

DREAMLAND MOBILE HOME PARK

WATER SYSTEM UPGRADE SEWERAGE SYSTEM UPGRADE Pearl River County

Owner: Mr. Frank Mangano

Dreamland Properties L.L.C.

P.O. Box 578

Slidell, LA 70459

Engineer: BRIAN A. MISTICH

DAMMON ENGINEERS

554 Old Spanish Trail

Slidell, LA 70458

(985) 649-5832

May 15, 2013

Mr. Jim Weston
c/o Mississippi State Department of Health
7547 Highway 11 North
Carriere, MS 39426

Re: Dreamland Mobile Home Park
Water System Upgrade
Wastewater Treatment Facility Upgrade
Pearl River County, Mississippi

Mr. Weston,

Submitted for your approval is a proposal to upgrade and rehabilitate the Dreamland Mobile Home Park wastewater treatment system and potable water distribution system.

The current wastewater treatment system, consisting of old filter beds and field lines, and is failing.

Essentially the old system is to be upgraded and rehabilitated by:

- 1) Installation of a new 8" PVC collection line with manholes
- 2) A 2500 gallon solids separator tank
- 3) a 65 GPM duplex lift station with a 3" PE or PVC Force Main line
- 4) a 12,000 Gallon per day extended aeration treatment plant
- 5) a 1,500 Gallon holding tank
- 6) a pumping station with controls for spray field, and
- 7) a 2.2 acre spray field

The wastewater from the mobile homes shall enter an 8" SDR 35 PVC collection line with 6" laterals, 4" services, and 48" diameter Manholes. All wastewater shall pass thru a 2500 Gallon solids separator tank. This tank is necessary for 2 reasons, 1) to remove trash & debris that could possibly clog the spray field matrix and 2) to liquefy the waste to improve encapsulation rate within the treatment plant. From there the wastewater passes to the 65 gallon per minute lift station. Then to a 12,000 GPD extended aeration wastewater treatment plant.

Re: Dreamland Mobile Home Park
Water System Upgrade
Wastewater Treatment Facility Upgrade
Pearl River County, Mississippi

The effluent, after disinfection, shall enter a 1500 Gallon holding tank then a pump station and then to 16 spray heads that covers 106,368 sqft. (96,000 sqft coverage is required)

This will provide adequate treatment facilities for the process and disposal of wastewater effluent. This is based on 40 lots with a maximum water usage of 300 gallons per day per trailer site.

A 6" SDR 26 PVC water distribution line with valves and 2 hydrants shall replace the current water distribution line. This shall be connected to the Nicholson Public Water Supply.

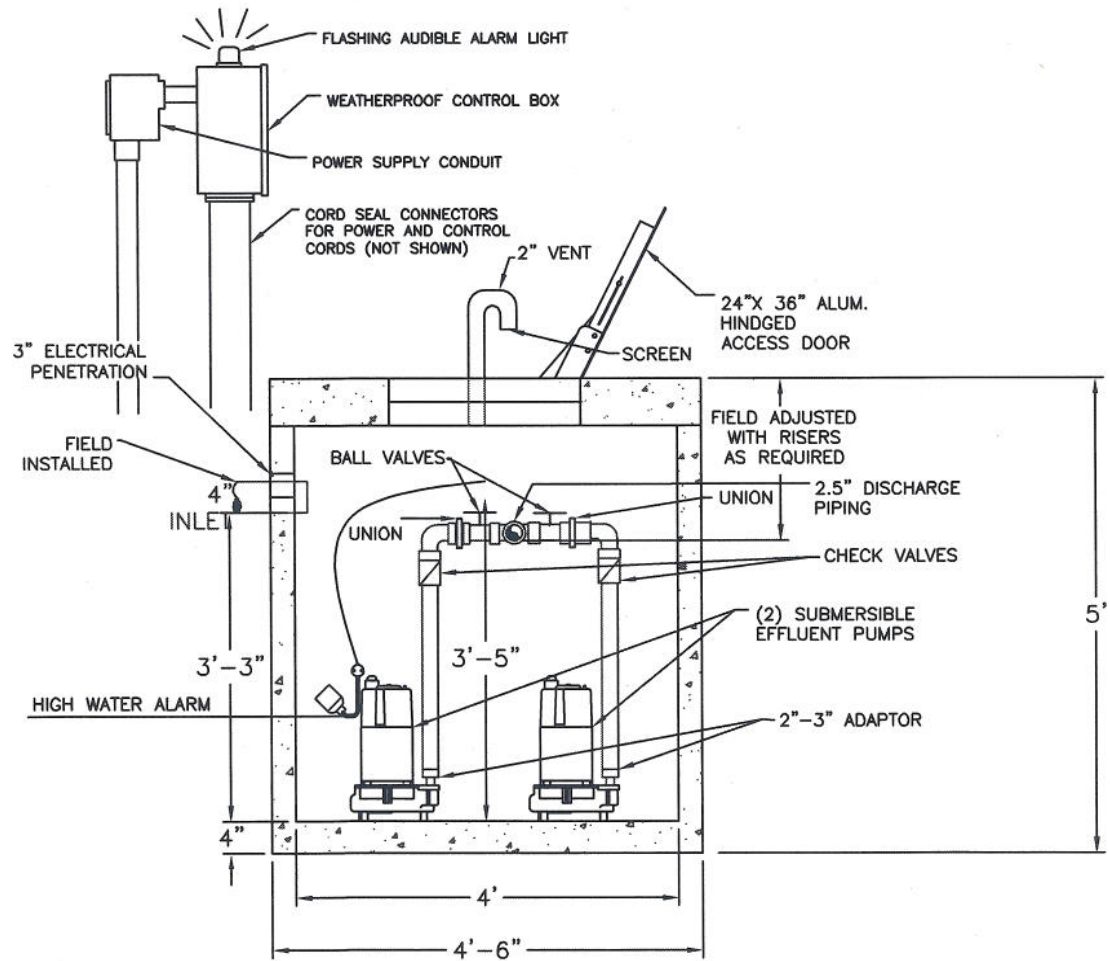
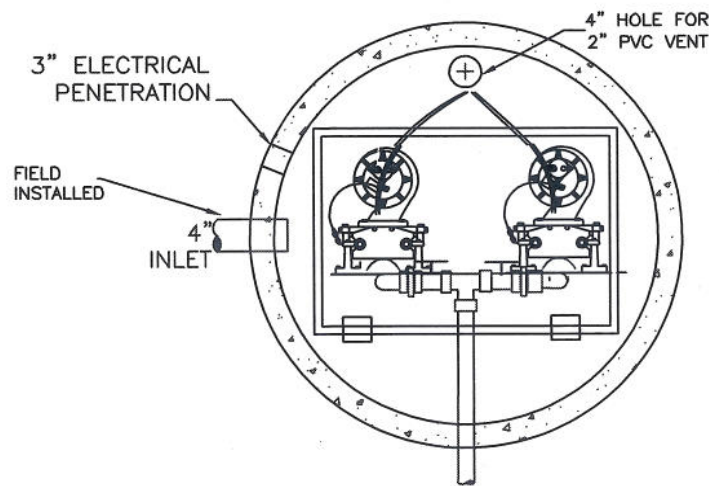
The attached project proposed will remedy the current sewerage and water deficiencies and bring Dreamland Mobile Home Park back into compliance with the Mississippi Department of Health and Mississippi Department of Environmental Quality.

Respectfully,



Brian A. Mistich, P.E.

APPROVED FOR PRODUCTION: _____
 APPROVED FOR PRODUCTION W/ CHANGES: _____
 RESUBMITTAL REQUIRED: _____



SPECIFICATIONS:

1. Class 1 concrete with design strength of 4500 PSI at 28 days.
2. Structure to be sealed with Flat Butyl Sealant (Ram-nek)

EFFLUENT LIFT STATION

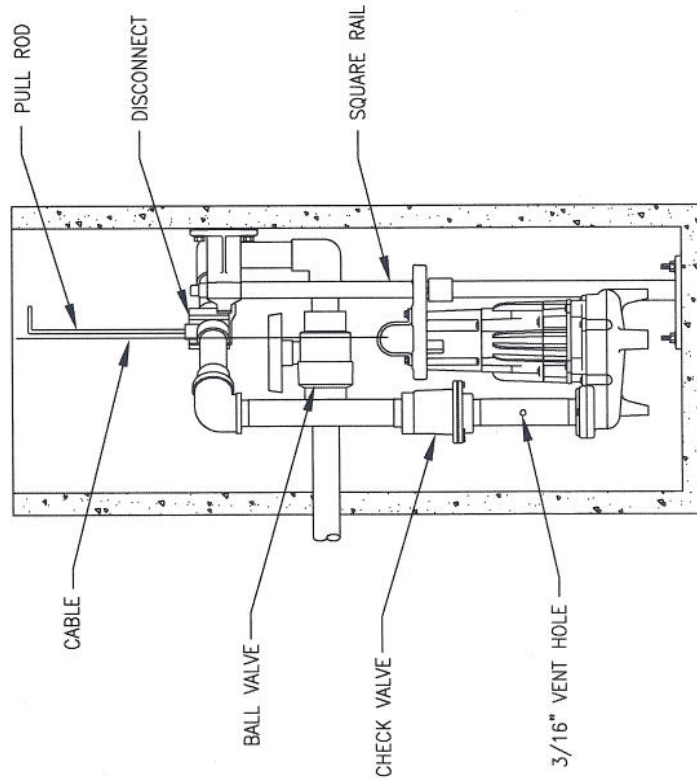
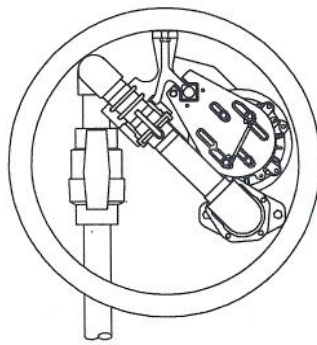
MODEL # **GCP - 300EF-LS**



SCALE: NOT TO SCALE DATE: 5/21/11 DRAWN: CG CHECKED: CG

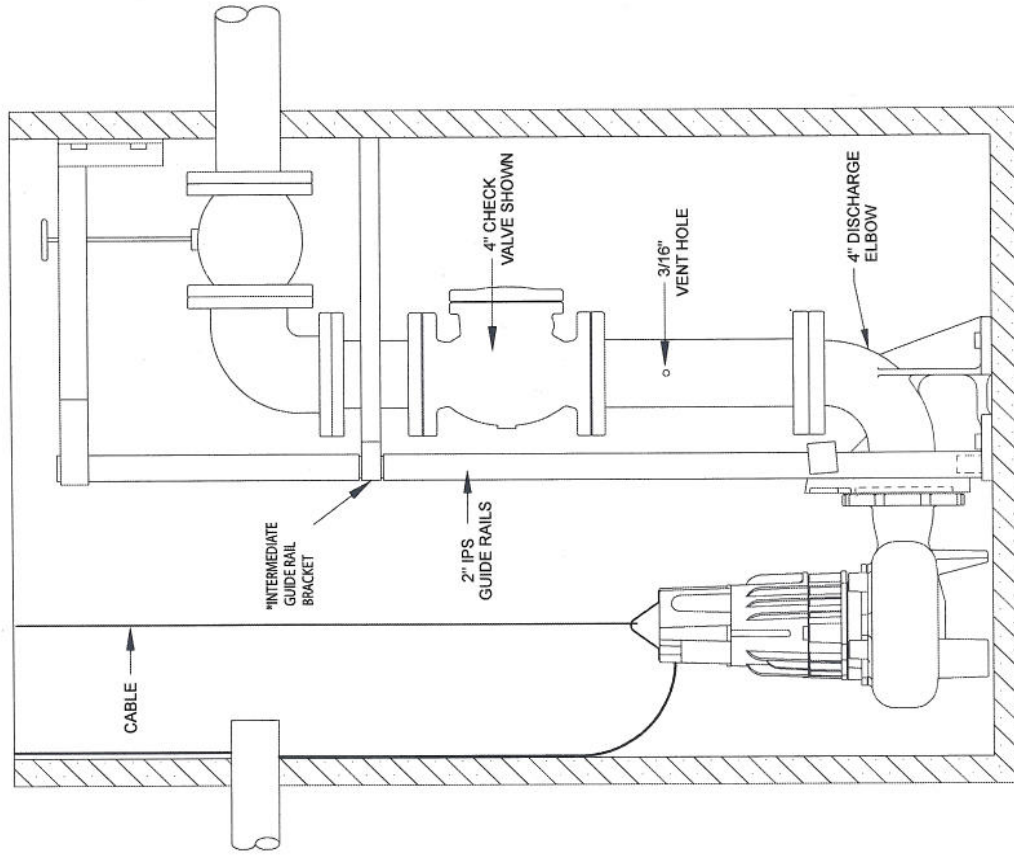
28021 Coker-Vail Road Holden, LA 70744
 Phone (225) 567 - 2700 Fax (225) 567 - 3089
 www.gaineyconcrete.com

SQUARE RAIL SYSTEM



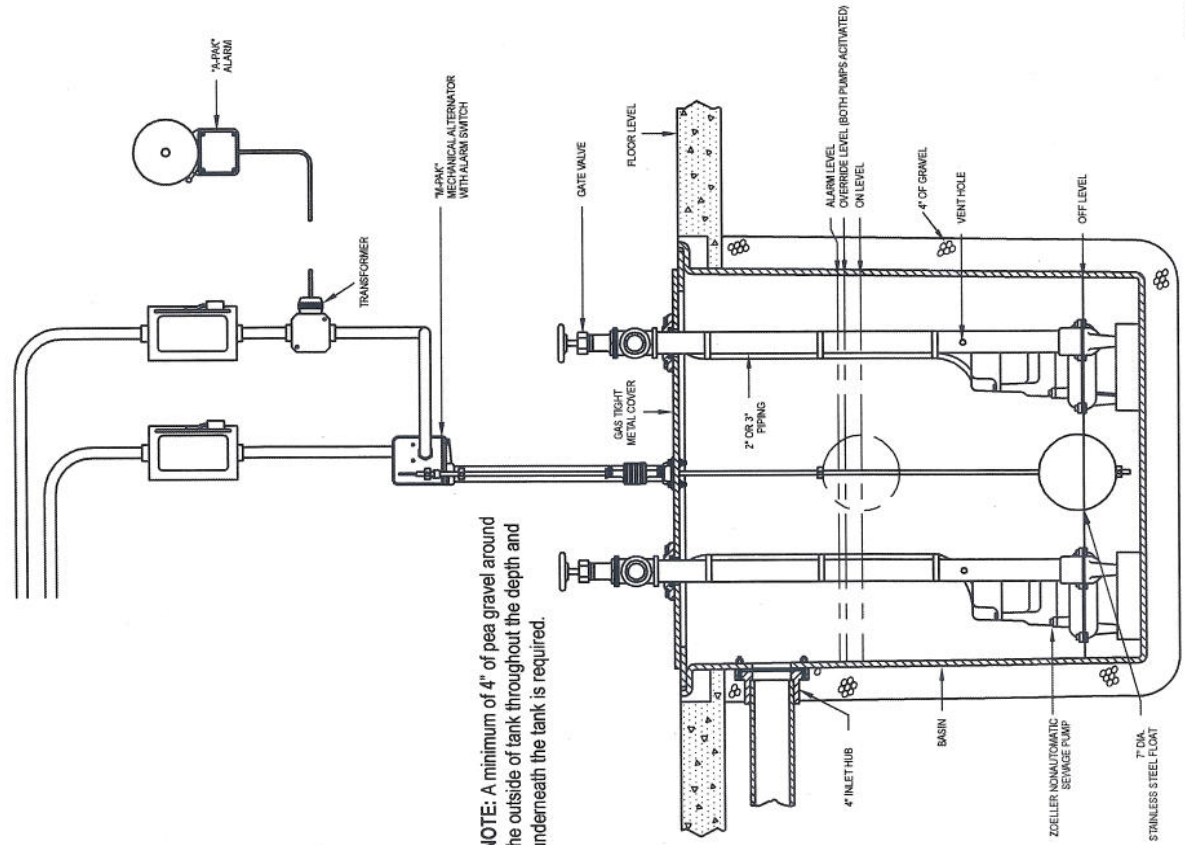
SK1650

404/405, 4404/4405 AND SEWAGE/WASTE GUIDE RAIL SYSTEMS



SK1100

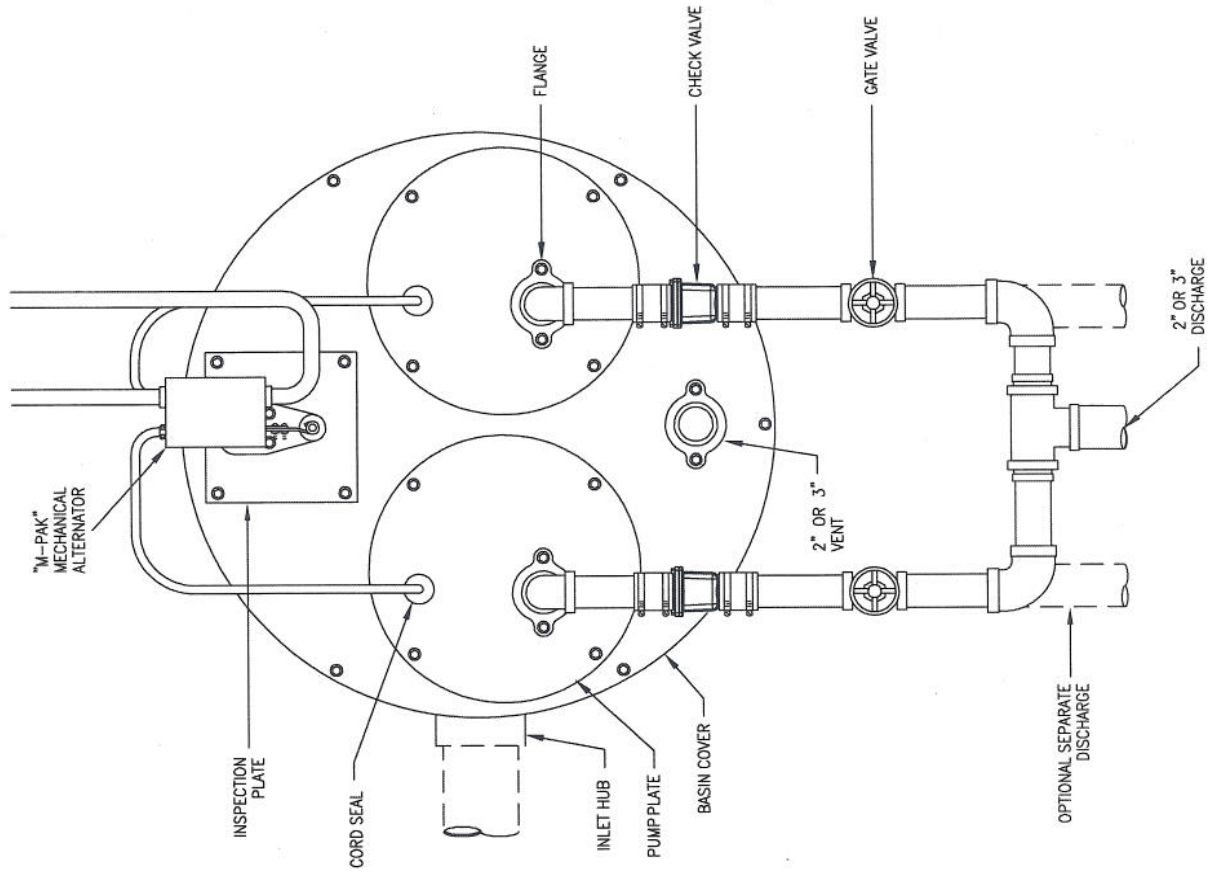
**SEWAGE DUPLEX SYSTEM WITH MECHANICAL ALTERNATOR
(SINGLE PHASE)**



NOTE: A minimum of 4" of pea gravel around the outside of tank throughout the depth and underneath the tank is required.

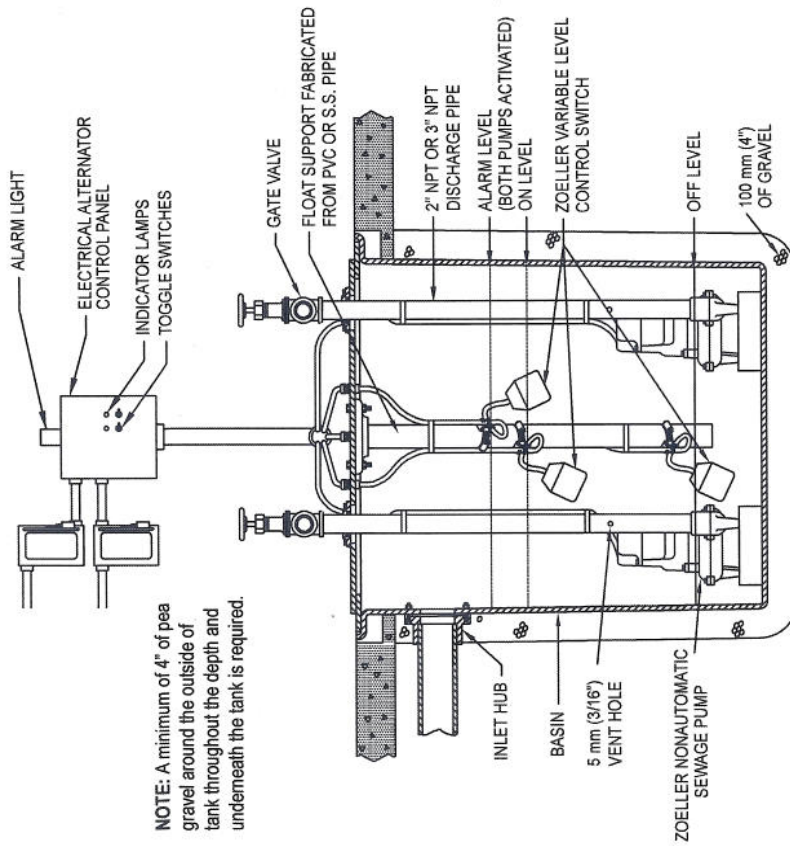
SK482

**SEWAGE DUPLEX SYSTEM WITH MECHANICAL ALTERNATOR
(SINGLE PHASE)**

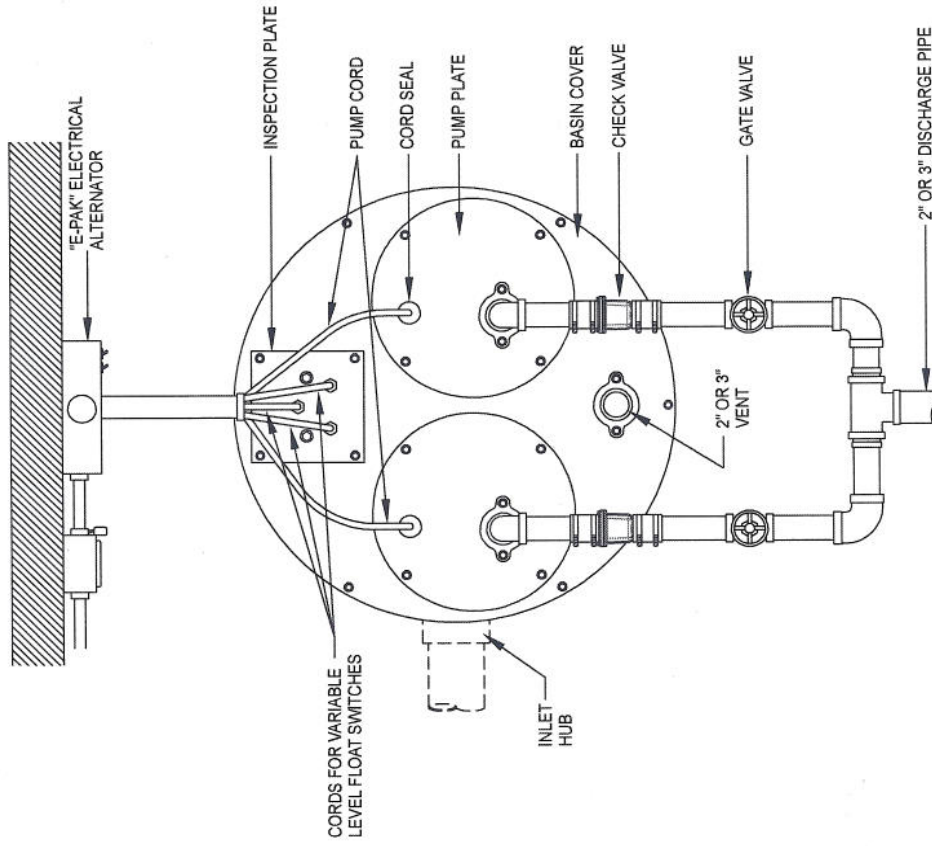


SK483

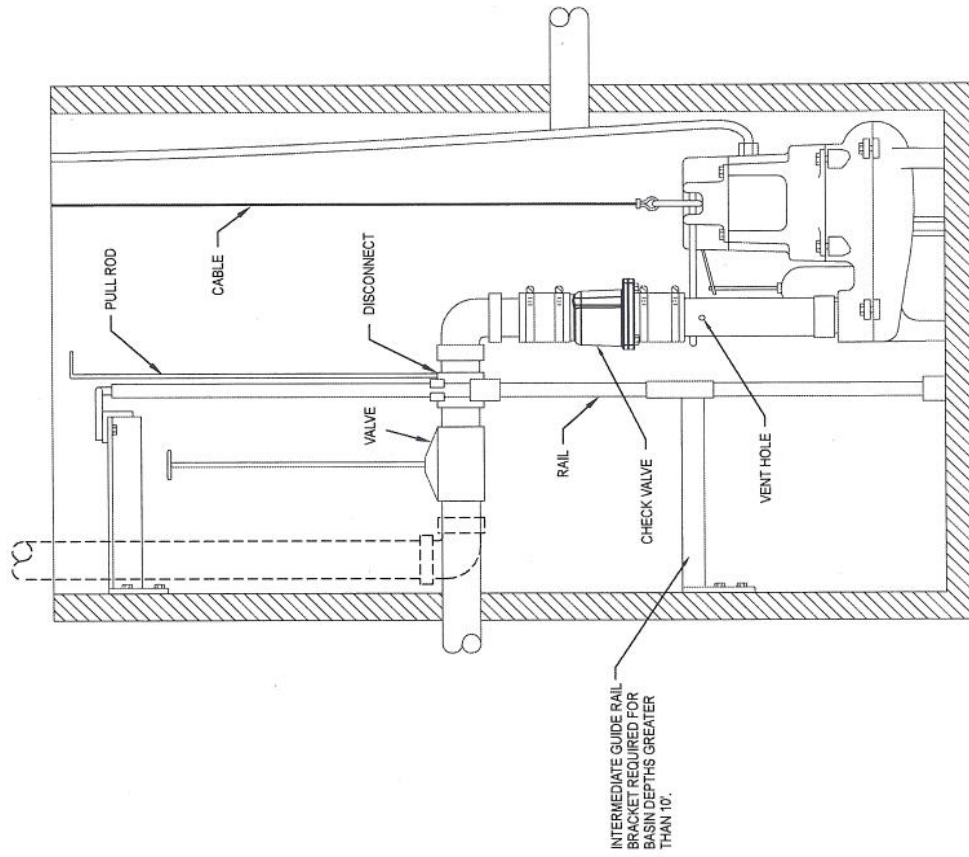
**SEWAGE DUPLEX SYSTEM WITH ELECTRICAL ALTERNATOR
(SINGLE OR THREE PHASE)**



**SEWAGE DUPLEX SYSTEM WITH ELECTRICAL ALTERNATOR
(SINGLE OR THREE PHASE) TOP VIEW**

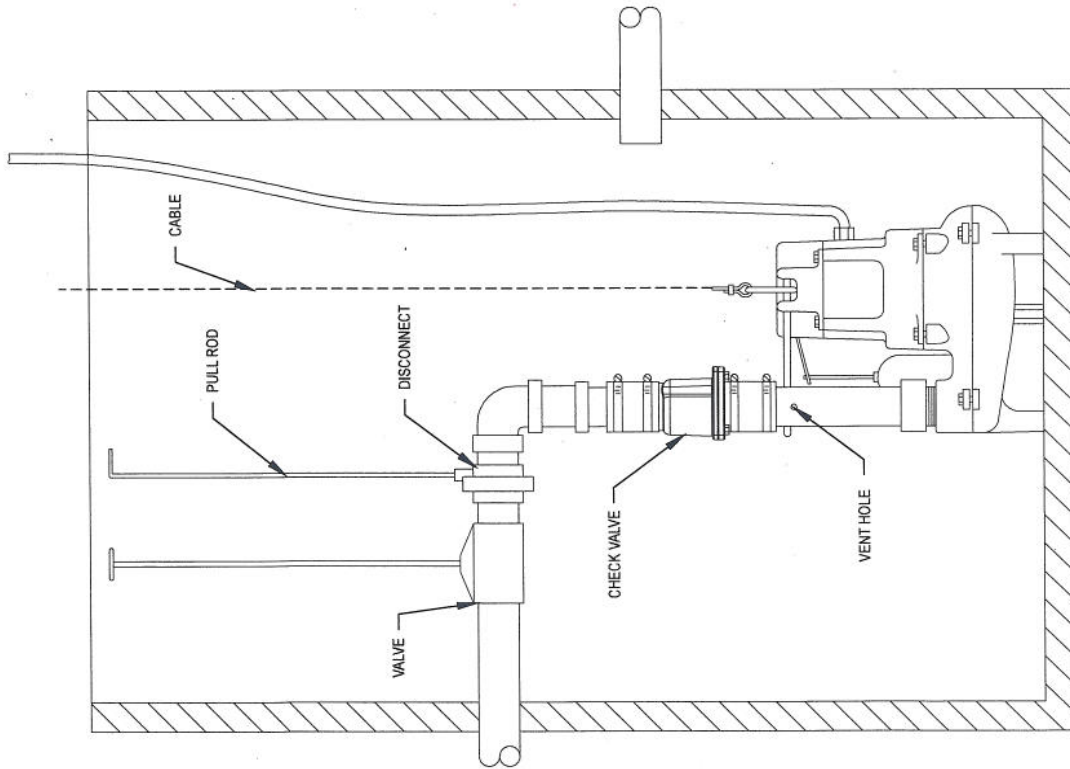


PUMP DISCONNECT WITH RAIL SYSTEM

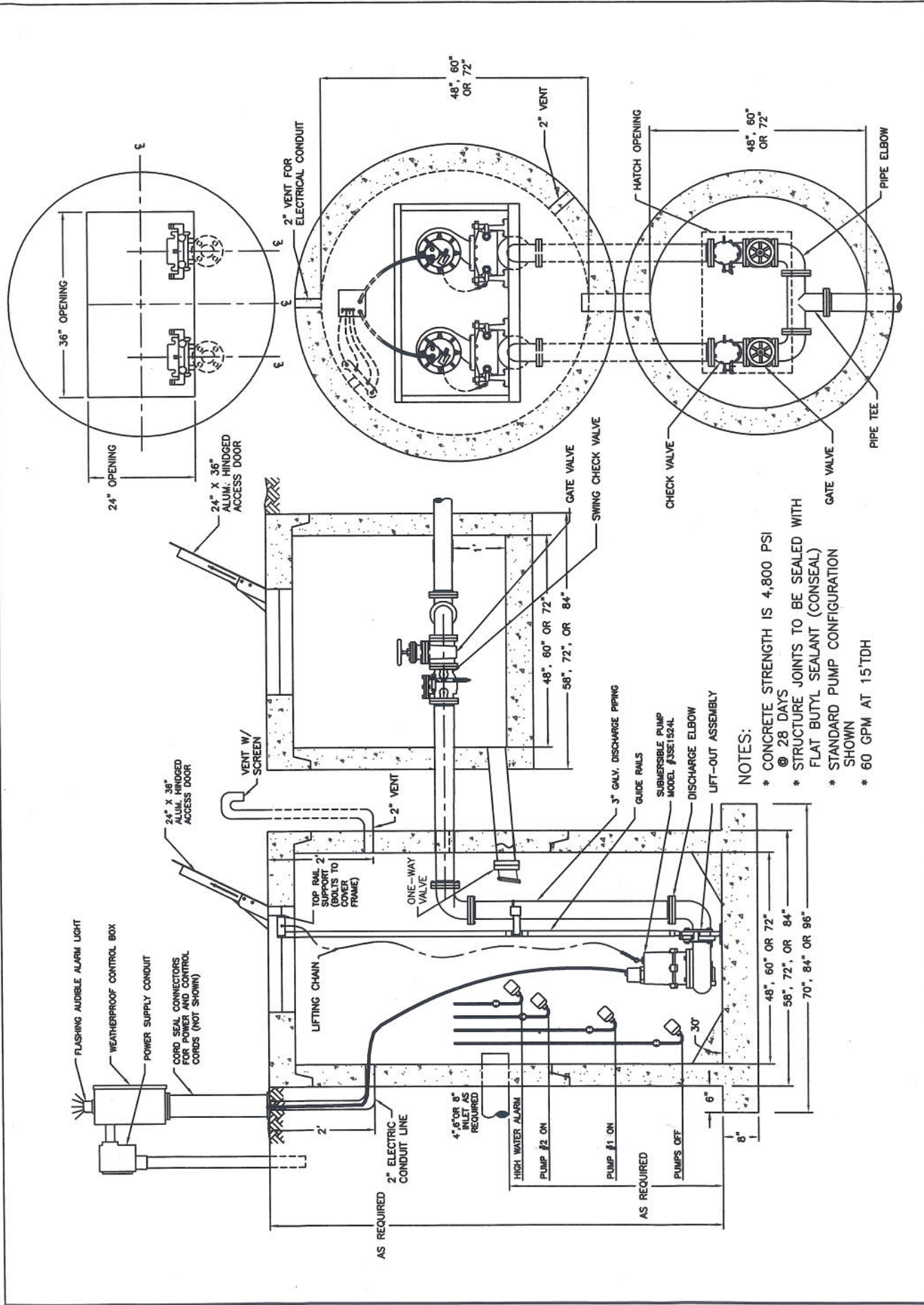


SK1735

PUMP DISCONNECT SYSTEM



SK1531



- NOTES:**
- * CONCRETE STRENGTH IS 4,800 PSI @ 28 DAYS
 - * STRUCTURE JOINTS TO BE SEALED WITH FLAT BUTYL SEALANT (CONSEAL)
 - * STANDARD PUMP CONFIGURATION SHOWN
 - * 60 GPM AT 15' TDH

Treatment Plant Specifications

EXTENDED AERATION FACTORY BUILT PACKAGE PLANT WITH HOPPER CLARIFIER(S)

GENERAL

In accordance with these specifications and drawings, the Contractor shall furnish and install one (1) wastewater treatment system. The system shall be an activated sludge process operated in the extended aeration mode. The system shall be a 12,000 Gallon per Day treatment Unit.

The system shall be capable of treating a total flow of 12,000 gallons *per day* (24 hours) of domestic waste. The plant shall operate efficiently if the average daily flow rate fluctuates within 60% to 100% of design flow and peak hourly flow rates not to exceed 250% of design. The complete wastewater treatment plant shall consist of the necessary tankage and components for proper operation of process.

The plant shall be factory assembled and shipped to the job site in the fewest number of pieces to facilitate ease of installation. Larger treatment plants will require field assembly of tanks, including bolting or welding by Contractor.

CONSTRUCTION

The treatment plant side walls, bottoms and partitions shall be constructed of minimum 1/4-in. thick structural grade low carbon ASTM A-36 steel plate, joined together by arc welding with fillets of adequate strength for the joint involved. All welds above and below water level shall be seat welded. The use of caulking, or other sealants for this purpose is prohibited. The tankage shall be adequately reinforced to withstand normal pressures inside and outside of (above/below) grade installations. All partition walls shall be reinforced to withstand hydraulic differentials when dewatered. The tanks shall be constructed in accordance with the latest requirements of AISC Specification for *Buildings* and the *American Welding Society's Code*.

All piping shall be minimum Schedule 40 painted steel. All control valves, where possible, shall be located on the outer perimeter of the tank wall, and shall be easily accessible without the use of walkways or extension handles. The influent and effluent pipe connections shall be grouted. The grout rings shall be an integral part of the tank structure.

INFLUENT BAR SCREEN

If necessary to remove obtrusive debris which may clog piping or pump, a bar screen device shall be furnished at the inlet to the aeration chamber. The bar screen shall remove debris larger than 1- in. diameter. The bars shall be steel flat

SPECIFICATIONS

bar 3/8-in. by 1-in, with a 1-in. opening. The bar screen shall be an integral part of the treatment plant. The bar screen shall be sloped for ease of cleaning, and shall have a drying tray. The bar screen shall be readily accessible from the perimeter of the tank service walkway.

AERATION CHAMBER

The **aeration** chamber shall have a minimum capacity of 12,000 gallons providing a 24 hour retention based on a 24 hour average flow rate, and/or a maximum organic loading of 15 lbs. of 5 day BOD per 1,000 cubic feet of tank volume. The tank profile shall **eliminate sludge** accumulation, and enhance rotation of the tank contents plus prevent any froth or scum

accumulation. The chamber shall have a 1-ft. 6-in. freeboard. To insure adequate circulation velocity the proportion of the chamber width to depth, in the direction of rotation, shall not exceed 1.33 to 1. The velocity of rotation shall be sufficient to scour the bottom and prevent sludge filleting.

The chamber shall be equipped with two (2) types of baffles. Flow control baffles shall be provided to enhance the spiral rotation of the contents of the chamber. To help eliminate floating debris from entering the settling tank a baffle shall be provided at the transfer port between the aeration and settling chambers.

AIR DIFFUSION SYSTEM

An air diffusion system shall be an integral part of the aeration chamber. The aeration system shall be located longitudinally along one side of the basin to insure maximum hydraulic retention and eliminate short circuiting of the organic particles. The aeration system shall provide the needed kinetic energy to "roll" the tank contents at a velocity to prevent the escape to the surface of minuscule air diffusion bubbles, causing their entrapment to provide maximum oxygenation efficiency.

The air diffusion system is made up of various components consisting of: an air manifold, air regulation/shut-off valves, disconnecting unions, stainless steel drop pipes, diffuser header, and non-clog type diffusers with a diaphragm type check valve. All diffuser components shall be properly sized to distribute the volume of air required for biological treatment with minimum pressure drop throughout the system.

The air distribution header shall be installed longitudinally along one side at the top of the aeration chamber. The header shall be rectangular shaped, capped at each end, and provided with couplings for riser connections. The risers shall be adequately spaced along the length of the chamber. Attached to the bottom of each riser pipe is a diffuser header with diffuser nozzles spaced

SPECIFICATIONS

approximately 6-in. on center. The header shall be spaced approximately 12-in. from the side wall and 12-in. from the bottom of the tank which will ensure optimum diffusion and mixing of the tank contents. Each diffuser assembly shall be light enough for one man to remove without the aid of lifting device. Each diffuser nozzle shall be constructed of corrosion resistant PVC. Each diffuser shall be capable of operating at a flow rate of 1 to 5 cubic feet per minute. The oxygen transfer capacity of each diffuser shall be such that an adequate supply of oxygen will be maintained in the aeration chamber to meet treatment requirements of the design sewage load.

CLARIFIER CHAMBER

A clarifier chamber shall be provided to operate as a quiescent zone to permit settleable solids in the mixed liquor to be removed by gravity. The clarifier shall have a capacity of 2000 gallons which will provide a 4 hour retention at the average design flow rate. The effective volume of the clarifier shall include the upper one third of the hopper plus the area above the hopper. The bottom two thirds of the hopper shall not be considered as part of the effective volume. The bottom of the clarifier shall be formed into an inverted pyramidal hopper or hoppers. The hoppers shall not exceed a slope of 1.7 vertical to 1.0 horizontal. The bottom of each hoppers shall form a flat area of one square foot.

The clarifier shall have baffling to enhance the operation of the settling zone. The inlet of the clarifier shall have a stilling baffle designed to absorb hydraulic shocks and ,disperse the flow uniformly along one side of the clarifier without short circuiting. A scum baffle shall be located longitudinally with the effluent trough. The baffle shall prevent floating debris which may enter the clarifier from passing over the effluent weir plate.

An effluent trough with adjustable steel weir plates shall be provided to ensure a uniform collection of the effluent flow. The weir plate shall have machine cut V-notches and slotted holes for adjustment. The weir plate shall be fastened to the effluent trough with stainless steel fasteners. The trough and weir plate shall be sized to accommodate the flow rate.

SLUDGE RECIRCULATION SYSTEM

The activated sludge which settles to the bottom of the clarifier, shall be recycled and/or disposed of by means of air operated pump. The airlift pump shall provide a positive means of transferring the sludge to the inlet end of the aeration chamber where it will seed the incoming raw sewage with an active culture of bacteria or to the sludge holding tank for further digestion_

SPECIFICATIONS

The airlifts eductor shall be a minimum 4-in. diameter Schedule 40 painted steel pipe. The airlift shall provide a recirculation capacity of 0% to 150% of the average daily flow. The airlift shall be designed for high efficiency by utilizing the maximum submergence possible. The air supply line to the eductor shall inject air at the same elevation as the discharge point of the aeration diffusers to ensure a uniform pressure drop throughout the air supply system. The air supply line shall have a needle valve to accurately adjust the volume of air to the eductor pipe. At the top of the airlift pump a cleanout plug shall be provided for easy clean out and maintenance.

SCUM RECIRCULATION SYSTEM

A **system** to remove floating debris in the clarifier chamber shall be provided. The system shall provide a positive method of returning the floating debris to the aeration chamber by means of an airlift pumps. There shall be two (2) airlifts provided constructed of 2-1/2-in. diameter Schedule 40 steel pipe with an adjustable steel inlet cone which will enable exact positioning to the water level. The airlifts shall be located strategically to provide maximum surface skimming. The airlifts shall provide a recirculation from 0% to 150% of the average daily flow. The variable flow rate is accomplished by changing the air rate to the airlift by means of a needle valve. The airlifts shall be furnished with a dean-out plug for easy cleaning and maintenance.

PLANT AIR SUPPLY

The air required for biological process and operation of the various airlift pumps shall be supplied by a dual blower system consisting of two (2) properly sized positive displacement blowers. The blowers shall be located on the treatment plant or in a blower building supplied by the owner. Each blower/motor assembly shall consist of a positive displacement blower, motor OOP (TE) sheaves, V-belts, base, belt guard, inlet air filter silencer, pressure relief valve, pressure gauge, adjustable motor base, vibration dampeners, check valve, and flexible discharge coupling.

Each blower shall provide 100% of the air required for proper plant operation. The blower units shall be manufactured by *Roots*, *Sutorbitt*, *Spencer* or approved equal. The blower shall be capable of delivering 2100 cubic feet per minute of air per pound BOD per day.

Each motor shall be open drip-proof, 1750 rpm, operating on 3 phase, 230/460 volts, 60 HZ. The motor shall be mounted on an adjustable base for proper tensioning of the belts. The motor shall be connected to the blower by means of belts and sheaves. The blower/motor assemblies which do not have a cover shall be provided with an OSHA approved belt guard.

Each blower assembly shall be equipped with an inlet air filter/silencer to reduce noise levels and protect the blower from abrasive air particles. Vibration

SPECIFICATIONS

dampeners and a flexible rubber discharge coupling shall also be furnished to protect the assembly from excessive vibrations.

AIR REQUIREMENTS

The amount of air required for biological treatment shall be based on 2,100 cubic feet per minute of air per day per pound of 5 day minimum BOD or the amount of air needed to thoroughly mix the contents of the aeration chamber. The amount of air to mix the aeration tank contents shall be 3 cubic feet per minute per foot of aeration tank length. The larger of the two air requirements shall be the basis for sizing the blowers. The sludge return airlifts shall require 5- 20 cfm of air per airlift. The scum return airlifts shall require 5-10 cfm of air per airlift. The air required for a sludge holding tank shall be 30 cfm per 1000 cubic feet of tank volume. The total sum of air required for the venous components and auxiliary tanks shall equal the capacity of each blower assembly_

ELECTRICAL CONTROLS

An electrical control system shall be provided to operate the motors and other electrical devices. The control system shall be located on the top of the plant or (optional) remotely located as required by the owner_

The control shall be enclosed in a NEMA 3R panel for outdoor service or NEMA 12 for indoor installation. The enclosure shall be adequately supported by steel angles of floor mounting legs. The enclosure shall be mounted on an elevation to permit bottom entrance of all electrical connections.

The control system shall be in accordance with the recent design and wiring practices required in the *National Electrical Code*. The electrical components wiring and other appurtenances shall be mounted on a removable subpanel. The controls shall be protected by an adequately sized magnetic-circuit protection device which is also utilized as the main disconnect. The blower/motor units and any other automatically controlled motors shall be supplied with across-the-line magnetic starters or magnetic contractors with overload protection. Any equipment which operates automatically shall be furnished with HAND-OFF-AUTO selector switches. All redundant equipment shall be automatically alternated to ensure equal operational use.

A timer shall be provided for the blower units. This timer shall permit the operator to adjust the amount of air required in a 24 hour period for biological treatment and operation of airlift. The

, timer shall be a 1-day 24 hour timer with 96 incremental adjustment points of 15 minutes each. The timer shall also include a skip-a-day feature which will allow a separate program for weekends (when required).

The control system shall be completely factory wired and tested. The enclosure

shall have a pocket to store color coded electrical schematic. The terminal blocks shall be numbered for easy wiring connections. The main power supply shall be 230 volts, 3 phase, 80 cycle. The control circuitry shall operate on 120 volt, 1 phase_

The Contractor shall provide all electrical wiring, conduit and other appurtenances from the control panel to the electrical power service. AU wiring and conduit from the control panel to the various electrical components shall be supplied by the Contractor.

SURFACE PREPARATION AND COATING

All steel fabrications shall be surface prepared in accordance with the coating manufacturers requirements. All painting shall be done in a building under controlled environmental conditions. The tankage shall be thoroughly dean of any abrasive materials used for surface preparation prior to applying any coatings. The use of any filler materials such as putty or caulking is not permitted. All tank seams shall be seal welded to prevent corrosion. The manufacturer shall certify *that* the tankage has been tested for voids and holidays and verify the actual dry film thickness of the coating. All surfaces with the exception of stainless steel, fiberglass, aluminum, galvanized, PVC, or components such as blowers and motors shall be coated with Bitumastic coal tar or equal applied with a total dry thickness of 8-10 mils DFT. The manufacturer shall supply touch up paint to recoat surfaces marred during installation_

CATHODIC PROTECTION (for below grade installation)

To minimize corrosion due to electrolytic reaction with the soil the plant snail be furnished with sacrificial anodes. There shall be four (4) cathodic anode bags furnished. Each bag shall be a 35 lb. magnesium anode with copper leads fastened to a core packed in its own low resistant backfill material. The anode bags shall be securely attached to the tank with stainless fasteners. The anodes shall be buried approximately 4 to 5 feet from the tank at about 5 feet depth. The anodes shall be installed equally spaced around the tank perimeter.

FOUNDATION AND ANCHORAGE

The Contractor shall provide a reinforced concrete pad in accordance with the proiect Engineers design requirements. The concrete pad shall stabilize the plant and prevent flotation as necessitated by the soil conditions and the ground elevation. Anchorage rods (re- bars) supplied by the Contractor shall be cast into the concrete slab and welded to the anchor clips on the treatment plant. The number and spacing of the anchor rods shall be in accordance with the anchorage drawing supplied by the manufacturer of the treatment plant After attaching the anchor rods to the treatment plant the Contractor will clean the

SPECIFICATIONS

welded area and recoat with the same coating as originally supplied. Touch up paint shall be supplied by the manufacturer.

FIELD ASSEMBLY

The treatment plant shall be factory built and pre-assembled prior to shipment. In most cases, due to shipping limitations, some of the ancillary equipment will be shipped unattached. This will require **minor** assembly on the job site Utilizing bolted **connections**. **Other fragile items may be shipped unattached because of special crating or packaging.**

The control system shall be completely factory wired and tested. The enclosure shall have a pocket to store color coded electrical schematic. The terminal blocks shall be numbered for easy wiring connections. The main power supply shall be 230 volts, 3 phase, 60 cycle. The control circuitry shall operate on 120 volt, 1 phase_

The Contractor shall provide all electrical wiring, conduit and other appurtenances from the control panel to the electrical power service. AU wiring and conduit from the control panel to the various electrical components shall be supplied by the Contractor.

SURFACE PREPARATION AND COATING

All steel fabrications shall be surface prepared in accordance with the coating manufacturers requirements. All 'painting shall be done in a building under controlled environmental conditions. The tankage shall be thoroughly dean of any abrasive materials used for surface preparation prior to applying any coatings. The use of any filler materials such as putty or caulking is not permitted. All tank seams shall be seal welded to prevent corrosion. The manufacturer shall certify *that* the tankage has been tested for voids and holidays and verify the actual dry film thickness of the coating. All surfaces with the exception of stainless steel, fiberglass, aluminum, galvanized, PVC, or components such as blowers and motors shall be coated with Bitumastic coal tar or equal applied with a total dry thickness of 8-10 mils DFT. The manufacturer shall supply touch up paint to recoat surfaces marred during installation_

CATHODIC PROTECTION (for below grade installation)

To minimize corrosion due to electrolytic reaction with the soil the plant shall be furnished with sacrificial anodes. There shall be four (4) cathodic anode bags furnished. Each bag shall be a 35 lb. magnesium anode with copper leads fastened to a core packed in its own low resistant backfill material. The anode bags shall be securely attached to the tank with stainless fasteners. The anodes shall be buried approximately 4 to 5 feet from the tank at about 5 feet

SPECIFICATIONS

depth. The anodes shall be installed equally spaced around the tank perimeter.

FOUNDATION AND ANCHORAGE

The Contractor shall provide a reinforced concrete pad in accordance with the project Engineers design requirements. The concrete pad shall stabilize the plant and prevent flotation as necessitated by the soil conditions and the ground elevation. Anchorage rods (re- bars) supplied by the Contractor shall be cast into the concrete slab and welded to the anchor clips on the treatment plant. The number and spacing of the anchor rods shall be in accordance with the anchorage drawing supplied by the manufacturer of the treatment plant. After attaching the anchor rods to the treatment plant the Contractor will clean the welded area and recoat with the same coating as originally supplied. Touch up paint shall be supplied by the manufacturer.

FIELD ASSEMBLY

The treatment plant shall be factory built and pre-assembled prior to shipment. In most cases, due to shipping limitations, some of the ancillary equipment will be shipped unattached. This will require **minor** assembly on the job site Utilizing bolted **connections**. **Other fragile items may be shipped unattached because of special crating or packaging.**

Shipping limitations may require the treatment plant to be shipped in sections and on special lowboy- trailers requiring a permit for over width or height loads. The Contractor shall provide an adequately sized crane to lift and set the tanks on the foundation slab. The manufacturer shall provide lifting lugs. The Contractor shall be given the weight of the heaviest piece prior to shipment. The manufacturer shall coordinate shipment of the tanks with the Contractor and freight company to minimize time required for crane services. The freight company shall be responsible for delivering the tankage to the nearest accessible roadway.

The following is a general overview of the responsibilities of the Contractor during the installation of the equipment

- Site preparation including excavation, concrete foundation, electrical utilities, dewatering and accessible roadway.
- Unloading and storage of equipment in accordance with the manufacturers requirements.

-
- Position tankage on the foundation and splice by welding or bolting as required by the specifications.
 - Fasten anchorage in accordance with the manufacturers instructions_
 - Supply and install all yard piping and valves including interconnecting process piping between the various tanks.
 - Provide electrical service including power pole, transformers, electrical meters, wiring all necessary appurtenances to supply power to the treatment control panel. Connect wiring and conduit to the control panel_ Provide and install wiring and conduit from the control panel to the motors and other elecuical devices.
 - Install all ancillary equipment such as blower units, comminutor handrail, service walkway, etc.
 - Prior to backfilling install drain plugs, and fill tanks with clean water to prevent flotation.
 - Install anode bags.
 - Inspect tanks for surface scratches and repair with touch-up paint
 - Backfill around the treatment plant with care to avoid damaging the tank wall_
 - Check oil levels and lubricate all mechanical equipment.
 - Check motors for proper rotation and electrical connections.
 - Level and seal the weir plates with caulking (provided by Contractor).

FIELD SERVICE AND COMMISSIONING

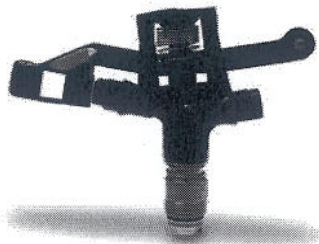
The Contractor shall notify the Engineer and the manufacturer after the treatment plant has been completely installed. The manufacturer shall provide the service of a factory trained representative or factory technician to inspect the installation. The technician shall make final adjustments on the equipment and instruct the plant operator on the maintenance and operation of the equipment At this time the operator will be presented with two (2) bound copies of the operation and maintenance manuals. The manuals shall include complete operational instructions, trouble shooting charts, parts lists and lubrication schedules. The manuals shall include the phone numbers of the local representative and the manufacturer for assistance in operational difficulties and placing parts orders.



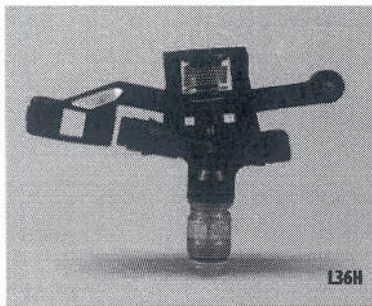
L36H / L36AH

3/4" Impact Sprinklers

These sprinklers are designed specifically for use on center pivots and linier machines. Major applications include Undertree, Nurseries, Pivots and Linears, Wastewater Systems and Permanent Systems.

[More](#)[Click to Enlarge Photos](#)[Features](#)[Specifications](#)[Performance Charts and Ordering](#)[Parts](#)

- Durable Delrin™ plastic and body arm
- AH unit has standard spoon for smaller nozzles
- H unit has slotted spoon for larger nozzles
- Exceptionally wide range of quick-fit nozzles
- Stainless steel springs and fulcrum pin
- Brass bearing sleeve
- Chemically resistant washers
- Two-year warranty
- Superior chemical and grit resistance
- Low angle fights strong wind conditions
- Great choice for pivot or under tree applications
- Easy maintenance
- Added design flexibility
- Built to last



L36H / L36AH

3/4" 19 mm Full Circle, Plastic, Low Angle Impact Sprinkler

Bearing: 3/4" Male NPT, Brass
Trajectory Angle: 10°
Operating Range: 20-60 psi 1.4-4.1 bars
Flow Rate: 1.6-17.8 GPM 0.36-4.04 m³/h
Radius: 40-61 ft. 12.2-18.76 meters

Features

- Durable Delrin™ plastic body and arm
- AH unit has standard spoon for smaller nozzles
- H unit has slotted spoon for larger nozzles
- Exceptionally wide range of quick-fit nozzles
- Stainless steel springs and fulcrum pin
- Brass bearing sleeve
- Chemically resistant washers
- Dual nozzle ports
- Two-year warranty

Benefits

- Superior chemical and grit resistance
- Low angle fights strong wind conditions
- Great choice for pivot or under tree applications
- Easy maintenance
- Added design flexibility
- Built to last

U.S. STANDARD DATA

PERFORMANCE DATA

L36H / L36AH

L36AH QUICK-FIT STRAIGHT BORE NOZZLE (QF-SBN-3)*

PSI @ Nozzle	NOZZLE SIZE US STANDARD					
	7/64"		1/8"		9/64"	
	Rad.	GPM	Rad.	GPM	Rad.	GPM
35	45	2.10	46	2.70	46	3.40
40	46	2.20	47	2.90	47	3.60
45	47	2.30	48	3.00	48	3.80
50	47	2.40	49	3.20	50	4.00
55	48	2.60	49	3.40	51	4.20
60	48	2.70	50	3.50	52	4.40

L36AH QUICK-FIT LOW PRESSURE NOZZLE (SQUARE HOLE) (QF-LPN-3)*

PSI @ Nozzle	NOZZLE SIZE US STANDARD					
	7/64"		1/8"		9/64"	
	Rad.	GPM	Rad.	GPM	Rad.	GPM
20	40	1.60	40	2.10	41	2.60
25	41	1.80	41	2.30	42	2.90
30	42	2.00	43	2.50	43	3.20
35	43	2.10	44	2.70	45	3.40
40	44	2.20	45	2.90	46	3.60
45	45	2.30	45	3.00	46	3.80
50	45	2.40	46	3.20	46	4.00

* Nozzles must be purchased separately. See Chart below.

L36H QUICK-FIT STRAIGHT BORE NOZZLE (QF-SBN-3) (STAR HOLE)*

PSI @ Nozzle	NOZZLE SIZE US STANDARD																	
	5/32"		11/64"		3/16"		13/64"		7/32"		15/64"		1/4"		17/64"		9/32"	
	Rad.	GPM	Rad.	GPM	Rad.	GPM	Rad.	GPM	Rad.	GPM	Rad.	GPM	Rad.	GPM	Rad.	GPM	Rad.	GPM
35	48	4.20	49	5.00	50	6.00	51	7.10	52	8.30	53	9.50	53	10.80	53	12.10	54	13.60
40	49	4.50	51	5.40	52	6.40	52	7.60	53	8.90	54	10.10	55	11.50	55	13.00	56	14.60
45	51	4.70	52	5.70	53	6.80	53	8.10	54	9.40	55	10.70	56	12.20	57	13.80	58	15.40
50	53	5.00	54	6.00	54	7.20	54	8.50	56	9.90	57	11.30	58	12.90	59	14.50	59	16.30
55	53	5.20	54	6.30	55	7.50	55	8.90	57	10.30	58	11.80	59	13.50	60	15.20	60	17.10
60	54	5.40	55	6.60	55	7.80	56	9.20	58	10.60	59	12.40	60	14.10	61	15.90	61	17.80

L36H QUICK-FIT LOW PRESSURE NOZZLE (QF-LPN-3)*

PSI @ Nozzle	NOZZLE SIZE US STANDARD																	
	5/32"		11/64"		3/16"		13/64"		7/32"		15/64"		1/4"		17/64"		9/32"	
	Rad.	GPM	Rad.	GPM	Rad.	GPM	Rad.	GPM	Rad.	GPM	Rad.	GPM	Rad.	GPM	Rad.	GPM	Rad.	GPM
20	43	3.20	45	3.80	35	4.50	36	5.30	38	6.00	38	7.20	38	8.20	39	9.30	39	10.40
25	45	3.50	46	4.20	38	5.00	39	5.90	40	6.80	40	8.00	40	9.10	40	10.30	41	11.50
30	46	3.90	48	4.60	40	5.50	41	6.50	41	7.60	41	8.80	41	10.00	42	11.20	42	12.60
35	47	4.20	49	5.00	42	6.00	42	7.10	42	8.30	43	9.50	43	10.80	43	12.10	43	13.60
40	48	4.50	50	5.40	43	6.40	43	7.60	43	8.90	44	10.10	44	11.50	45	13.00	45	14.60
45	49	4.70	50	5.70	43	6.80	44	8.10	44	9.40	45	10.70	45	12.20	45	13.80	45	15.40
50	49	5.00	51	6.00	44	7.20	45	8.50	45	9.90	45	11.30	45	12.90	46	14.50	46	16.30

Note: Performance data taken using 13' (4m) riser

Part Numbers and Ordering Information

Sprinkler Only	
U.S. Standard	
Sprinkler without Nozzle L36H	A07360
Sprinkler without Nozzle L36AH	A07350

Nozzle Only			XX = Nozzle Size								
U.S. Standard L36H Sprinkler			5/32"	11/64"	3/16"	13/64"	7/32"	15/64"	1/4"	17/64"	9/32"
Plastic Quick-Fit Straight Bore Nozzle	QF-SBN-3	107881-XX	10	11	12	13	14	15	16	17	18
Plastic Quick-Fit Low Pressure Nozzle	QF-LPN-3	109247-XX	10	11	12	13	14	15	16	17	18
U.S. Standard L36AH Sprinkler			7/64"	1/8"	9/64"						
Plastic Quick-Fit Straight Bore Nozzle	QF-SBN-3	107881-XX	07	08	09						
Plastic Quick-Fit Low Pressure Nozzle	QF-LPN-3	109247-XX	07	08	09						
Plastic Quick-Fit Plug		10788199	Bold nozzle size numbers denote the most common nozzle choices.								

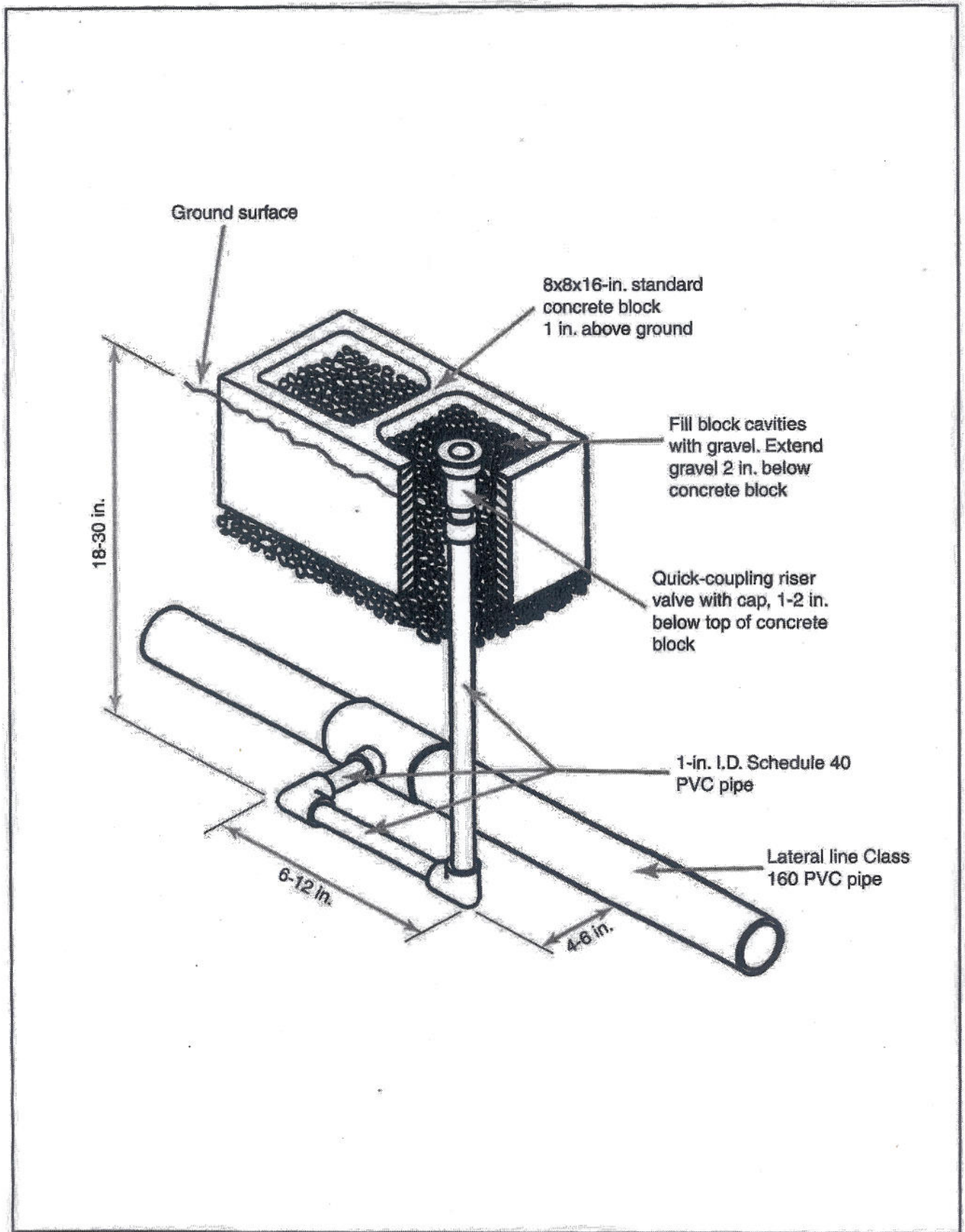


Figure 1. Swing Joint for Quick-Coupling Riser Valve.

65 GPM LIFT STATION



PUMP COMPANY

Zoeller Family of Water Solutions™

Your Peace of Mind is Our Top Priority®

Product Search

North America / English Change

- [Home](#)
- [Our Products](#)
- [Pump Sizing](#)
- [Support](#)
- [Where to Buy](#)
- [About Us](#)
- [Log-In](#)

Sewage & Dewatering

High Head Waste-Mate 292, 293, 294, 295, 4292, 4293, 4294, 4295

Features & Benefits

Product Specifications

Technical Data

Model Comparison Charts

Performance Curves

Dimensional Data Drawings

Literature / Documents



FEATURES & BENEFITS

Single and double seal submersible sewage or dewatering pumps

- Durable cast iron constructed switch case, base, motor and pump housing
- No sheet metal parts to rust or corrode
- All cast iron class 25-30 25000# tensile strength
- Stainless steel screws, bolts, float rod, handle, guard, arm and seal assembly
- Oil filled, hermetically sealed, automatic reset thermal overload protected (1 Ph only) motor
- Maximum temperature for sewage or dewatering: 130°F (54°C) standard
- If over 130°F (54°C), consult factory.
- Shaft seal - stainless steel carbon & ceramic rotary
- Corrosion-resistant, powder coated epoxy finish
- Upper and lower ball bearing running in a bath of oil
- Neoprene square ring & gasket
- All models pass 2" (50 mm) spherical solids
- Major width (single seal): 12-7/8" (32.7 cm)
- Major height (single seal): 19-5/16" (49 cm)
- Automatic units available with float operated, submersible (NEMA 6)2-pole mechanical switch
- On point: 14 3/4" (37.5 cm)
- Off point: 5" (12.7 cm)
- Specify 2" or 3" NPT female flanged vertical discharge
- 100% computerized tested
- Automatic units available in single phase 292, 293, 294 & 295 series

Models 4292, 4293, 4294, 4295 Double Seal Pumps (non-automatic only):

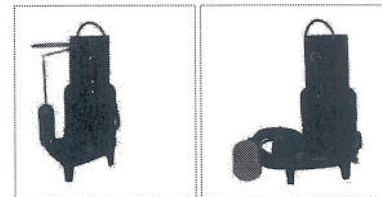
- Gives motor extra protection from seal leaks
- Improved bearing lubrication
- Helps eliminate seal and bearing damage from dry runs
- Major width: 12-7/8" (32.7 cm)
- Major height: 21-3/16" (31 cm)

The sizing of effluent systems normally requires variable level float(s) controls and properly sized basins to achieve required pumping cycles or dosing timers with non-automatic pumps.

Reserve powered design.

For unusual conditions a reserve safety factor is engineered into the design of every Zoeller pump.

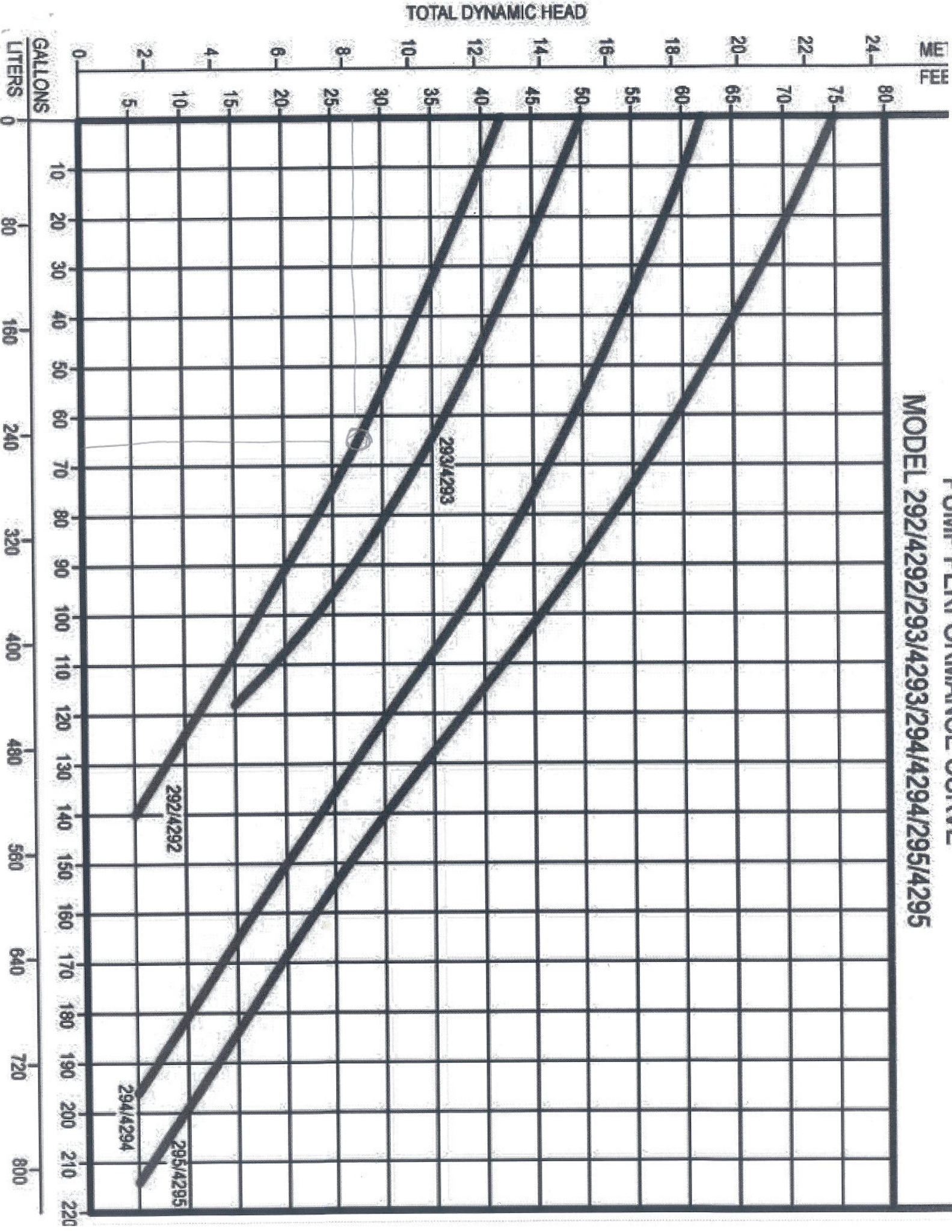
* See charts for UL & CSA listings



Click Image to Enlarge

[PRODUCT DEMO](#)

MODEL 292/4292/293/4293/294/4294/295/4295





PUMP COMPANY

Zoeller Family of Water Solutions™

Your Peace of Mind is Our Top Priority®

Product Search

North America / English Change

- [Home](#)
- [Our Products](#)
- [Pump Sizing](#)
- [Support](#)
- [Where to Buy](#)
- [About Us](#)
- [Log-In](#)

Sump, Effluent, Dewatering

180 Series and 191 Single Seal Drip Pump 185, 186, 188, 189, 4185, 4186, 4188, 4189, 191

Features & Benefits

Product Specifications

Technical Data

Model Comparison Charts

Performance Curves

Dimensional Data

Drawings

Literature / Documents



FEATURES & BENEFITS

Effluent or dewatering submersible pump for septic tank, low pressure pipe (LPP) and enhanced flow STEP systems.

- Non-clogging vortex impeller design bronze class 88-8-0-4 (180 series)
- Enclosed impeller design (model 191)
- Float operated, submersible (NEMA 6) 2 pole mechanical switch
- Durable cast iron construction
- Cast iron switch case, base, motor and pump housing
- No sheet metal parts to rust or corrode
- Stainless steel screws, bolts, float rod, handle, guard, arm and seal assembly
- Oil filled, hermetically sealed, automatic reset thermal overload protection (1 Ph only)
- Maximum temperature for effluent or dewatering: 130°F (54°C), WD189 120°F (49°C)
- Variable level control systems available
- Neoprene square ring & gasket
- Stainless steel carbon and ceramic rotary shaft seal
- Upper and lower ball bearing running in bath of oil
- All 180/4180 series pumps pass 3/4" (19 mm) spherical solids.
- Model 191 passes 5/8" (16 mm) spherical solids.
- On point: 14-3/4" (37.5 cm)
- Off point: 5-1/4" (12.7 cm) (automatic units)
- Major width: 12-3/4" (32.4 cm) (single seal pumps)
- Major height: 19-5/16" (49.1 cm) (single seal pumps)
- 1 1/2" NPT discharge with 2" or 3" flange available
- Model 191 not available with 3" flange
- Corrosion-resistant, powder coated epoxy finish
- Automatic units not recommended for use in effluent systems
- Automatic reset thermal overload protection (single phase only)

Models 4185, 4186, 4188, 4189 Double Seal Pumps (nonautomatic only)

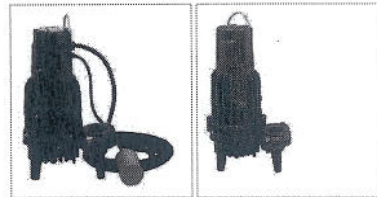
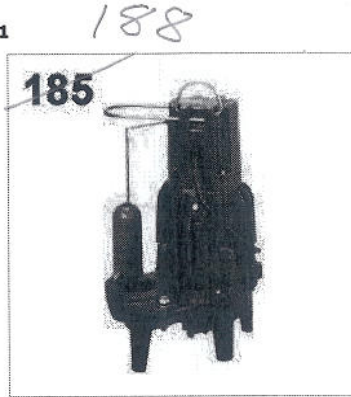
- Protects motor from seal leaks
- Improved bearing lubrication
- Helps eliminate seal and bearing damage from dry runs
- Major width: 12-3/4" (32.4 cm)
- Major height: 21-3/16" (53.8 cm)

Note: The sizing of effluent systems normally requires variable level float(s) controls and properly sized basins to achieve required pumping cycles or dosing timers with non-automatic pumps.

Note: No UL listing for 200/208 1 Phase pumps, Model 186 & 191, or double seal series. See charts for UL & CSA listings.

Reserve Powered Design.

For unusual conditions a reserve safety factor is engineered into the design of every Zoeller pump.



Click Image to Enlarge

230

PUMP PERFORMANCE CURVE

MODELS 185/4185-186/4186-188/4188-189/4189-191

