Rec'd 5-6-05
@ 5:11 p.m.

ROLLANS *SOIL & ENVIRONMENTAL SERVICES*

2120 Graham Road, Mount Ulla, NC 28125 *Phone/Fax (704) 278 – 0989*

Ashley Rollans, NC Licensed Soil Scientist
Mobile: (704) 746-5046
E-mail: Rollansfortcj@aol.com

Attached is a proposed design for a Pressure Manifold (PPBPS) Septic System with low pressure distribution for a 4 bedroom single family residence on Lot #5 in River Ridge Subdivision, Iredell County, North Carolina.

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LICENSED SOIL SCIENTIST
Samuel A. Rollans
1231
STATE OF NORTH CAROLINA

5/5/05

May 5, 2005
Project No. 01-1097
Design By: Samuel A. Rollans, LSS

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.
- Design precludes use of foundation drains on the residence.
- System is specified as a PPBPS installation.
- Repair is specified as a PPBPS installation.
- Backfill 4 - 6" of material (County Approved) over panels, rake trench walls, lime side-walls, install trenches 36" wide and have no more than 1/4" fall in 10 feet.

PPBPS SYSTEM
FOR WASTEWATER TREATMENT

Owner/Applicant:	Lake Norman Realty Attn: Suzie McCann
Address:	522 River Highway Mooresville, NC 28117
Phone:	(704) 633 - 3655
County:	Iredell
Location:	River Ridge Subdivision Lot #5
Source of Wastewater Flow:	4 Bedroom Single Family Residence
Estimated Daily Wastewater Production:	480 gpd
System Flow:	29.11

Design Specifications

Drainfield Size:	270'
Loading Rate:	0.3 gpd/ft.^{2}
Depth of Gravel in Trench:	NA (PPBPS)
Gravel Size:	NA (PPBPS)
Trench Depth:	30 in.
Trench Width:	36 in.
Septic Tank Size:	1000
Pump Tank Size:	1000
Estimated Supply Line Length:	160'
Supply Line Diameter:	2 in. SCH 40 PVC
Supply Line Volume:	27.84
Dosing Volume:	255.60
Supply Manifold:	N/A
Supply Manifold Length:	N/A
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:	2.85
Elevation Head:	35.00
Total Dynamic Head:	45.83
Threaded Union:	In Tank
Gate Valves:	1 in Tank 1 per lateral (4)
Check Valves:	In Tank
Anti-Siphon Hole:	NA

Recommended Pump: Myers Model ME75 or County Approved Effluent Rated Pump Capable of Delivering 45.8 ft.of Head at 29 gpm Total Flow

Additional Comments: Soil suitability was performed by Rollans Soil & Environmental Services
Removal of underground powerline necessary installation of drainfields (system and repair)

RIVER RIDGE LOT 5
LOW PRESSURE PPBPS DESIGN

DESIGN FLOW:	480
SOIL APPLICATION RATE:	0.3 gpd/ft.^{2}
TOTAL AREA TRENCH BOTTOM:	810
TOTAL LATERAL LENGTH:	270
NUMBER OF FIELDS:	1
LATERAL LENGTH REQUIRED PER FIELD:	266.6666667
SUPPLY LINE LENGTH:	160
TOTAL DYNAMIC HEAD:	45.83
MANIFOLD SIZE:	N/A
DOSING VOLUME:	255.60
PUMP TANK DRAW DOWN*:	12.2
SEPTIC TANK SIZE:	1000
PUMP TANK SIZE:	1000
RECOMMENDED PUMP:	Myers Model ME75 or County Approved Effluent Rated Pump Capable of Delivering 45.8 ft.of Head at 29 gpm Total Flow

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

RIVER RIDGE / LOT #5

Project #: 01-1097

FOR 4 BEDROOM HOME

May 3, 2005

LINE #	FLAG COLOR	BS	HI	FS	ELEVATION	FLAGGED LINE LENGTH	DESIGN LINE LENGTH
TBM		0.7			100.00		
INSTR. 1			100.70				
HOUSE CNR				40.00	60.70		
P. TANK				40.00	60.70		
1	RED			1.60	99.10	50	50
2	GREEN			2.90	97.80	60	60
3	BLUE			4.70	96.00	65	65
4	YELLOW			6.70	94.00	65	65
5	RED			8.50	92.20	70	70
6	*GREEN*			*10.50*	*90.20*	*75*	*75*
7	*BLUE*			*11.70*	*89.00*	*80*	*80*
8	*YELLOW*			*13.40*	*87.30*	*65*	*65*
9	*RED*			*15.30*	*85.40*	*50*	*50*
					Total	580	580

	LINE LENGTH	LTAR GPD/FT2	SYSTEM TYPE	SOIL LTAR GPD/FT2	TRENCH SYSTEM	DISTRIBUTION
** System*	*270*	*0.3*	*MOD.*	*0.30*	*PPBPS*	*LOW PRESSURE*
Repair	310	0.26	MOD.	0.30	PPBPS	LOW PRESSURE

Notes:

** TBM located on notch in flagged oak (see site plan)

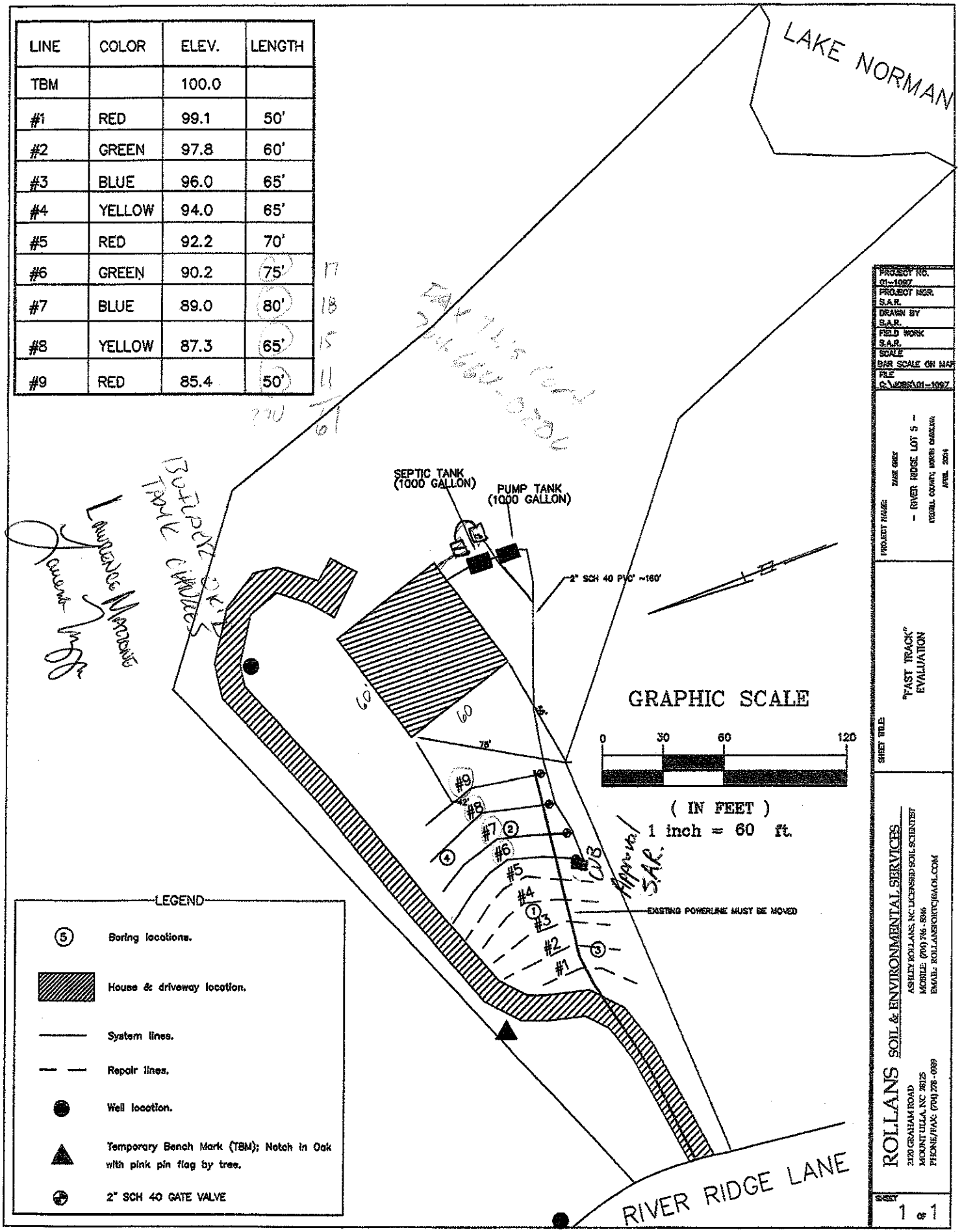
**TBM is assumed to be 100'

**All measures in feet

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

**BS, HI, and FS indicate rod readings

LINE	COLOR	ELEV.	LENGTH
TBM		100.0	
#1	RED	99.1	50'
#2	GREEN	97.8	60'
#3	BLUE	96.0	65'
#4	YELLOW	94.0	65'
#5	RED	92.2	70'
#6	GREEN	90.2	75'
#7	BLUE	89.0	80'
#8	YELLOW	87.3	65'
#9	RED	85.4	50'



PROJECT NO. 01-1097
PROJECT MGR. S.A.R.
DRAWN BY S.A.R.
FIELD WORK S.A.R.
SCALE BAR SCALE ON MAP
FILE C:\JOBS\01-1097

PROJECT NAME: - RIVER RIDGE LOT 5 - MOORE COUNTY, NORTH CAROLINA APRIL 2001

SHEET TITLE: "FAST TRACK" EVALUATION

ROLLANS SOIL & ENVIRONMENTAL SERVICES
2120 GRAHAM ROAD
MOUNTULLA, NC 28125
PHONE/FAX: (704) 278 - 0989
ASHLEY ROLLANS, NC LICENSED SOIL SCIENTIST
MOBILE: (704) 746 - 5396
EMAIL: ROLLANSORTC@AOL.COM

SHEET 1 of 1

CALCULATIONS

Location RIVER RIDGE SUBDIVISION

Project Number 01-1097

Lot No: Lot 5

No. of Bedrooms [redacted]

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

LTAR 0.3 $^{gal}/_{ft^2\,day}$

PPBPS? (YES OR NO) [redacted] YES

Supply Line Length 160 ft.

Supply Line Volume 27.84 gal.

Required Feet of Line 266.6667 ft.
Amount of Line from Layout 270 ft.

Gallons per Minute 29.11 $^{gal}/_{min}$

Note: Flow/hole (.41gpm) x # of panels (71)

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

Panel Volume 3.6 gal.
# of Panels 71
Dosing Volume [redacted] gal.

Note: Dosing Volume based on # of panels times 3.6 gal/panel

Tank Draw Down 12.2 *Generic Draw Down of 21 gal.per in.*

Pump Run Time 8.78 minutes

Elevation Head [redacted] ft.
Pressure Head [redacted] ft.
Friction Factor [redacted] ft./100 ft. *(From the interpoleter.)*
Friction Head 2.85 ft.

Total Dynamic Head (+15%) 45.83 ft.

FRICTION FACTOR INTERPOLATER
2" SCH 40 PVC

GPM	f
20	0.84
[redacted]	-0.88
25	1.27
[redacted]	-1.28
30	1.78
[redacted]	-1.76
35	2.37
[redacted]	-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

DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES
DIVISION OF ENVIRONMENTAL HEALTH
ON-SITE WASTEWATER SECTION

PROPERTY ID #: 01-1097
COUNTY: _Iredell

SOIL/SITE EVALUATION
for ON-SITE WASTEWATER SYSTEM

OWNER: ___Lake Norman Realty_____ APPLICATION DATE_____
ADDRESS:__River Ridge Lane_____ DATE EVALUATED: __4/05____
PROPOSED FACILITY: __4 -- bedroom house____ PROPOSED DESIGN FLOW (.1949): 480GPD PROPERTY SIZE: _____1.78 Ac._____
LOCATION OF SITE: _Buffalo Shoals Road South, L on Laurel Cove, Lt on Island Terrace, L on River Ridge, 1st lot on Lt.
WATER SUPPLY: ☑ Private ☐ Public ☒ Well ☐ Spring ☐ Other _____
EVALUATION METHOD: ☒ Auger Boring ☐ Pit ☐ Cut TYPE OF WASTEWATER: ☒ Sewage ☐ Industrial Process ☐ Mixed

PROFILE #	.1940 LANDSCAPE POSITION/ SLOPE %	HORIZON DEPTH (IN.)	SOIL MORPHOLOGY (.1941)		OTHER PROFILE FACTORS				PROFILE CLASS & LTAR
			.1941 STRUCTURE/ TEXTURE	.1941 CONSISTENCE/ MINERALOGY	.1942 SOIL WETNESS/ COLOR	.1943 SOIL DEPTH	.1956 SAPRO CLASS	.1944 RESTR HORIZ	
1	L / 10-20%	0-3	FWSBK/SL	FR/nS/SP / SEXP	>45"	45"	N/A	>45"	PS 0.3 GPD/FT2
		3-38	FSBK/C	FR/SS/SP / SEXP					
		38-45	FWSBK/CL	FR/SS/SP / SEXP					
2	L / 10-20%	0-36	MSBK/C	FR/SS/P / SEXP	>46" YELLOW RELICT	46"	N/A	>46"	PS 0.3 GPD/FT2
		36-46	FWSBK/C	FR/SS/SP / SEXP					
3	L / 10-20%	0-40	MSBK/C	FR/SS/SP / SEXP	>48" RELICT	48"	N/A	>48"	PS 0.3 GPD/FT2
		40-48	FWSBK/C	FR/SS/SP / SEXP					
4	L / 10-20%	0-36	MSBK/C	FR/SS/SP / SEXP	>47"	47"	N/A	>47"	PS 0.3 GPD/FT2
		36-47	FVWSBK//SCL +SAP	FR/SS/SP / SEXP					

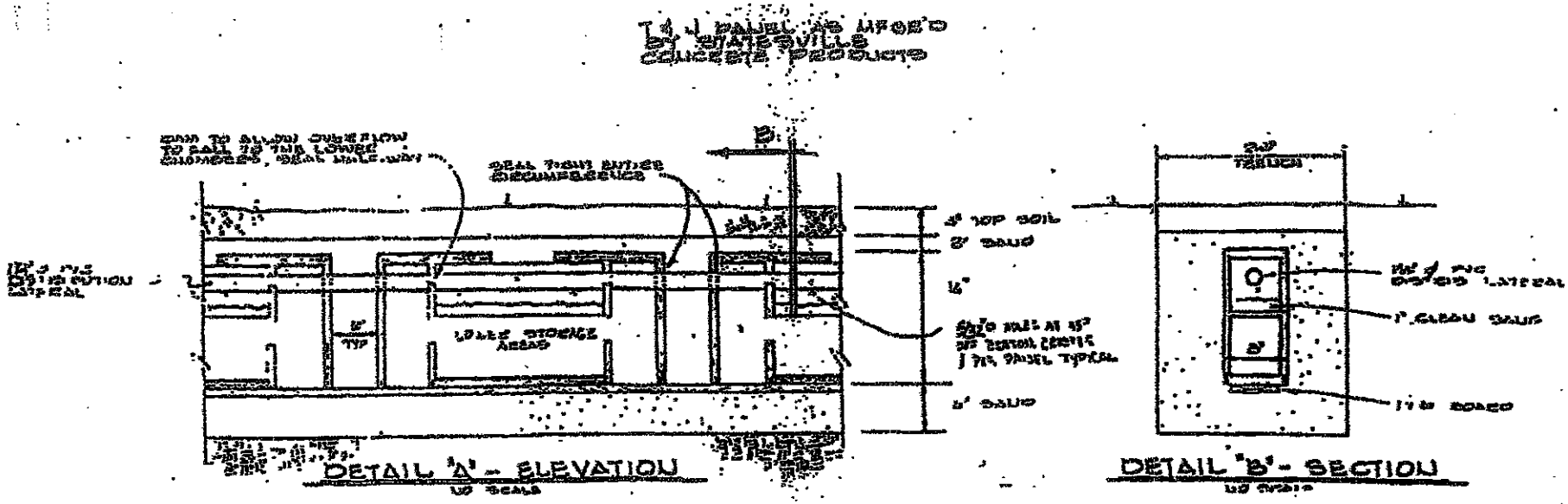
DESCRIPTION	INITIAL SYSTEM	REPAIR SYSTEM
Available Space (.1945)	PS	PS
System Type(s)	PPBPS	PPBPS
Site LTAR	0.3gpd/ft2	0.3gpd/ft2

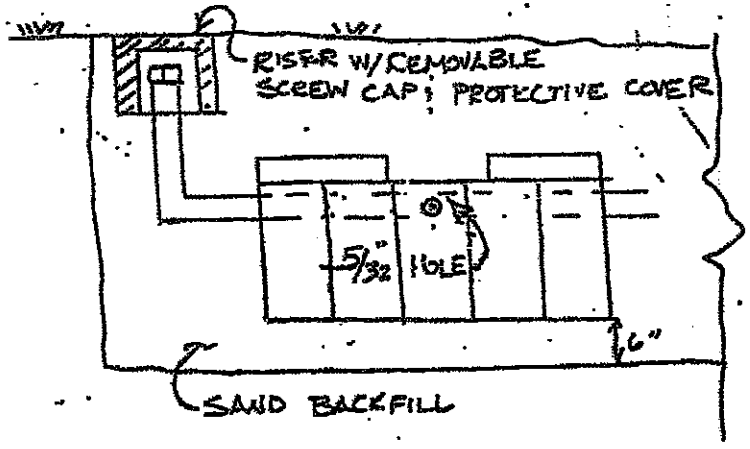
OTHER FACTORS (.1946): _____
SITE CLASSIFICATION (.1948): _PS (System)_PS (Repair)

EVALUATED BY: ___Samuel A. Rollans, LSS_____
OTHER(S) PRESENT: _____

COMMENTS:

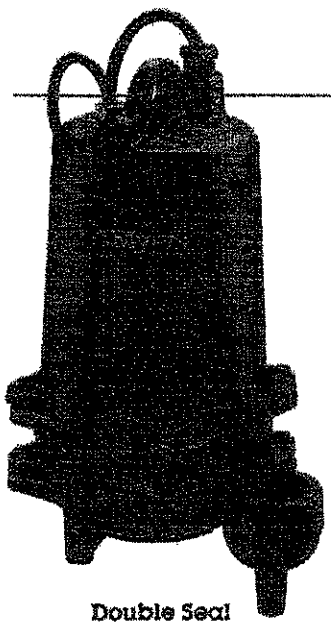
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DETAIL 'A' - ELEVATION
DETAIL 'B' - SECTION

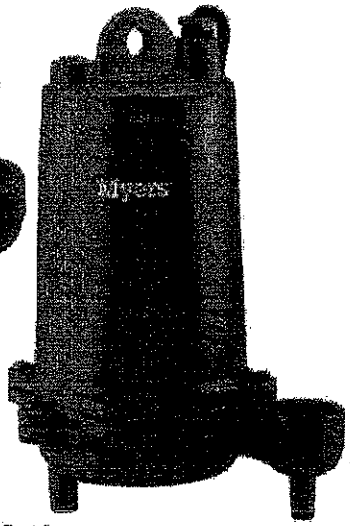

RISER W/ REMOVABLE SCREW CAP; PROTECTIVE COVER
5/32" HOLE
6"
SAND BACKFILL

ME SERIES

1/2 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 CAPAILITIES

Capacities To	120 GPM	454 LPM
Heads To	95 ft.	28.9 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	1/2 HP 115 volts, 1 ph 1/2 to 1-1/2 HP 230 volts, 1 ph 208, 230, 460, 575 volts, 3 ph oil-filled, permanent split capacitor type, 1 ph, 3450 rpm, 60 Hz	
Motor Insulation	Class B (130° C)	
Third Party Approvals	UL, CSA	
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	24 in.	61 cm
Duplex	36 in.	91.4 cm

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

WHERE INNOVATION MEETS TRADITION

ISO 9001 Registered Quality System

Myers®
Pentair Pump Group

ME SERIES

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

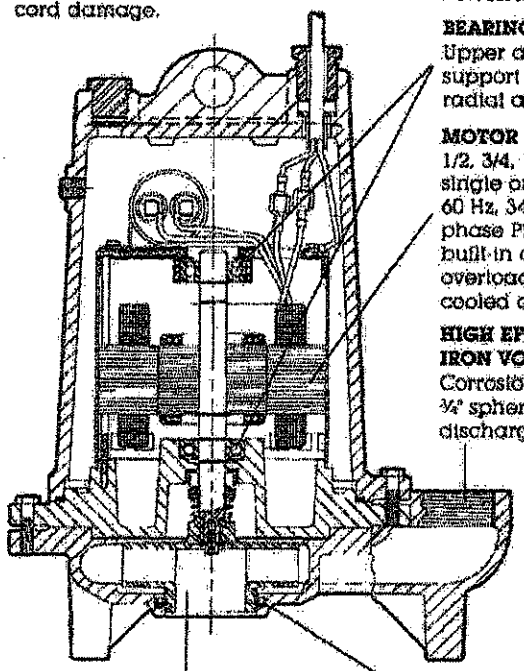
POWER CORD
Jacket sealed with compression fittings. Individual wires potted with epoxy to prevent wicking in case of cord damage.

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

BEARINGS
Upper and lower ball support rotor. Take radial and thrust loads.

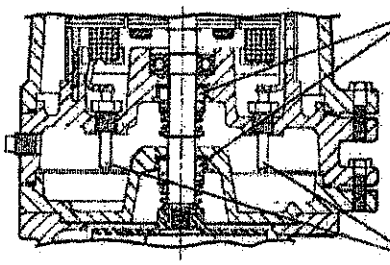
MOTOR
1/2, 3/4, 1 and 1-1/2 HP single or three phase. 60 Hz, 3450 RPM. Single phase PSC motors have built-in on winding overload protection, oil cooled and lubricated.

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.

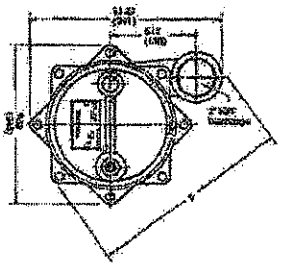
VOLUTE/IMPELLER SEAL RING
Maintains high efficiency and reduces recirculation. Replaceable.

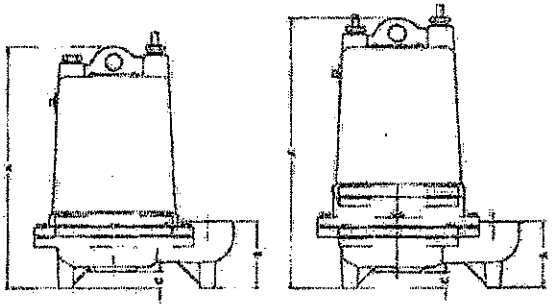


SHAFT SEAL(S)
Carbon and ceramic faces. Optional dual tandem seals. Extends motor life.

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

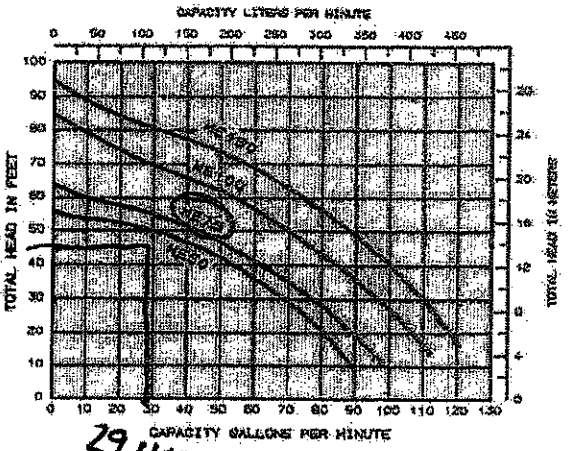
DIMENSIONS





Model Series	Inches (millimeters)			
	A	B	C	F
ME50S	16.8 (427)	4.09 (104)	1.03 (26)	12.13 (308)
ME50D	18.6 (472)	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



45.83'

29.11gpm

K3320 5/01
Printed in U.S.A.

Myers®
Pentair Pump Group

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