



Maura J. Rossman, M.D., Health Officer

Bureau of Environmental Health
8930 Stanford Boulevard, Columbia, MD 21045
Main: 410-313-2640 | Fax: 410-313-2648
TDD 410-313-2323 | Toll Free 1-866-313-6300
www.hchealth.org
Facebook: www.facebook.com/hocohealth

RECEIPT DATE: 5-2-23 ONSITE SEWAGE DISPOSAL SYSTEM P 51410

APPROVAL DATE: 1/23/2024 PERMIT: AT GRADE MOUND A

PROPERTY ADDRESS: 16315 Cattail River Drive

SUBDIVISION: The Chase at Stoney Brook LOT: 10 TAX ID:

CONTRACTOR: Fofes Septic Clean Inc EMAIL: kimp@fofes.com

CONTRACTOR ADDRESS: 880 Orchard Rd, Sykesville, MD 21784 PHONE: 410 795 0670

CONTRACTOR CERTIFIED FOR AT-GRADE MDE MANUFACTURER: N/A

PROPERTY OWNER: Aaron and Jennifer Goodman EMAIL:

OWNER ADDRESS: 6703 Oakridge Road, NEW Market, MD 21774 PHONE:

MODEL: 1500-GAL Septic Tank PUMP SIZE: 1/2 hp Ashland EPH5 PUMP TANK CAPACITY: 1250G

OPERATION & MAINTENANCE AGREEMENT DATE SIGNED: NA DATE RECORDED: NA

DISTRIBUTION SYSTEM: GRAVITY PRESSURE DOSED BEDROOMS: 4 APPLICATION RATE: 0.4

Table with 2 columns: LOCATION, NOTES. LOCATION notes include fencing requirements. NOTES include inspection and MDE requirements.

ISSUED BY: Zack Silvest ISSUE DATE: 5-2-23 EXPIRATION DATE: 5-2-24

- NOTE: CONTRACTOR MUST SCHEDULE A PRE-CONSTRUCTION INSPECTION PRIOR TO BEGINNING ANY INSTALLATION
NOTE: CONTRACTOR MUST SCHEDULE AN INSPECTION AND GAIN APPROVAL OF ALL COMPONENTS PRIOR TO COVERING
NOTE: STONE MUST BE APPROVED BY HEALTH DEPARTMENT AND GRAVEL TICKET MUST BE AVAILABLE FOR REVIEW.
NOTE: WATERTIGHT SEPTIC TANKS REQUIRED
NOTE: ALL PARTS OF SEPTIC SYSTEM SHALL BE AT LEAST 100 FEET DOWNGRADIENT FROM ANY WATER WELL
NOTE: MANHOLE RISERS REQUIRED ON ALL SEPTIC TANKS AND PUMP CHAMBERS
NOTE: AN ELECTRICAL PERMIT IS REQUIRED FOR INSTALLATION OF ANY ELECTRICAL COMPONENTS OF THE SYSTEM
NOTE: AN INDIVIDUAL CERTIFIED BY MDE AND THE MANUFACTURER FOR BAT INSTALLATION MUST BE PRESENT AT ALL TIMES DURING BAT INSTALLATION.
NOTE: MDE RECOMMENDS SEPTIC TANKS, BAT, AND OTHER PRETREATMENT UNITS BE PUMPED AT A FREQUENCY ADEQUATE TO ENSURE THAT SOLIDS ARE NOT DISCHARGED TO THE DISPOSAL AREA

NEITHER THE HOWARD COUNTY COUNCIL NOR THE HEALTH DEPARTMENT IS RESPONSIBLE FOR THE SUCCESSFUL OPERATION OF ANY SYSTEM.
PERMITTEE RESPONSIBLE FOR OBTAINING FINAL APPROVAL ON THIS PERMIT.
CALL 410-313-1771 TO SCHEDULE INSPECTIONS.

NOT TO SCALE

[At-grade mound]

See separate sheet for As-built

Installer: Samie Dennis (Fogho)

ROAD NAME

TRENCH/DRAINFIELD DATA

WIDTH INLET BOTTOM

NUMBER OF TRENCHES
TOTAL LENGTH
ABSORPTION AREA
DISTRIBUTION BOX LEVEL
DISTRIBUTION BOX BAFFLE
DISTRIBUTION BOX PORT

SEPTIC TANK DATA

SEPTIC TANK 1 LEVEL Yes
MANUFACTURER Back Reef
CAPACITY 1500 GAL
SEAM LOC Top
TANK LID DEPTH 2.5'
BAFFLES Front
BAFFLE FILTER Yes
MANHOLE LOC Front/Rear
6" PORT LOC none
WATERTIGHT TEST n/a
SLOTTED Yes
DATE ON LID 8/15/2023

PUMP/SEPTIC TANK LEVEL Yes
MANUFACTURER Back Reef
CAPACITY 1250 GAL
SEAM LOC Top
TANK LID DEPTH 2'
BAFFLES Front
BAFFLE FILTER no
MANHOLE LOC Rear
6" PORT LOC none
WATERTIGHT TEST n/a
SLOTTED no
DATE ON LID 5/26/2023

PRE-CONSTRUCTION:

9/19/2023 met Adam Brumby and contractor onsite, bed confirmed stakeout, random soil test, confirmed manifold sewer in being coming out back side of house. Soil moisture checked also, good to proceed. (K)

INSTALLATION:

9/20/2023 - Installer ploughed bed. Using transit to level gravel. Laterals has correct holes drilled & 5' distance between holes & 2.5' between manifolds. Come back to reinspect for installation of laterals & topsoil. Installer setting topsoil from slopes & side slope. (SP) 9/22/2023 - Mound bed topsoil & seed & straw. Additional obs parts also installed. (SP) 10/5/2023 Home sewer line ran to tanks. Tanks appeared to be installed closer to house than as approved plan. Contractor explained that both tanks + builder agreed on this. It had not had baffles either - pump + clean out. (SP) 1/23/2024 - Junction box outside of house. Audible & visual alarm successful. Pump successfully goes to both laterals

FINAL INSPECTOR

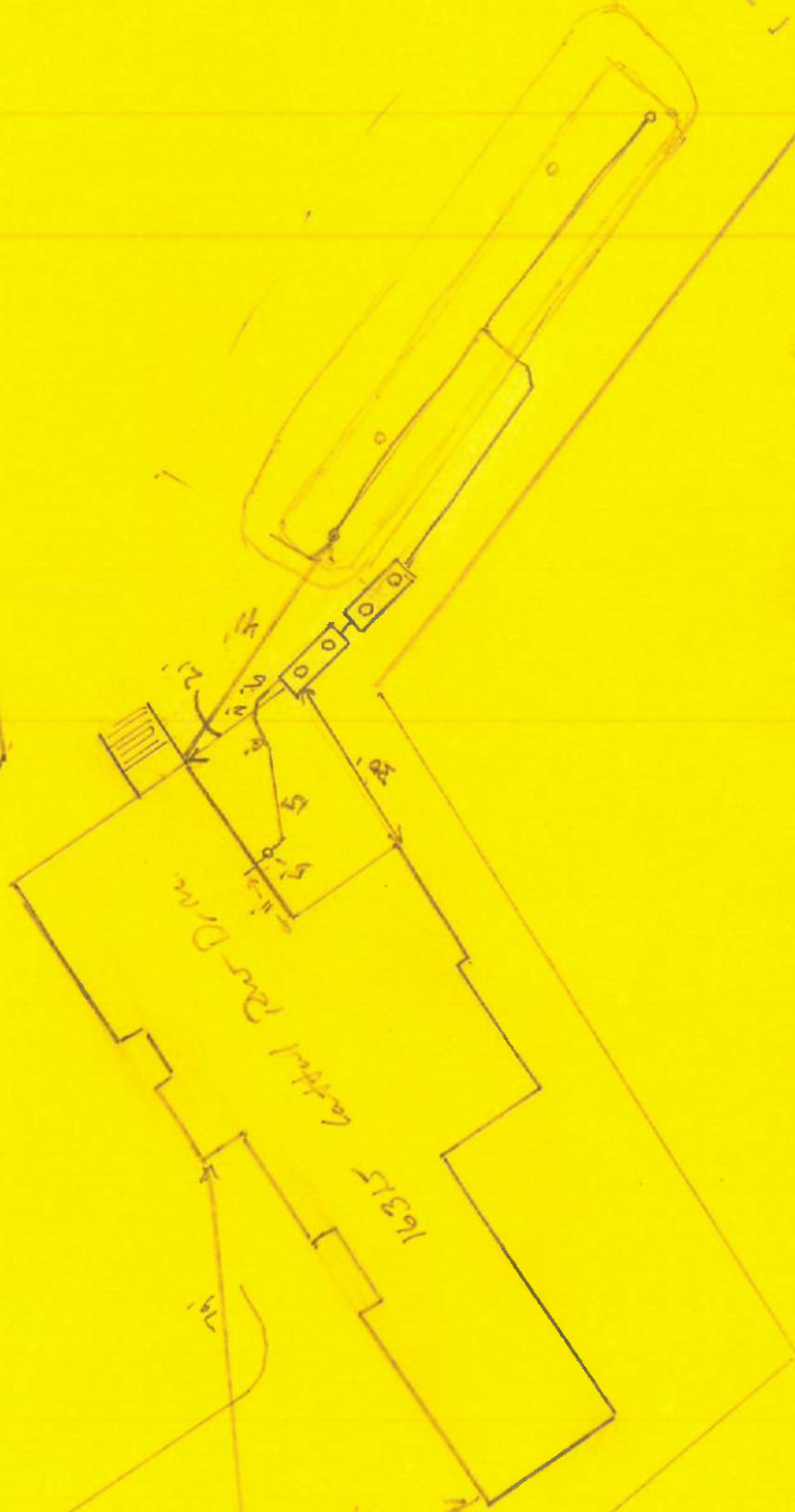
S. Page

DATE OF APPROVAL

1/23/2024

lateral extensions used during pump test. Distal head @ 3.5'. P/A successful (SP)

~~NOT TO SCALE~~



1" = 30'

Maura J. Rossman, M.D., Health Officer

APPLICATION FOR WAIVER

To Howard Co Code Subtitle 8: Onsite Sewage Disposal Systems and Subtitle 9: Individual Potable Water Supply Systems

Date Submitted: 10/21/2024

Property Address: 16315 Cattail River dr.

<u>The Chase at Stonyebrook</u>	<u>10</u>	<u>0007</u>	<u>0017</u>	<u>0133</u>	<u>04-371348</u>
Subdivision	Lot	Tax Map	Grid	Parcel	Tax Account #

Provide a brief site history including previously submitted and active plans with the Health Department or the County (subdivision plans, perc test applications, Building Permit applications):

There has not been any plans submitted for a inground swimming pool to my knowledge.

In the area below, list the specific section of the Howard Co Code to which a waiver is being requested and provide a brief summary of the regulation and an explanation of why the waiver is being requested (Attach a separate sheet if necessary).

Regulation Section

Summary and Explanation

1. Subtitle 8
3.808 - 20' setback
From SDA to pool

Please consider this waiver as we have looked a this entire lot
and we feel this is the only location we can make it work.

We had an engineer assist with the plans to meet codes as well.

Please consider and approve this application for our family Pool!

- proposed 8' from pool to SDA - 20+' from pool to edge
of future at-grade mound

2. _____



Property Owner's Signature

Health Department Use Only

Reviewed by

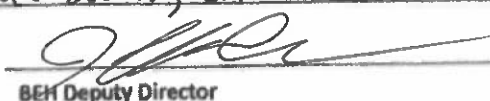
J. Williams
HCHD Staff

11/26/24
Date

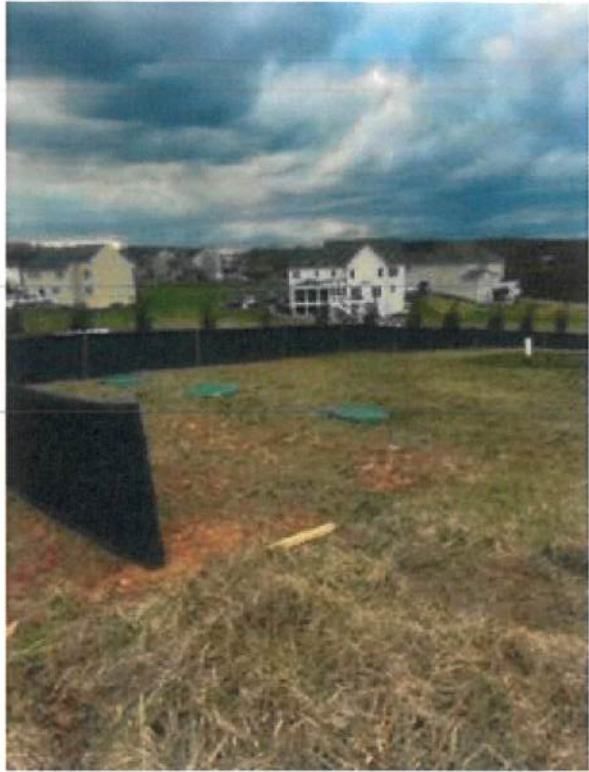
Comments/Conditions:

- install super silt fence in location on plan to protect
mound sites and 25' downslope areas prior to HD approval of building permit.
fence must remain during entire construction process.

Approved by:


BEH Deputy Director

11/26/24
Date







Williams, Jeffrey

From: Wolf, Kevin
Sent: Monday, November 25, 2024 10:58 AM
To: Williams, Jeffrey
Subject: FW: Goodman Property | Cattail Creek
Attachments: SRA #1 SHIFT SKETCH.pdf

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From: Adam Browning <abrowning@pennstrail.com>
Sent: Friday, September 29, 2023 11:16 AM
To: Wolf, Kevin <KWolf@howardcountymd.gov>
Cc: aaron goodman <agconstruction555@gmail.com>; sean@bartzlandscaping.com
Subject: Goodman Property | Cattail Creek

[Note: This email originated from outside of the organization. Please only click on links or attachments if you know the sender.]

Kevin;

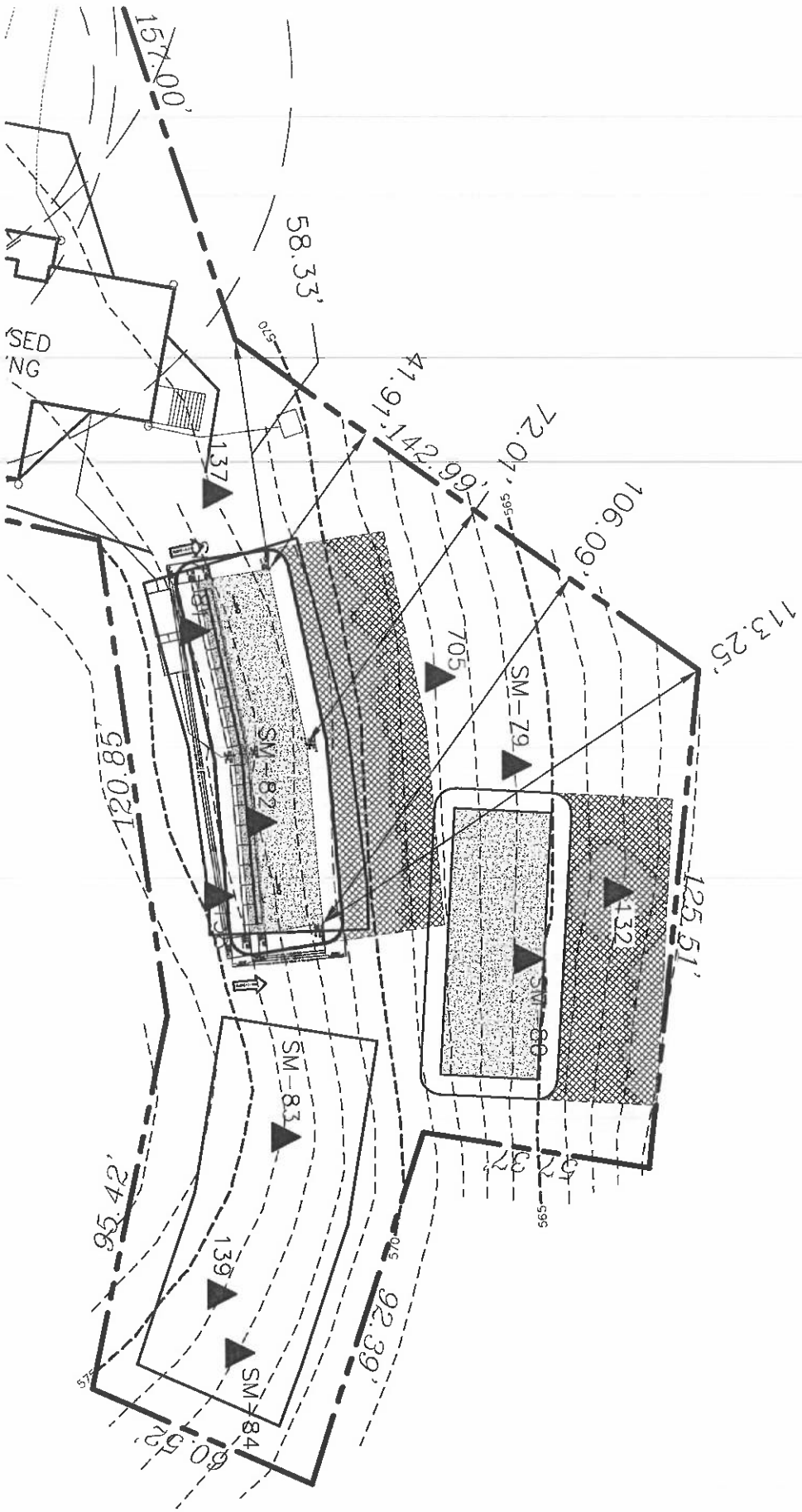
I was asked to investigate the potential for shifting one of the SRA's at the Goodman Property to help accommodate the construction of the pool. Before I send anything formally I wanted to run a sketch by you.

I sized an atgrade using a 0.4 GPD/SQFT loading rate with a maximum linear loading rate of 9.0 GPD/LF. The area as shown is 24.5' x 67' for a total effective area of 1,507.50 sqft (minimum is 1500 sqft). I've also included the 5 foot berm around the area and the 25 foot downgradient protection area while maintaining a minimum of 10 feet to the closest property line.

If this looks good to you I will send in paper copies. Let us know. Thanks!!

Respectfully submitted;
Adam B. Browning
Manager
Penn's Trail Environmental, LLC
21 E. Lincoln Ave.-Suite 160
Hatfield, PA 19440
Office Ph. (215) 362-4610 ext. 112
email: abrowning@pennstrail.com
Web: <http://www.pennstrail.com>

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Williams, Jeffrey

From: Wolf, Kevin
Sent: Monday, November 25, 2024 10:59 AM
To: Williams, Jeffrey
Subject: FW: Goodman Property | Cattail Creek
Attachments: SRA #1 SHIFT SKETCH2.pdf

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From: Adam Browning <abrowning@pennstrail.com>
Sent: Friday, September 29, 2023 12:12 PM
To: Wolf, Kevin <KWolf@howardcountymd.gov>
Cc: aaron goodman <agconstruction555@gmail.com>; sean@bartzlandscaping.com
Subject: RE: Goodman Property | Cattail Creek

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Kevin;

This one includes the original, recorded SRA's in red. Test Pit #705 was the observation hole with a limiting zone of 6 feet (refusal/bedrock).

	insufficient	depth	to bedrock
705	Refusal @ 6.0.	insufficient depth	to bedrock
706	50 / 411.0	12.44	12.47 12.47 12.47

Perc rate at #80 was actually 25 mpi but I used the more conservative rate for #79 which was 60 mpi.

80	18"	11.19		7.0	
		12.40	81 min	6.0	10 = \$1
		12.40		7.0	
		12.55	6 min	6.0	10 = 15
		12.55		7.0	
		1.18	23 min	6.0	10 = 23
		1.43	25 min	5.0	10 = 25
					25 min/inch (OK)
79	18"	11.22		7.0	
		12.42	90 min	7.0	
		12.54	22 min	6 ¹¹ / ₁₆	515 90 min/inch
		1.20	26 min	6 ¹¹ / ₁₆	625 41
		1.45	25 min	5 ⁹ / ₁₆	5 50
					60 min/inch (OK)

Respectfully submitted;
Adam B. Browning
Penn's Trail Environmental, LLC

From: Wolf, Kevin <KWolf@howardcountymd.gov>
Sent: Friday, September 29, 2023 12:00 PM
To: Adam Browning <abrowning@pennstrail.com>
Cc: aaron goodman <agconstruction555@gmail.com>; sean@bartzlandscaping.com
Subject: RE: Goodman Property | Cattail Creek

Adam,
Can you show the existing sewage disposal area (SDA)/mound area? That way I can get a better grasp on where the sda will be moving. The design criteria looks ok but I am questioning the placement/area of the SDA in relation to the existing perc data locations and also whether or not it would be doable in this type of soil.

Kevin

From: Adam Browning <abrowning@pennstrail.com>
Sent: Friday, September 29, 2023 11:16 AM
To: Wolf, Kevin <KWolf@howardcountymd.gov>
Cc: aaron goodman <agconstruction555@gmail.com>; sean@bartzlandscaping.com
Subject: Goodman Property | Cattail Creek

[Note: This email originated from outside of the organization. Please only click on links or attachments if you know the sender.]

Kevin;

I was asked to investigate the potential for shifting one of the SRA's at the Goodman Property to help accommodate the construction of the pool. Before I send anything formally I wanted to run a sketch by you.

I sized an atgrade using a 0.4 GPD/SQFT loading rate with a maximum linear loading rate of 9.0 GPD/LF. The area as shown is 24.5' x 67' for a total effective area of 1,507.50 sqft (minimum is 1500 sqft). I've also included the 5 foot berm around the area and the 25 foot downgradient protection area while maintaining a minimum of 10 feet to the closest property line.

If this looks good to you I will send in paper copies. Let us know. Thanks!!

Respectfully submitted;
Adam B. Browning
Manager
Penn's Trail Environmental, LLC
21 E. Lincoln Ave.-Suite 160
Hatfield, PA 19440
Office Ph. (215) 362-4610 ext. 112
email: abrowning@pennstrail.com
Web: <http://www.pennstrail.com>

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Reduce-Reuse-Recycle

Williams, Jeffrey

From: Williams, Jeffrey
Sent: Wednesday, November 22, 2023 1:40 PM
To: admin@bartzlandscaping.com
Cc: Wolf, Kevin
Subject: Waiver request for pool at 16315 Cattail Creek Dr

Hello. I reviewed your waiver request to encroach upon the 25 foot downslope protected area below the Onsite sewage disposal system (OSDS) mound at 16315 Cattail Creek Dr. Howard County Health Department does not have the authority to waive that setback, as it is listed in the Code of Maryland Regulations (COMAR) administered by Maryland Department of the Environment. COMAR 26.04.02V4c states that a mound must maintain a minimum 25 foot downslope protection area free from compaction, grading, and structures such as the patio pavers you propose.

I am willing to consider a reduced side setback to the future mound site lower than the Howard County Code required 20 feet. If you wish to revise your design and propose something that requires a waiver to that setback, you must submit a scaled plan in a scale of 1:20, 1:30, 1:40 or 1:50 scale showing the mound locations, the sewage disposal areas, and the proposed pool, decking, grading, any other improvements. Thanks

Jeff Williams
Deputy Director
Bureau of Environmental Health
Howard County Health Dept.
8930 Stanford Blvd. Columbia, MD 21045
410-313-4261
www.hchealth.org

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BARTZ LANDSCAPING
MHIC# 137028 MDA-F1170
3810 Lander Road
Jefferson, MD 21755
Phone: 301-846-8710

October 20th, 2023

To Whom It May Concern:

Bartz Landscaping is the pool and patio contractor for the Goodman Residence at 16315 Cattail Creek Dr, Woodbine MD 21797 ~ Howard County.

We have a goal of providing our customer with a usable pool and patio combination. We have worked with Kevin Wolf of Howard County Health Dept. and Adam Browning the Septic Designer on record for the Goodman's property.

Kevin & Adam were of tremendous help relocating the septic tanks and evaluating repositioning of a SDA.

Despite these efforts, due to the downward slope of the sand mounds, the required setbacks constrain and minimize the homeowner's usable space.


Therefore, we are requesting a waiver to expand the customer's **paver patio** beyond the required setback from downward sloped sand mounds.

We hope our efforts to find a solution without the waiver are recognized and that our waiver for an expanded paver patio is considered and granted.


We are requesting 5-10'.

We greatly appreciate the help and support of Howard County and related departments. Thank you very much for your efforts and support!

Sincerely,


Sean Bartz (Oct 20, 2023 10:51 EDT)

Sean Bartz
President
Bartz Landscaping


Aaron Goodman (Oct 20, 2023 11:00 EDT)

Aaron Goodman
Homeowner

Maura J. Rossman, M.D., Health Officer

AGREEMENT FOR APPROVAL OF AN INDIVIDUAL DRINKING WELL WITH AN ON-SITE TREATMENT SYSTEM

This agreement is entered into by and between the Howard County Health Department ("the Health Department") and Aaron Goodman, Jennifer Goodman ("the Owner").

WHEREAS, the Owner owns a tract of land at street address 16315 Cattail River Drive, Woodbine, MD 21797 and the deed and subdivision plat of the property is recorded among the Land Records of Howard County, Maryland, Tax Map # 007, Block # 17, Parcel # 133, Deed Reference # 21809/10328 and Tax Account # 04-371348 ("the Property").

WHEREAS, the Property lacks an available public drinking water source and is required to have and individual well as the source of drinking water for the residence of the property.

WHEREAS, the Owner has installed a residential drinking well under well permit HO-95-0113 that has been tested by the Health Department (or a private laboratory certified to perform testing) for Nitrate-nitrogen. The results of the tests have shown that the Nitrate level meets or exceeds the Maximum Contaminant Level (MCL) of 10 milligrams per liter.

WHEREAS, The Maryland Department of the Environment (MDE) has promulgated rules and regulations under which a Certificate of Potability may be issued and has delegated the authority to issue such Certificate to the Health Department.

WHEREAS, MDE regulations permit the Health Department to issue as a special condition, a permanent deviation to the Certificate of Potability for individual wells where treatment has been installed to meet the MCL for Nitrate.

WHEREAS, MDE has determined that Nitrate can be effectively removed from the drinking water by the use of treatment devices (e.g. reverse osmosis).

WHEREAS, the Owner is requesting that the Health Department issue a Certificate of Potability contingent upon installation and maintenance of a water treatment device to reduce Nitrate.

WHEREAS, neither the Owner nor the Health Department has knowledge of an alternative safe source of water for the Property.


NOW THEREFORE, the parties have agreed to the following terms and conditions:

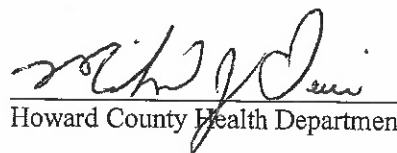
1. The Owner will record this Agreement among the Land Records of Howard County, Maryland and provide confirmation to the Health Dept.
2. The Owner agrees to install and maintain a water treatment device, which effectively reduces the Nitrate below the MCL. The Health Department shall verify that the treatment device is operating effectively and the Owner agrees to allow access to the Health Department to collect a follow-up sample(s).

3. The Health Department shall issue a Certificate of Potability for the well once follow-up sampling shows acceptable Nitrate levels.
4. The Owner agrees that there shall be no liability on part of the Health Department for any immediate or long term impacts to health or property, under any circumstance or including, but not limited to, treatment device failure, improper maintenance or installation, or defect. The Health Department does not warranty or guarantee that the device will adequately or properly function and the Owner agrees to implement and pay for any necessary changes or corrections.
5. The Owner acknowledges and agrees that neither the Health Department nor any of its agents or employees, either officially or individually, underwrites the operation of any system or treatment device.
6. This Agreement shall not be construed to limit any authority of the Health Department to protect the public health, safety or enjoyment of property or to issue any other orders to take any other action, which is now or may hereafter be within its authority.
7. This agreement contains the entire agreement and understanding between the Health Department and the Owner. There are no additional terms other than as contained in this Agreement. This Agreement may not be modified except in writing signed by each of the parties or their authorized representatives.
8. The Agreement shall run with the land and binds the Owner, his heirs, successors, and assigns. The owner agrees to provide a copy of this agreement to any purchaser or lessee of the property.
9. The laws of the State of Maryland govern the provisions of all transactions.

The parties have signed this Agreement on the dates set forth below.

 _____ Owner	2/2/24 _____ Date	_____ Buyer	_____ Date
---	-------------------------	----------------	---------------

 _____ Owner	2/2/24 _____ Date	_____ Buyer	_____ Date
---	-------------------------	----------------	---------------

 2/2/2024

 Howard County Health Department / Date

Williams, Jeffrey

From: Adam Browning <abrowning@pennstrail.com>
Sent: Tuesday, April 18, 2023 10:24 AM
To: Williams, Jeffrey; Rose Borisow
Cc: Silvast, Zackary; Wolf, Kevin; agconstruction555@gmail.com
Subject: Re: CATTAIL RIVER DRIVE - LOT#10 SEPTIC DESIGN

[Note: This email originated from outside of the organization. Please only click on links or attachments if you know the sender.]

Yes, we are good with the revision.

Thanks!

Adam Browning
Penn's Trail Environmental, LLC

From: Williams, Jeffrey <jewilliams@howardcountymd.gov>
Sent: Tuesday, April 18, 2023 7:55:55 AM
To: Rose Borisow <rose@cerensbergerbuilder.com>
Cc: Adam Browning <abrowning@pennstrail.com>; Silvast, Zackary <zsilvast@howardcountymd.gov>; Wolf, Kevin <KWolf@howardcountymd.gov>; agconstruction555@gmail.com <agconstruction555@gmail.com>
Subject: RE: CATTAIL RIVER DRIVE - LOT#10 SEPTIC DESIGN

You are welcome to apply for the building permit at any time. We will just hold Health approval of the application. That allows you to get through any other agency reviews. Your contractor is also welcome to come pay for the septic permit. For mound systems we do not issue the permit until we have tested the soil moisture on the site. Its possible that it might be acceptable on 5/1. If you have the site staked and fenced beforehand, we can go evaluate prior to 5/1 to see if it would be ready.

I'll need to hear from the plan preparer, Adam Browning, that he agrees with the change and is ok with me making that change. Thanks
Jeff

From: Rose Borisow <rose@cerensbergerbuilder.com>
Sent: Monday, April 17, 2023 5:02 PM
To: Williams, Jeffrey <jewilliams@howardcountymd.gov>
Cc: Adam Browning <abrowning@pennstrail.com>; Silvast, Zackary <zsilvast@howardcountymd.gov>; Wolf, Kevin <KWolf@howardcountymd.gov>; agconstruction555@gmail.com
Subject: Re: CATTAIL RIVER DRIVE - LOT#10 SEPTIC DESIGN

[Note: This email originated from outside of the organization. Please only click on links or attachments if you know the sender.]

Hi there;

Yes that was a typo, please change that to aggregate. Thank you for offering to do that.
We just booked our septic installer for May 1st to install as he says that is the start of installation season.
We do plan on still applying for the main permit though with the understanding that we need the septic done first before it is completely approved. Is that your understanding?

Thank you~

Rose Borisow

Executive Assistant



1 South Main St. Woodsboro, MD 21798

Direct (301)252-3453

MHIC #130127

MHBR #6677

Check us out on the web at www.CERensbergerBuilder.com

Like us on FaceBook too at <http://facebook.com/CERensbergerandFamilyBuilder>

And share ideas with us on HOZZ at <http://www.houzz.com/pro/cerensbergerandfamilybuilder/public>

On Mon, Apr 17, 2023 at 3:32 PM Williams, Jeffrey <jewilliams@howardcountymd.gov> wrote:

I reviewed the plan today. Everything looks good except on the Construction Data table, it mentions sand depth. I assume that is supposed to read aggregate depth? If so, I can make that correction if you want. Once that's done, I can approve the plan and have a septic permit prepared. We will have 2 special conditions on the permit:

1. The designer should be onsite during the pre-construction meeting. This is because at-grade mounds are not common for the Health Dept or the installers in this county
2. The system must be installed prior to approving the building permit for the house. This is because we do not believe there is room to stage, mobilize, and construct the closer mound once the house is in and we have not been supplied with any detailed construction plan proving otherwise.

Beyond that, our normal conditions will apply such as having the mound areas staked and fenced off prior to pre-con meeting, having the property boundaries staked, and not being able to issue the permit until the Health Dept has determined the soil moisture to be acceptable.

Thanks
Jeff

From: Adam Browning <abrowning@pennstrail.com>

Sent: Tuesday, April 11, 2023 3:29 PM

To: Williams, Jeffrey <jewilliams@howardcountymd.gov>; Silvast, Zackary <zsilvast@howardcountymd.gov>

Cc: Rose Borisow <rose@cerensbergerbuilder.com>; Wolf, Kevin <KWolf@howardcountymd.gov>;
agconstruction555@gmail.com

Subject: RE: CATTAIL RIVER DRIVE - LOT#10 SEPTIC DESIGN

[Note: This email originated from outside of the organization. Please only click on links or attachments if you know the sender.]

Jeff;

**Septic Design &
Component Report**

Prepared for

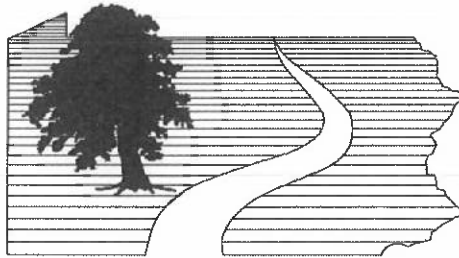
16315 Cattail River Drive Tract

Parcel# 04-371348

Situate in

*Woodbine, 4th Election District,
Howard Co., MD*

Prepared by



**Penn's Trail
Environmental, LLC**

327 E. Ridgeville Blvd. #141

Mount Airy, MD 21771

Phone: (301) 829-5022

www.pennstrail.com

February 8, 2023

PTE#6160

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COPYRIGHT & INFRINGEMENT STATEMENT 1
MATERIAL SUBSTITUTIONS..... 1

Appendices

Soil Reporting Forms & Data

System Component #1 – Treatment Tank

System Component #2 – Dose Tank

Maintenance Logs



Note: "System Component Identification Number (I.D.) below corresponds to numbers as found on the design plan set(s) and Appendices of this report.

SYSTEM COMPONENT I.D. #1 – Primary Treatment

Primary treatment of the sewage will be through a two-compartment monolithic concrete septic tank. For pumping schedule please contact manufacturer or speak with a representative of the permitting agency.

SYSTEM COMPONENT I.D. #2 – Dose Tank & Pump

Time-dosed distribution required.

Design specification sheets are attached.

OPERATION OF SYSTEM

The system has been designed to operate daily all months of the year with minimal user intervention. In the event an alarm sounds or is seen, it is recommended the owner contact the installer and/or manufacturer for inspection, service and if needed repair.

OPERATION & MAINTENANCE NOTES

By this reference the manufactures maintenance agreement, installation manual and the manufacture's owner's manual and requirements, local permitting agency's permit conditions and general regulations as they relate to the Clean Streams Law and Water Quality are hereby incorporated. In the cases of dispute in frequency or necessity of operational procedures, the most restrictive recommendation shall apply.

COPYRIGHT & INFRINGEMENT STATEMENT

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MATERIAL SUBSTITUTIONS

The materials specified are based on manufacturer's publications and specifications contained herein or by reference. Materials specified are not subject to substitution with the exception of the pump.

Pumps have been specifically calculated based on existing and proposed components to operate within an acceptable range of performance without developing diminished or excessive system pressures, thus better assuring long-term components and economic performance. Pumps are not to be substituted without suppliers and manufacturer's approval.



Soil Reporting Forms & Data



SANDMOUND TESTS, ALL OTHER TESTS ARE CONVENTIONAL PERCOLATION TESTS.

LOT 7
LISON ESTATES
PLANNING 9448

Approved Plan
PUC
7/27/01

24' PRIVATE USE IN COMMON
ACCESS EASEMENT LOTS 17 & 18

25' WETLANDS BUFFER

75' STREAM BUFFER



TEST DATA

NAME _____ FILE NO _____
 LOCATION _____ COUNTY _____
 DATE _____
 GRID _____ E
 RECORDED BY _____ N

HOLE NO.	TEST NO.	DEPTH	CLOCK TIME	ELAPSED TIME	MEASUREMENT	REMARKS (Method, Moisture, Biopores)
	84	18"	11:17		7.0	
	1.		12:39	82 min	7.0	
			12:54	15 min	6 ¹² / ₁₆	.25 60
			1:18	24 min	6 ⁴ / ₁₆	.5 48
			1:42	24 min	5 ¹⁴ / ₁₆	.375 64
						60 min/inch (OK)
	80	18"	11:19		7.0	
			12:40	81 min	6.0	1.0 = 81
			12:40		7.0	
			12:55	15 min	6.0	6.0 = 15
			12:55		7.0	
			1:18	23 min	6.0	6.0 = 23
			1:43	25 min	5.0	6.0 = 25
						25 min/inch (OK)
	79	18"	11:22		7.0	
			12:42	80 min	7.0	
			12:54	22 min	6 ¹¹ / ₁₆	.313 70 min/inch
			1:20	26 min	6 ¹ / ₁₆	.625 41
			1:45	25 min	5 ⁹ / ₁₆	.5 50
						60 min/inch (OK)

TEST DATA

NAME _____	FILE NO _____
LOCATION <u>Smith Prop Rt 94</u>	COUNTY <u>Howard</u>
<u>Near Lot 19</u>	DATE <u>4/12/00</u>
RECORDED BY <u>Amy McMillen</u>	GRID _____ E
	N

HOLE NO.	TEST NO.	DEPTH	CLOCK TIME	ELAPSED TIME	MEASUREMENT	REMARKS (Method, Moisture, Biopores)
	81	18"	11:09		7.0	
			12:32	83min	5.0	2.0 41 min/inch
			12:34	2min	7.0	
			12:49	15min	6 ¹² / ₁₆	.25 60
			1:15	26min	6 ⁴ / ₁₆	.5 52
			1:40	25min	5 ¹⁴ / ₁₆	.375 66
						60 min/inch (OK)
	82	18"	11:11		7.0	
			12:35	84min	3 ¹⁵ / ₁₆	3.063 = 27 min/inch
			12:35		7.0	
			12:49	15min	6 ⁹ / ₁₆	.438 34
			1:17	28min	5 ¹¹ / ₁₆	.875 32
			1:41	24min	5 ¹¹ / ₁₆	.625 38
						35 min/inch (OK)
	83	18"	11:14		7.0	
			12:36	82min	4.0	3.0 = 27 min/inch
			12:56	20min	4 ³ / ₁₆	.813 = 24
						27 min/inch (OK)

COUNTY #

SOIL PROFILE
600

0' red brown silclm

0' tan silclm micaceous
20% R_x

0'

601 706

0' red brown silclm
25% R_x

0' lgt pink to silty silclm
3% silclm
25% small shale frags
micaceous

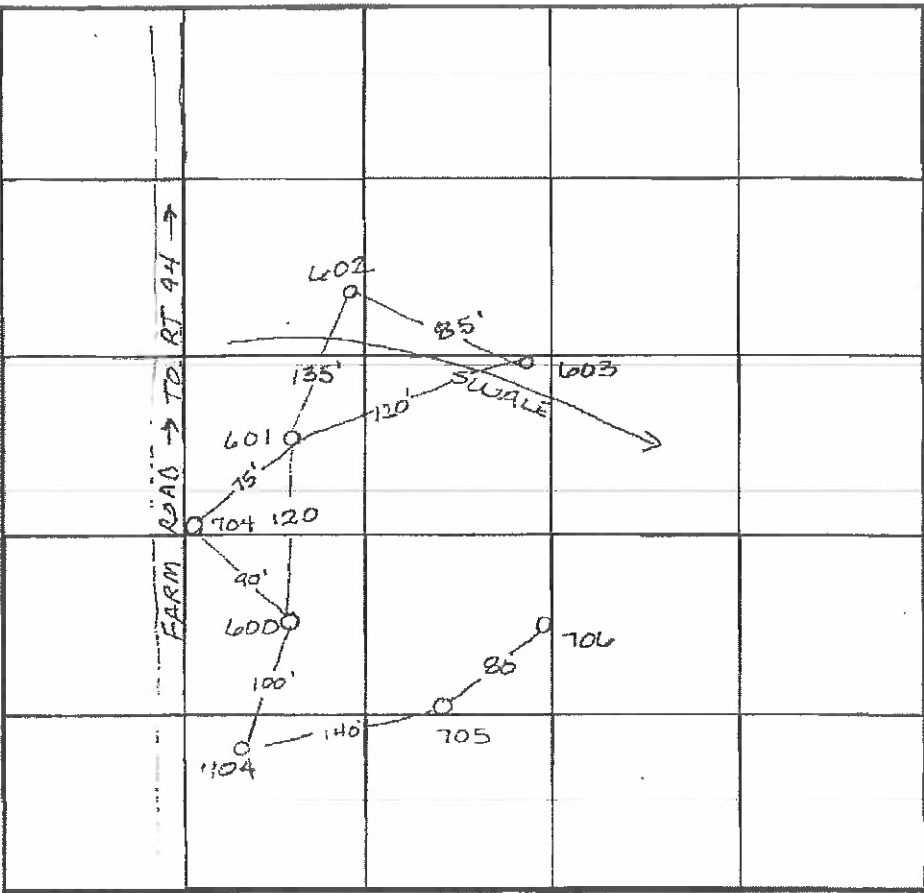
0'

603

0' lgt tan silclm micaceous

0' lgt yellow tan silclm
30% small shale frags
micaceous

0'



INDICATE NORTH - NAME ADJOINING ROADWAY AS BASE LINE.

SOIL PROFILE
602

0' orange brown silclm

7.0' heavy red silclm
some very clayey shale

11.5' 704
red brn silclm

4.0' dark pink silclm

7.0' lgt yellow tan silclm

10.0'

DATE	TEST NO.	DEPTH	PRE-WET		TEST - 1" DROP		TIME
			START	STOP	START	STOP	
8-3-93	600	4.5 11.0	10:19	10:21	10:21	10:25	4 min
	601	6.0 12.0	10:26 ³⁰	10:35	10:35	10:41	6 min
	603	4.5 10.0	10:35	10:45	10:45	11:30	slow
	602	5.0 11.5	10:43	no movement			slow
8-4-98	704	5.5 10.0	12:34	12:39	12:39	12:45	6 min
	703	70-80% rock	beginning @ 3.0 -				
		insufficient	depth to bedrock				F
	705	Refusal @ 6.0	Insufficient depth to bedrock				F
	706	5.0/11.0	12:44	12:47	12:47	12:54	7 min

REMARKS _____

TYPE OF SOIL _____

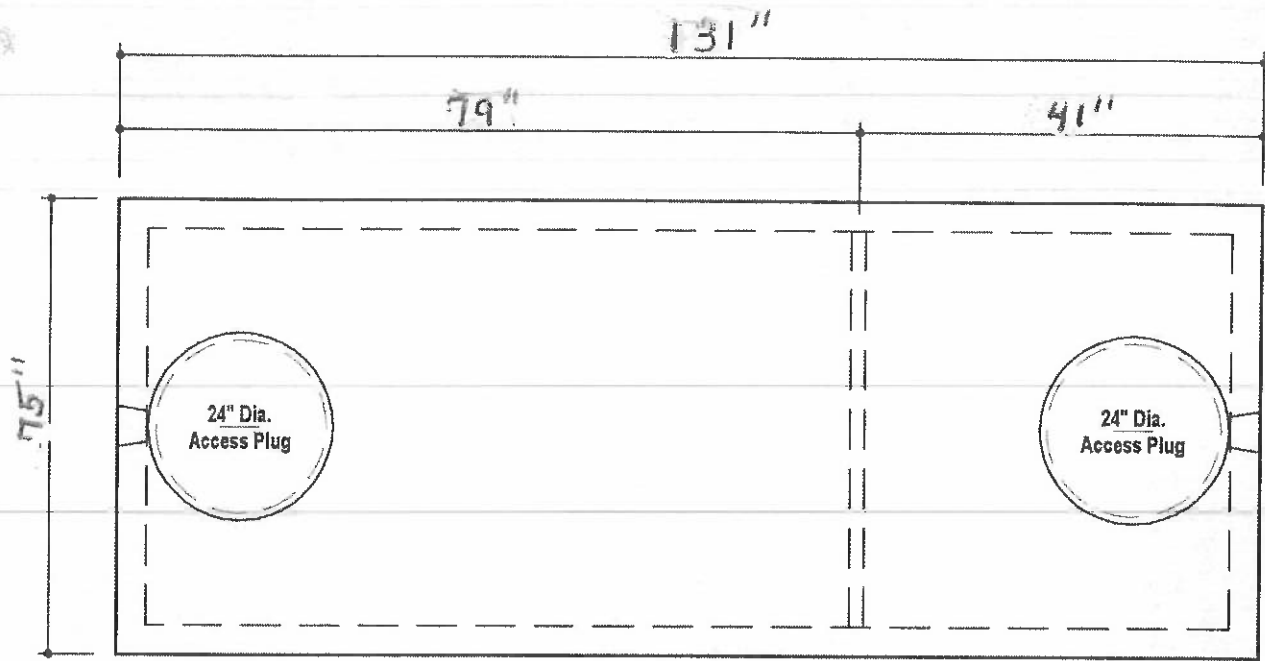
TESTED BY Amy McMillen ALSO PRESENT _____

TRENCH DESIGN DATA: AVERAGE PERCOLATION TIME _____ TRENCH WIDTH _____

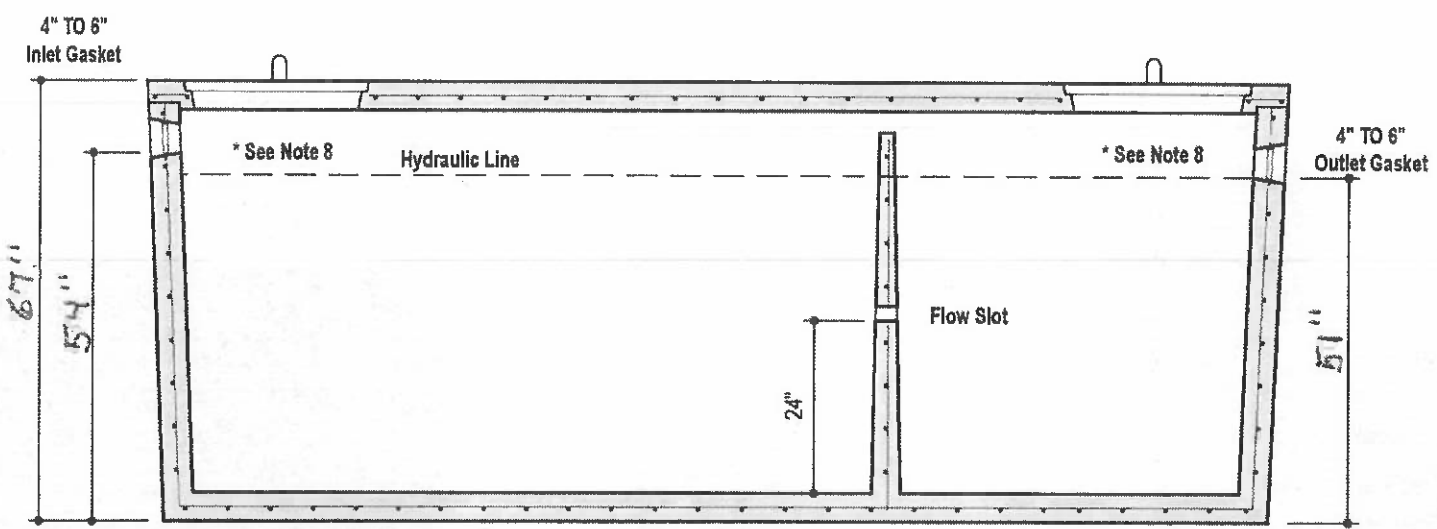
INLET DEPTH _____ MAXIMUM BOTTOM DEPTH _____ SQ. FT./BEDROOM _____

System Component #1 – Treatment Tank





PLAN VIEW



SECTION A-A

DESIGN DATA & GENERAL NOTES

- [1] Concrete strength $f_c=4,000$ p.s.i. @ 28 days. Density = 150 pcf.
- [2] Cement - Portland Type I/II per ASTM C 150-92.
- [3] Admixtures & plasticizers per ASTM C 260-88 & C 494-92.
- [4] Reinforcing per ASTM A186. Min. 1-1/2" cover.
- [5] Top slab sealed with butyl rope mastic.
- [6] 4" wall, base, & top thickness.
- [7] Max 3-1/2' of cover
- [8] Depending on use of tank, inlet & Outlet baffle may be required by code.

WEIGHT = 16,750 lbs.



**1,500 GALLON TANK (Non-Traffic)
2-Compartment**

Stock Item

Draw No. 4500 20

No Scale

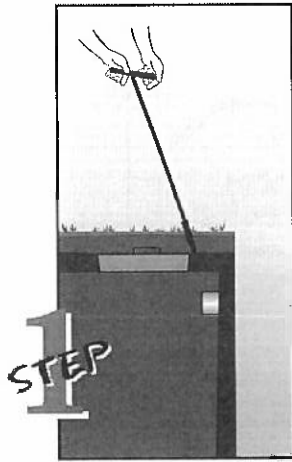
Aug. 11, 2008

INSTALLATION INSTRUCTIONS

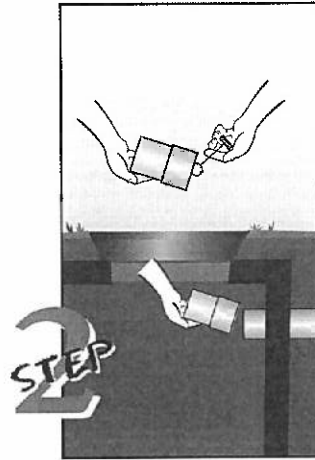
ZABEL FILTERS: A100/300/600 - 8" & 12"



New System Installation:

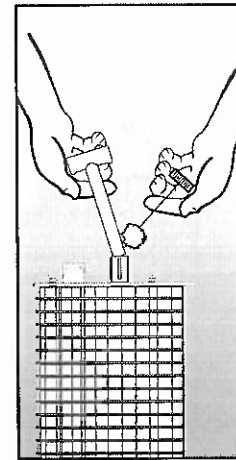


Step 1:
Locate the outlet of the septic tank and remove the tank cover.



Step 2:
Before installation place the filter case on the outside pipe, to make sure it will be centered under the access opening. If not, solvent weld (glue) additional pipe to the outlet pipe, or insert a Polylok Extend & Lok.

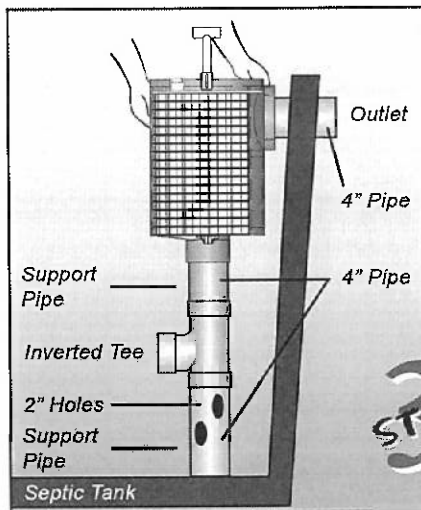
Note: Always clean and prime all pipe before solvent welding. Minimum of 3" drop required in tank for proper SmartFilter alarm operation.



HANDLE INSTALLATION:

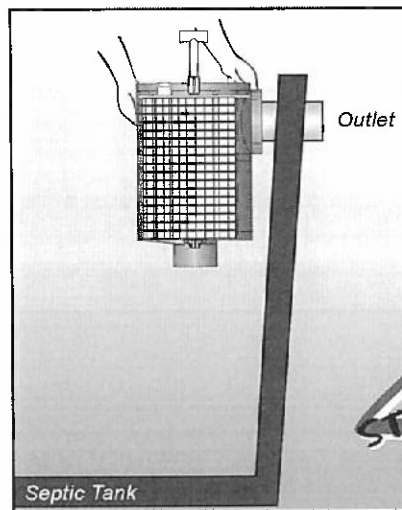
1. Glue handle on top of 1" SCH 40 pipe.
2. Glue the bottom of the 1" pipe and insert into the slip on the filter top.

Note: Always clean and prime all pipe before solvent welding. The handle assembly must be glued to the lid of the filter before installation.



Step 3:
For installations requiring the Supplementary Support Method only. If extra support for the filter is not needed go to step 4.

Solvent weld (glue) the reducer to the bottom of the filter case. Then weld a support pipe, an inverted tee, and another support pipe in the bottom of the reducer. Place the filter, reducer, and support pipe on the outlet pipe. Adjust the support pipe so it rests on the bottom of the tank. Remove and cut four 2" holes from top to bottom in the support pipe. A contractor or pumper will determine the pipe measurements.



Step 4:
Solvent weld the filter case on the outlet pipe. Insert the filter cartridge in the case, making sure the filter cartridge is properly aligned and completely inserted in the case.

Note: Make sure filter is installed level within the tank.

EXISTING SYSTEM INSTALLATION:
Same as a new system installation, except the tank must be pumped before the installation of the filter.

Notes:

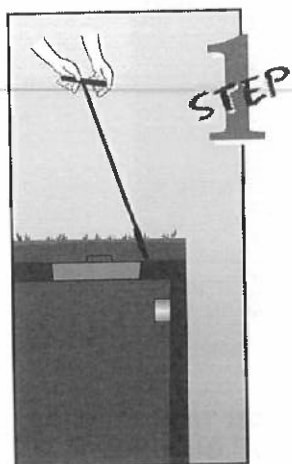
1. If you have purchased an A100/300/600-12x28 or larger model filter Zabel recommends using the Supplementary Support Method seen in Step 3.
2. If you have purchased a Zabel Smartfilter alarm, additional installation instructions can be found in the Smartfilter Alarm System box.
3. The outlet access opening of the tank, under which the filter is centered, should be at least 15" in diameter to allow for easy removal of the filter cartridge.
4. A riser to grade over the outlet access opening is recommended and may be required in certain states.
5. If the filter can not be installed in the existing tank, it can be installed using a Polylok/Zabel basin system. In this case, the new system instructions will be used.
6. Minimum of 3" drop required in tank for proper SmartFilter alarm operation.

MAINTENANCE INSTRUCTIONS

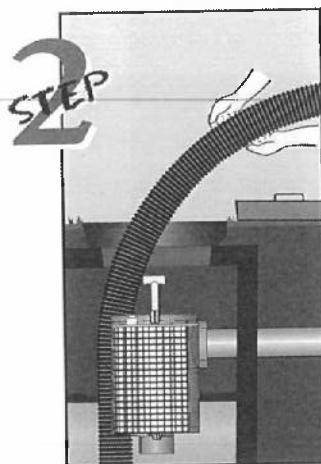
ZABEL FILTERS: A100/300/600 - 8" & 12"



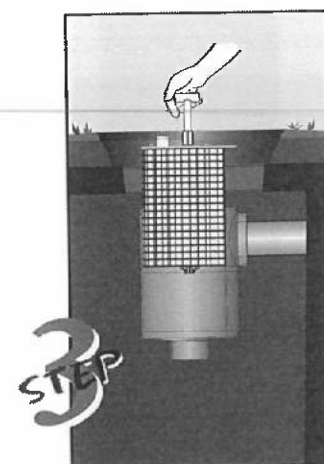
The interval for servicing septic tanks is set by state and local code. Throughout the United States, there is a wide difference of opinion on what this interval should be, but most regulatory agencies suggest two to five years. The Zabel filter, which does not increase the frequency of servicing for the tank, should be cleaned when the septic tank is normally inspected and pumped. However, our filter is virtually self-cleaning. The continued action of the anaerobic organisms on the Zabel filter causes lodged particles to disintegrate and fall to the bottom of the tank. If your filter contains a SmartFilter® alarm, you will be notified by an alarm when the filter needs servicing.



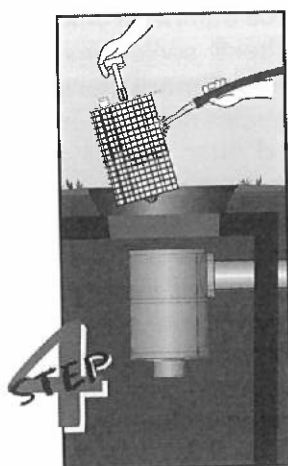
Step 1:
Locate the outlet of the septic tank and remove the tank cover.



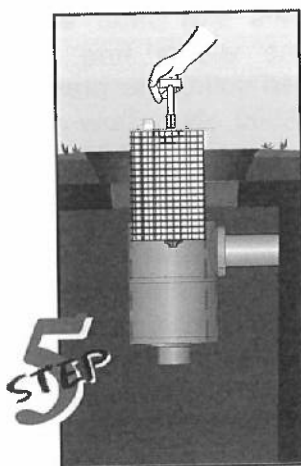
Step 2:
Remove the tank cover and pump the tank if necessary to prevent any solids from escaping to the the drain field when the filter is removed.



Step 2:
Firmly pull the filter handle and slide the cartridge out of the case.



Step 4:
While holding the cartridge over the access opening, rinse off the cartridge with fresh water, being careful to rinse all septage material back into the tank.



Step 5:
Insert the filter cartridge back in the case, making sure the filter cartridge is properly aligned and completely inserted in the case. Replace the septic tank cover.

Note: Servicing any Zabel filter should only be done by a certified septic tank pumper or installer.

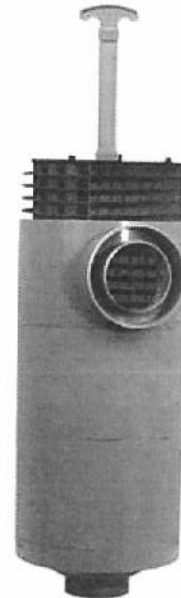
Note: If you have a filtered Versa-Case model filter, be sure and spray clean the outlet opening before replacing the filter.





**OutdoorSmart
 Filter Alarm**

All Polylok/Zabel
 filters accept the
 SmartFilter®
 switch and alarm.



**A100 Filter 1/16" Filtration
 8" and 12" Diameter**

This filter is ideal for larger homes, multi-family homes or light commercial settings where increased flows or higher quality effluent is required. The A100-8 Series is sized to handle flow rates from 1200 to 2400 GPD and is available in three different lengths. The A100-12 Series, installed in more locations than any other filter on the market, is sized to handle flow rates from 3000 to 6000 GPD. The A100-12 Series can be used in almost any application. Independent research has shown the A100-12 decreases TSS by 50-90% and CBOD⁵ by 20-40%. With 1/16" filtration, the A100-8 Series filter is available in 18", 26" and 32" lengths. The A100-12 Series filter is available in 20", 28" and 36" lengths.

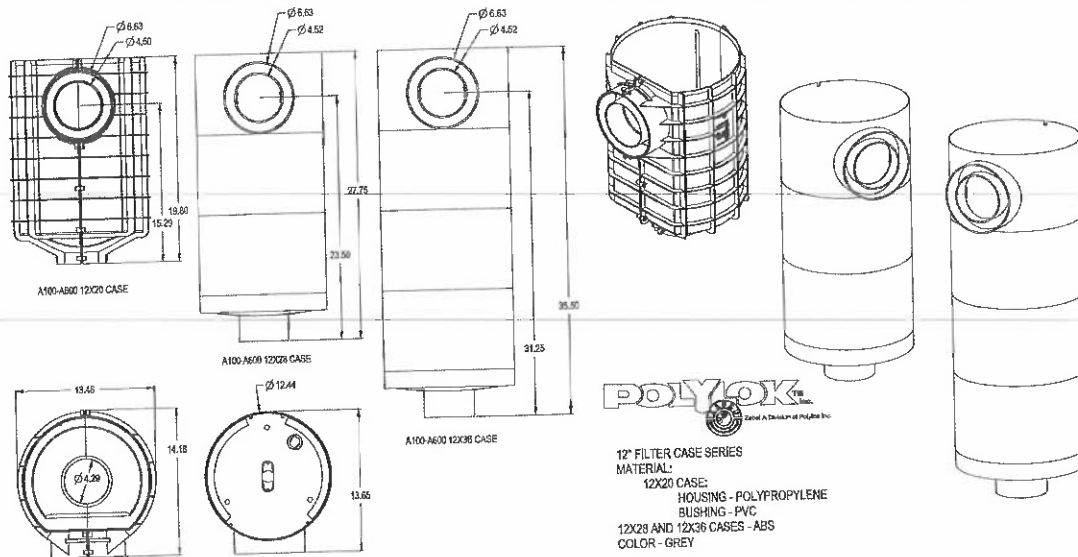
**A300 Filter 1/32" Filtration
 8" and 12" Diameter**

The finer 1/32" level of filtration achieved with the A300-8 filter makes this the perfect effluent filter for small grease trap applications, dog kennels, laundromats and other applications where fine suspended solids are present. The A300 offers flow rates between 1200-2400 GPD. The A300-12 Series provides 1/32" filtration and has been shown to reduce FOG by as much as 50-98%. The A300-12 is also used for onsite wastewater systems which require a finer level of TSS removal. The A300-8 Series filter is available in 12", 26" and 32" lengths. The A300-12 Series filter is available in 20", 28" and 36" lengths.

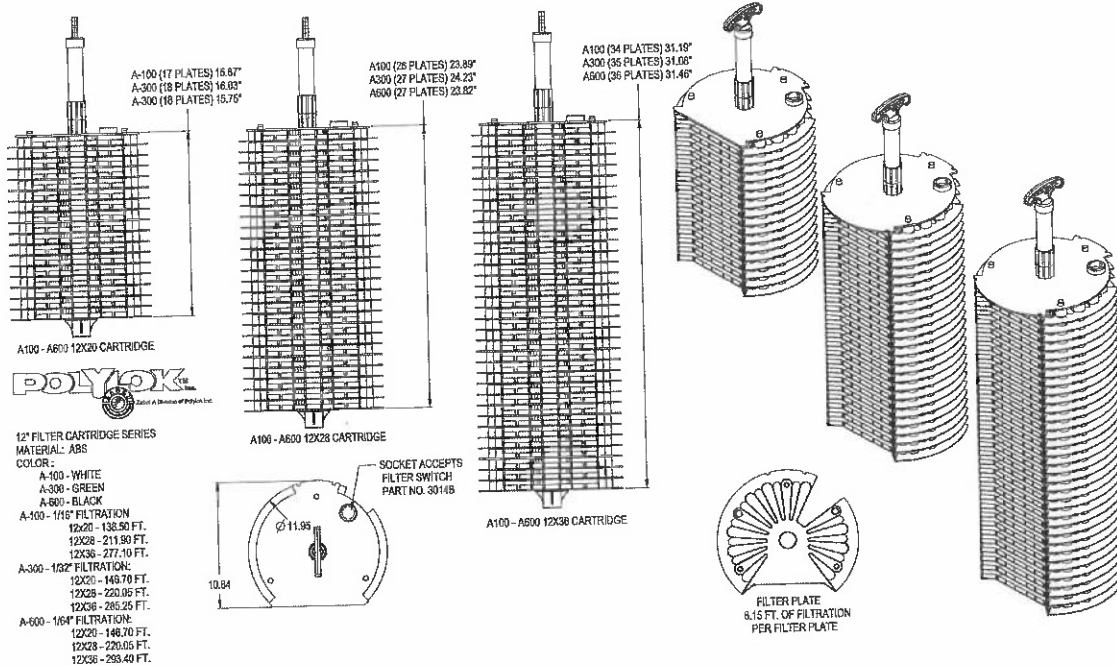
**A600 Filter 1/64" Filtration
 8" and 12" Diameter**

The A600 is ideal for specialty applications where very fine filtration is required and low flows are expected. Due to fine, 1/64" level filtration, every A600 comes equipped with a SmartFilter® switch and alarm. The SmartFilter® switch provides notification of required filter servicing through the use of both an audible and visual alarm. A minimum of a 3" drop is required in the tank for proper SmartFilter® operation. The A600-8 Series filter is available in 18", 26" and 32" lengths. The A600-12 Series is available in 20", 28" and 36" lengths.

ZABEL 12" CASES

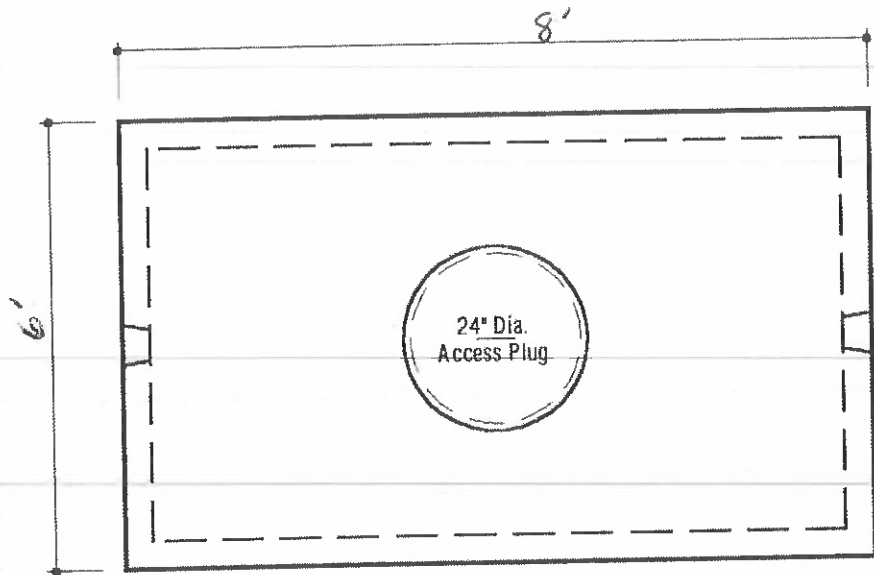


ZABEL 12" FILTER SERIES

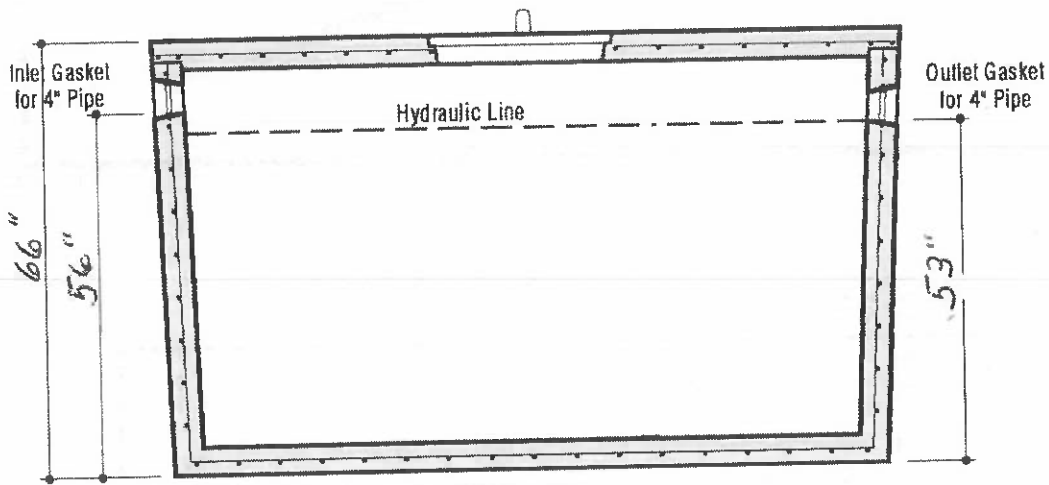


System Component #2 – Dose Tank





PLAN VIEW



SECTION A-A

DESIGN DATA & GENERAL NOTES

- [1] Concrete strength $f'_c = 4,000$ p.s.i. @ 28 days. Density = 150 pcf.
- [2] Cement - Portland Type I/II per ASTM C 150-92.
- [3] Admixtures & plasticizers per ASTM C 260-86 & C 494-92.
- [4] Reinforcing per ASTM A185. Min. 1-1/2" cover.
- [5] Top slab sealed with butyl rope mastic.
- [6] 4" wall, base, & top thickness.



1,250 GALLON PUMP TANK
1-Compartment

Stock Item

Dwg. No. 1000-P

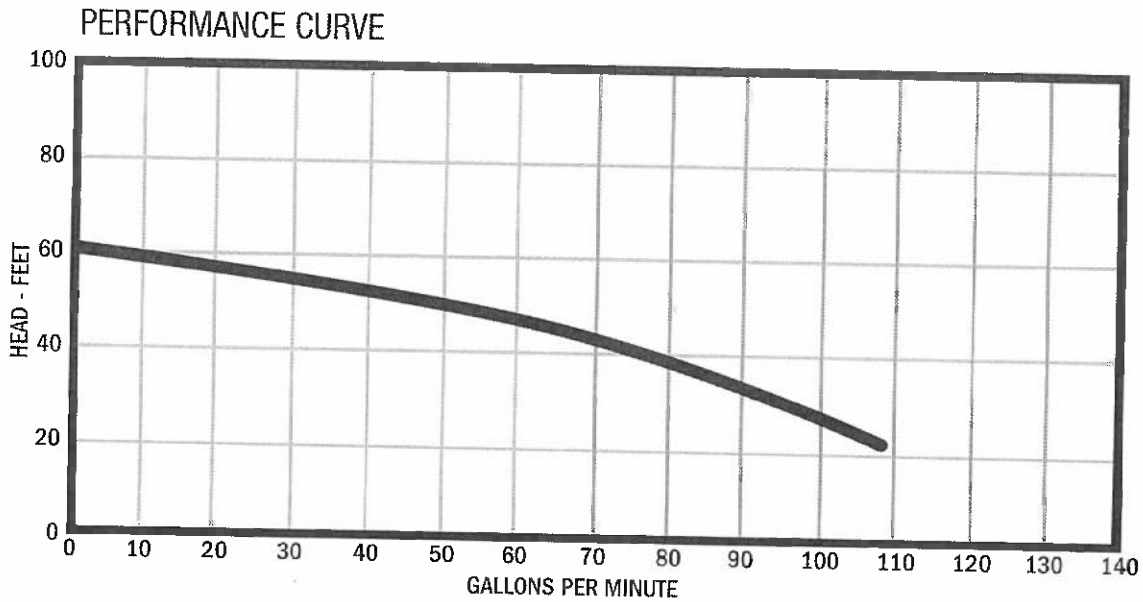
No Scale

Jan 1, 2000

EFFLUENT PUMPS

EP75 Performance Data

RPM: **3450** Discharge: **2"** Solids: **3/4"**



PERFORMANCE CURVE

Total Lift(feet)	0	10	20	30	40	50	60
GPM	-	-	-	96	77	50	0

Conditions of Service:

GPM: _____ TDH: _____



P U M P

Honest, Professional, Dependable

1899 Cottage Street, Ashland, Ohio 44805

Telephone: 855 281-6830 · Fax: 877 326-1994 · ashlandpump.com



OPERATION, PERFORMANCE,
SPECIFICATIONS and PARTS MANUAL

EP50,75,100,150 1/2, 3/4, 1, 1-1/2 HP Effluent Pumps

- Thank you for purchasing this pump. Take the time to read the instructions carefully before using this product. We strongly recommend that you keep this instruction manual in a safe place for future reference.
- Please refer to our website and the Products Center for additional installation and operation instructions and replacement parts information.



LIMITED WARRANTY

This pump is warranted to be free from defects in material and workmanship and to perform within applicable specifications for a period of three years from date of installation or 42 months from date of manufacture, which ever comes first. Obligation under this warranty is limited to repairing or replacing any part thereof, which shall within one year be returned to us with transportation charges prepaid, and proved to be defective.

The above limited warranty takes the place of all other warranties, express or implied and correction of such defects by replacement or repair shall constitute a fulfillment of all obligations under the terms of the warranty, which specifically EXCLUDES any incidental damages caused by or associated with this product or its use. The warranty does not cover any unit which has been damaged either in transit or by misuse, accident or negligence. No warranty or representative not contained herein shall be binding.

MARKS AND MEANING:

⚠ DANGER "Danger" indicates an imminent hazardous situation which, if not avoided, WILL result in death or serious injury.

⚠ WARNING "Warning" indicates an imminent hazardous situation which, if not avoided, MAY result in death or serious injury.

⚠ CAUTION "Caution" indicates a potentially hazardous situation which, if not avoided, MAY result in minor or moderate injury.

PERFORMANCE

Model	HP	GPM at Total Feet of Head									Max. Head (ft)
		0'	10'	20'	30'	40'	50'	60'	70'	80'	
EP50	1/2	-	-	92	72	50	2	-	-	-	50
EP75	3/4	-	-	-	96	77	50	-	-	-	60
EP100	1	-	-	-	118	100	80	55	23	-	78
EP150	1-1/2	-	-	-	-	127	110	91	70	40	90



Effluent Pump Model: EP50, EP75, EP100, EP150 General Safety Information

Before installation, read the following instructions carefully. Failure to follow instruction and safety information could cause serious bodily injury, death and/or property damage. Each Ashland Pump is individually factory tested to ensure proper performance. Closely following these instructions will eliminate potential operating problems assuring years of trouble-free service.

Most accidents can be avoided by using common sense.

IMPORTANT - Ashland Pump is not responsible for losses, injury or death resulting from failure to observe these safety precautions, misuse, abuse or misapplication of pumps or equipment.

⚠ DANGER All returned products must be cleaned, sanitized, or decontaminated prior to shipment, to insure employees will not be exposed to health hazards in handling said materials. All applicable laws and regulations shall apply.



⚠ WARNING Bronze/brass fitted pumps may contain lead levels higher than considered safe for potable water systems. Government agencies have determined that leaded copper alloys should not be used in potable water applications.

⚠ WARNING Installation, wiring, and junction connections must be in accordance with the National Electric Code and all applicable state and local codes. Requirements may vary depending on usage and location.

⚠ WARNING Installation and servicing is to be conducted by qualified personnel only.

⚠ DANGER Rotating machinery, amputation or severe lacerations can result. Keep clear of suction and discharge openings. DO NOT insert fingers into pump with power connected.



⚠ WARNING Always wear eye protection when working on pumps. Do not wear loose clothing that may become entangled in moving parts.

⚠ DANGER Pumps build up heat and pressure during operation. Allow time for pumps to cool before handling or servicing.

⚠ DANGER Hazardous Voltage can shock, burn or cause death. This pump is not intended for use in swimming pools or water installations where human contact with pumped fluid is possible.



⚠ DANGER Risk of electrical shock. To reduce risk of electrical shock, always disconnect pump from source before handling. Lock out power & tag.



⚠ WARNING Do Not use these pumps in water over 145°F. Do not exceed manufactures recommended maximum performance, as this could cause the motor to overheat.

⚠ CAUTION Make sure lifting handles are securely fastened each time before lifting.

⚠ DANGER Do not lift, carry or hang pump by the electrical cables. Damage to the electrical cables can cause shock, burns or death. Never handle connected power cords with wet hands. Use appropriate lifting device.



⚠ WARNING Effluent pumps often handle materials which could cause illness or disease. Wear adequate protective clothing when working on a used pump or piping. Never enter a basin after it has been used.

⚠ DANGER Failure to permanently ground the pump, motor and controls before connecting to power can cause shock, burns or death.



⚠ DANGER These pumps are NOT to be installed in locations classified as hazardous in accordance with the National Electric Code, ANSI/NFPA 70.



⚠ WARNING Do not introduce into any sewer, either directly, or through a kitchen waste disposal unit or toilet: Seafood Shells, Aquarium Gravel, Cat Litter, Plastic Objects, Sanitary Napkins or Tampons, Diapers, Rags, Disposable Wipes or Cloth, Medications, Flammable Material, Oil or Grease, Strong Chemicals, Gasoline.

- Operation against a closed discharge valve will cause premature bearing and seal failure on any pump.
- Any wiring of pumps should be performed by a qualified electrician.
- Cable should be protected at all times to avoid punctures, cuts, bruises, and abrasions-inspect frequently.
- Never handle connected power cords with wet hands.
- Never let cords or plugs lie in water outside the sump pit.
- These pumps are offered in a three phase and single phase wiring configuration. Voltages will vary according to the application and can be seen in the tables in this manual.



Effluent Pump

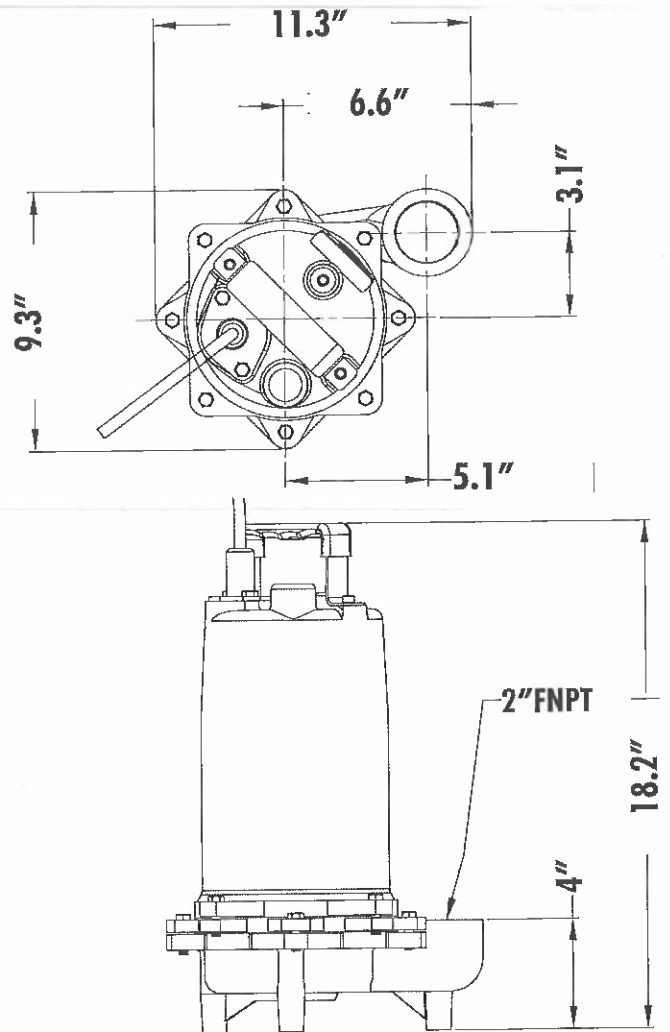
Model: EP50, EP75, EP100, EP150

Specifications

IMPORTANT Prior to installation, record Model Number, MFG Date, Amps, Voltage, Phase and HP, from pump nameplate for future reference. Also record the voltage and current readings at startup:	1 Phase Models		Model Number: _____
	Amps: _____	Volts: _____	MFG Date: _____
			HP: _____
			SN: _____

SPECIFICATIONS

Description:	To reduce domestic, commercial and light industrial sewage
Physical Data:	
DISCHARGE SIZE	2" NPT
IMPELLER TYPE	2-Vane Closed, Cast Iron
CABLE LENGTH	20'
Liquid Handling:	
SOLIDS SIZE	3/4"
MAXIMUM LIQUID TEMP.	104°F - Intermittent,
ACCEPTABLE PH RANGE	6-8
Temperature:	
MAXIMUM STATOR	120°C
Technical Data:	
MOTOR HOUSING	Cast Iron
VOLUTE	Cast Iron
IMPELLER	Cast Iron
MOTOR SHAFT	SS416
HARDWARE	SST
"O" RINGS	NBR
SEALS	Single Mechanical Carbon Ceramic
UPPER BEARING	6203
LOWER BEARING	6203



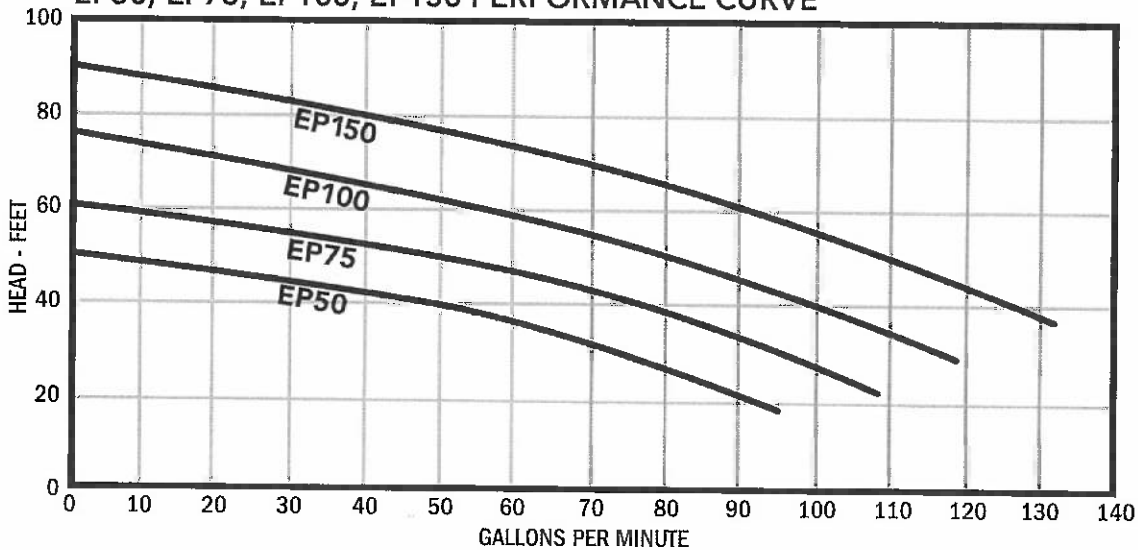


Effluent Pump Model: EP50, EP75, EP100, EP150 Specifications and Performance

SPECIFICATIONS

MODEL	HP	HZ	VOLTS/PH	RPM	FULL LOAD AMPS	NEMA START CODE	CORD TYPE	CORD SIZE	CORD O.D.	BREAKER SIZE	RUN CAPACITOR
EP50M1-20	1/2	60	115/1	3450	12.0	J	SOW	16AWG/3C	0.385-0.430	15A	370V 35MFD±5%
EP50W1-20	1/2	60	115/1	3450	12.0	J	SOW	16AWG/3C	0.385-0.430	15A	370V 35MFD±5%
EP50M2-20	1/2	60	230/1	3450	6.0	J	SOW	16AWG/3C	0.385-0.430	10A	370V 35MFD±5%
EP50M3-20	1/2	60	230/3	3450	3.2	J	SOW	16AWG/4C	0.410-0.460	5A	N/A
EP50M4-20	1/2	60	460/3	3450	1.6	J	SOW	16AWG/4C	0.410-0.460	3A	N/A
EP50M5-20	1/2	60	208/1	3450	6.5	J	SOW	16AWG/3C	0.385-0.430	10A	450V 35MFD±5%
EP50M6-20	1/2	60	208/3	3450	3.5	J	SOW	16AWG/4C	0.410-0.460	5A	N/A
EP50M9-20	1/2	60	575/3	3450	1.2	J	SOW	16AWG/4C	0.410-0.460	3A	N/A
EP75M1-20	3/4	60	115/1	3450	13.0	H	SOW	16AWG/3C	0.385-0.430	15A	450V 35MFD±5%
EP75M2-20	3/4	60	230/1	3450	6.5	H	SOW	16AWG/3C	0.385-0.430	10A	450V 35MFD±5%
EP75M3-20	3/4	60	230/3	3450	4.7	H	SOW	16AWG/4C	0.410-0.460	5A	N/A
EP75M4-20	3/4	60	460/3	3450	2.3	H	SOW	16AWG/4C	0.410-0.460	3A	N/A
EP75M5-20	3/4	60	208/1	3450	8.2	H	SOW	16AWG/3C	0.385-0.430	10A	450V 35MFD±5%
EP75M6-20	3/4	60	208/3	3450	5.0	H	SOW	16AWG/4C	0.410-0.460	5A	N/A
EP75M9-20	3/4	60	575/3	3450	1.8	H	SOW	16AWG/4C	0.410-0.460	3A	N/A
EP100M2-20	1	60	230/1	3450	11.8	H	SOW	16AWG/3C	0.385-0.430	15A	450V 35MFD±5%
EP100M3-20	1	60	230/3	3450	6.0	H	SOW	16AWG/4C	0.410-0.460	10A	N/A
EP100M4-20	1	60	460/3	3450	3.0	H	SOW	16AWG/4C	0.410-0.460	5A	N/A
EP100M5-20	1	60	208/1	3450	12.0	H	SOW	16AWG/3C	0.385-0.430	15A	450V 35MFD±5%
EP100M6-20	1	60	208/3	3450	6.2	H	SOW	16AWG/4C	0.410-0.460	10A	N/A
EP100M9-20	1	60	575/3	3450	2.2	H	SOW	16AWG/4C	0.410-0.460	3A	N/A
EP150M2-20	1-1/2	60	230/1	3450	15.0	G	SOW	14AWG/3C	0.520-0.575	20A	450V 35MFD±5%
EP150M3-20	1-1/2	60	230/3	3450	7.4	G	SOW	16AWG/4C	0.410-0.460	10A	N/A
EP150M4-20	1-1/2	60	460/3	3450	3.7	G	SOW	16AWG/4C	0.410-0.460	5A	N/A
EP150M5-20	1-1/2	60	208/1	3450	15.2	G	SOW	14AWG/3C	0.520-0.575	20A	450V 35MFD±5%
EP150M6-20	1-1/2	60	208/3	3450	7.8	G	SOW	16AWG/4C	0.410-0.460	10A	N/A
EP150M9-20	1-1/2	60	575/3	3450	2.7	G	SOW	16AWG/4C	0.410-0.460	5A	N/A

EP50, EP75, EP100, EP150 PERFORMANCE CURVE



EP50 PERFORMANCE CHART

Total Lift(feet)	0	10	20	30	40	50	50
GPM	-	-	92	72	50	2	0

EP75 PERFORMANCE CHART

Total Lift(feet)	0	10	20	30	40	50	60
GPM	-	-	-	96	77	50	0

EP100 PERFORMANCE CHART

Total Lift(feet)	0	30	40	50	60	70	78
GPM	-	118	100	80	55	23	0

EP150 PERFORMANCE CHART

Total Lift(feet)	0	40	50	60	70	80	90
GPM	-	127	110	91	70	40	0



Effluent Pump Model: EP50, EP75, EP100, EP150 Receiving and Installation

Receiving Inspection

Upon receiving the pump, it should be inspected for damage or shortages. If damage has occurred, file a claim immediately with the company that delivered the pump. If the manual is removed from the packaging, do not lose or misplace.

Storage

Any product that is stored for a period longer than six (6) months from the date of purchase should be bench tested prior to installation. A bench test consists of, checking the impeller to assure it is free turning and a run test to assure the motor (and switch if provided) operate properly. Do not pump out of liquid.

WARNING IMPORTANT! A clearance under the pump for entrance of sewage solids must be a minimum of 2 inches to a maximum of 3.5 inches.

Submergence

The pump should always be operated in the submerged condition. The minimum sump liquid level should never be less than above the pump's motor (see fig. 1), unless very briefly.

Installation

The sump or basin shall be sealed and vented in accordance with local plumbing codes. This pump is designed to pump domestic wastewater, nonexplosive and non-corrosive liquids and shall NOT be installed in locations classified as hazardous in accordance with the National Electrical Code (NEC) ANSI/ NFPA 70 or Canadian Electric Code (CEC). The pump should never be installed in a trench, ditch, or hole with a dirt bottom. The legs will sink into the dirt and the suction will become plugged.

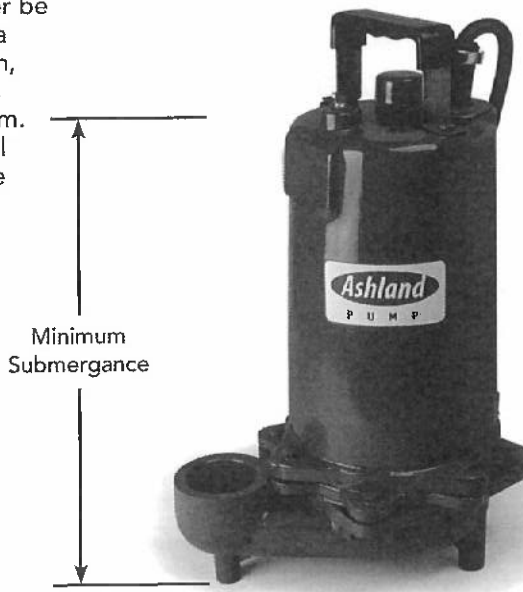


FIGURE 1

Discharge Piping

Install discharge piping or hose assembly to the pump. Discharge piping should be as short as possible and sized no smaller than the pump discharge. Do not reduce the discharge pipe size below that which is provided on the pump. Both a check-valve and a shut-off valve are recommended for each pump. The check valve is used to prevent backflow into the sump. The shut-off valve is used to manually stop system flow during pump servicing. Be sure the discharge pipe has a 1/8" diameter hole approx. 5" from end nearest volute and oriented towards the pump body.

Control Panel

Single phase series effluent pumps DO NOT require a control panel, but do require a level control with a piggy back plug, see "Piggy-back Plug, figure 2" below.

Motor: Each motor is provided with heat sensor thermostats attached directly to the motor windings. The thermostats open if the motor windings see excessive heat and, in turn, open the motor contactor in the control panel when used, breaking the power to the pump. When the motor is stopped due to an overheated condition, it will not start until the motor has cooled.

Pre-operation

CHECK VOLTAGE AND PHASE

Before operating pump, check to make sure that voltage and phase information stamped on the pump's identification plate matches the available power.


CHECK PUMP ROTATION

Before putting pump into service for the first time, the motor rotation must be checked. Improper motor rotation can result in poor pump performance and can damage the motor and/or pump.

IDENTIFICATION PLATE

Note the numbers on the pumps identification plate and record in this manual for future reference.

Electrical Connections

 Turn circuit breaker off before plugging or unplugging the switch and/or pump.

Always rely upon a Certified Electrician for installation.

Piggy-Back Plug Plug the level control plug into a 115V receptacle, then plug the pump into the piggy-back plug (See Figure 2). It is recommended that this circuit have a 15 AMP breaker. One cycle of operation should be observed, so that any potential problems can be corrected.

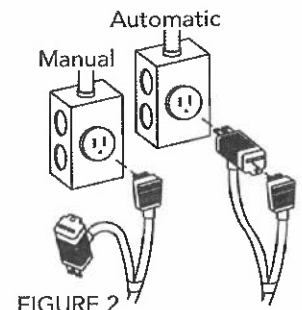


FIGURE 2



Effluent Pump

Model: EP50, EP75, EP100, EP150

Receiving and Installation

It is recommended that the level control float should be set to insure that the liquid in the sump never drops below the top of the motor housing. The level control should have adequate clearance so it cannot hang up in it's swing and that the pump is completely submerged when the level control is in the "Off " mode. Minimum tether length is 3.50".

By adjusting the cord tether the control level can be changed. **DO NOT USE THE POWER CABLE TO LIFT PUMP.**

Pump-Down Test - Be sure pump has been plugged in, lowered into the basin or sump, check the system by filling with liquid and allowing the pump to operate through its pumping cycle. The time needed to empty the system, or pump-down time along with the volume of water, should be recorded.

Thermal Protection

The normally closed (N/C) over temperature sensor is embedded in the motor windings and will detect excessive heat in the event an overload condition occurs. The thermal sensor will trip when the windings become too hot and will automatically reset when the pump motor cools to a safe temperature.

In the event of an over temperature, the source of this condition should be determined and repaired immediately. Thermal protection shall not be used as a motor overload device.

Maintenance

Minimal maintenance is required. Perform the following checks when pump is removed from operation or when pump performance deteriorates:

- Inspect motor chambers for oil level and contamination.
- Inspect impeller and body for excessive build-up or clogging.
- Inspect motor and bearings.
- Inspect seal for wear or leakage.

Servicing

Cooling Oil - Anytime the pump is removed from operation, the cooling oil in the motor housing should be checked visually for oil level and contamination. To check oil, set unit upright. Remove pipe plug from housing. With a flashlight, visually inspect the oil in the housing to make sure it is clean and clear, light amber in color and free from suspended particles. Milky white oil indicates the presence of water. Oil level should be just above the motor when pump is in vertical position.

Oil Testing

- Drain oil into a clean, dry container by placing pump on it's side. Remove pipe plug, from housing.
- Check oil for contamination using an oil tester with a range to 30 Kilovolts breakdown.
- If oil is found to be clean and uncontaminated (measuring above 15 KV. breakdown), refill the housing.

- If oil is found to be dirty or contaminated (or measures below 15 KV. breakdown), the pump must be carefully inspected for leaks at the shaft seal, cable assembly, o- ring and pipe plug, before refilling with oil. To locate the leak, perform the following pressure tests.

After leak is repaired, dispose of old oil properly, and refill with new oil.



Pressure builds up extremely fast, increase pressure by "TAPPING" air nozzle. Too much pressure will damage seal.
DO NOT exceed 10 P.S.I.

Motor Housing Pressure Test:

If oil has been drained, fill to normal level before performing pressure test. Remove pipe plug from motor housing.

Apply pipe sealant to pressure gauge assembly and tighten into hole. Pressurize motor housing to 10 P.S.I. Use soap solution around the sealed areas above the oil level and inspect joints for "air bubbles". For sealed areas below oil level, leaks will seep oil. If, after five minutes, the pressure is still holding constant, and no "bubbles" / oil seepage is observed, slowly bleed the pressure and remove the gauge assembly. Replace oil. Leak must be located and repaired if pressure does not hold.

Oil Replacement Motor Housing

Remove pipe plug from motor housing.

Drain all oil (if not already done so) from motor housing and dispose of properly per Local Code. Set pump upright and refill with new cooling oil, see "Cooling Oil" chart. Fill to just above motor (2.1L) as an air space must remain in the top of the motor housing to compensate for oil expansion. Apply pipe thread compound to threads of pipe plug then assemble to motor housing. Check that o-ring is in place and does not need to be replaced. Reassemble cord cap to motor housing.



DO NOT overfill oil. Overfilling of housing with oil can create excessive and dangerous hydraulic pressure which can destroy the pump and create a hazard. Overfilling oil voids warranty.

Cooling Oil Recommended Supplier/Grade

BP	Enerpar SE100
Conoco	Pale Paraffin 22
Mobile	D.T.E. Oil Light
Shell Canada	Transformer-10
Texaco	Diala-Oil-AX



WARNING Before any service work is done, disconnect and lock out electrical power to pump.



Effluent Pump Model: EP50, EP75, EP100, EP150 Installation and Service

Volute - Remove socket head cap screws from volute.

Impeller - Remove impeller by turning counter-clockwise careful application of heat may be necessary. Do Not store pump without impeller in place.

Seal- Handle seal parts with care. Remove rotating member from shaft. Remove pressed-in spring component from seal plate. Examine all seal parts. Inspect contact faces for signs of uneven wear tracks on stationary face, chips and scratches on either seal face. DO NOT interchange seal components, replace the entire shaft seal if necessary.

Seal Plate - Remove cap screws from seal plate. Remove seal plate and o-ring.

Bearings - Using a bearing puller or arbor press remove bearing from shaft. Remove upper motor bearing from shaft with a bearing puller.



IMPORTANT! - All parts must be clean before reassembly. Handle seal parts with extreme care. DO NOT damage lapped surfaces.

REASSEMBLY

Bearing - Be careful not to damage the rotor shaft when replacing bearing. Using an arbor press, hold the rotor and press the upper bearing on the rotor shaft, applying force to the inner race of the bearing only. In the same manner replace lower bearing (49) onto rotor shaft.

Seal Plate - Lubricate and set o-ring in bottom of seal plate. Place seal plate over shaft, being sure o-ring is not twisted and in the groove. Place four capscrews through holes in motor housing and into seal plate and torque to 6.5 ft/lbs.

Outer Seal - Clean and oil stationary seal cavity in seal plate. Slide seal guide tool over motor shaft. Lightly oil (**Do not use grease**) outer surface of seal's stationary member.

Press stationary firmly into seal plate using a seal pusher tool. Be sure the stationary member is in straight. Nothing but the seal tool is to come in contact with seal face.



IMPORTANT ! Do not hammer on the seal pusher. It will damage the seal face.

With lapped surface of rotating member facing inward toward stationary, slide rotating member and onto shaft, until lapped faces of stationary and rotating seal are together.

Impeller - Place impeller on motor shaft by turning clockwise. Blue thread locking compound is recommended.

Volute - Place volute on seal plate. Place socket head cap screws through volute and into seal plate Then torque evenly to 11 ft/lbs.



Effluent Pump Model: EP50, EP75, EP100, EP150 Installation and Service

Installing Pump in BASIN

Install pump in properly vented basin according to local codes and regulations. PVC pipe along with plastic check valve and shut-off valve are recommended. Drill a 1/8" hole in the discharge pipe below the check valve. Install check valve 12" above pump discharge. See Figure 3

Starting Pump After Installing in Sump

Before lowering pump into basin, connect power lines and start motor. Impeller should turn counterclockwise when looking at impeller.

Service and Repair

Important: Pump should be thoroughly cleaned of trash and deposits before starting disassembly operations (pages 6-8).

WARNING

Disconnect all power and control wires to motor at control panel before starting disassembly operation. Never rely on opening circuit breaker only.

CAUTION

Operating pump builds up heat and pressure; allow time for pump to cool to room temperature

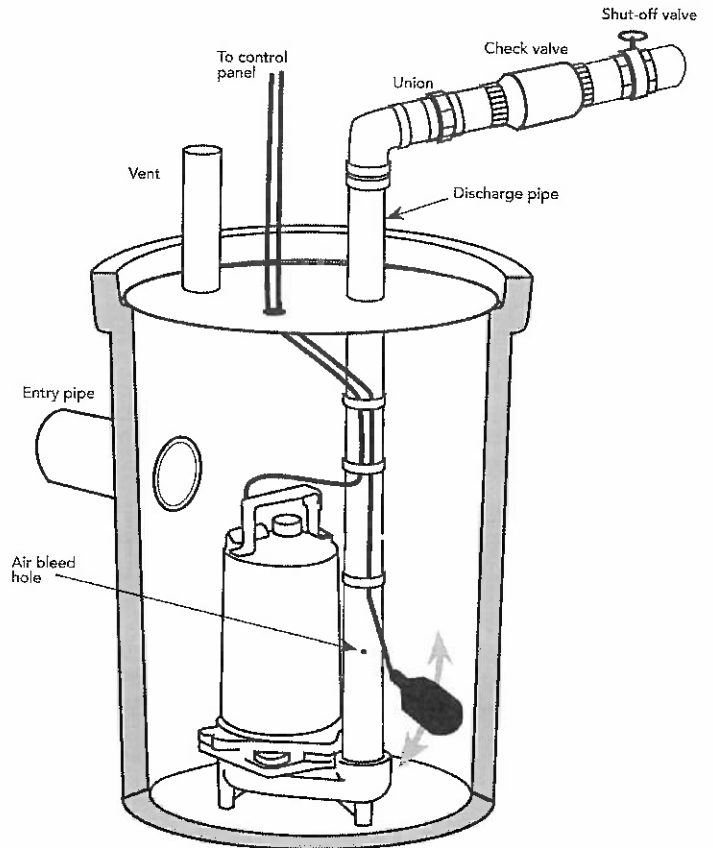


FIGURE 3



Effluent Pump Model: EP50, EP75, EP100, EP150 Trouble Shooting

PROBLEMS	POSSIBLE CAUSES/SOLUTIONS
PUMP DOES NOT RUN AND MAKES HUMMING SOUND	<ul style="list-style-type: none"> Line circuit breaker is off, or fuse is blown or loose Water level in sump has not reached turn-on level as indicated in installation drawing. Pump cord is not making contact in receptacle. Float is stuck. It should operate freely in basin. If all of the above are OK, then the motor could be malfunctioning.
PUMP RUNS BUT DOES NOT DELIVER WATER	<ul style="list-style-type: none"> Check if valve is installed backwards. Arrow on valve should point direction of flow Discharge shut-off valve (if used) may be closed. Impeller or volute openings are fully or partially clogged. Remove pump and clean. Pump is air-locked. Start and stop several times by plugging and unplugging cord. Check for clogged vent hole in pump case. Inlet holes in pump base are clogged. Remove pump and clean the openings. Vertical pumping distance is too high. Reduce distance or change the discharge fittings of the pump.
PUMP RUNS AND PUMPS OUT SUMP, BUT DOES NOT STOP	<ul style="list-style-type: none"> Float is stuck in up position. Be sure float operates freely in basin. Defective float switch. Replace float switch.
PUMP RUNS BUT ONLY DELIVERS A SMALL AMOUNT OF WATER	<ul style="list-style-type: none"> Pump is air-locked. Start and stop several times by plugging in and unplugging cord. Check for clogged vent hole in pump case. Vertical pumping distance is too high. Reduce distance or change the discharge fitting of the pump. Inlet holes in pump base are clogged. Remove pump and clean the strainer and openings. Impeller or volute openings are fully or partially clogged. Remove pump and clean. Pump impeller is partially clogged with tar or paint, causing motor to run slow and overload. Remove pump and clean.
FUSE BLOWS OR CIRCUIT BREAKER TRIPS WHEN PUMP STARTS	<ul style="list-style-type: none"> Pump impeller is partially clogged causing motor to run slow and overload. Remove pump and clean. Motor stator may be defective. Fuse size or circuit breaker may be too small. (must be 15 amps). Impeller or volute opening are fully or partially clogged. Remove pump and clean .
MOTOR RUNS FOR A SHORT TIME, THEN STOPS	<ul style="list-style-type: none"> Inlet holes in pump base are clogged. Remove pump and clean the openings. Pump impeller is partially clogged causing motor to run slow and overload. Remove pump and clean. Motor stator may be defective. Impeller or volute openings are fully or partially clogged. Remove pump and clean. Also clean the strainer if one is installed.

ELECTRICAL PRECAUTIONS



WARNING Before servicing a pump, always shut off the main power breaker and then unplug the pump. Make sure you are not standing in water and are wearing insulated protective sole shoes, under flooded conditions. Contact your local electric company or a qualified licensed electrician for disconnecting electrical service prior to pump removal

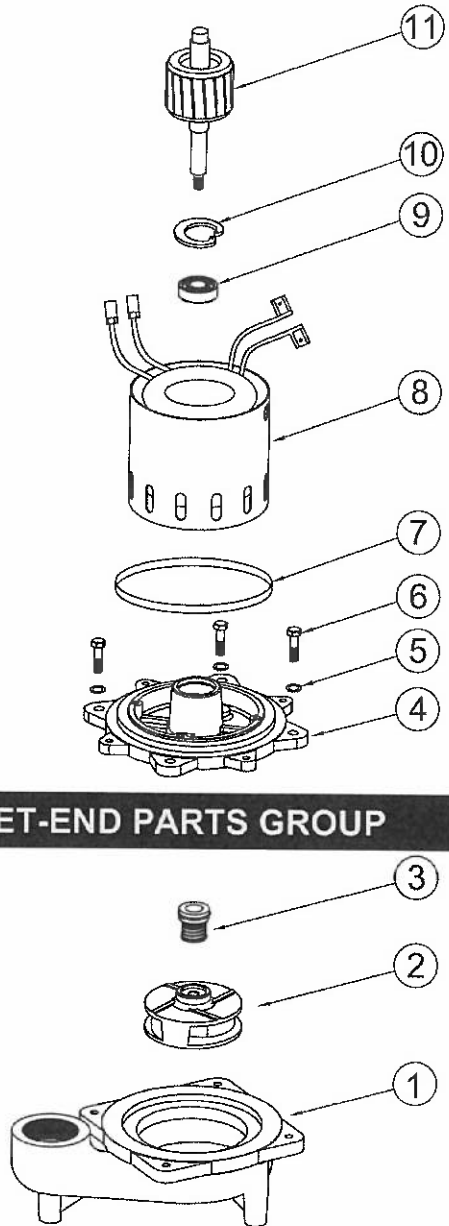


Effluent Pump
Model: EP50, EP75, EP100, EP150
Parts

MOTOR PARTS GROUP



WET-END PARTS GROUP





Effluent Pump

Model: EP50 and EP75

Parts

NO.	DESCRIPTION	PART NO. For Pump Models												QTY
		EP50M1-20	EP50M2-20	EP50M3-20	EP50M4-20	EP50M5-20	EP50M6-20	EP75M1-20	EP75M2-20	EP75M3-20	EP75M4-20	EP75M5-20	EP75M6-20	
		115V/1PH	230V/1PH	230V/3PH	460V/3PH	208V/1PH	208V/3PH	115V/1PH	230V/1PH	230V/3PH	460V/3PH	208V/1PH	208V/3PH	
WET-END PARTS GROUP		091EP5002A	091EP5002A	091EP5002A	091EP5002	091EP5002A	091EP5002A	091EP7502A	091EP7502A	091EP7502A	091EP7502A	091EP7502A	091EP7502A	
1	VOLUTE	091EP5001	091EP5001	091EP5001	091EP5001	091EP5001	091EP5001	091EP5001	091EP5001	091EP5001	091EP5001	091EP5001	091EP5001	1
2	IMPELLER	091EP5002	091EP5002	091EP5002	091EP5002	091EP5002	091EP5002	091EP7502	091EP7502	091EP7502	091EP7502	091EP7502	091EP7502	1
3	SHAFT-SEAL	091EP5003	091EP5003	091EP5003	091EP5003	091EP5003	091EP5003	091EP5003	091EP5003	091EP5003	091EP5003	091EP5003	091EP5003	1
MOTOR PARTS GROUP		091EP5008A	091EP5009A	091EP5039A	091EP5049A	091EP5009A	091EP5039A	091SWH519A	091EP7509A	091SWH539A	091SWH549A	091EP7509A	091SWH539A	
4	SEAL PLATE	091EP5004	091EP5004	091EP5004	091EP5004	091EP5004	091EP5004	091EP5004	091EP5004	091EP5004	091EP5004	091EP5004	091EP5004	1
5	WASHER	091EP5005	091EP5005	091EP5005	091EP5005	091EP5005	091EP5005	091EP5005	091EP5005	091EP5005	091EP5005	091EP5005	091EP5005	8
6	SCREW	091EP5006	091EP5006	091EP5006	091EP5006	091EP5006	091EP5006	091EP5006	091EP5006	091EP5006	091EP5006	091EP5006	091EP5006	8
7	O-RING	091EP5007	091EP5007	091EP5007	091EP5007	091EP5007	091EP5007	091EP5007	091EP5007	091EP5007	091EP5007	091EP5007	091EP5007	1
8	STATOR ASSY	091EP5008	091EP5009	091EP5039	091EP5049	091EP5009	091EP5039	091SWH519	091EP7509	091SWH539	091SWH549	091EP7509	091SWH539	1
9	BEARING	091EP5010	091EP5010	091EP5010	091EP5010	091EP5010	091EP5010	091EP5010	091EP5010	091EP5010	091EP5010	091EP5010	091EP5010	2
10	C-RING	091EP5011	091EP5011	091EP5011	091EP5011	091EP5011	091EP5011	091EP5011	091EP5011	091EP5011	091EP5011	091EP5011	091EP5011	1
11	ROTOR ASSY	091EP5012	091EP5012	091EP5012	091EP5012	091EP5012	091EP5012	091EP7512	091EP7512	091EP7512	091EP7512	091EP7512	091EP7512	1
12	SPRING WASHER	091EP5013	091EP5013	091EP5013	091EP5013	091EP5013	091EP5013	091EP5013	091EP5013	091EP5013	091EP5013	091EP5013	091EP5013	1
13	TOP COVER	091EP5014	091EP5014	091EP5014	091EP5014	091EP5014	091EP5014	091EP5014	091EP5014	091EP5014	091EP5014	091EP5014	091EP5014	1
14	GROUND LINE	091EP5015	091EP5015	091EP5315	091EP5315	091EP5015	091EP5315	091EP5015	091EP5015	091EP5315	091EP5315	091EP5015	091EP5315	1
15	SCREW	091EP5016	091EP5016	091EP5016	091EP5016	091EP5016	091EP5016	091EP5016	091EP5016	091EP5016	091EP5016	091EP5016	091EP5016	4
16	CLAMP	091EP5017	091EP5017	NONE	NONE	091EP5017	NONE	091EP5017	091EP5017	NONE	NONE	091EP5017	NONE	1
17	SCREW	091EP5018	091EP5018	NONE	NONE	091EP5018	NONE	091EP5018	091EP5018	NONE	NONE	091EP5018	NONE	1
18	CAPACITOR	091EP5019	091EP5019	NONE	NONE	091EP5019	NONE	091EP5019	091EP5019	NONE	NONE	091EP5019	NONE	1
19	HOUSING	091EP5020	091EP5020	091EP5020	091EP5020	091EP5020	091EP5020	091EP5020	091EP5020	091EP5020	091EP5020	091EP5020	091EP5020	1
20	O-RING	091EP5021	091EP5021	091EP5021	091EP5021	091EP5021	091EP5021	091EP5021	091EP5021	091EP5021	091EP5021	091EP5021	091EP5021	1
21	ADAPTER	091EP5022	091EP5022	091EP5322	091EP5322	091EP5022	091EP5322	091EP5022	091EP5022	091EP5322	091EP5322	091EP5022	091EP5322	1
22	RETAINER RING	091EP5023	091EP5023	091EP5023	091EP5023	091EP5023	091EP5023	091EP5023	091EP5023	091EP5023	091EP5023	091EP5023	091EP5023	1
23	SCREW	091EP5024	091EP5024	091EP5024	091EP5024	091EP5024	091EP5024	091EP5024	091EP5024	091EP5024	091EP5024	091EP5024	091EP5024	2
24	POWER CORD	091EP5025	091EP5026	091EP5326	091EP5326	091EP5026	091EP5326	091EP5025	091EP5026	091EP5326	091EP5326	091EP5026	091EP5326	1
25	HANDLE	091EP5027	091EP5027	091EP5027	091EP5027	091EP5027	091EP5027	091EP5027	091EP5027	091EP5027	091EP5027	091EP5027	091EP5027	1
26	SCREW	091EP5028	091EP5028	091EP5028	091EP5028	091EP5028	091EP5028	091EP5028	091EP5028	091EP5028	091EP5028	091EP5028	091EP5028	2
27	NUT	091EP5029	091EP5029	091EP5029	091EP5029	091EP5029	091EP5029	091EP5029	091EP5029	091EP5029	091EP5029	091EP5029	091EP5029	1



Effluent Pump

Model: EP100 and EP150

Parts

NO.	DESCRIPTION	PART NO. For Pump Models										QTY
		EP100M2-20	EP100M3-20	EP100M4-20	EP100M5-20	EP100M6-20	EP150M2-20	EP150M3-20	EP150M4-20	EP150M5-20	EP150M6-20	
		230V/1PH	230V/3PH	460V/3PH	208V/1PH	208V/3PH	230V/1PH	230V/3PH	460V/3PH	208V/1PH	208V/3PH	
WET-END PARTS GROUP		091EP1002A	091EP1002A	091EP1002A	091EP1002A	091EP1002A	091EP1502A	091EP1502A	091EP1502A	091EP1502A	091EP1502A	
1	VOLUTE	091EP1001	091EP1001	091EP1001	091EP1001	091EP1001	091EP1001	091EP1001	091EP1001	091EP1001	091EP1001	1
2	IMPELLER	091EP1002	091EP1002	091EP1002	091EP1002	091EP1002	091EP1502	091EP1502	091EP1502	091EP1502	091EP1502	1
3	SHAFT-SEAL	091EP5003	091EP5003	091EP5003	091EP5003	091EP5003	091EP5003	091EP5003	091EP5003	091EP5003	091EP5003	1
MOTOR PARTS GROUP		091EP1009A	091EP1039A	091EP1049A	091EP1009A	091EP1039A	091EP1509A	091EP1539A	091EP1549A	091EP1529A	091EP1539A	
4	SEAL PLATE	091EP5004	091EP5004	091EP5004	091EP5004	091EP5004	091EP5004	091EP5004	091EP5004	091EP5004	091EP5004	1
5	WASHER	091EP5005	091EP5005	091EP5005	091EP5005	091EP5005	091EP5005	091EP5005	091EP5005	091EP5005	091EP5005	8
6	SCREW	091EP5006	091EP5006	091EP5006	091EP5006	091EP5006	091EP5006	091EP5006	091EP5006	091EP5006	091EP5006	8
7	O-RING	091EP5007	091EP5007	091EP5007	091EP5007	091EP5007	091EP5007	091EP5007	091EP5007	091EP5007	091EP5007	1
8	STATOR ASSY	091EP1009	091EP1039	091EP1049	091EP1009	091EP1039	091EP1509	091EP1539	091EP1549	091EP1529	091EP1539	1
9	BEARING	091EP5010	091EP5010	091EP5010	091EP5010	091EP5010	091EP5010	091EP5010	091EP5010	091EP5010	091EP5010	2
10	C-RING	091EP5011	091EP5011	091EP5011	091EP5011	091EP5011	091EP5011	091EP5011	091EP5011	091EP5011	091EP5011	1
11	ROTOR ASSY	091EP1012	091EP1012	091EP1012	091EP1012	091EP1012	091EP1512	091EP1512	091EP1512	091EP1512	091EP1512	1
12	SPRING WASHER	091EP5013	091EP5013	091EP5013	091EP5013	091EP5013	091EP5013	091EP5013	091EP5013	091EP5013	091EP5013	1
13	TOP COVER	091EP5014	091EP5014	091EP5014	091EP5014	091EP5014	091EP5014	091EP5014	091EP5014	091EP5014	091EP5014	1
14	GROUND LINE	091EP5015	091EP5315	091EP5315	091EP5015	091EP5315	091EP5015	091EP5315	091EP5315	091EP5015	091EP5315	1
15	SCREW	091EP1016	091EP1016	091EP1016	091EP1016	091EP1016	091EP1016	091EP1016	091EP1016	091EP1016	091EP1016	4
16	CLAMP	091EP5017	NONE	NONE	091EP5017	NONE	091EP5017	NONE	NONE	091EP5017	NONE	1
17	SCREW	091EP5018	NONE	NONE	091EP5018	NONE	091EP5018	NONE	NONE	091EP5018	NONE	1
18	CAPACITOR	091EP5019	NONE	NONE	091EP5019	NONE	091EP5019	NONE	NONE	091EP5019	NONE	1
19	HOUSING	091EP5020	091EP5020	091EP5020	091EP5020	091EP5020	091EP5020	091EP5020	091EP5020	091EP5020	091EP5020	1
20	O-RING	091EP5021	091EP5021	091EP5021	091EP5021	091EP5021	091EP5021	091EP5021	091EP5021	091EP5021	091EP5021	1
21	ADAPTER	091EP5022	091EP5322	091EP5322	091EP5022	091EP5322	091EP5022	091EP5322	091EP5322	091EP5022	091EP5322	1
22	RETAINER RING	091EP5023	091EP5023	091EP5023	091EP5023	091EP5023	091EP5023	091EP5023	091EP5023	091EP5023	091EP5023	1
23	SCREW	091EP5024	091EP5024	091EP5024	091EP5024	091EP5024	091EP5024	091EP5024	091EP5024	091EP5024	091EP5024	2
24	POWER CORD	091EP5026	091EP5326	091EP5326	091EP5026	091EP5326	091EP1526	091EP5326	091EP5326	091EP1526	091EP5326	1
25	HANDLE	091EP5027	091EP5027	091EP5027	091EP5027	091EP5027	091EP5027	091EP5027	091EP5027	091EP5027	091EP5027	1
26	SCREW	091EP5028	091EP5028	091EP5028	091EP5028	091EP5028	091EP5028	091EP5028	091EP5028	091EP5028	091EP5028	2
27	NUT	091EP5029	091EP5029	091EP5029	091EP5029	091EP5029	091EP5029	091EP5029	091EP5029	091EP5029	091EP5029	1



P U M P

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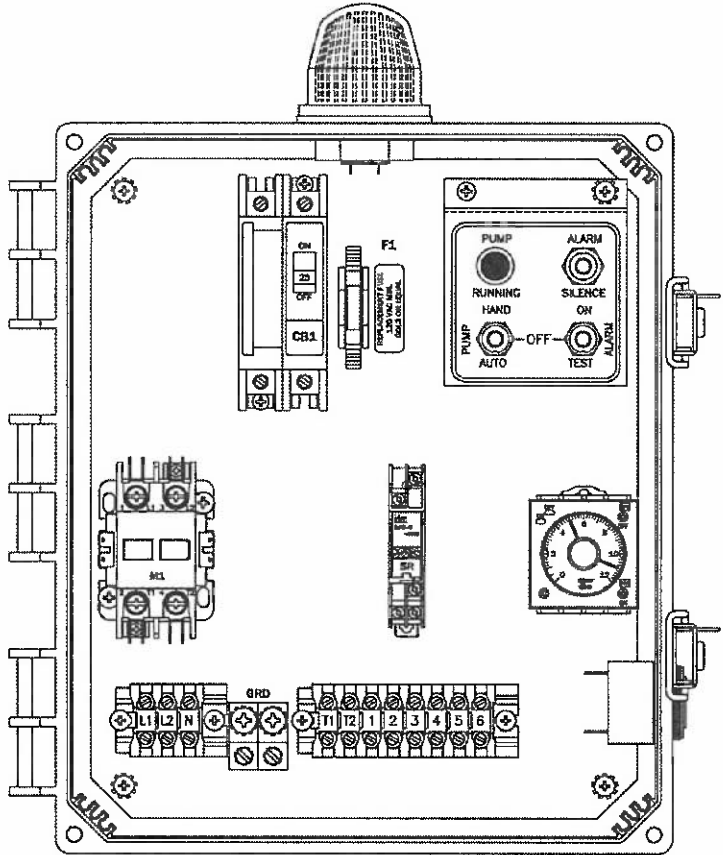


CONTROL PANEL

“50A806” Model Simplex 115/230V 1 Phase Time Dosing Panel

Features & Benefits

- Circuit Breaker for Pump Circuit
- Definite Purpose Motor Contactor
- Easy to Access Terminal Block
- Usable with 115/230 VAC 1PH Power
- Alarm Silence & On-Off-Test Switches
- Externally Mounted Audible Alarm
- Pump Hand-Off-Auto Switch
- Pump Running Light
- Repeat Cycle Timer
- Large External Alarm Light
- Control Circuit Fuse Protection
- Ground Lugs
- Color Coded Internal Wiring
- Rugged Weather Resistant Hinged Poly Enclosure w/Sst Latches
- Built and Labeled to UL 508A Standard w/Nema 4x Rating
- Provided with Wiring Schematic and Detailed Connection Diagram for Installer
- Mounting Feet for Enclosure



(Standard 50A806 Model Shown)

Available Options(*)

- Fiberglass Enclosure
- IEC Motor Contactor
- Flasher
- Dead Front Inner Door
- Auxiliary Alarm Contacts
- Elapsed Timer Meters
- Event or Cycle Counters
- Mercury or Mechanical Float Switches for the Pumps and High Water Alarm Circuits



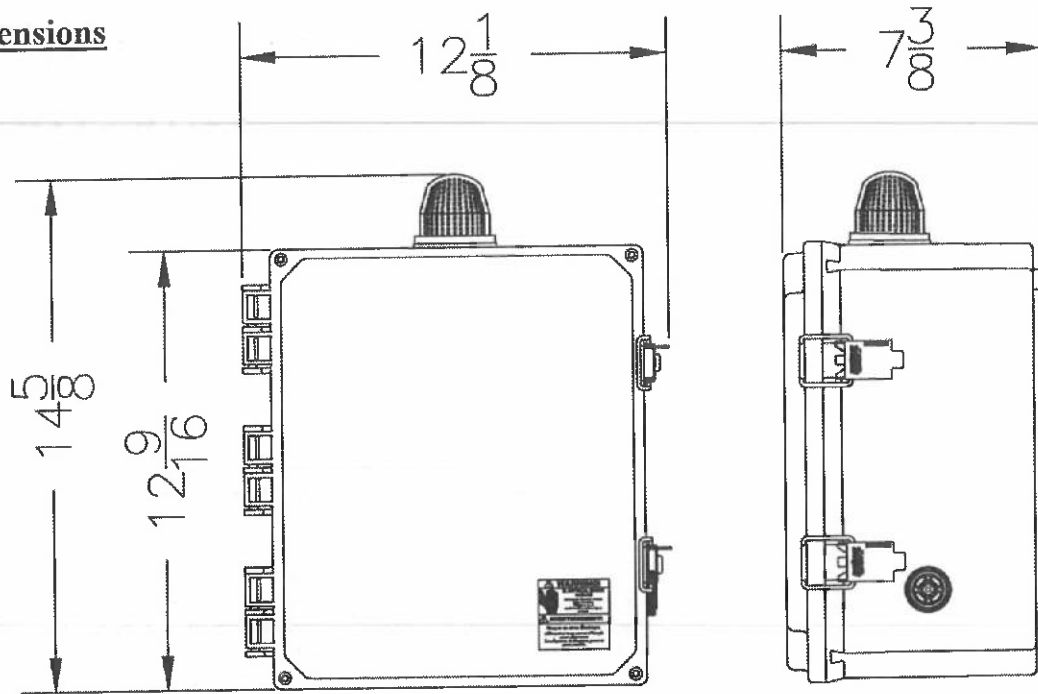
*Note: Consult the factory for other available options. Also, some options may require an increase in the enclosure size.



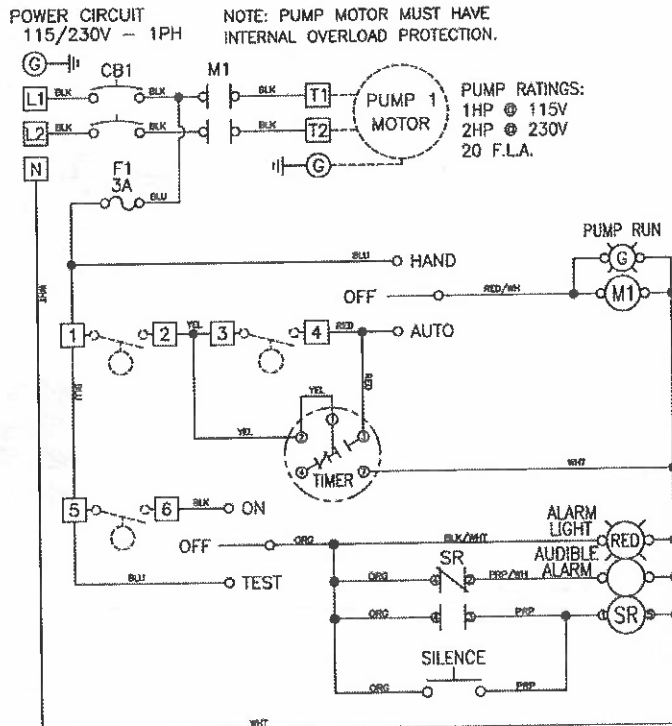
CONTROL PANEL

“50A806” Model Simplex 115/230V 1 Phase Time Dosing Panel

Panel Dimensions



Panel Schematic



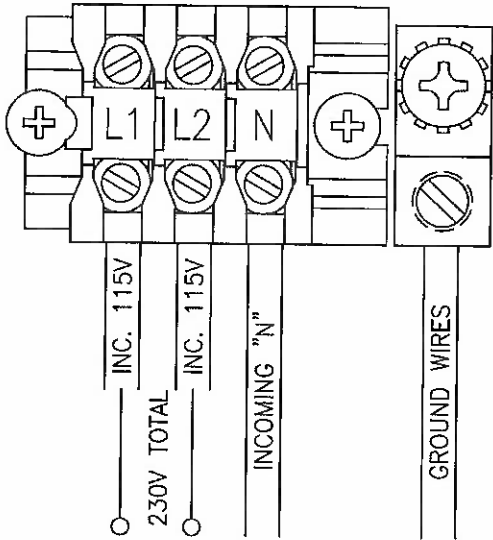
TIGHTENING TORQUE FOR TERMINAL BLOCK IS 16 in-lbs.

MODEL NO.

SSTD12B

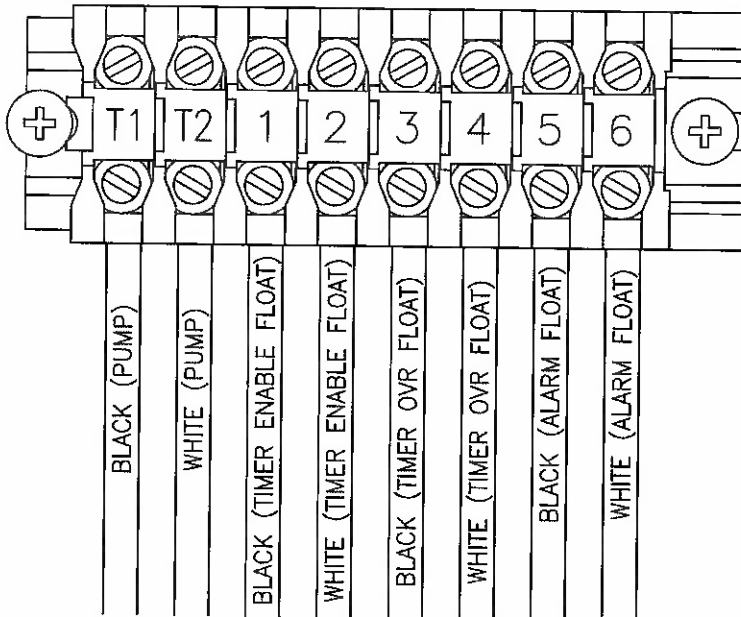
INCOMING POWER CONNECTIONS

PAGE
1



CONNECTION DIAGRAM TIME DOSE CONTROL PANEL USING 230V-1PH

PUMP & FLOAT CONNECTIONS



ALL INFORMATION CONTAINED IN THIS DRAWING IS CONFIDENTIAL AND PROPRIETARY TO SEPTIC PRODUCTS INC.



CHANGES		TOLERANCES		DRAWN BY		DATE	
F		DECIMALS .xxx = ±.005 .xx = ±.010 FRACTIONAL x/x = ±.1/64 ANGLES x° = ±1/2°		D. MIDDLETON		01/20/04	
E				MATERIAL SPECIFICATION: AS NOTED			
D							
C							
B							
A							

POWER CONNECTION DIAGRAM (230V)

SCALE: FULL PART NO. 50A806

TIGHTENING TORQUE FOR TERMINAL BLOCK IS 16 in-lbs.

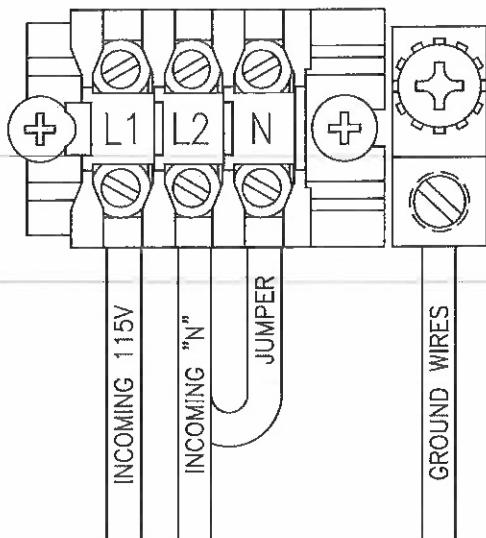
MODEL NO.

SSTD12B

INCOMING POWER CONNECTIONS

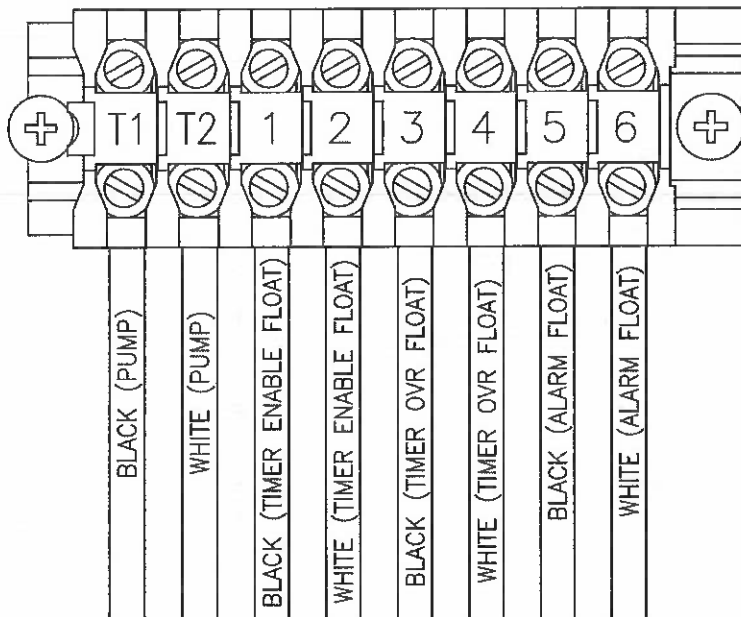
PAGE

2



CONNECTION DIAGRAM TIME DOSE CONTROL PANEL USING 115V-1PH

PUMP & FLOAT CONNECTIONS



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POWER CONNECTION DIAGRAM (115V)

CHANGES	TOLERANCES	DRAWN BY	DATE
F	DECIMALS .xxx = ±.005	D. MIDDLETON	01/20/04
E	.xx = ±.010	MATERIAL SPECIFICATION: AS NOTED	
D	FRACTIONAL		
C	x/x = ±.1/64		
B	ANGLES		
A	x' = ±1/2'		

SCALE:	PART NO.
FULL	50A806

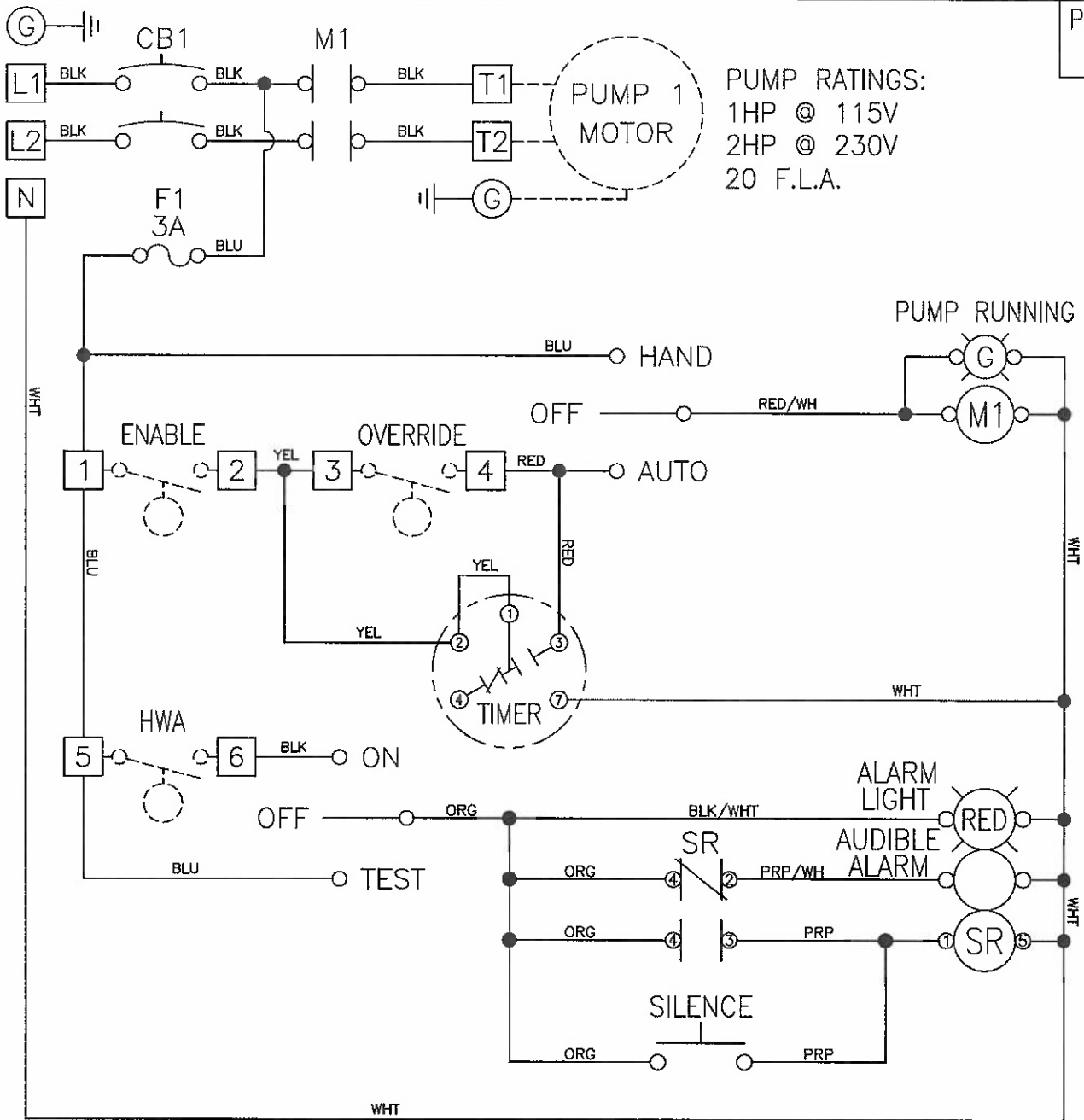
POWER CIRCUIT
115/230V - 1PH

NOTE: PUMP MOTOR MUST HAVE
INTERNAL OVERLOAD PROTECTION.

MODEL NO.

SSTD12B

PAGE
3



NOTES: FLOAT SWITCH TO BE RATED 2 AMP AT 120V MINIMUM.
MAIN PANEL DISCONNECT MUST BE PROVIDED BY INSTALLER.
DASHED LINES INDICATE ITEMS NOT CONTAINED IN THE PANEL.
FIELD WIRING MUST BE A MINIMUM OF 60°C COPPER WIRE.
TO PRESERVE ENVIRONMENTAL RATING OF PANEL, USE FITTINGS
AND HUBS WITH SAME ENVIRONMENTAL RATING AS ENCLOSURE



CHANGES	TOLERANCES	DRAWN BY	DATE
F	DECIMALS	C. BARRICK	09/06/17
E	.XXX = ±.005	MATERIAL SPECIFICATION: AS NOTED	
D	.XX = ±.010		
C	FRACTIONAL		
B	X/X = ±.1/64		
A	ANGLES X° = ±1/2°		

SCHEMATIC, ELECTRICAL

SCALE: PART NO.
FULL 50A806

SJE SIGNALMASTER® Control Switch

Mechanically-activated, narrow-angle float switch designed to activate pump control panels and alarms.

This narrow-angle sensing device is used to accurately monitor liquid levels in:

- potable water
- water
- sewage applications

The SJE SignalMaster® control switch is not sensitive to rotation.

Normally Open Model (high level)

The control switch turns on (closes) when the switch tips slightly **above** horizontal signaling a high level, and turns off (opens) when the switch drops slightly below horizontal.

Normally Closed Model (low level)

The control switch turns on (closes) when the switch tips slightly **below** horizontal signaling a low level, and turns off (opens) when the switch tips slightly above horizontal.



FEATURES

- Passed NSF Standard 61 protocol by an approved Water Quality Association laboratory.
- Mechanically-activated, snap action contacts.
- High impact, corrosion resistant, polypropylene float housing.
- Not sensitive to rotation.
- Control differential of 1.5 inches (4 cm) above or below horizontal.
- Yellow colored cap for easy identification of normally open control switch.
- White colored cap for easy identification of normally closed control switch.
- UL Listed for use in water and sewage.
- CSA Certified.
- Five-year limited warranty.



OPTIONS

This switch is available:

- CE certified unit available upon request.
- for normally open (high level) applications or normally closed (low level) applications.
- in standard cable lengths of 10, 15, 20, or 30 feet and 3, 5, 6, or 10 meters (longer lengths available)
- with two mounting options that allow for flexibility in installation:

Mounting Clamp: for applications where the switch can be attached to a discharge pipe or similar mounting device.

Externally Weighted: for applications where the switch can be suspended from above.

SPECIFICATIONS

CABLE: flexible 18 gauge, 2 conductor (UL, CSA) SJOW, water-resistant (CPE)

FLOAT: 2.74 inch diameter x 4.83 inch long (7.0 x 12.3 cm) high impact, corrosion resistant, polypropylene housing for use in sewage and water up to 140°F (60°C)

MAXIMUM WATER DEPTH: 30 feet (9 meters), 13 PSI (90 kPa)

ELECTRICAL: 5 amp, 125/250 VAC, 50/60 Hz

NOTE: This switch is not recommended for controlling:

- electric loads less than 100 milliamps, 12 VAC
- non-arcing electric loads

SEE BACKSIDE FOR ORDERING INFORMATION.

SJE
Rhombus

PO Box 1708, Detroit Lakes, MN 56502
1-888-DIAL-SJE • 1-218-847-1317
1-218-847-4617 Fax

email: customer.service@sjerhombus.com

www.sjerhombus.com

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SJE SIGNALMASTER® Control Switch

Mechanically-activated, narrow-angle float switch designed to activate pump control panels and alarms.

ORDERING INFORMATION

Normally Open		Normally Closed		List Price	Shipping Weight
Part#	Description	Part#	Description		
1006042	10SGMPCNO	1006046	10SGMPCNC	\$34.39	1.04 lbs.
1006050	10SGMWENO	1006054	10SGMWENC	\$42.14	2.73 lbs.
1006043	15SGMPCNO	1006047	15SGMPCNC	\$37.63	1.37 lbs.
1006051	15SGMWENO	1006055	15SGMWENC	\$45.39	3.05 lbs.
1006044	20SGMPCNO	1006048	20SGMPCNC	\$40.87	1.69 lbs.
1006052	20SGMWENO	1006056	20SGMWENC	\$48.65	3.30 lbs.
1006045	30SGMPCNO	1006049	30SGMPCNC	\$47.93	2.34 lbs.
1006053	30SGMWENO	1006057	30SGMWENC	\$55.66	4.03 lbs.

PC = Pipe Clamp WE = Weighted Externally NO = Normally Open NC = Normally Closed
 NOTE: Descriptions are grouped by cable length measured in feet (10, 15, 20, 30).

OPTIONS

MOUNTING CLAMP
is standard - deduct optional

PACKAGING
Bagged - standard.
Boxed - optional
Bulk - optional

ADDITIONAL CABLE
Longer cable lengths available. Please call for details.



Passed NSF standard 61 protocol by an approved Water Quality Association laboratory.



SPECIFICATIONS

CABLE: flexible 18 gauge, 2 conductor (UL) SJOW, water-resistant (CPE)

FLOAT: 2.74 inch diameter x 4.83 inch long (7 x 12.3 cm), high impact, corrosion resistant polypropylene for use in sewage and water up to 140°F (60°C)

MAXIMUM WATER DEPTH: 30 feet (9 meters), 13 psi

ELECTRICAL: 5 amp, 125/250 VAC, 50/60 Hz

This switch is not recommended for controlling:

- electric loads less than 100 milliamps, 12 VAC
- non-arcing electric loads

OTHER INFORMATION

NORMALLY OPEN (high level) OPERATION

The control switch closes (turns on) when the float tips slightly **above** horizontal signaling a high level, and opens (turns off) when the float drops slightly **below** horizontal in potable water, water or sewage applications.

NORMALLY CLOSED (low level) OPERATION

The control switch closes (turns on) when the float tips slightly **below** horizontal signaling a low level, and opens (turns off) when the float tips slightly **above** horizontal in potable water, water or sewage applications.

www.sjerrhombus.com

customer.service@sjerrhombus.com

Call or fax your order!
 1-888-DIAL-SJE (1-888-342-5753) ■ Fax 218-847-4617

Product offering and pricing are subject to change without notice.
 Please visit www.sjerrhombus.com for the most current information.

SJE Rhombus

Control Switch Installation Instructions

SJE-Rhombus® narrow angle control switches accurately monitor liquid levels in sewage, and non-potable water applications. These switches are designed to activate pump control panels and alarms.

The SJE SignalMaster® and SJE SignalMaster® SPDT control switches passed NSF Standard 61 protocol by an approved Water Quality Association laboratory for use in potable water applications.

SJE SIGNALMASTER®



- Mechanically activated.
- Control differential of 1.5 inches above or below horizontal.
- Not sensitive to rotation.
- Mounting options: mounting clamp or cable weight.

SJE SIGNALMASTER® SPDT



- Mechanically activated.
- Control differential of 1.5 inches above or below horizontal.
- Not sensitive to rotation.
- Mounting options: mounting clamp or cable weight.

SENSOR FLOAT®



- Mercury activated.
- Suitable for use with an intrinsically safe circuit.**
- Not sensitive to rotation.
- Mounting options: mounting clamp, internal or cable weight.

**Contact SJE-Rhombus for specific intrinsically safe applications.

SENSOR FLOAT® MINI



- Mercury activated.
- Narrow angle float switch in a small float housing.
- Suitable for use with an intrinsically safe circuit.**
- Not sensitive to rotation.
- Mounting options: mounting clamp or cable weight.

**Contact SJE-Rhombus for specific intrinsically safe applications.

PREVENTATIVE MAINTENANCE

- Periodically inspect the product. Check that the cable has not become worn or that the housing has not been damaged so as to impair the protection of the product. Replace the product immediately if any damage is found or suspected.
- Periodically check to see that the float is free to move and operate the switch.
- Use only SJE-Rhombus® replacement parts.
- The Sensor Float® and Sensor Float® Mini control switches contain mercury and MUST be recycled or disposed of according to local, state, and federal codes.

SJE-RHOMBUS® FIVE-YEAR LIMITED WARRANTY

SJE-RHOMBUS® warrants to the original consumer that this product shall be free of manufacturing defects for five years after the date of consumer purchase. During that time period and subject to the conditions set forth below, SJE-RHOMBUS® will repair or replace, for the original consumer, any component which proves to be defective due to defective materials or workmanship of SJE-RHOMBUS®.

THIS EXPRESS WARRANTY DOES NOT APPLY TO THE MOTOR START KIT COMPONENT. SJE-RHOMBUS® MAKES NO WARRANTIES OF ANY TYPE WITH RESPECT TO THE MOTOR START KIT.

ELECTRICAL WIRING AND SERVICING OF THIS PRODUCT MUST BE PERFORMED BY A LICENSED ELECTRICIAN.

THIS WARRANTY DOES NOT APPLY: (A) to damage due to lightning or conditions beyond the control of SJE-RHOMBUS®; (B) to defects or malfunctions resulting from failure to properly install, operate or maintain the unit in accordance with printed instructions provided; (C) to failures resulting from abuse, misuse, accident, or negligence; (D) to units which are not installed in accordance with applicable local codes, ordinances, or accepted trade practices, and (E) to units repaired and/or modified without prior authorization from SJE-RHOMBUS®.

Some states do not allow limitations on how long an implied warranty lasts, so the above limitation may not apply to you. Some states do not allow the exclusion or limitation of incidental or consequential damages, so the above limitation or exclusion may not apply to you. This warranty gives you specific legal rights, and you may also have other rights which vary from state to state.

TO OBTAIN WARRANTY SERVICE: The consumer shall assume all responsibility and expense for removal, reinstallation, and freight. Any item to be repaired or replaced under this warranty must be returned to SJE-RHOMBUS®, or such place as designated by SJE-RHOMBUS®.

ANY IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS ARE LIMITED TO THE DURATION OF THIS WRITTEN WARRANTY. SJE-RHOMBUS® SHALL NOT, IN ANY MANNER, BE LIABLE FOR ANY INCIDENTAL OR CONSEQUENTIAL DAMAGES AS A RESULT OF A BREACH OF THIS WRITTEN WARRANTY OR ANY IMPLIED WARRANTY.

NOTICE!

Products returned must be cleaned, sanitized, or decontaminated as necessary prior to shipment to ensure that employees will not be exposed to health hazards in handling said material. All applicable laws and regulations shall apply.

WARNING**ELECTRICAL SHOCK HAZARD**

Disconnect power before installing or servicing this product. A qualified service person must install and service this product according to applicable electrical and plumbing codes.

WARNING**EXPLOSION OR FIRE HAZARD**

Do not use this product with flammable liquids. Do not install in hazardous locations as defined by National Electrical Code, ANSI/NFPA 70.

Failure to follow these precautions could result in serious injury or death. Replace product immediately if switch cable becomes damaged or severed. Keep these instructions with warranty after installation. This product must be installed in accordance with National Electric Code, ANSI/NFPA 70 so as to prevent moisture from entering or accumulating within boxes, conduit bodies, fittings, float housing, or cable.

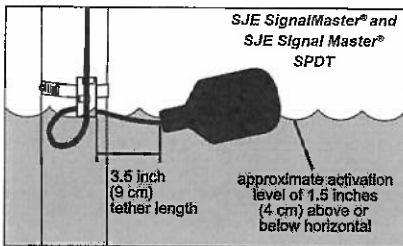
For detailed specifications on this product, or for the complete line of SJE-Rhombus® panel, alarm, and switch products, visit our web-site at www.sjerrhombus.com.

MOUNTING THE SWITCH

WARNING: Do not install switch in direct line of incoming liquid.

1. Place the cord into the clamp as shown in Figure C.
2. Locate clamp at desired activation level and secure the clamp to the discharge pipe as shown in Figures A and B. **Note:** Do not install cord under hose clamp.
3. Tighten the hose clamp using screwdriver. Over tightening may result in damage to the plastic clamp. Make sure the float cable is not allowed to touch the excess hose clamp band during operation.
4. Wire switch as shown in Figure D.
5. Check installation. Allow system to cycle to insure proper operation.

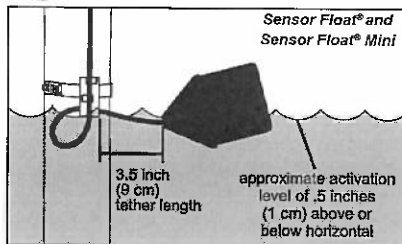
Note: All hose clamp components are made of 18-8 stainless steel material. See your SJE-Rhombus® supplier for replacements.

Figure A**CABLE WEIGHT**

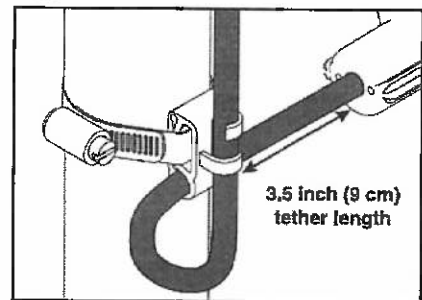
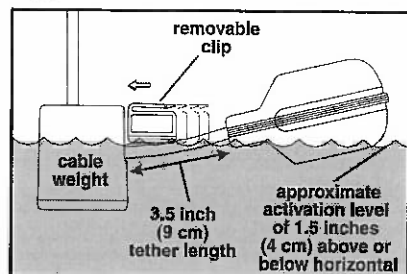
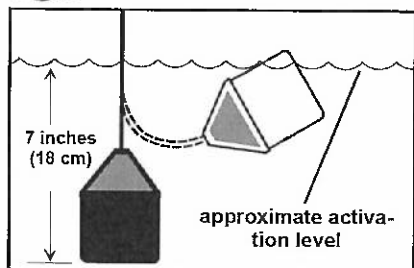
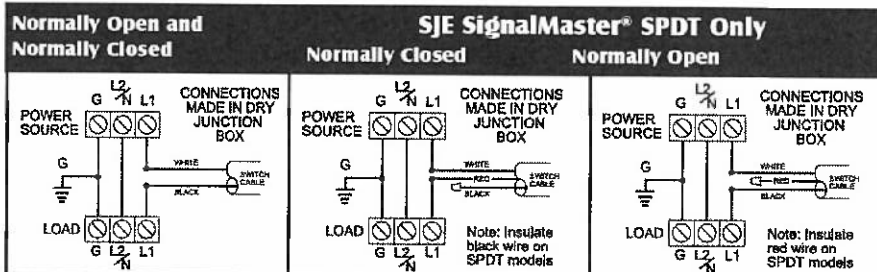
1. Determine desired activation level.
2. Suspend switch and cable weight at desired activation level as shown in Figure E.
3. Wire switch as shown in Figure D.
4. Check installation. Allow system to cycle to insure proper operation.

To adjust cable weight tether length:

1. Release clip.
2. Adjust cable weight to desired position.
3. Lay switch cable in weight channel.
4. Align clip with weight channel and slide towards switch cable as shown in Figure E.
5. Snap clip snugly up to cable, moving clip to tightest possible position.

Figure B**INTERNAL WEIGHT****SENSOR FLOAT® CONTROL SWITCH ONLY**

1. Determine desired activation level as shown in Figures A & B.
2. Suspend switch 7 inches below desired activation level as shown in Figure F. Switch remains partially submerged during the "on" tipping action. Switch can be totally submerged and still continue to operate properly.
3. Wire switch as shown in Figure D.
4. Check installation. Allow system to cycle to insure proper operation.

Figure C**Figure E****Figure F****Figure D****WARNING**

In 230 VAC installations, one side of the line going to the load is always **HOT**. This condition exists if the switch is on or off. Install double pole disconnect on all 230 VAC circuits.

On SPDT Models, insulate unused red or black wires with wire nut. Wire can become electrically hot

Ensure cable connections are performed in a **dry** junction box or other watertight seal that seals both conductors and cable jacket. Failure to do so could result in electrical shock hazard and/or water traveling down cable and entering the switch. Failure to guard against this may affect switch performance.

SJE-Rhombus

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