.

   Piping that passes under drainage ditches shall be encased in concrete adequate to prevent damage of the pipe during ditch maintenance. Adequate bank protection and stabilization shall be provided.

10. The Force Main shall cross Inverness Loop (SR 1229). The road crossing may be an open cut. The Contractor shall provide all necessary traffic control, including signage, flagmen, etc. to ensure public safety. The crossing shall be preformed during daylight hours with the excavation being closed before the end of the work day. The pipe casing shall be a 12" diameter galvanized corrugated steel pipe that meets NC Dot specifications. The Contractor shall notify DOT when work is to be performed.

    Installed within the casing shall be four 2" diameter SCH 40 PVC pipes, three of which shall be for future use. The pipes shall be color coded. The ends of the casing shall be sealed with masonry and marked at the surface for future locating. The casing shall extend past the full width of the street right-of-way. The ends of the unused pipes shall be capped.

    Once installed, the pressure supply line shall be plugged and filled with water and checked for leaks. Maximum allowable leakage is 100 gallons per day per inch diameter per mile of sewer pipe. In areas where 18 in. of cover cannot be maintained, the pipe shall be galvanized. The contractor shall clear a right-of-way for the line and take care to insure the pipe is properly bedded on firm debris-free earth. Carefully backfill pipe trenches to finish grade with clean (debris free) earth (no stone).

11. Leave all disturbed areas with a raked surface, ready for grassing.

12. The installation contractor shall stabilize the area of construction and all disturbed areas by planting and seeding with Kentucky 31 tall fescue and shall keep the planted area watered and mulched until such time that a hardy stand of grass is established. (See Seeding Specification.)

13. Final Landscaping: After the system is installed, the following shall be checked to insure that the system will not be overloaded with excess rain water and run off:

    The nitrification field is shaped to shed rain water and is free of low areas.

    The ground is shaped to divert any surface water away from the tanks.

    Diversion swales, curtain drains, or ditches are in place and properly installed to divert ground and surface water away from the system.

    Gutter and downspout drains shall be directed away from the system.

    Any problems should be corrected before approving the system. Finally, the entire area should be planted with grass according to specifications.

## IV. OPERATING CHECK AND ADJUSTMENTS

A. Operating Check: After permanent power has been connected and all components of the system have been installed, the contractor shall schedule a time for the checking of the system for proper operation. The check shall be performed in the presence of the design engineer, installation contractor and owner.

   Checks shall be performed, but not limited to the following:

diversion of surface water and secured but ready access to all the chambers.

2. All piping is according to plans and specifications and installed complete.
3. Pressure head at the manifold shall be adjusted to match that specified in the design. The pressure head is measured as the height liquid will rise above the manifold when the pump is running. To adjust the head:
   a) connect a 2' length of pipe (preferably clear) to a threaded adapter that will be screwed onto the test port. (call this the "test tube")
   b) turn the power on to allow liquid to rise in the "test tube".
   c) adjust the gate valve at the manifold and/or pumping tank until the effluent reaches the desired height in the "test tube". Refer to the flow calculation chart relative pressure head (h).

## V. OPERATION AND MAINTENANCE

The system is classified as a Type III. The Regulations requires that the system be operated by the Owner after receiving an operating permit from the county health department. The Regulation further requires the system be reviewed by the health department at a frequency of every 5 years.

An Operating, Maintenance and Inspection procedure shall be submitted to the County Health Department for approval. This shall be done by the owner. Procedures shall include but not be limited to the following:

- Minimum inspection/maintenance frequency shall be 2 times/year.
- Septic tank shall be pumped every 4 years or when solids accumulate to ⅓ the volume of the tank.
- All piping and fittings shall be checked annually for damage and/or proper operation and corrections made immediately.
- The property should be inspected to insure all surface water is diverted away from the fields and tank. Any ponding of surface water should be corrected.
- Grasses shall be mowed and maintained and any erosion shall be corrected promptly. A healthy stand of grass shall be maintained by periodic liming and seeding.
- The nitrification field area shall be checked for leakages, blowouts or malfunction, indications of damp or mushy areas compared to surrounding area or evidence of noticeable odor of sewage. Repairs shall be made immediately.
- Float switches shall be checked for free operation and proper level set.
- Check septic tank and pump tank for evidence of damage or leakage. Check the quality of effluent including grease and sludge accumulation.

## OWNERSHIP RESPONSIBILITY:

It must be kept in mind that this system is designed to accept a moderate amount of waste water (which is called the EFFLUENT), in a minimal water absorbing soil.

Conservation measures must be undertaken by all members of the household to minimize the volume of waste water entering the disposal system, including, but not limited to, the following precautions:

1. Provide water conserving plumbing fixtures within the residence; including toilets with flush volume not exceeding 1.6 gallons/flush.
2. Develop conservative water use habits;

3. Monitor and maintain the system as necessary for proper operation;
4. Check and pump the septic tank sludge on a regular basis of approximately every year if garbage disposal is included in the residence, or approximately every three years otherwise as required by the regulations.
5. Make rapid repairs to leaking plumbing fixtures and faucets.
6. Avoid excessive watering of the lawn in the vicinity of the disposal field and prevent the growth of weeds.

DESIGN SPECIFICATIONS FOR
LOT 47 FARMSTEAD
IREDELL COUNTY, NC

April 2, 1998

| | |
|---|---|
| Peak daily design flow: (4 Bedroom) | 360 GPD |
| Septic tank size: | 1,000 gallon tank |
| Pumping tank size: | (1) 1,000 gal. (single compartment) precast concrete |
| Effluent loading rate: | 0.3 GPD/SF |
| Total absorption areas: | 1,200 SF Active |
| Total linear feet of infiltration panels: | 4 - 100' Lines |
| Total length and diameter of supply force main: | 950 - SDR 21 PR 200 2" diameter PVC |
| Pressure Manifold: | 4" SCH 80 PVC |
| Orifice<br>Manifold placement: | 4 - ½" diameter SCH 40 PVC orifices<br>End and above field |
| Flow rate through the system: | 28.44 GPM |
| Elevation head : | 15.0 ft. |
| Pressure head: | 2.0 ft |
| Friction head: | 9.7 ft |
| Total head: | 26.7 ft |
| Pump requirements: | 28.44 GPM @ 26.7 ft head; use Myers ME-50 1/2 HP 120 v single phase |
| Dosing volume: | 17.5 gal |
| Depth of water pumped per dose: | 8.4 inches (to be field verified) |
| Pump run per dose: | 6.1 min. |
| Check valve: | yes |
| Syphon break hole: | yes |

LOT 47 FARMSTEAD - IREDELL CO

3 BR @ 120 = 360 GPD @ 0.3 LTAR = 1200 SF

1200 SF / 3 = 400 LF NITRIFICATION LINES

> USE 4-100' CONVENTIONAL NITRIFICATION LINES

USE 1000 GAL SEPTIC / PUMP TANKS

PRESSURE MANIFOLD: USE 4"Φ SCH 80 PVC W/ 4 - 1/2"Φ SCH 40 PVC TAPS - 2"Φ FORCE MAIN

FLOW FOR 4 - 1/2"Φ SCH 40 ORFICES
(7.11 GPM @ 2.0' HEAD x 4) = 28.44 GPM

FRICTION HEAD @ $28.44\left(\frac{950}{100}\right)(.85)(1.2)$ 9.7'

ELEV HEAD 15.0

OPERATING HEAD 2.0

TDH 26.7 FT

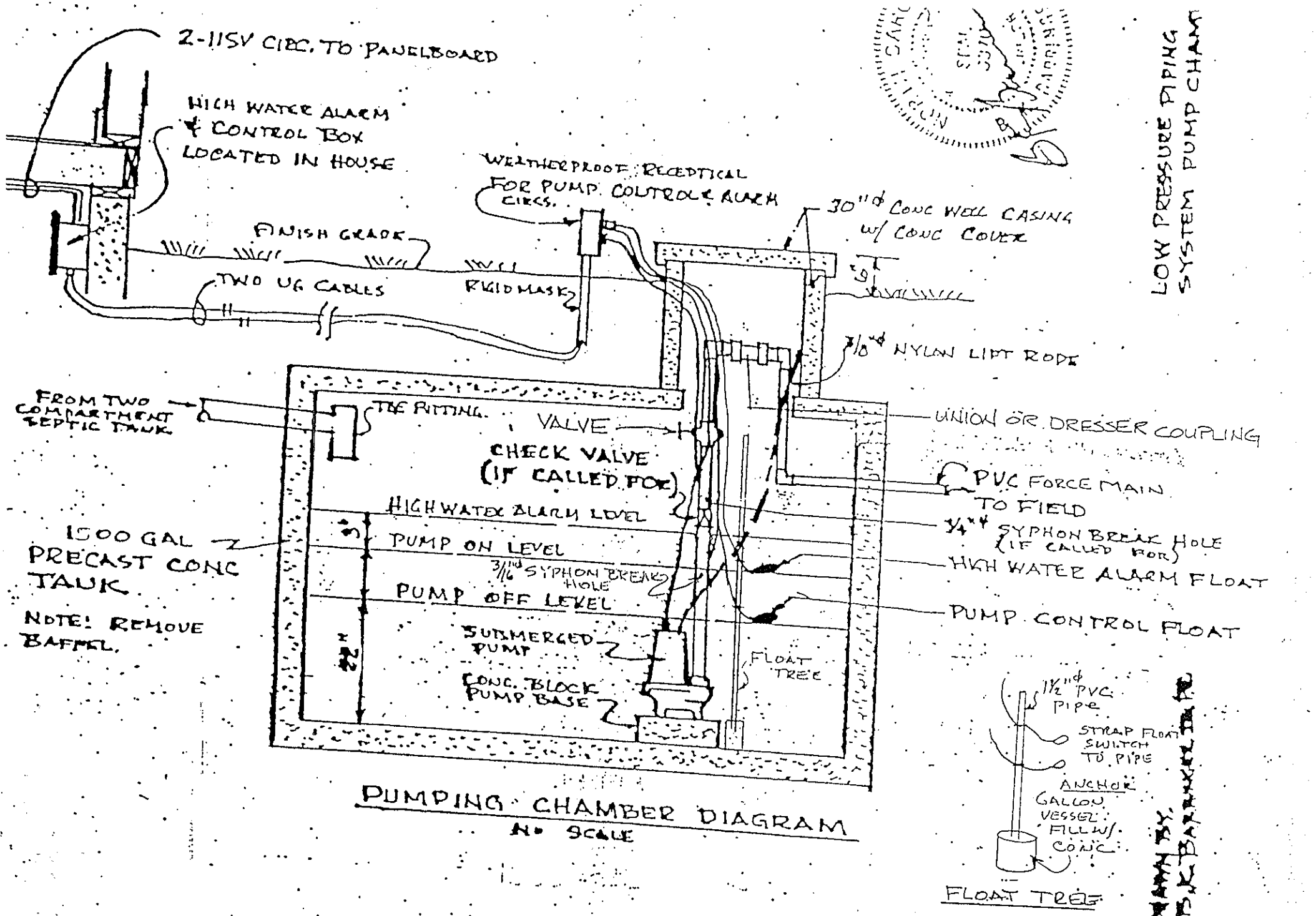
PUMP REQ'D: 28.44 GPM @ 26.7 TDH

USE: MYERS: ME50 1/2 HP 120 V/1 PH PUMP

DOSING VOL: $\left(\frac{60 \cdot 3}{100}\right)(400)\ 2/3$ = 175 GAL

DRAW DOWN: 175/1000 (48") 8.4"

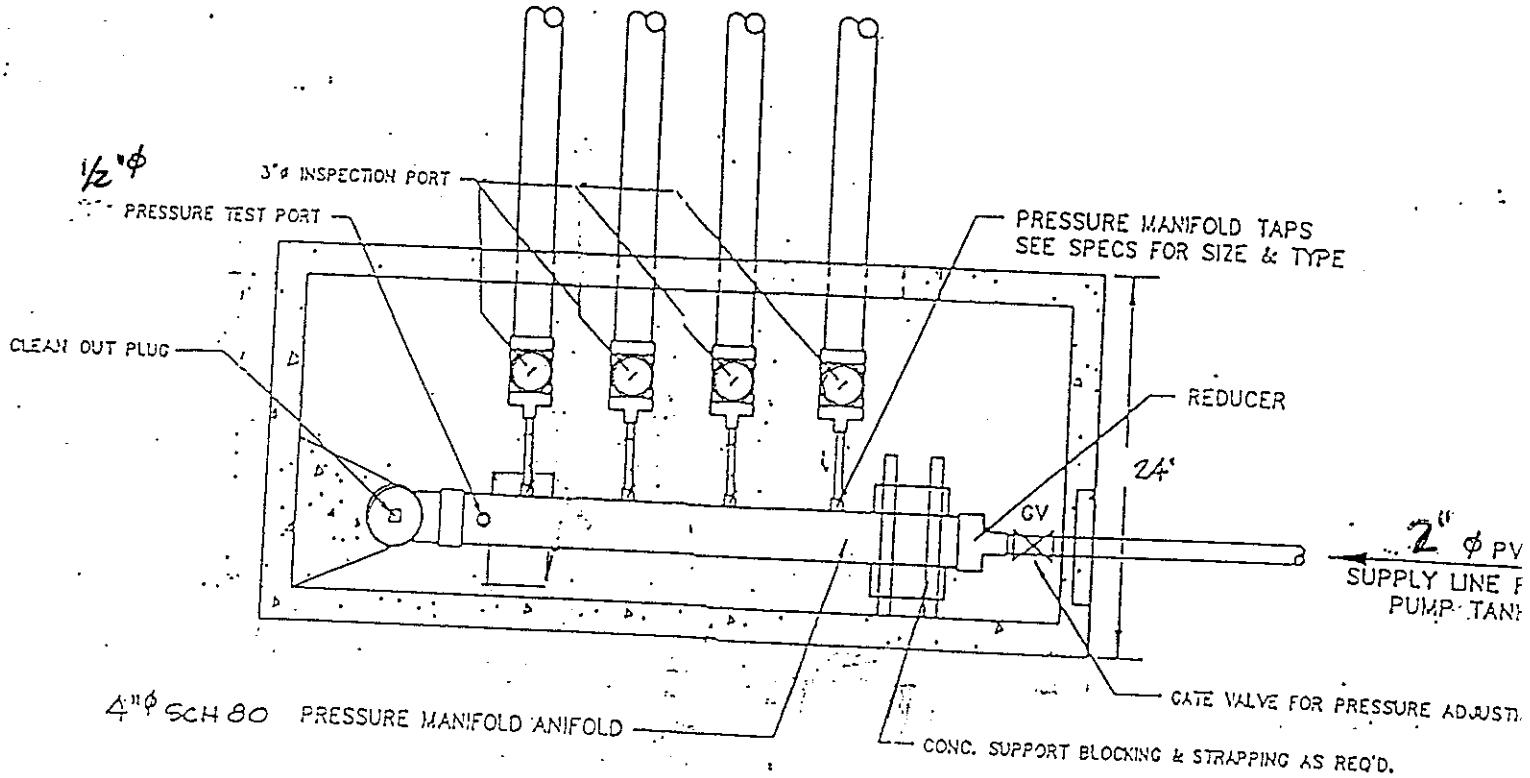
PUMP RUN: 175/28.44 GPM = 6.1 MIN




PUMPING CHAMBER DIAGRAM

NO SCALE

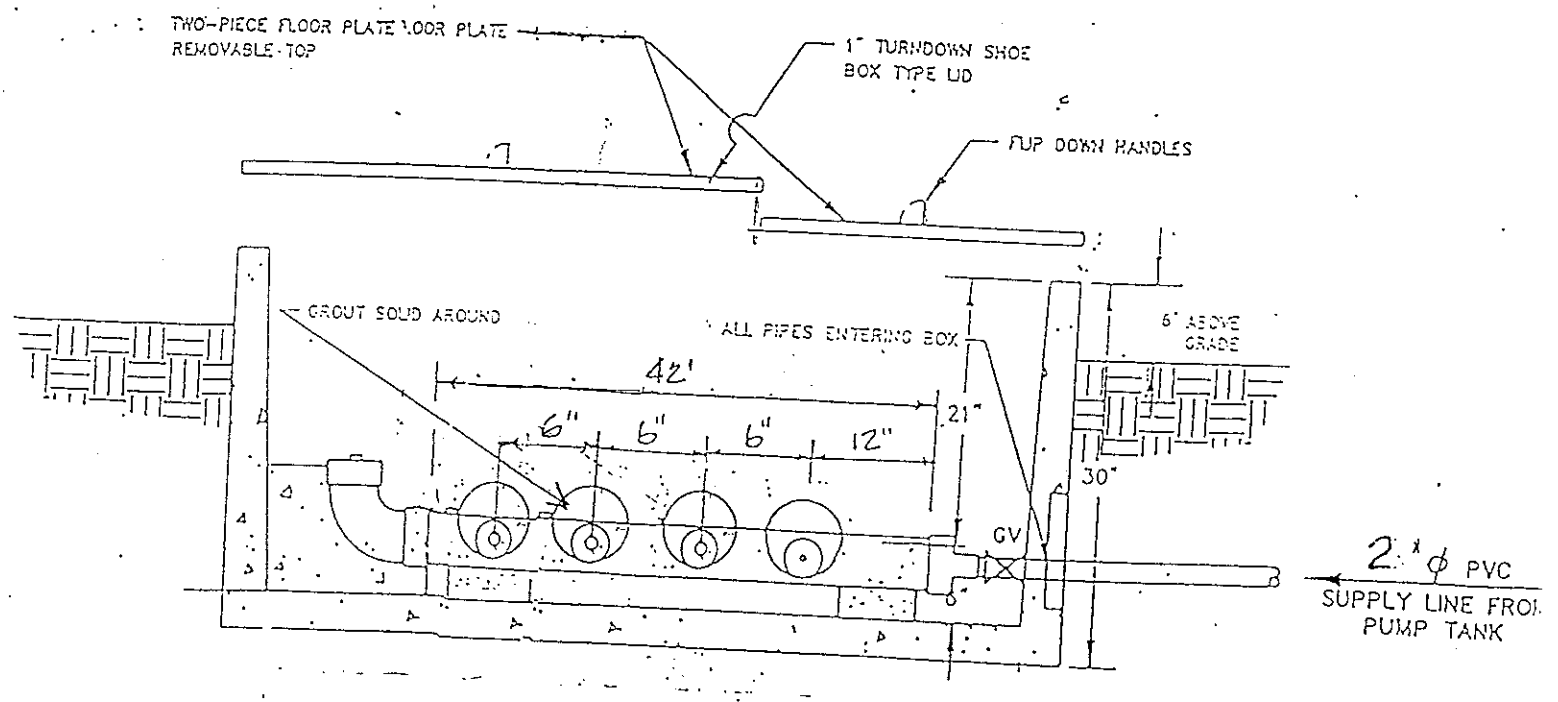
DRAIN LINE, MIN. LINE, MIN. 1% SLOPE.




PLAN VIEW

NOT TO SCALE

FILL BOX W/ WASHED STONE LEVEL W/ LATERAL




ELEVATION

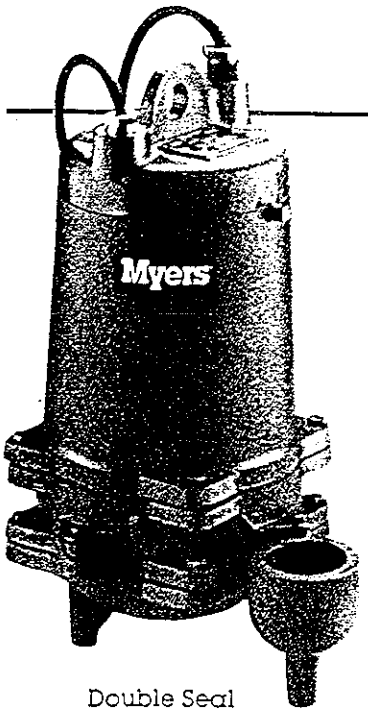
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PRECAST CONCRETE PRESSURE MANIFOLD BOX

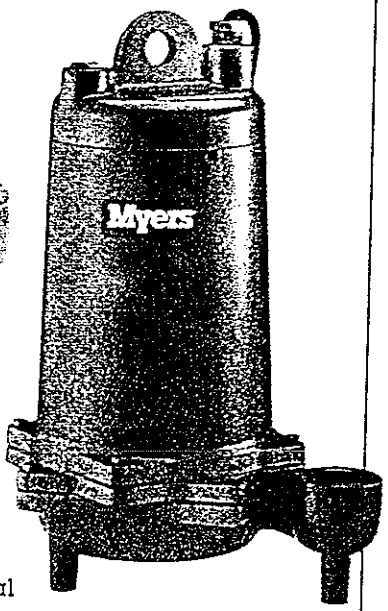
NOT TO SCALE

# ME SERIES

1/3 through 1-1/2 HP
Effluent Pumps




Double Seal




Single Seal

**THE MYERS ME SERIES EFFLUENT PUMPS ARE DESIGNED SPECIFICALLY FOR TODAY'S EFFLUENT PRESSURE DISTRIBUTION MOUNDS, TRENCHES AND HIGH FLOW DRAINAGE APPLICATIONS.** The ME Series effluent pumps with their efficient two vane, enclosed impellers, provide the ideal performance for optimum dosing. ME Series pumps are constructed of only corrosion resistant materials like cast iron, stainless steel and thermoplastics to assure that they will perform for years to come in the harsh effluent environment and drainage applications. For more information, call your Myers distributor today or the Myers Ashland, Ohio sales office at 419/289-1144.

## ADVANTAGES BY DESIGN

IDEAL FOR USE IN MOUND AND TRENCH PRESSURE DISTRIBUTION SYSTEMS

- High efficiency, two vane, enclosed impeller provides ideal performance for most efficient dosing.
- Impeller passes full ¾ inch solids.
- Enclosed impeller design eliminates possibility of jamming or corrosion between impeller and volute.

DURABLE MOTOR WILL DELIVER MANY YEARS OF RELIABLE SERVICE

- Oil-filled motor for maximum heat dissipation and constant bearing lubrication.
- High torque, permanent split capacitor (PSC), single phase motors. No starting switches or relays to wear out.
- Optional seal leak probe warns of seal leak condition. (Dual seal motors only.) Helps prevent costly motor damage.
- Motors have on winding current and temperature sensitive overload. (Single phase only.)

THE ME SERIES EFFLUENT PUMPS ARE DESIGNED FOR YEARS OF MAINTENANCE FREE OPERATION

- Volute seal ring is replaceable. Restores pump to original performance if wear should occur.
- Motor is held in place by 4 screws. Easily removed if service is ever needed.

## PRODUCT CAPABILITIES

| | | |
|---|---|---|
| Capacities To | 120 GPM | 454 LPM |
| Heads To | 98 ft. | 29.8 m |
| Max. Spherical Solids | ¾ in. | 19 mm |
| Liquids Handling | domestic effluent & drain water | |
| Intermittent Liquid Temp. | up to 140° F | up to 60° C |
| Motor Electrical Data | 1/3 & 1/2 HP, 115 volts, 1 ph<br>1/3 to 1-1/2 HP, 230 volts, 1 ph<br>208, 230, 460, 575 volts, 3 ph<br>oil-filled, permanent split capacitor type, 1 ph, 3450 rpm, 60 Hz | |
| Motor Insulation | Class B (105°C) | |
| Third Party Approvals | Pending | |
| Acceptable pH Range | 6-9 | |
| Specific Gravity | .9-1.1 | |
| Viscosity | 28-35 SSU | |
| Discharge, NPT | 2 in. | 50.8 mm |
| Min. Sump Dia. Simplex<br>Duplex | 24 in.<br>36 in. | 61 cm<br>91.4 cm |

| Construction Materials | |
|---|---|
| Motor Housing, Volute | cast iron, Class 30, ASTM A48-76 |
| Enclosed Two Vane Impeller Standard<br>Optional | 10% glass-filled polycarbonate<br>bronze |
| Impeller Wear Ring | 304 SST |
| Volute Sealing Ring | Buna-N |
| Shaft | 416 SST |
| Power Cord<br>1/3 & 1/2 HP, 1 Ph<br>3/4 - 1-1/2 HP, 1 Ph<br>All 3 Ph | <br>20 ft. 16/3 SJOW/SJOW-A<br>20 ft. 14/3 SJOW/SJOW-A<br>20 ft. 14/4 SOW/SOW-A |
| Shaft Seals Standard<br>Optional<br>Opt. Lower | single carbon & ceramic<br>tandem carbon & ceramic<br>tungsten carbide |
| Fasteners | 300 Series SST |

*WHERE INNOVATION MEETS TRADITION*

Myers®

# ME SERIES

1/3 through 1-1/2 HP
Effluent Pumps

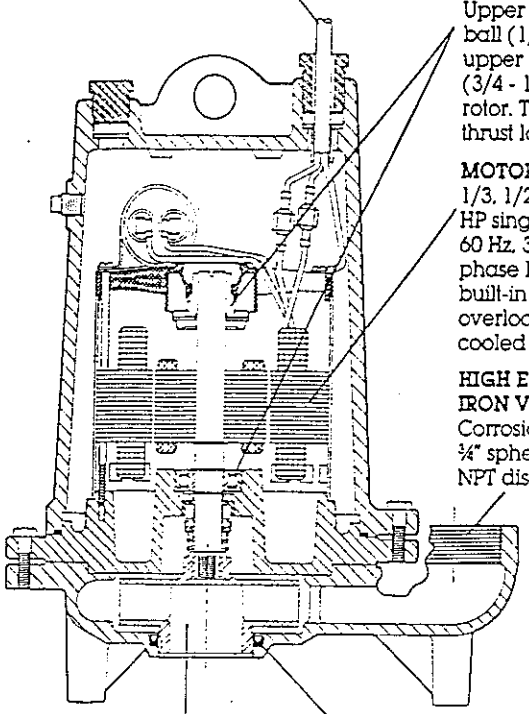
**POWER CORD**
Jacket sealed with compression fittings. Individual wires potted with epoxy to prevent wicking in case of cord damage.

**MOTOR HOUSING**
Cast iron for efficient heat transfer and corrosion resistance.

**BEARINGS**
Upper sleeve and lower ball (1/3 and 1/2 HP), upper and lower ball (3/4 - 1-1/2 HP) support rotor. Take radial and thrust loads.

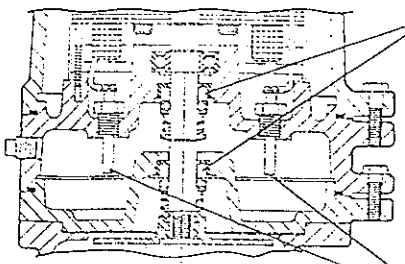
**MOTOR**
1/3, 1/2, 3/4, 1 and 1-1/2 HP single or three phase, 60 Hz, 3450 RPM. Single phase PSC motors have built-in on winding overload protection, oil-cooled and lubricated.

**HIGH EFFICIENCY CAST IRON VOLUTE**
Corrosion resistant. Passes ¾" spherical solids. 2" NPT discharge.



**ENCLOSED TWO VANE IMPELLER**
High efficiency. Passes ¾" spherical solids with stainless steel wear ring. Optional bronze construction available.

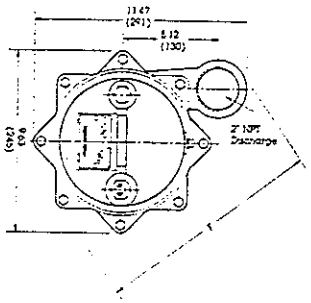
**VOLUTE/IMPELLER SEAL RING**
Maintains high efficiency and reduces recirculation. Replaceable.

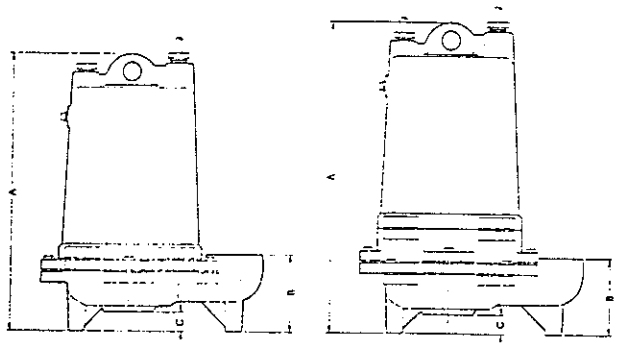


**SHAFT SEAL(S)**
Carbon and ceramic faces. Optional dual tandem seals. Extends motor life.

**SEAL LEAK PROBES**
Optional probes (dual seal only) detect water leakage in seal housing. Activates warning light.

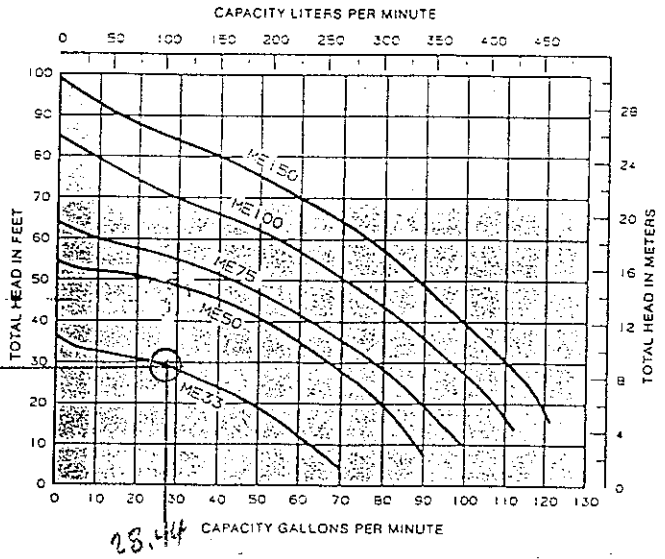
## DIMENSIONS





| Model Series | Inches (millimeters) | | | |
|---|---|---|---|---|
| | A | B | C | F |
| ME33S & ME50S | 14.7 (373) | 4.09 (104) | 1.03 (26) | 12.13 (308) |
| ME33D & ME50D | 16.5 (419) | 4.09 (104) | 1.03 (26) | 12.13 (308) |
| ME75S, ME100S, ME150S | 16.8 (427) | 4.0 (102) | 1.06 (27) | 12.5 (318) |
| ME75D, ME100D, ME150D | 18.6 (472) | 4.0 (102) | 1.06 (27) | 12.5 (318) |

## PERFORMANCE CURVE




K3320 6/91
Printed in U.S.A.

Myers®
F. E. Myers, A Pentair Company
1101 Myers Parkway
Ashland, Ohio 44805-1923
419/289-1144
FAX: 419/289-6658, TLX: 98-7443

LOT 47 FARMSTEAD
JONES
4-2-98

**B. K. BARRINGER & ASSOCIATES, P.A.**
104 Westfield Center NC 150 and US 21
Mooresville, North Carolina 28115-8812
Telephone (704) 664-7888 Fax (704) 664-1778

Architecture
Engineering
Planning

April 7, 1998

Ms. Amy Leonard for
Billy G. Jones and Frances E. Jones
274 Farmstead Lane
Mooresville, NC 28115

RE: Lot 47 - Farmstead Subdivisions
Davidson Township, Iredell County, North Carolina

Dear Ms. Leonard:

Attached are five (5) sets of plans and specifications for the construction of this septic system.

You should carry five sets to Brady Freeman, Sanitarian, of the Iredell County Health Department to obtain a permit. If he has any comments or changes, please let me know and we will make any adjustments he may request.

Also attached are six (6) copies of the DOT Encroachment Permit Application. The Encroachment Agreement should be delivered to the local DOT office. NO WORK in the right-of-way should occur until a permit is received.

Once the system is installed we will perform an inspection before it is put into use. Please have your contractor give me a 24 hour minimum notice of when he wants the inspection.

Thank you for allowing us to provide this service.

Yours truly,

**B. K. BARRINGER & ASSOCIATES, P.A.**

B . K. Barringer, Jr., PE,
NC Registration No. 3370

BKB:sgw

Enclosures

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