

RECEIVED  
05/21/2024  
GROUNDWATER



APPLICATION - PERMIT  
ON-SITE WASTEWATER SYSTEM

(Please Type or Print Legibly)

OWNER'S NAME: Frank Chick, Trustee PHONE: 302.398.4630

ADDRESS: 706 Killens Pond Road, Harrington, Delaware 19952

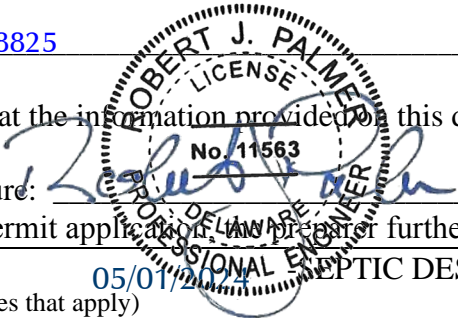
PROJECT LOCATION: 18011 South DuPont Highway, Harrington, Delaware 19952

TAX/MAP #: 6.00-18000-02-2001-000

APPLICATION PREPARER: Robert J. Palmer, P.E., Beacon Engineering, LLC DNREC LICENSE #: 5550

PREPARER'S ADDRESS: 23318 Cedar Lane, Georgetown, Delaware 19947

PHONE: 302.864.8825



I hereby affirm that the information provided in this document is accurate and complete.

Preparer's Signature: [Signature] Date: 05/01/2024

By signing this permit application, the preparer further certifies they were physically present at the site.

05/01/2024  
PROPTIC DESIGN CRITERIA-

(Please check all boxes that apply)

**System Type:** (CF = Cap & Fill / FD = Full Depth)

- Gravity (FD)
- Gravity (CF)
- Pressure Dose (FD)
- Pressure Dose (CF)
- Low Pressure Pipe (FD)
- Low Pressure Pipe (CF)
- Temporary Holding Tank
- Permanent Holding Tank
- Elevated Sand Mound
- Wisconsin At-Grade
- Subsurface Micro Irrigation
- Peat Bio- Filter
- Other \_\_\_\_\_

**Type of Construction:**

- Replacement
- New Construction
- Component Replacement  
Component: \_\_\_\_\_
- Repair to Existing System  
Reason: \_\_\_\_\_

- Authorization to Use Existing System  
Permit #: \_\_\_\_\_  
Present Condition: \_\_\_\_\_  
Structure to be connected: \_\_\_\_\_

- Bed or  Trench
- Gravelless Chamber  Stone/Gravel  Tire Chips
- Sand-lined  Yes  No

Existing System Malfunctioning  Yes  No  N/A

# of Bedrooms: 113 Employees  
Avg. Percolation Rate: 100 mpi  
Gallons Per Day Flow: 595 gpd  
Minimum Sq. Ft. Rcq'd: 2,499 sf  
Sq. Ft. Proposed: 2,500 sf

Pre-Treatment Units

- Septic Tank
- Other \_\_\_\_\_

Central Water Available  Yes  No  
(If yes, please state Utility Name: \_\_\_\_\_)

Revised 09/02/09

PAID  
\$ 210.00 05/21/2024

PAID  
\$ 325.00 05/21/2024



# KENT COUNTY LEVY COURT

555 Bay Road, Dover, Delaware 19901-3615  
(302) 744-2300 -- FAX (302) 736-2279

*"Serving Kent County With Pride"*

## PROPERTY RECORD REPORT

### Parcel Information:

**Parcel ID:** 6 00 18000 02 2001 000  
**User Account #:** 28114  
**Tax Account ID:** 28114  
**Property Code:** P - Property  
**Property Type:** Commercial  
**Improvement Status:** Improved  
**Deed BVP:** D 7583-149  
**Plat Book:** 0118 0064

**GIS Cord:** E-457037 N-0331861  
**Flood Plain:**  
**Zoning:** MULTI AR BG  
**Lot #:** Acres: 13.4  
**Total Living Area:** 32490 SQFT  
**Total Beds/Baths/Half Baths:** 0 / 0 / 0  
**Legal Description:** E. SD. RT. #13, CO. RD. #433 & HARRINGTON TO FMGTON., 13.4 A.

### Owner Information:

**Name(s):** CHICK, FRANK TRUSTEE  
CHICK, LINDA L. TRUSTEE  
**Address:** 706 KILLENS POND RD,  
HARRINGTON, DE 19952

### District Information:

**Levy Court District:** 6TH  
**Fire:** 50\_F-Harrington  
**Ambulance:** 50\_A-Harrington  
**School:** 22\_SCH-Lake Forest  
**Sewer:**  
**Sewer ID:**  
**Trash:**  
**Light:**  
**Stormwater:**  
**Tax Ditch:**

### Assessed Values:

**Land:** \$39,600  
**Buildings:** \$298,500  
**Yard:** \$23,800  
**Total:** \$361,900

### Location Information:

**Location Address:** 18011 S DUPONT HWY,  
HARRINGTON, DE 19952  
**Subdivision:** NANTICOKE HOMES - 2

### Transfers:

**Recorded Date:** 4/9/2015  
**Sale Date:** 4/6/2015  
**Price:** \$1  
**Legal Ref:** D 7583-149  
  
**Recorded Date:** 1/1/1900  
**Sale Date:** 1/1/1900  
**Price:** \$0  
**Legal Ref:** A 38-193  
  
**Recorded Date:** 1/1/1900  
**Sale Date:** 1/1/1900  
**Price:** \$0  
**Legal Ref:** E 35-76

### County Billing:

**Pending:** \$0.00  
**Base Tax:** \$0.00  
**Penalty / Interest:** \$0.00  
**Other:** \$0.00  
**Total Due:** \$0.00

### Sewer Billing:

**Account #:**  
**Customer #:**  
**Units:** 0.0  
**Balance:** \$0.00

### Tax Billing Details:

Entity Code Tax	Description	Amount
KCLC	Entities.TaxAccounts	

### Tax Billing History:

### Permits:

**Permit #:** 2014-855-AGRI  
**Status:** CO  
**Application:** 4/30/2014  
**Issued:** 5/22/2014  
**C of O:** 9/9/2015  
  
**Permit #:** 2013-2665-MHDM  
**Status:** PC  
**Application:** 11/5/2013  
**Issued:** 9/9/9999  
**C of O:**  
  
**Permit #:** 2013-2583-MANH  
**Status:** PC  
**Application:** 10/25/2013  
**Issued:** 9/9/9999  
**C of O:**



# KENT COUNTY, DELAWARE

555 Bay Road, Dover, Delaware 19901-3615

(302) 744-2300 -- FAX (302) 736-2279

*"Serving Kent County With Pride"*

## PROPERTY RECORD REPORT (cont)

### Building Information 1:

**Building ID:** 110108

**Building Sequence #:** 1

**Building Type:** Retail Metal

**Walls:** Metal

**Floor:** Concrete

**Frame:** Fire Resistant

**Height:**

**Heat:** Central

**Roof:** Metal

**Plumbing:** Normal

**Insulation:** NA

**Year Built:** 1981

**Rooms / Bedrooms:** /

### Building Information 2:

**Building ID:** 110109

**Building Sequence #:** 2

**Building Type:** WAREHOUSE METAL

**Walls:** Metal

**Floor:** Concrete

**Frame:** Fire Resistant

**Height:**

**Heat:** None

**Roof:** Metal

**Plumbing:** Normal

**Insulation:** NA

**Year Built:** 1981

**Rooms / Bedrooms:** /

### Building Information 3:

**Building ID:** 110110

**Building Sequence #:** 3

**Building Type:** WAREHOUSE METAL

**Walls:** Metal

**Floor:** Concrete

**Frame:** Fire Resistant

**Height:**

**Heat:** None

**Roof:** Metal

**Plumbing:** Normal

**Insulation:** NA

**Year Built:** 1984

**Rooms / Bedrooms:** /

### Building Information 4:

**Building ID:** 110111

**Building Sequence #:** 4

**Building Type:** WAREHOUSE FRAME

**Walls:** Concrete Block

**Floor:** Concrete

**Frame:** Fire Resistant

**Height:**

**Heat:** Unit

**Roof:** Metal

**Plumbing:** Minimal

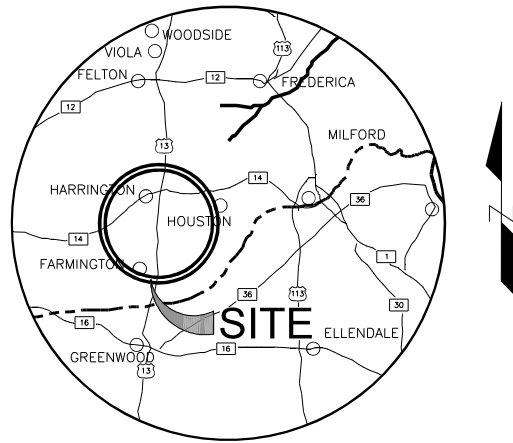
**Insulation:** NA

**Year Built:** 1994

**Rooms / Bedrooms:** /

**NOTES:**

- BOUNDARY SURVEY PREPARED BY MERESTONE CONSULTANTS, INC. JUNE 15, 2022. THE SUBJECT PARCEL IS SUBJECT TO EASEMENTS OF RECORD (D 7583-149).
- NO WELLS SHALL BE INSTALLED WITHIN 100 FT OF OWTDS (150 FT FOR PUBLIC, AGRICULTURAL OR INDUSTRIAL WELLS), UNLESS OTHERWISE NOTED.
- ALL PIPING SHALL BE SCH 40 PVC. JOINTS SHALL BE GLUED.
- THIS SITE IS DENSELY WOODED. LIMIT OF CLEARING SHALL BE 10 FEET MINIMUM FROM EDGE OF STONE BED, OR A TREE WAIVER SHALL BE SIGNED BY THE PROPERTY OWNER.
- CLEARING, GRUBBING & STUMP REMOVAL SHALL BE COMPLETED IN ACCORDANCE WITH DNREC REQUIREMENTS. LARGE ROOTS AND VEGETATIVE MAT SHALL BE REMOVED, BY ROOT RAKING, FROM THE DRAINFIELD AND BERM FOOTPRINT.
- ROOT RAKING IS RECOMMENDED. ENGINEERED SANDY FILL SHALL BE REQUIRED TO BACKFILL STUMP HOLES AND AREAS WHERE SIGNIFICANT ROOT MAT HAS BEEN CLEARED.
- THE MORE COURSE TEXTURED PORTIONS OF THE EXCAVATED SPOIL (NOT FORMERLY IN CONTACT WITH WASTEWATER) IS SUITABLE FOR SYSTEM COVER. FINER TEXTURED MATERIAL SHALL BE REMOVED AND DISPOSED OF AT AN APPROVED OFFSITE LOCATION. PERMEABLE COVER SHALL BE USED TO MAXIMIZE AERATION/INSTALLATION.
- REPLACEMENT SYSTEM SHALL BE THE SAME AS THE INITIAL SYSTEM OR, SAND LINED TO BE CONSTRUCTED WITHIN THE SAME FOOT PRINT AS THE INITIAL SYSTEM.
- ACCESS TO SEPTIC TANK SOLIDS TANK AND LIQUID TANK ACCESS LID/RISER AND DOSING CHAMBER LID COVERS SHALL TERMINATE ABOVE GRADE AND SHALL BE SECURED TO PREVENT UNAUTHORIZED ACCESS.
- FINAL GRADING MUST INSURE THAT NO SURFACE WATER IS DIRECTED TOWARDS THE OWTDS AREA (INCLUDES ROOF DOWNSPOUT AND IMPERVIOUS AREA DRAINAGE OR SUMP PUMP DISCHARGE).
- IRRIGATION USE, SYSTEM OVER-TRAFFICKING, WATER TREATMENT/ SUMP DISCHARGE, AND/ OR TREE PLANTINGS IN THE DRAIN FIELD AREA ARE PROHIBITED ACTIVITIES BY THE SITE EVALUATOR AND SEPTIC DESIGNER.
- SYSTEM INSTALLATION AND ALL SITE WORK SHALL OCCUR DURING PROPER SOIL MOISTURE CONDITIONS. GROUNDWATER DEPTH SHALL BE GREATER THAN 3.5' BELOW THE GROUND SURFACE.
- IF STUMP HOLES MUST BE FILLED, USE CLEAN, WASHED SAND TO SAND LINE BENEATH ENTIRE OWTDS. CONTACT ATLANTIC RESOURCE MANAGEMENT FOR DIRECTION.



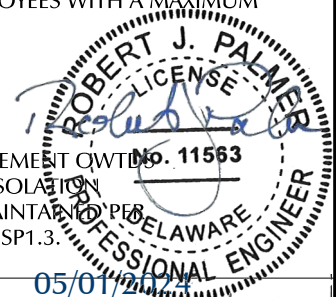
- NO VEHICULAR TRAFFIC (NON-TRACKED OR HIGH GROUND PRESSURE) IS TO ENTER THE DRAINFIELD AREA FOR THE PURPOSES OF DUMPING ENGINEERED SANDY/FILL.
- SURROUND APPROVED OWTDS AREA WITH ORANGE SAFETY FENCE TO PROTECT THE AREA FROM DEVELOPMENT CONSTRUCTION IMPACT.
- ALL ISOLATION DISTANCES SHALL BE VERIFIED BY INSTALLER PRIOR TO INSTALLATION.
- PROVIDE A MINIMUM OF 3 BUSINESS DAYS NOTICE TO BEACON ENGINEERING, LLC AT 302-864-8825 TO SCHEDULE THE PRE-COVER INSPECTION.
- NO CONSTRUCTION TRAFFIC OR THE STORAGE OF MATERIALS SHALL OCCUR IN THE OWTDS AREA.
- EXISTING SEPTIC TANK, D-BOX AND INFILTRATION TRENCHES SHALL BE ABANDONED PER DNREC REQUIREMENTS.
- EXCAVATED SOIL AND NON-VEGETATIVE PORTION OF THE TOPSOIL MAY BE REPURPOSED IN THE BERM/COVER.
- THE OWNER IS AWARE THAT THE SYSTEM IS DESIGNED IN COMPLIANCE WITH DNREC OWTDS REGULATIONS. DESIGN CAPACITY IS LIMITED TO 113 EMPLOYEES WITH A MAXIMUM DEMAND OF 595 GPD.

▲ SB 4

SOIL BORING



POTENTIAL REPLACEMENT OWTDS AREA; PROVIDED ISOLATION DISTANCES ARE MAINTAINED PER SHEETS SP1.2 AND SP1.3.



OWNER APPROVES THIS DESIGN OWNERS' / AUTHORIZED AGENT

SIGNATURE

DATE: 5/16/24

**PROPOSED WAREHOUSE / DISTRIBUTION CENTER**  
 LANDS OF FRANK CHICK  
 18011 SOUTH DUPONT HIGHWAY  
 KENT COUNTY, DELAWARE

TAX MAP #6-00-18000-02-2001-00001

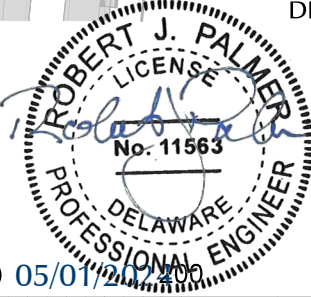
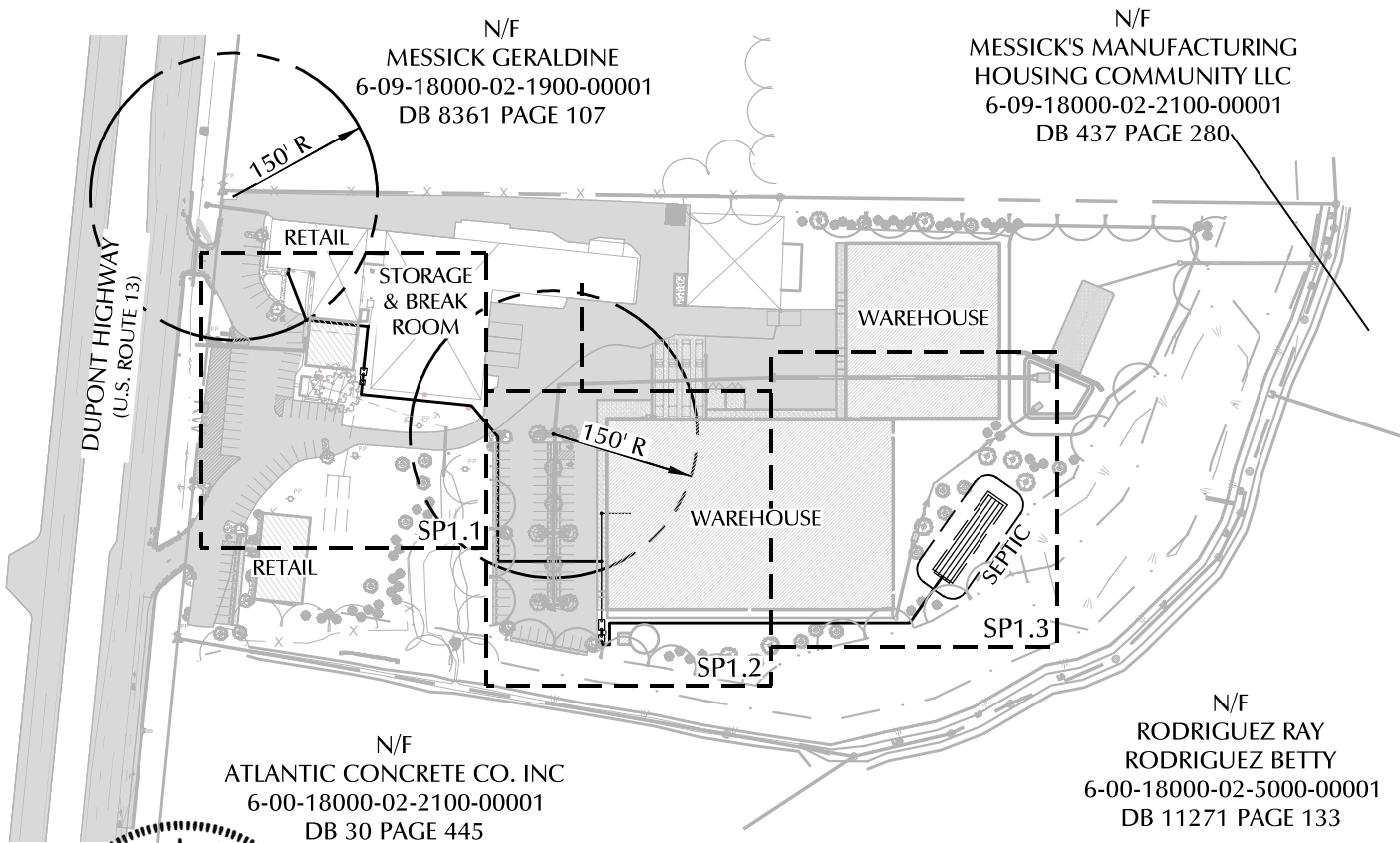


23318 Cedar Lane Georgetown, Delaware 19947  
 302.864.8825 info@beaconengineeringllc.com

Date:	APR 30, 2024
Scale:	NO SCALE
Dwn.By:	SKM
Proj.No.:	CHI01-03
Dwg.No.:	SP-1.0

**OWTDS SYSTEM NOTES**

M:\Projects\CHI01-03 Chick's Proposed Warehouse\Construction Docs\DWGs\Septic\CHI01-02 SEPTIC PLANS.DWG Apr 30, 2024 - 7:53am, (Sarah)



OWNER APPROVES THIS DESIGN  
OWNERS / AUTHORIZED AGENT

SIGNATURE  DATE: 5/16/24

**PROPOSED WAREHOUSE /  
DISTRIBUTION CENTER**  
LANDS OF FRANK CHICK  
18011 SOUTH DUPONT HIGHWAY  
KENT COUNTY, DELAWARE

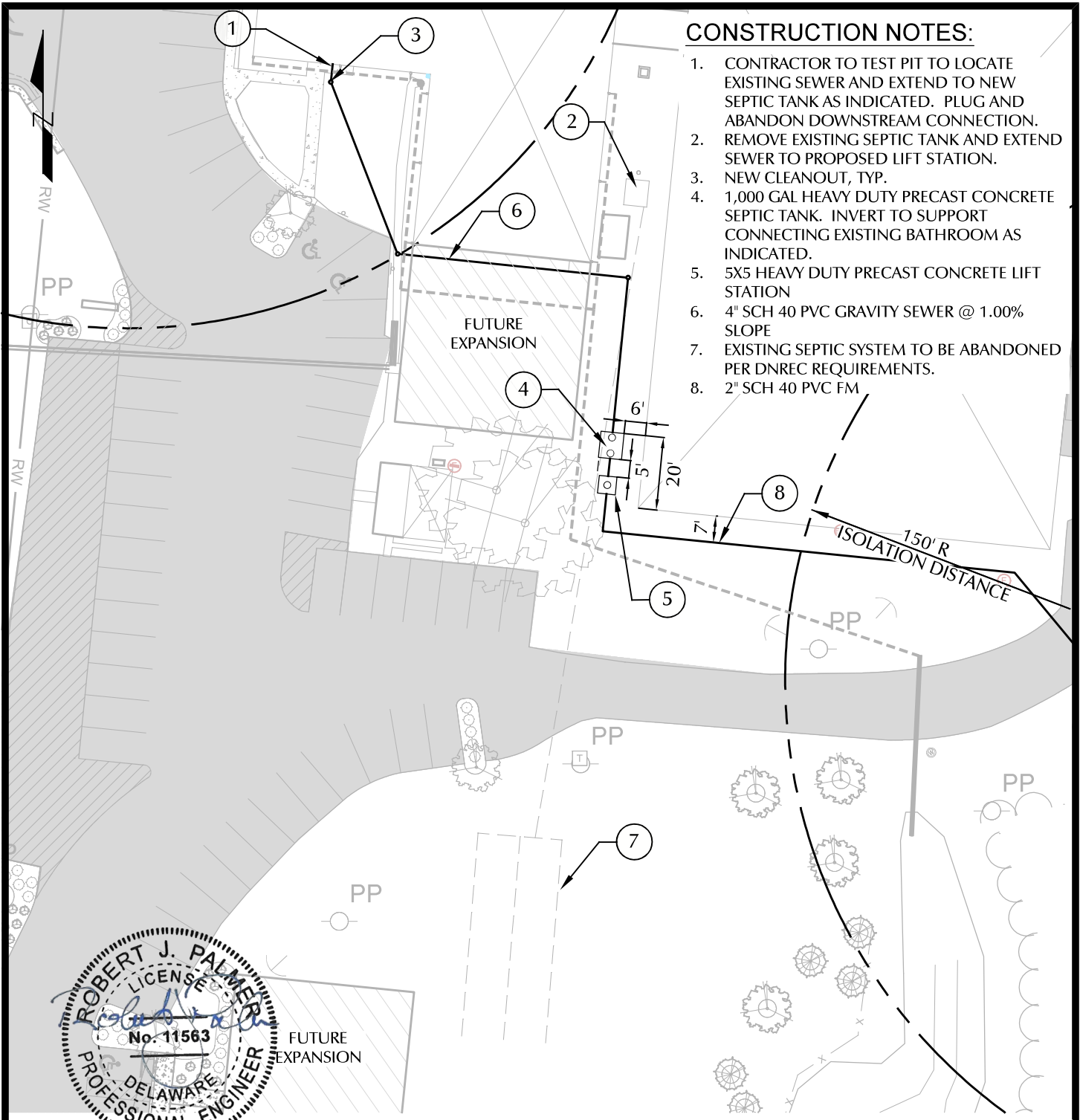


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Scale:	1" = 200'
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Proj.No.:	CHI01-03
Dwg.No.:	SP-1.1

**OWTDS SYSTEM OVERALL**

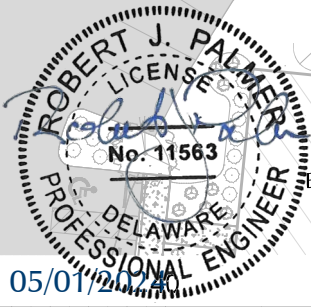
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**CONSTRUCTION NOTES:**

1. CONTRACTOR TO TEST PIT TO LOCATE EXISTING SEWER AND EXTEND TO NEW SEPTIC TANK AS INDICATED. PLUG AND ABANDON DOWNSTREAM CONNECTION.
2. REMOVE EXISTING SEPTIC TANK AND EXTEND SEWER TO PROPOSED LIFT STATION.
3. NEW CLEANOUT, TYP.
4. 1,000 GAL HEAVY DUTY PRECAST CONCRETE SEPTIC TANK. INVERT TO SUPPORT CONNECTING EXISTING BATHROOM AS INDICATED.
5. 5X5 HEAVY DUTY PRECAST CONCRETE LIFT STATION
6. 4" SCH 40 PVC GRAVITY SEWER @ 1.00% SLOPE
7. EXISTING SEPTIC SYSTEM TO BE ABANDONED PER DNREC REQUIREMENTS.
8. 2" SCH 40 PVC FM



OWNER APPROVES THIS DESIGN  
 OWNERS / AUTHORIZED AGENT  
 SIGNATURE: *[Signature]* DATE: 5/16/24

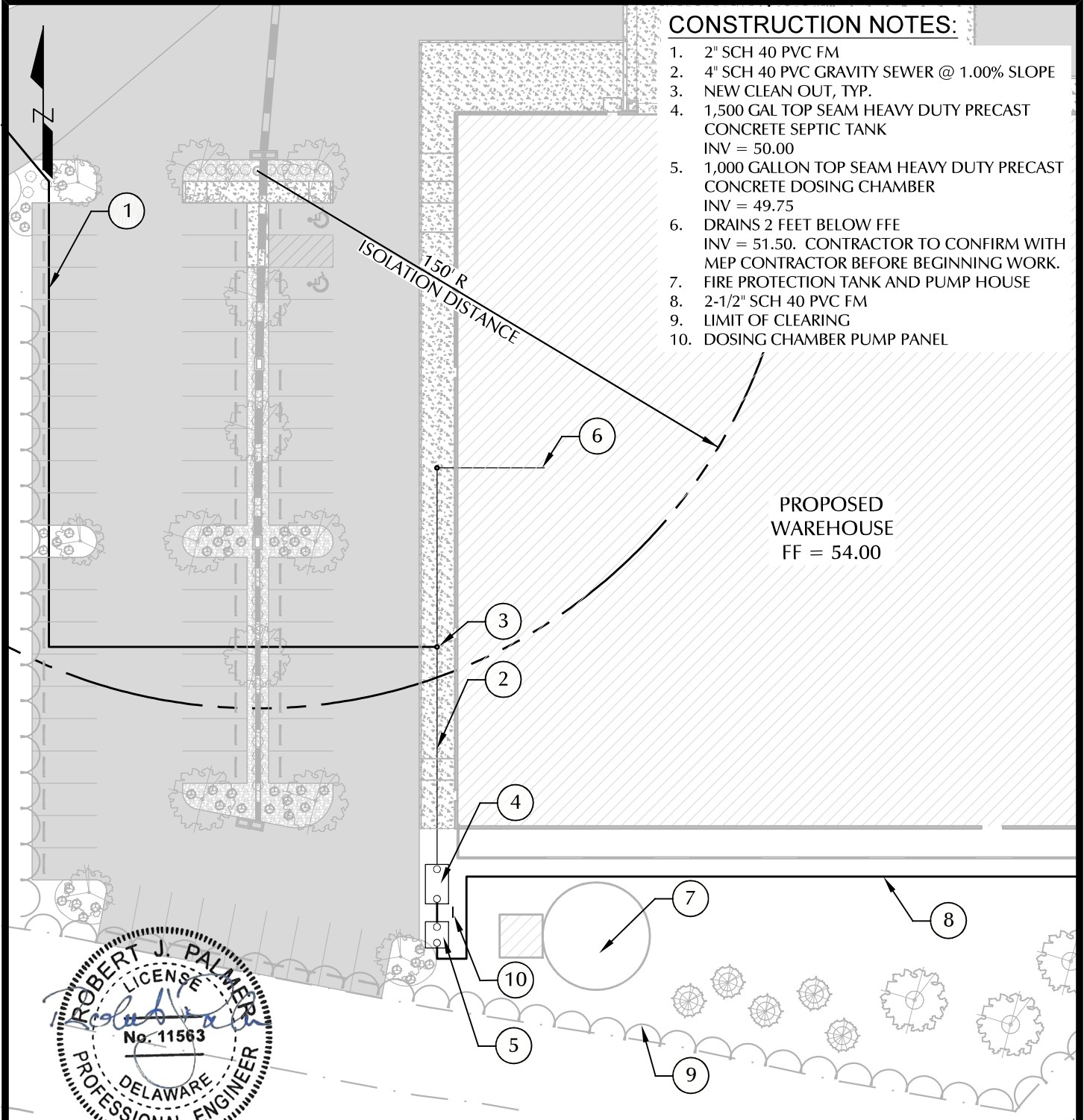
**PROPOSED WAREHOUSE / DISTRIBUTION CENTER**  
 LANDS OF FRANK CHICK  
 18011 SOUTH DUPONT HIGHWAY  
 KENT COUNTY, DELAWARE  
**OWTDS SYSTEM DETAIL**

TAX MAP #6-00-18000-02-2001-00001  
  
 23318 Cedar Lane Georgetown, Delaware 19947  
 302.864.8825 info@beaconengineeringllc.com

Date:	APR 30, 2024
Scale:	1" = 40'
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Dwg.No.:	SP-1.2

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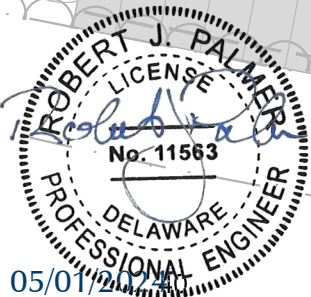
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**CONSTRUCTION NOTES:**

1. 2" SCH 40 PVC FM
2. 4" SCH 40 PVC GRAVITY SEWER @ 1.00% SLOPE
3. NEW CLEAN OUT, TYP.
4. 1,500 GAL TOP SEAM HEAVY DUTY PRECAST CONCRETE SEPTIC TANK  
INV = 50.00
5. 1,000 GALLON TOP SEAM HEAVY DUTY PRECAST CONCRETE DOSING CHAMBER  
INV = 49.75
6. DRAINS 2 FEET BELOW FFE  
INV = 51.50. CONTRACTOR TO CONFIRM WITH MEP CONTRACTOR BEFORE BEGINNING WORK.
7. FIRE PROTECTION TANK AND PUMP HOUSE
8. 2-1/2" SCH 40 PVC FM
9. LIMIT OF CLEARING
10. DOSING CHAMBER PUMP PANEL

PROPOSED WAREHOUSE  
FF = 54.00



OWNER APPROVES THIS DESIGN  
OWNERS / AUTHORIZED AGENT  
SIGNATURE *[Signature]* DATE: 5/16/24

**PROPOSED WAREHOUSE /  
DISTRIBUTION CENTER**  
LANDS OF FRANK CHICK  
18011 SOUTH DUPONT HIGHWAY  
KENT COUNTY, DELAWARE  
**OWTDS SYSTEM DETAIL**

TAX MAP #6-00-18000-02-2001-00001  
**BEACON**  
ENGINEERING LLC  
23318 Cedar Lane Georgetown, Delaware 19947  
302.864.8825 info@beaconengineeringllc.com

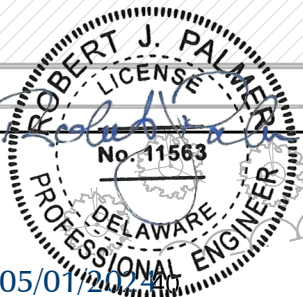
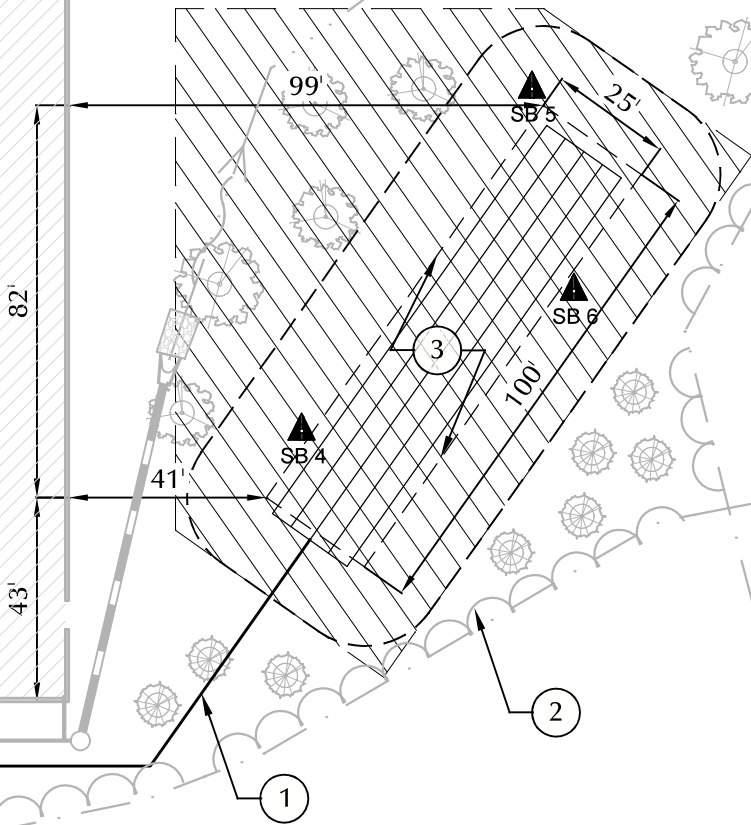
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Dwg.No.:	SP-1.3

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**CONSTRUCTION NOTES:**

1. 21/2" SCH 40 PVC FM
2. LIMIT OF CLEARING
3. ELEVATED SAND MOUND OWTDS (25.00' X 100.00' BED)

PROPOSED WAREHOUSE  
FF = 54.00



OWNER APPROVES THIS DESIGN  
OWNERS / AUTHORIZED AGENT

SIGNATURE

DATE:

5/16/24

**PROPOSED WAREHOUSE / DISTRIBUTION CENTER**

LANDS OF FRANK CHICK  
18011 SOUTH DUPONT HIGHWAY  
KENT COUNTY, DELAWARE

**OWTDS SYSTEM DETAIL**

TAX MAP #6-00-18000-02-2001-00001



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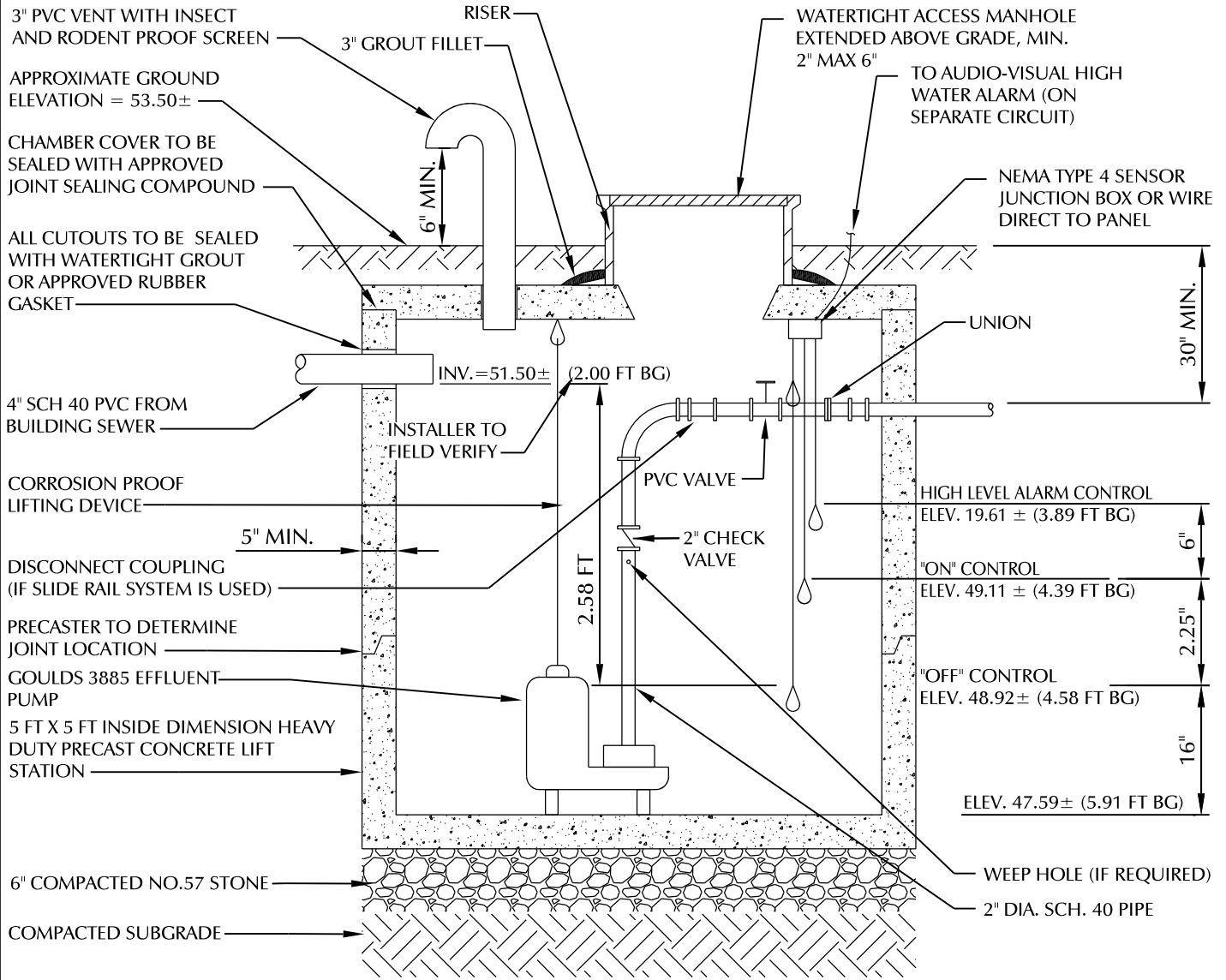
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Dwg. No.:	SP-1.4

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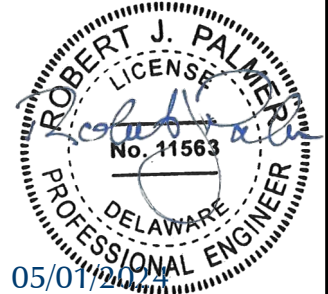


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**NOTES:**

1. ALL PIPE TO BE PVC SCHEDULE 40.
2. ALL LIFT STATION COMPONENTS SHALL BE FIELD TESTED TO ENSURE ACCURACY, WATER TIGHTNESS, AND PROPER OPERATION OF ALL PUMPS AND ALARM CONTROLS.
3. ALL ELECTRICAL CONNECTIONS SHALL BE WATERPROOF, CORROSION-RESISTANT AND EXPLOSION-PROOF (IF INSIDE TANK).
4. WHERE POSSIBLE, PUT ALL ELECTRICAL CONNECTIONS OUTSIDE OF THE TANK.
5. RAIN TIGHT (3R) BOXES ARE REQUIRED OUTSIDE OF THE TANK: NOT EXPLOSION PROOF.
6. FLOATS ARE NOT TO BE LOCATED DIRECTLY BELOW INLET.
7. CONSTRUCTION DEWATERING TO SECURE A DRY EXCAVATION IS REQUIRED.



**PROPOSED WAREHOUSE /  
DISTRIBUTION CENTER**  
LANDS OF FRANK CHICK  
18011 SOUTH DUPONT HIGHWAY  
KENT COUNTY, DELAWARE  
5 X 5 PRE-CAST HEAVY DUTY  
CONCRETE LIFT STATION

TAX MAP #6-00-18000-02-2001-00001

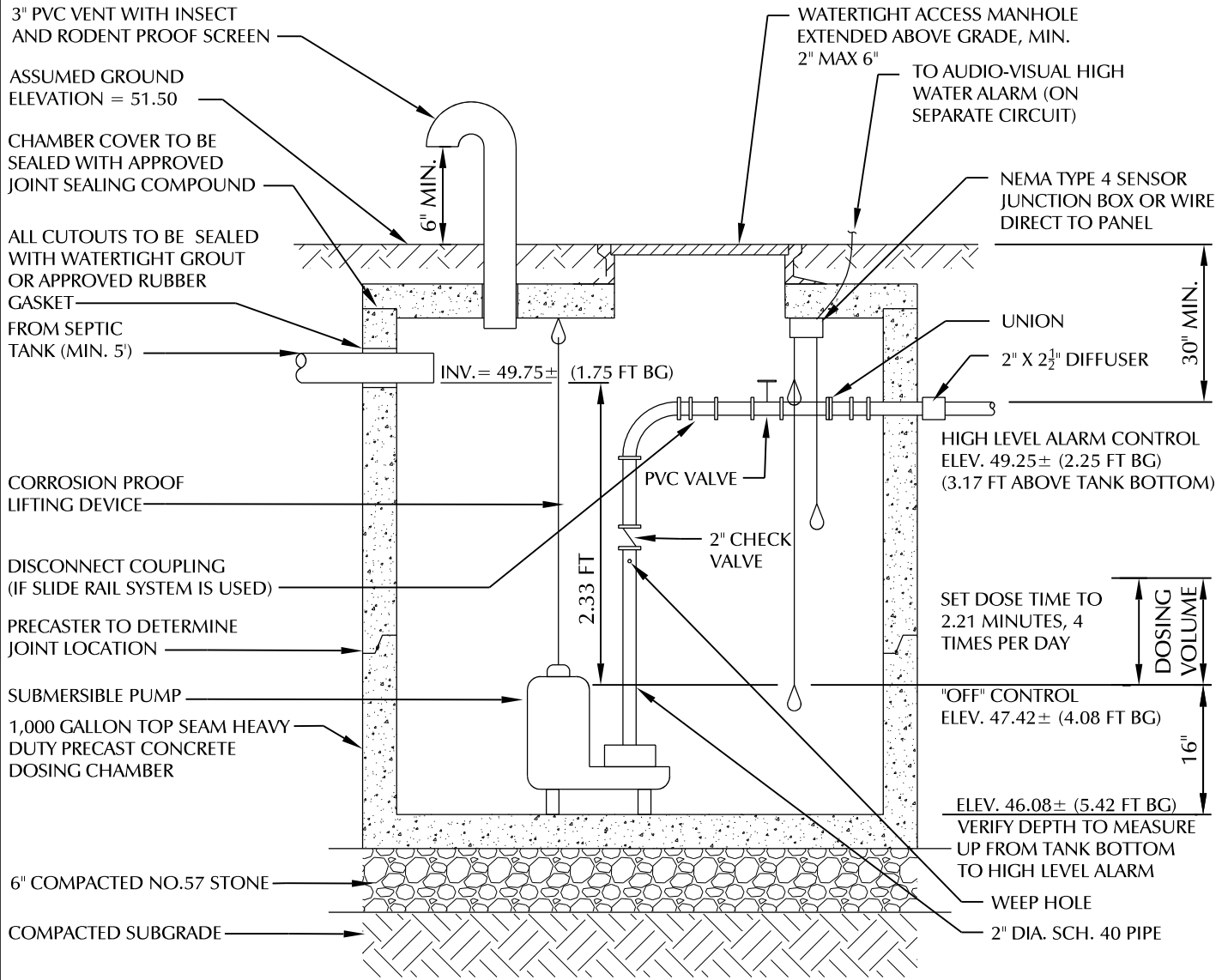


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Dwg.No.:	SP-1.5

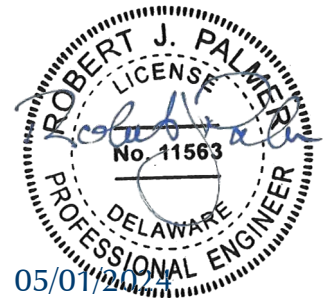
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**NOTES:**

1. ALL PIPE TO BE PVC SCHEDULE 40.
2. ALL DOSING CHAMBER COMPONENTS SHALL BE FIELD TESTED TO ENSURE ACCURACY, WATER TIGHTNESS, AND PROPER OPERATION OF ALL PUMPS AND ALARM CONTROLS.
3. ALL ELECTRICAL CONNECTIONS SHALL BE WATERPROOF, CORROSION-RESISTANT AND EXPLOSION-PROOF (IF INSIDE TANK).
4. WHERE POSSIBLE, PUT ALL ELECTRICAL CONNECTIONS OUTSIDE OF THE TANK.
5. RAIN TIGHT (3R) BOXES ARE REQUIRED OUTSIDE OF THE TANK: NOT EXPLOSION PROOF.
6. FLOATS ARE NOT TO BE LOCATED DIRECTLY BELOW INLET.
7. SEAL CONDUIT TO PREVENT GASSES FROM ENTERING PANELS.



**PROPOSED WAREHOUSE /  
DISTRIBUTION CENTER**  
LANDS OF FRANK CHICK  
18011 SOUTH DUPONT HIGHWAY  
KENT COUNTY, DELAWARE  
1,000 GALLON DOSING CHAMBER

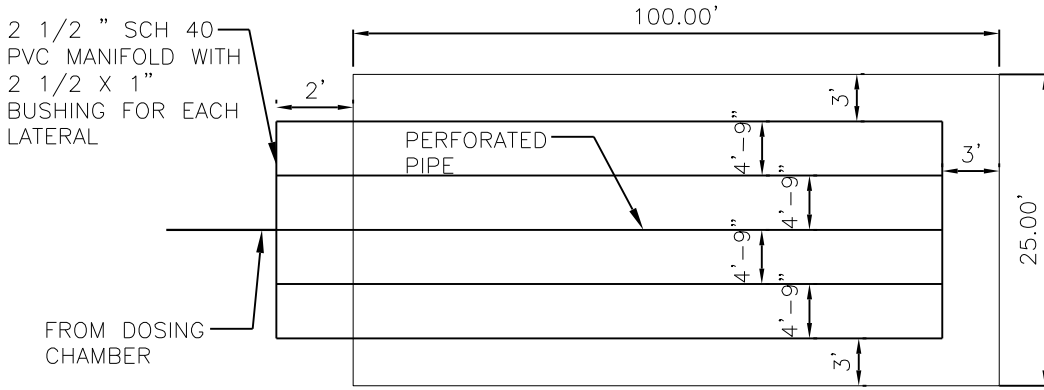
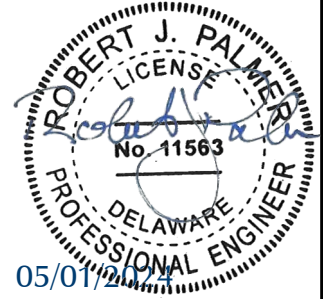
TAX MAP #6-00-18000-02-2001-00001



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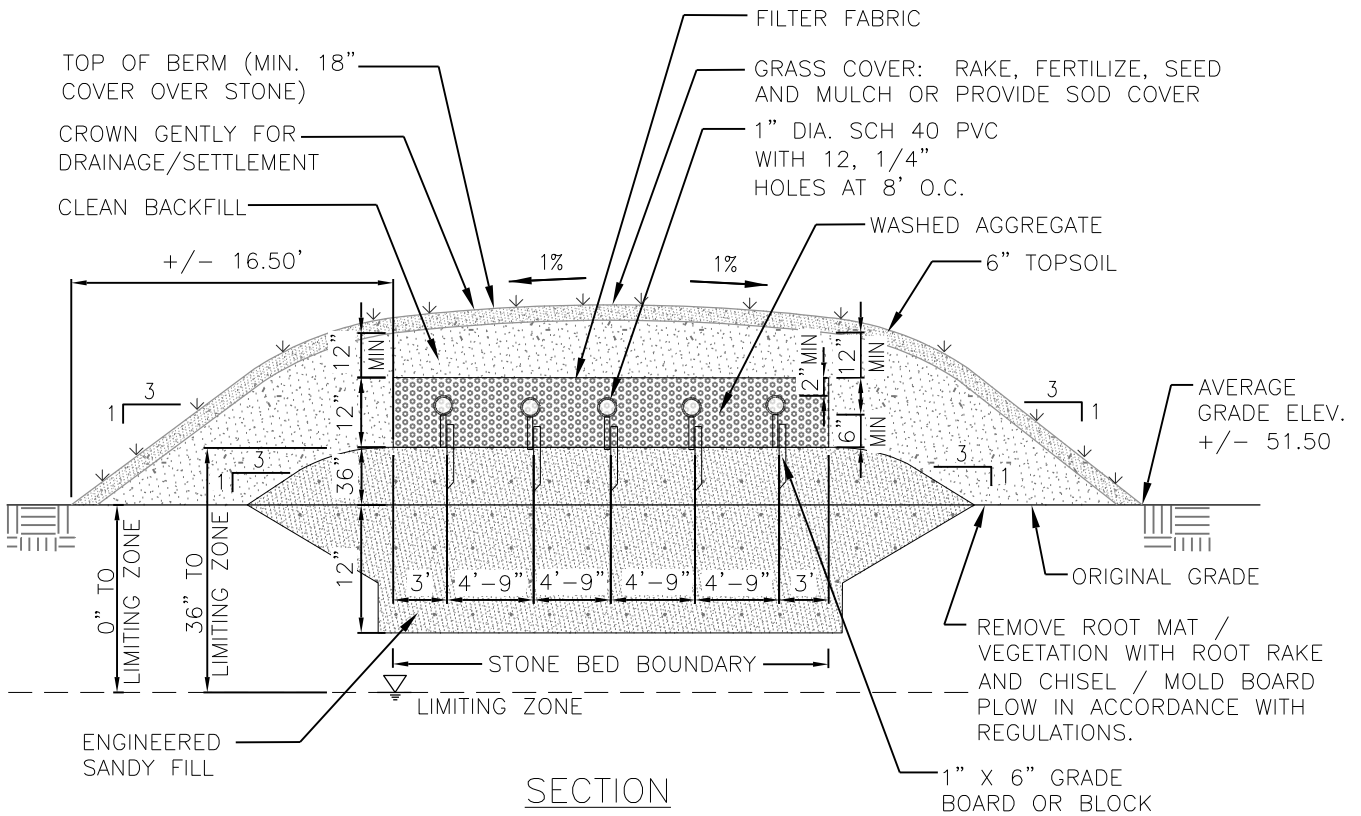
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PLAN

NOTE: DO NOT EXCAVATE DEEPER THAN 18 INCHES BENEATH GRADE OR TO 1 FOOT BELOW EXISTING SOIL DISTURBANCES/EXISTING DRAINFIELD.

TOTAL CAP DEPTH INCLUDING TOPSOIL = 18"



SECTION

**PROPOSED WAREHOUSE / DISTRIBUTION CENTER**

LANDS OF FRANK CHICK  
18011 SOUTH DUPONT HIGHWAY  
KENT COUNTY, DELAWARE  
SAND-LINED ELEVATED SAND  
MOUND CROSS SECTION

TAX MAP #6-00-18000-02-2001-00001

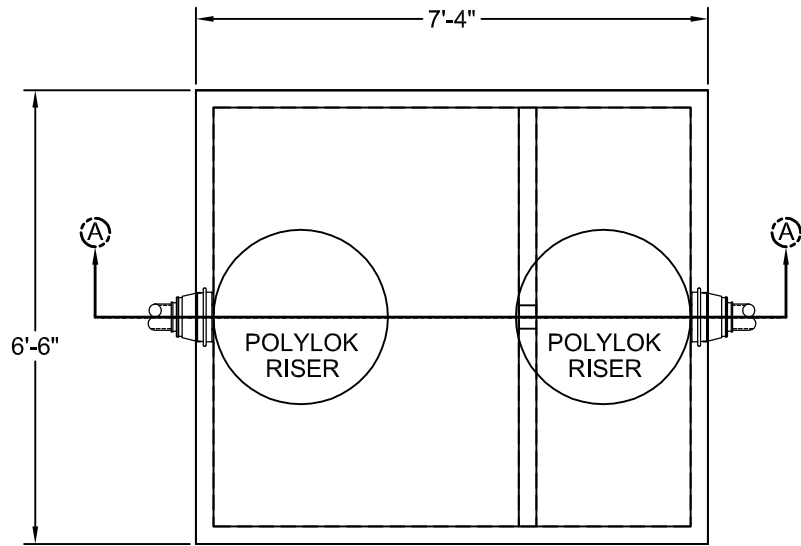


23318 Cedar Lane Georgetown, Delaware 19947  
302.864.8825 info@beaconengineeringllc.com

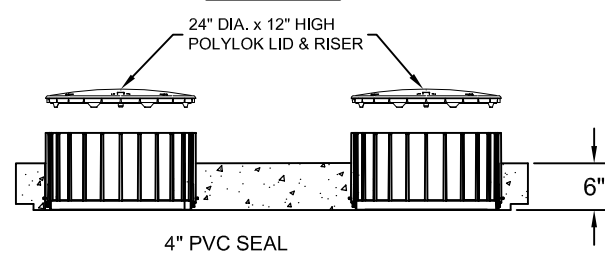
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Dwn.By:	SKM
Proj.No.:	CHI01-03
Dwg.No.:	SP-1.7

M:\Projects\CHI01-03 Chick's Proposed Warehouse\Construction Docs\DWGs\Septic\CHI01-03 SEPTIC DETAILS.dwg Apr 30, 2024 - 8:23am, (Sarah)

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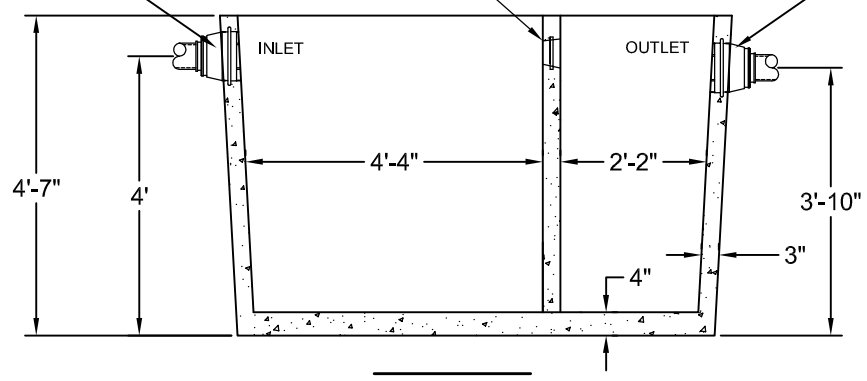


**PLAN VIEW**



INLET-  
PRESS-SEAL  
CAST A SEAL 964  
BOOT FOR 4" OR 6" PVC

OUTLET-  
PRESS-SEAL  
CAST A SEAL 964  
BOOT FOR 4" OR 6" PVC



**SECTION A-A**

**GENERAL NOTES:**

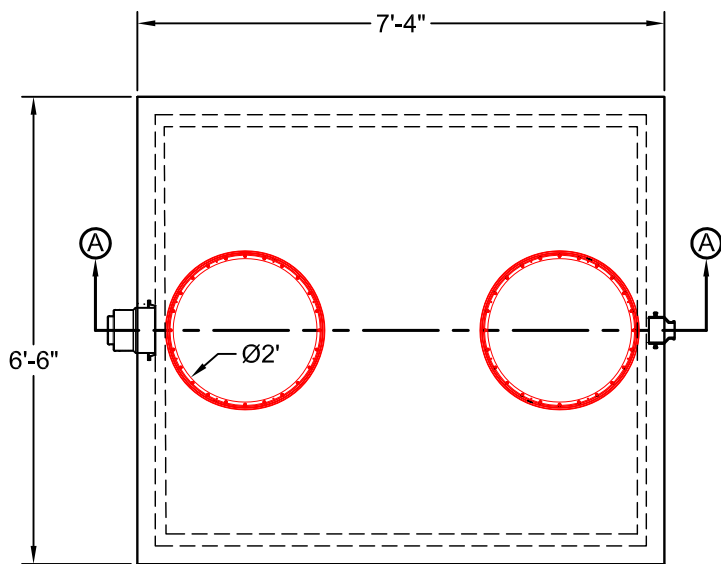
1. OVERALL HEIGHT: 5'-2"
2. WEIGHT: TANK 7,000 lbs.  
COVER 4,100 lbs.



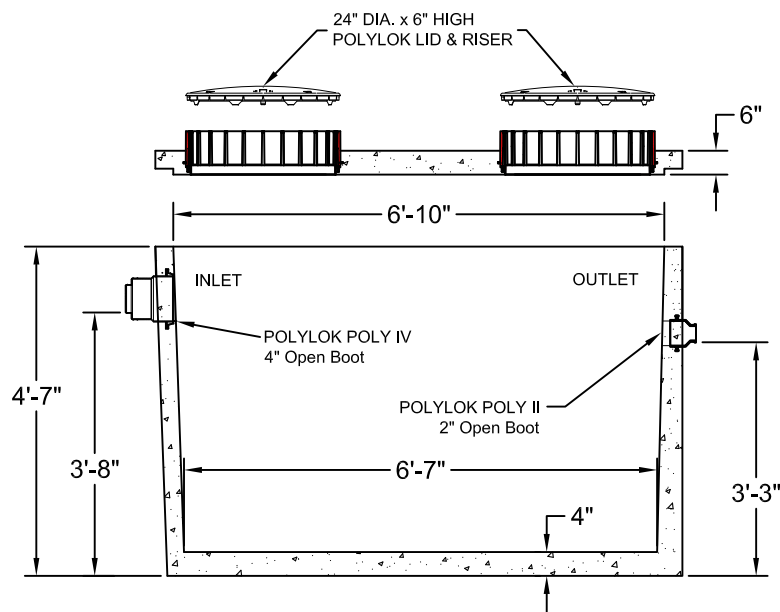
**GILLESPIE**  
PRECAST LLC  
1-800-638-6884  
www.gillespieprecast.com

1000 GAL HD Septic Tank  
4' Cover

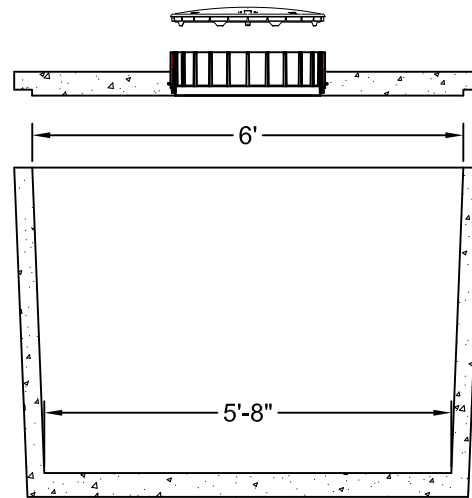
DRAWN BY:	GAD	DATE:	7/30/09
SCALE:	Not to Scale	DWG. #:	1 of 1



PLAN VIEW



SECTION A-A



SECTION B-B

1. OVERALL HEIGHT: 4'10"
2. WEIGHT: TANK 7000 lbs.  
COVER 3450 lbs.



Chestertown, MD | 410-778-0900 | gillespieandson.com

**1000 GALLON TOP SEAM**  
**Dose Tank (Low Hole) - 4' bury / HD**

DRAWN BY:

kls

DATE:

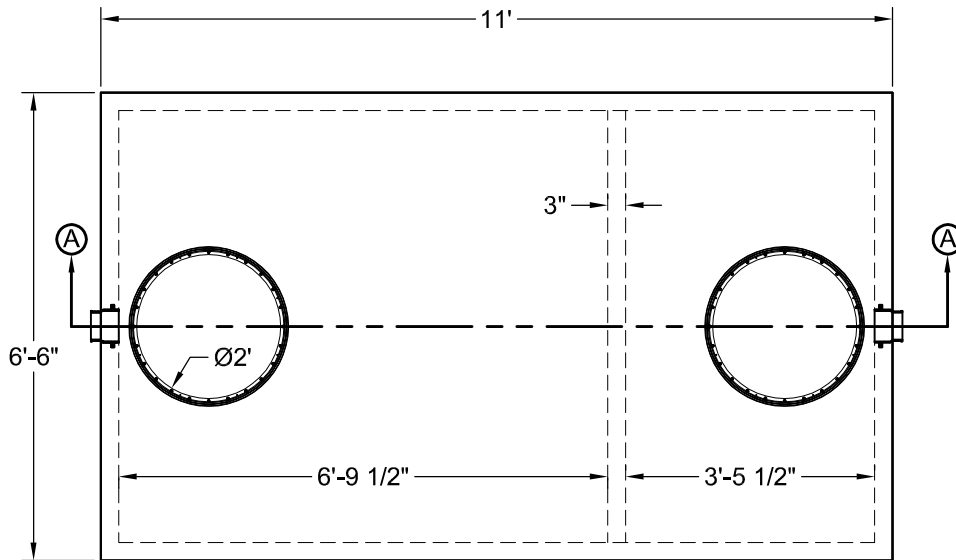
7-11-13

SCALE:

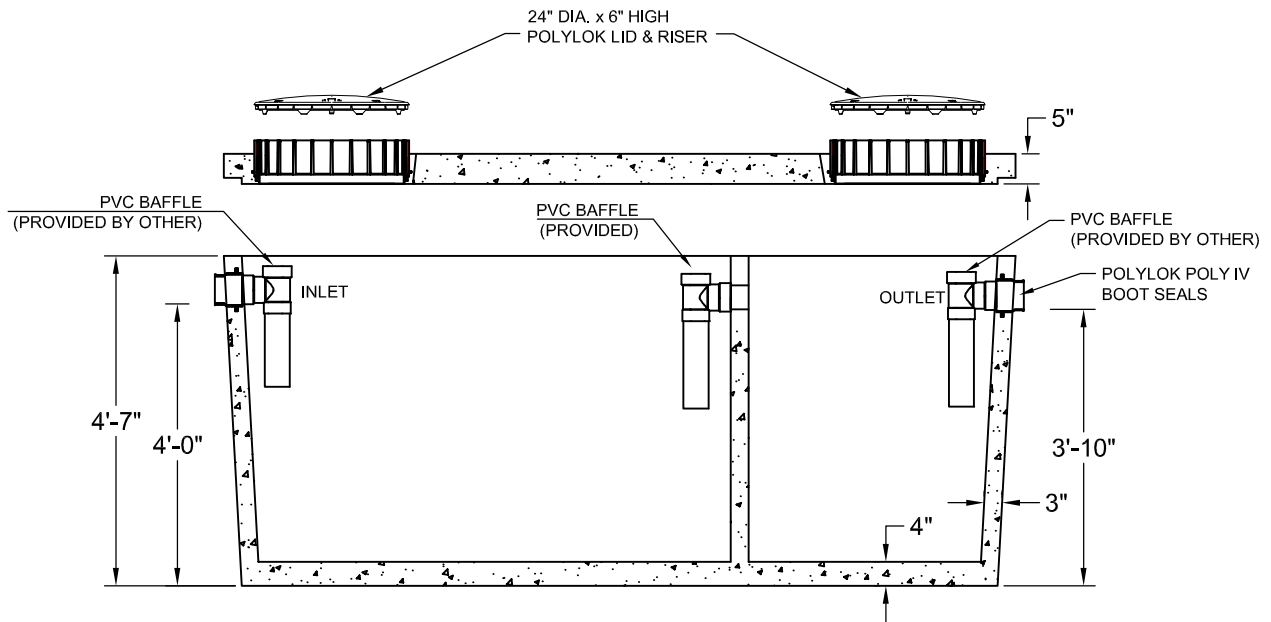
Not to Scale

DWG. #:

1 of 1



**PLAN VIEW**



**SECTION A-A**

**HEAVY DUTY - 5 FT BURY DEPTH**

- 1. OVERALL HEIGHT: 4'11"
- 2. WEIGHT: TANK 9600 lbs.  
COVER 4450 lbs.



CONCRETE  
PRODUCTS  
READY MIX  
CONCRETE

410-778-0900 | Chestertown, MD | www.gillespieandson.com

**1500 GALLON TOP SEAM  
Heavy Duty Septic Tank**

DRAWN BY: P.E.G

DATE: 05/31/17

SCALE: Not to Scale

DWG. #: 1 of 1



**FEATURES**

**Impeller:** Cast iron, semi-open, non-clog with pump-out vanes for mechanical seal protection. Balanced for smooth operation. Silicon bronze impeller available as an option.

**Casing:** Cast iron volute type for maximum efficiency. 2" NPT discharge.

**Mechanical Seal:** Silicon Carbide vs. Silicon Carbide sealing faces. Stainless steel metal parts, BUNA-N elastomers.

**Shaft:** Corrosion-resistant, stainless steel. Threaded design. Locknut on all models to guard against component damage on accidental reverse rotation.

**Fasteners:** 300 series stainless steel.

Capable of running dry without damage to components.

Designed for continuous operation when fully submerged.

**EXTENDED WARRANTY AVAILABLE FOR RESIDENTIAL APPLICATIONS.**

# WE Series Model 3885

SUBMERSIBLE EFFLUENT PUMPS

### APPLICATIONS

Specifically designed for the following uses:

- Homes, Farms, Trailer Courts, Motels, Schools, Hospitals, Industry, Effluent Systems

### SPECIFICATIONS

#### Pump

- Solids handling capabilities: 3/4" maximum.
- Discharge size: 2" NPT.
- Capacities: up to 140 GPM.
- Total heads: up to 128 feet TDH.
- Temperature: 104°F (40°C) continuous, 140°F (60°C) intermittent.
- See order numbers on reverse side for specific HP, voltage, phase and RPM's available.

#### MOTORS

- Fully submerged in high-grade turbine oil for lubrication and efficient heat transfer.
- Class B insulation on 1/3 - 1 1/2 HP models.
- Class F insulation on 2 HP models.

#### Single phase (60 Hz):

- Capacitor start motors for maximum starting torque.
- Built-in overload with automatic reset.

- SJTOW or STOW severe duty oil and water resistant power cords.
- 1/3 - 1 HP models have NEMA three prong grounding plugs.
- 1 1/2 HP and larger units have bare lead cord ends.

#### Three phase (60 Hz):

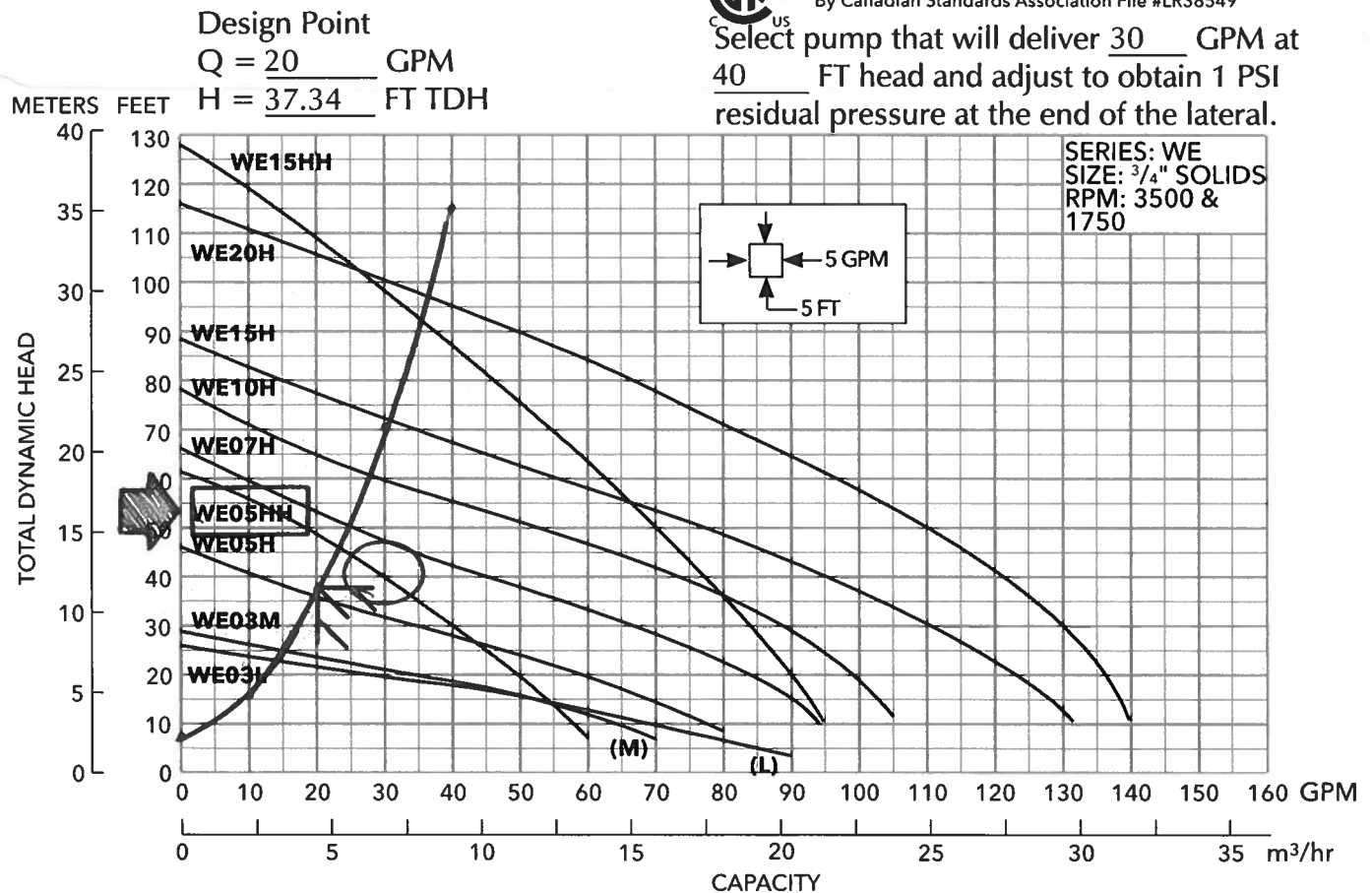
- Class 10 overload protection must be provided in separately ordered starter unit.
- STOW power cords all have bare lead cord ends.
- Designed for Continuous Operation: Pump ratings are within the motor manufacturer's recommended working limits, can be operated continuously without damage when fully submerged.
- Bearings: Upper and lower heavy duty ball bearing construction.
- Power Cable: Severe duty rated, oil and water resistant. Epoxy seal on motor end provides secondary moisture barrier in case of outer jacket damage and to prevent oil wicking. Standard cord is 20'. Optional lengths are available.
- O-ring: Assures positive sealing against contaminants and oil leakage.

#### AGENCY LISTINGS



Tested to UL 778 and CSA 22.2 108 Standards  
By Canadian Standards Association File #LR38549

Select pump that will deliver 30 GPM at 40 FT head and adjust to obtain 1 PSI residual pressure at the end of the lateral.





### MODELS

Order Number	HP	Phase	Volts	RPM	Impeller Diameter (in.)	Maximum Amps	Locked Rotor Amps	KVA Code	Full Load Efficiency %	Resistance		Power Cable Size	Weight (lbs.)	
										Start	Line-Line			
WE0311L	0.33	1	115	1750	5.38	10.7	30.0	M	54	11.9	1.7	16/3	56	
WE0318L			208			6.8	19.5	K	51	9.1	4.2			
WE0312L			230			4.9	14.1	L	53	14.5	8.0			
WE0311M			115			10.7	30.0	M	54	11.9	1.7			
WE0318M			208			6.8	19.5	K	51	9.1	4.2			
WE0312M			230			4.9	14.1	L	53	14.5	8.0			
WE0511H	0.5	1	115	3450	3.56	14.5	46.0	M	54	7.5	1.0	14/3	60	
WE0518H			208			8.1	31.0	K	68	9.7	2.4	16/3	60	
WE0512H			230			7.3	34.5	M	53	9.6	4.0	14/4	60	
WE0538H			3			200	4.9	22.6	R	68	NA	3.8	14/4	60
WE0532H						230	3.3	18.8	R	70	NA	5.8		
WE0534H						460	1.7	9.4	R	70	NA	23.2		
WE0537H	575	1.4	7.5	R	62	NA	35.3							
WE0511HH	0.75	1	115	3450	3.88	14.5	46.0	M	54	7.5	1.0	14/3	60	
WE0518HH			208			8.1	31.0	K	68	9.7	2.4	16/3	60	
WE0512HH			230			7.3	34.5	M	53	9.6	4.0	14/4	60	
WE0538HH			3			200	4.9	22.6	R	68	NA	3.8	14/4	60
WE0532HH						230	3.6	18.8	R	70	NA	5.8		
WE0534HH						460	1.8	9.4	R	70	NA	23.2		
WE0537HH	575	1.5	7.5	R	62	NA	35.3							
WE0718H	0.75	1	208	3450	4.06	11.0	31.0	K	68	9.7	2.4	14/3	70	
WE0712H			230			10.0	27.5	J	65	12.2	2.7	14/4	70	
WE0738H			3			200	6.2	20.6	L	64	NA			5.7
WE0732H						230	5.4	15.7	K	68	NA			8.6
WE0734H						460	2.7	7.9	K	68	NA			34.2
WE0737H			575			2.2	9.9	L	78	NA	26.5			
WE1018H	1	1	208	3450	4.44	14.0	59.0	K	68	9.3	1.1			14/3
WE1012H			230			12.5	36.2	J	69	10.3	2.1	14/4	70	
WE1038H			3			200	8.1	37.6	M	77	NA			2.7
WE1032H						230	7.0	24.1	L	79	NA			4.1
WE1034H						460	3.5	12.1	L	79	NA			16.2
WE1037H			575			2.8	9.9	L	78	NA	26.5			
WE1518H	1.5	1	208	3450	4.56	17.5	59.0	K	68	9.3	1.1			14/3
WE1512H			230			15.7	50.0	H	68	11.3	1.6	14/4	80	
WE1538H			3			200	10.6	40.6	K	79	NA			1.9
WE1532H						230	9.2	31.7	K	78	NA			2.9
WE1534H						460	4.6	15.9	K	78	NA			11.4
WE1537H			575			3.7	13.1	K	75	NA	16.9			
WE1518HH	1.5	1	208	3450	5.50	17.5	59.0	K	68	9.3	1.1			14/3
WE1512HH			230			15.7	50.0	H	68	11.3	1.6	14/4	80	
WE1538HH			3			200	10.6	40.6	K	79	NA			1.9
WE1532HH						230	9.2	31.7	K	78	NA			2.9
WE1534HH						460	4.6	15.9	K	78	NA			11.4
WE1537HH			575			3.7	13.1	K	75	NA	16.9			
WE2012H	2	1	230	3450	5.38	18.0	49.6	F	78	3.2	1.2			14/3
WE2038H			200			12.0	42.4	K	78	NA	1.7	14/4	83	
WE2032H			3			230	11.6	42.4	K	78	NA			1.7
WE2034H						460	5.8	21.2	K	78	NA			6.6
WE2037H						575	4.7	16.3	L	78	NA			10.5

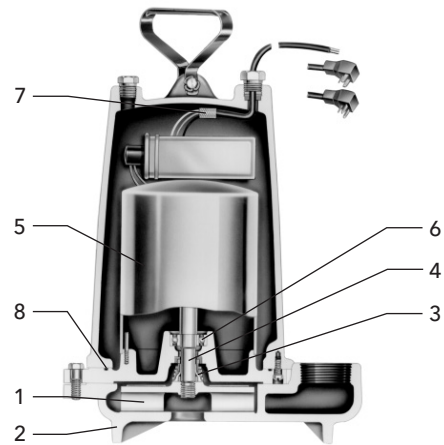
# LIFT STATION

## PERFORMANCE RATINGS (gallons per minute)

Order No.	WE-03L	WE-03M	WE-05H	WE-07H	WE-10H	WE-15H	WE-05HH	WE-15HH	WE-20H
<b>HP</b>	1/3	1/3	1/2	3/4	1	1 1/2	1/2	1 1/2	2
<b>RPM</b>	1750	1750	3500	3500	3500	3500	3500	3500	3500
<b>5</b>	86	-	-	-	-	-	-	-	-
<b>10</b>	70	63	78	94	-	-	58	95	-
<b>15</b>	52	52	70	90	103	128	53	93	138
<b>20</b>	27	35	60	83	98	123	49	90	136
<b>25</b>	5	15	48	76	94	117	45	87	133
<b>30</b>	-	-	35	67	88	110	40	83	130
<b>35</b>	-	-	22	57	82	103	35	80	126
<b>40</b>	-	-	-	45	74	95	30	77	121
<b>45</b>	-	-	-	35	64	86	25	74	116
<b>50</b>	-	-	-	25	53	77	-	70	110
<b>55</b>	-	-	-	-	40	67	-	66	103
<b>60</b>	-	-	-	-	30	56	-	63	96
<b>65</b>	-	-	-	-	20	45	-	58	89
<b>70</b>	-	-	-	-	-	35	-	55	81
<b>75</b>	-	-	-	-	-	25	-	51	74
<b>80</b>	-	-	-	-	-	-	-	47	66
<b>90</b>	-	-	-	-	-	-	-	37	49
<b>100</b>	-	-	-	-	-	-	-	28	30

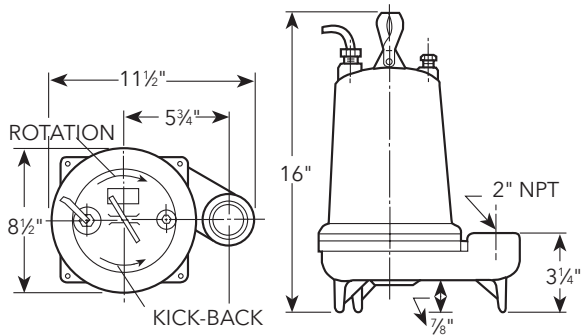
## COMPONENTS

Item No.	Description
1	Impeller
2	Casing
3	Mechanical Seal
4	Motor Shaft
5	Motor
6	Ball Bearings
7	Power Cable
8	Casing O-Ring



## DIMENSIONS

(All dimensions are in inches. Do not use for construction purposes.)



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Seneca Falls, NY 13148  
Phone: (866) 325-4210  
Fax: (888) 322-5877  
[www.xylem.com/brands/gouldswatertechology](http://www.xylem.com/brands/gouldswatertechology)

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# DOSING CHAMBER



## FEATURES

**Impeller:** Cast iron, semi-open, non-clog with pump-out vanes for mechanical seal protection. Balanced for smooth operation. Silicon bronze impeller available as an option.

**Casing:** Cast iron volute type for maximum efficiency. 2" NPT discharge.

**Mechanical Seal:** Silicon Carbide vs. Silicon Carbide sealing faces. Stainless steel metal parts, BUNA-N elastomers.

**Shaft:** Corrosion-resistant, stainless steel. Threaded design. Locknut on all models to guard against component damage on accidental reverse rotation.

**Fasteners:** 300 series stainless steel.

Capable of running dry without damage to components.

Designed for continuous operation when fully submerged.

**EXTENDED WARRANTY AVAILABLE FOR RESIDENTIAL APPLICATIONS.**

# WE Series Model 3885

SUBMERSIBLE EFFLUENT PUMPS

# DOSING CHAMBER

### APPLICATIONS

Specifically designed for the following uses:

- Homes, Farms, Trailer Courts, Motels, Schools, Hospitals, Industry, Effluent Systems

### SPECIFICATIONS

#### Pump

- Solids handling capabilities: 3/4" maximum.
- Discharge size: 2" NPT.
- Capacities: up to 140 GPM.
- Total heads: up to 128 feet TDH.
- Temperature: 104°F (40°C) continuous, 140°F (60°C) intermittent.
- See order numbers on reverse side for specific HP, voltage, phase and RPM's available.

#### MOTORS

- Fully submerged in high-grade turbine oil for lubrication and efficient heat transfer.
- Class B insulation on 1/3 - 1 1/2 HP models.
- Class F insulation on 2 HP models.

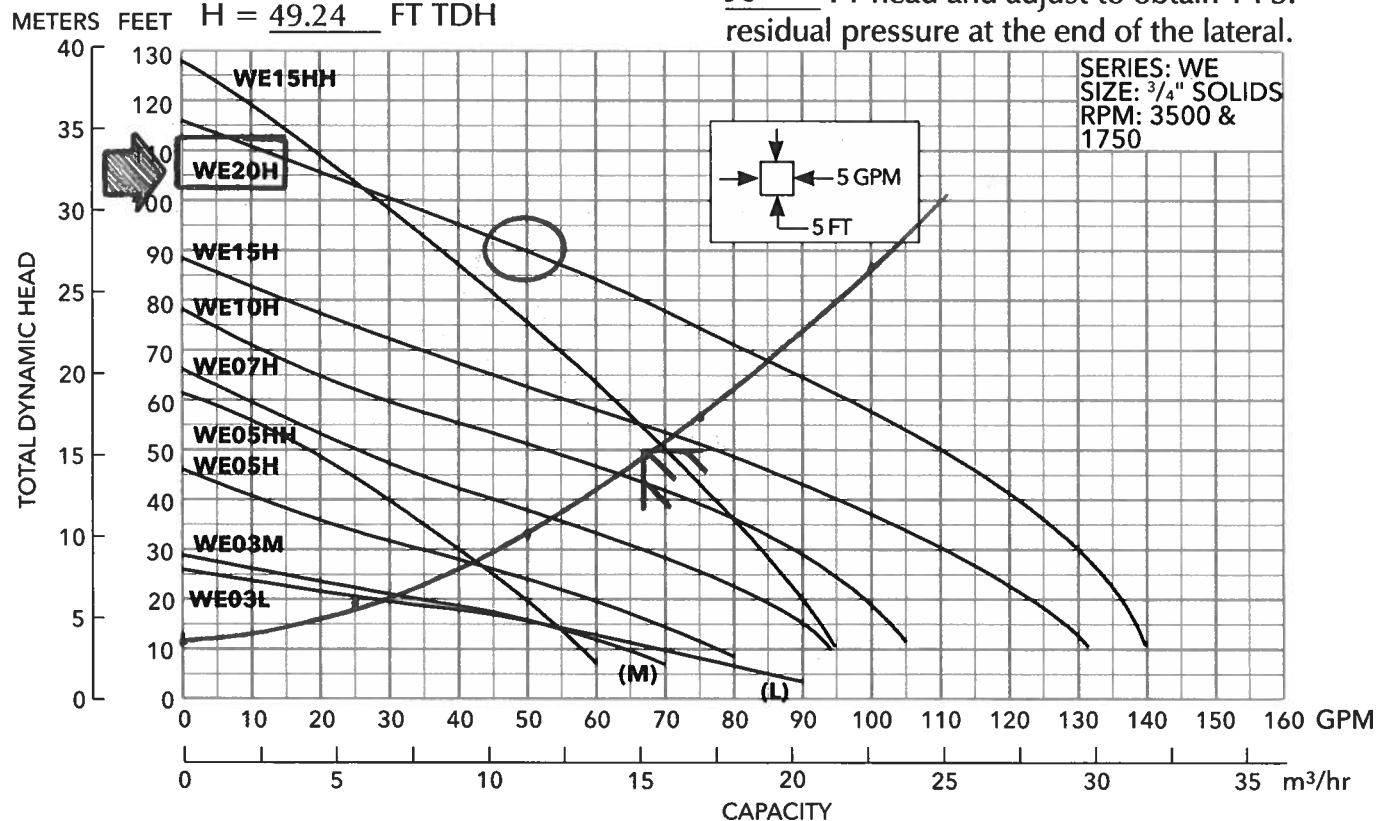
#### Single phase (60 Hz):

- Capacitor start motors for maximum starting torque.
- Built-in overload with automatic reset.

Design Point

Q = 67.80 GPM

H = 49.24 FT TDH



- SJTOW or STOW severe duty oil and water resistant power cords.
- 1/3 - 1 HP models have NEMA three prong grounding plugs.
- 1 1/2 HP and larger units have bare lead cord ends.

#### Three phase (60 Hz):

- Class 10 overload protection must be provided in separately ordered starter unit.
- STOW power cords all have bare lead cord ends.
- Designed for Continuous Operation: Pump ratings are within the motor manufacturer's recommended working limits, can be operated continuously without damage when fully submerged.
- Bearings: Upper and lower heavy duty ball bearing construction.
- Power Cable: Severe duty rated, oil and water resistant. Epoxy seal on motor end provides secondary moisture barrier in case of outer jacket damage and to prevent oil wicking. Standard cord is 20'. Optional lengths are available.
- O-ring: Assures positive sealing against contaminants and oil leakage.

#### AGENCY LISTINGS



Tested to UL 778 and CSA 22.2 108 Standards  
 By Canadian Standards Association File #LR38549

Select pump that will deliver 50 GPM at 90 FT head and adjust to obtain 1 PSI residual pressure at the end of the lateral.

# DOSING CHAMBER

### MODELS

Order Number	HP	Phase	Volts	RPM	Impeller Diameter (in.)	Maximum Amps	Locked Rotor Amps	KVA Code	Full Load Efficiency %	Resistance		Power Cable Size	Weight (lbs.)	
										Start	Line-Line			
WE0311L	0.33	1	115	1750	5.38	10.7	30.0	M	54	11.9	1.7	16/3	56	
WE0318L			208			6.8	19.5	K	51	9.1	4.2			
WE0312L			230			4.9	14.1	L	53	14.5	8.0			
WE0311M			115			10.7	30.0	M	54	11.9	1.7			
WE0318M			208			6.8	19.5	K	51	9.1	4.2			
WE0312M			230			4.9	14.1	L	53	14.5	8.0			
WE0511H	0.5	1	115	3450	3.56	14.5	46.0	M	54	7.5	1.0	14/3	60	
WE0518H			208			8.1	31.0	K	68	9.7	2.4	16/3	60	
WE0512H			230			7.3	34.5	M	53	9.6	4.0	14/3	60	
WE0538H			3			200	4.9	22.6	R	68	NA	3.8	14/4	60
WE0532H						230	3.3	18.8	R	70	NA	5.8		
WE0534H						460	1.7	9.4	R	70	NA	23.2		
WE0537H	575	1.4	7.5	R	62	NA	35.3	14/3	60					
WE0511HH	0.5	1	115	3450	3.88	14.5	46.0	M	54	7.5	1.0	14/3	60	
WE0518HH			208			8.1	31.0	K	68	9.7	2.4	16/3	60	
WE0512HH			230			7.3	34.5	M	53	9.6	4.0	14/3	60	
WE0538HH		3	200			4.9	22.6	R	68	NA	3.8	14/4	60	
WE0532HH			230			3.6	18.8	R	70	NA	5.8			
WE0534HH			460			1.8	9.4	R	70	NA	23.2			
WE0537HH	575	1.5	7.5	R	62	NA	35.3	14/4	60					
WE0718H	0.75	1	208	3450	4.06	11.0	31.0	K	68	9.7	2.4	14/3	70	
WE0712H			230			10.0	27.5	J	65	12.2	2.7	14/3	70	
WE0738H		3	200			6.2	20.6	L	64	NA	5.7	14/4	70	
WE0732H			230			5.4	15.7	K	68	NA	8.6			
WE0734H			460			2.7	7.9	K	68	NA	34.2			
WE0737H			575			2.2	9.9	L	78	NA	26.5			
WE1018H	1	1	208	3450	4.44	14.0	59.0	K	68	9.3	1.1	14/3	70	
WE1012H			230			12.5	36.2	J	69	10.3	2.1	14/3	70	
WE1038H		3	200			8.1	37.6	M	77	NA	2.7	14/4	70	
WE1032H			230			7.0	24.1	L	79	NA	4.1			
WE1034H			460			3.5	12.1	L	79	NA	16.2			
WE1037H			575			2.8	9.9	L	78	NA	26.5			
WE1518H	1.5	1	208	3450	4.56	17.5	59.0	K	68	9.3	1.1	14/3	80	
WE1512H			230			15.7	50.0	H	68	11.3	1.6	14/3	80	
WE1538H		3	200			10.6	40.6	K	79	NA	1.9	14/4	80	
WE1532H			230			9.2	31.7	K	78	NA	2.9			
WE1534H			460			4.6	15.9	K	78	NA	11.4			
WE1537H			575			3.7	13.1	K	75	NA	16.9			
WE1518HH	1.5	1	208	3450	5.50	17.5	59.0	K	68	9.3	1.1	14/3	80	
WE1512HH			230			15.7	50.0	H	68	11.3	1.6	14/3	80	
WE1538HH		3	200			10.6	40.6	K	79	NA	1.9	14/4	80	
WE1532HH			230			9.2	31.7	K	78	NA	2.9			
WE1534HH			460			4.6	15.9	K	78	NA	11.4			
WE1537HH			575			3.7	13.1	K	75	NA	16.9			
WE2012H	2	1	230			18.0	49.6	F	78	3.2	1.2	14/3	83	
WE2038H	2	3	200	3450	5.38	12.0	42.4	K	78	NA	1.7	14/4	83	
WE2032H			230			11.6	42.4	K	78	NA	1.7			
WE2034H			460			5.8	21.2	K	78	NA	6.6			
WE2037H			575			4.7	16.3	L	78	NA	10.5			



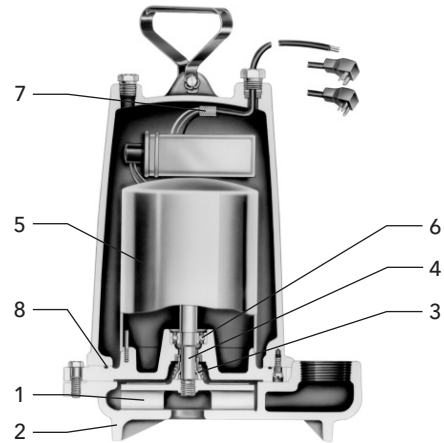
# DOSING CHAMBER

## PERFORMANCE RATINGS (gallons per minute)

Order No.	WE-03L	WE-03M	WE-05H	WE-07H	WE-10H	WE-15H	WE-05HH	WE-15HH	WE-20H
<b>HP</b>	1/3	1/3	1/2	3/4	1	1 1/2	1/2	1 1/2	2
<b>RPM</b>	1750	1750	3500	3500	3500	3500	3500	3500	3500
5	86	-	-	-	-	-	-	-	-
10	70	63	78	94	-	-	58	95	-
15	52	52	70	90	103	128	53	93	138
20	27	35	60	83	98	123	49	90	136
25	5	15	48	76	94	117	45	87	133
30	-	-	35	67	88	110	40	83	130
35	-	-	22	57	82	103	35	80	126
40	-	-	-	45	74	95	30	77	121
45	-	-	-	35	64	86	25	74	116
50	-	-	-	25	53	77	-	70	110
55	-	-	-	-	40	67	-	66	103
60	-	-	-	-	30	56	-	63	96
65	-	-	-	-	20	45	-	58	89
70	-	-	-	-	-	35	-	55	81
75	-	-	-	-	-	25	-	51	74
80	-	-	-	-	-	-	-	47	66
90	-	-	-	-	-	-	-	37	49
100	-	-	-	-	-	-	-	28	30

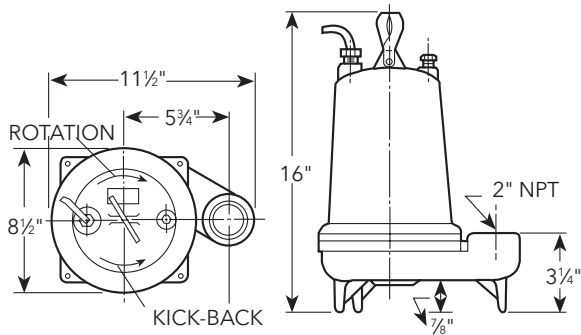
## COMPONENTS

Item No.	Description
1	Impeller
2	Casing
3	Mechanical Seal
4	Motor Shaft
5	Motor
6	Ball Bearings
7	Power Cable
8	Casing O-Ring



## DIMENSIONS

(All dimensions are in inches. Do not use for construction purposes.)



**xylem**  
Let's Solve Water

Xylem, Inc.  
2881 East Bayard Street Ext., Suite A  
Seneca Falls, NY 13148  
Phone: (866) 325-4210  
Fax: (888) 322-5877  
[www.xylem.com/brands/gouldswatertechology](http://www.xylem.com/brands/gouldswatertechology)

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# MODEL TD Control Panel

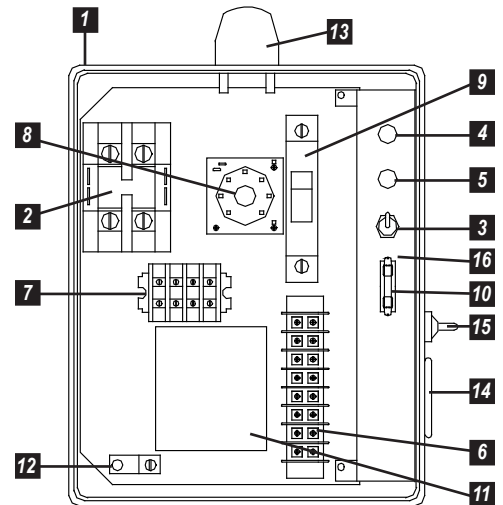
## Single phase, simplex timed dosing pump control.

The Model TD control panel provides a reliable means of controlling one single phase pump in onsite septic installations. A programmable timer activates a magnetic motor contactor to turn the pump on and off. A low level cutout float overrides the timer to prevent the pump from running dry. An alarm float activates the audio/visual alarm system indicating a high liquid level. Common applications include sand filter systems, pressure distribution systems, mound systems, or any application requiring a timed dose.

## PANEL COMPONENTS

1. **Enclosure** measures 10 x 8 x 4 inches (25.40 x 20.32 x 10.16 cm) NEMA 4X (ultraviolet stabilized thermoplastic with removable mounting feet for outdoor or indoor use).
2. **Magnetic Motor Contactor** controls pump by switching electrical lines.
3. **HOA Switch** for manual pump control.
4. **Control Fuse**
5. **Alarm Fuse**
6. **Float Switch Terminal Block**
7. **Incoming Power Terminal Block**
8. **Programmable Timer** with separate variable controls allows for setting the on and off times from .05 seconds to 30 hours.
9. **Circuit Breaker** provides pump disconnect and branch circuit protection.
10. **Spare Fuse**
11. **Backplate Label** includes diagram of float, pump, and power connections.
12. **Ground Lug**

**NOTE:** Timer Installation Label and Pump/Float Switch Installation Specification Label are located inside the panel on enclosure cover.



Model Shown TD1W914X

## STANDARD ALARM PACKAGE

13. **Red Alarm Beacon** provides 360° visual check of alarm condition.
14. **Alarm Horn** provides audio warning of alarm condition (83 to 85 decibel rating).
15. **Exterior Alarm Test/Normal/Silence Switch** allows horn and light to be tested and horn to be silenced in an alarm condition. Alarm automatically resets once alarm condition is cleared.
16. **Horn Silence Relay** (mounted under bracket).

**NOTE:** other options available.



## FEATURES

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

## OPTIONAL FEATURE

- **34" (86.36cm) Panel Mounting Post** (Factory Installed). Includes Duplex Installation Kit (Enclosure upsized to 10" x 8" x 6" (25.4 x 20.32 x 15.24 cm). Max. Enclosure size 14" x 12" x 6" (35.56 x 30.48 x 15.24 cm)



**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](http://www.sjerhombus.com) B.61

**SEE BACKSIDE FOR COMPLETE LISTING OF AVAILABLE OPTIONS.  
SEE PRICE BOOK FOR LIST PRICE.**

**TD** **1** **W** **1** **2** **4** **H** **21E 4E 8A 8C**  
**10E**

**MODEL TD**

**ALARM PACKAGE**

- 0 = select option (If you select "0", you must select option 1F)
- 1 = alarm package (includes test/normal/silence switch, red beacon, horn)

**ENCLOSURE RATING**

- W = Weatherproof, NEMA 4X (engineered thermoplastic)

**STARTING DEVICE**

- 1 = magnetic motor contactor 120/208/240V
- 9 = magnetic motor contactor 120V only

**PUMP FULL LOAD AMPS**

- 0 = 0-7 FLA
- 1 = 7-15 FLA
- 2 = 15-20 FLA

**PUMP DISCONNECTS**

- 4 = circuit breaker

**FLOAT SWITCH APPLICATION**

- H = 20' low level cutout (select 17 or 21 option)
- E = EZconnex® float switch system (select 33, 35 or 36 option)
- X = no floats

**OPTIONS** *Listed below*

- | CODE                                    | DESCRIPTION   |
|---|---|
| <input type="checkbox"/> 1F             | Door mounted alarm indicator with horn and test/normal/silence switch<br><i>(must select "0" as an alarm package)</i> |
| <input type="checkbox"/> 4B             | Red redundant off indicator and alarm<br><i>(must select option "4D" if floats included)</i>                          |
| <input type="checkbox"/> 4D             | Redundant off float   |
| <input checked="" type="checkbox"/> 4E  | Redundant off float, alarm activation<br><i>(20' SJE PumpMaster® SPDT )</i>   |
| <input type="checkbox"/> 6A             | Auxiliary alarm contact, form A   |
| <input checked="" type="checkbox"/> 8A  | Elapsed time meter  |
| <input checked="" type="checkbox"/> 8C  | Event (cycle) counter   |
| <input checked="" type="checkbox"/> 10E | Lockable latch  |
| <input type="checkbox"/> 10K            | Anti-condensation heater  |
| <input type="checkbox"/> 10P            | Panel Mounting Post (Factory Installed. Includes Duplex Install. Kit)(Encl. upsized to 10x8x6.Max 14x12x6)            |
| <input type="checkbox"/> 16A            | 10' cord in lieu of 20' <i>(per float)</i>  |
| <input type="checkbox"/> 16B            | 15' cord in lieu of 20' <i>(per float)</i>  |
| <input type="checkbox"/> 16C            | 30' cord in lieu of 20' <i>(per float)</i>  |
| <input type="checkbox"/> 16D            | 40' cord in lieu of 20' <i>(per float)</i>  |
| <input type="checkbox"/> 17E            | Sensor Float® Mini (redundant off, high level alarm)<br>▲ <i>(per float)</i>  |
| <input type="checkbox"/> 18A            | Timer override float<br><i>(20' SJE PumpMaster®) ●</i>  |
| <input type="checkbox"/> 19X            | Door mounted pump run indicator   |
| <input checked="" type="checkbox"/> 21E | SJE PumpMaster® (redundant off, high level alarm)<br>● <i>(per float)</i>   |

- | CODE                         | DESCRIPTION  |
|------------------------------|--|
| <input type="checkbox"/> 33U | EZconnex® 3-Port, 50', w/10' floats (3) / pipe clamp **              |
| <input type="checkbox"/> 35D | EZconnex® 4-Port, 25', w/10' floats (4) / pipe clamp *               |
| <input type="checkbox"/> 35E | EZconnex® 4-Port, 50', w/10' floats (4) / pipe clamp *               |
| <input type="checkbox"/> 35G | EZconnex® 4-Port, 25', w/20' floats (4) / pipe clamp *               |
| <input type="checkbox"/> 35H | EZconnex® 4-Port, 50', w/20' floats (4) / pipe clamp *               |
| <input type="checkbox"/> 36D | EZconnex® 3-Port, 25', w/10' floats (2) / pipe clamp, sealing plug * |
| <input type="checkbox"/> 36E | EZconnex® 3-Port, 50', w/10' floats (2) / pipe clamp, sealing plug * |
| <input type="checkbox"/> 36G | EZconnex® 3-Port, 25', w/20' floats (2) / pipe clamp, sealing plug * |
| <input type="checkbox"/> 36H | EZconnex® 3-Port, 50', w/20' floats (2) / pipe clamp, sealing plug * |

● Mechanically-activated ▲ Mercury-activated \* EZconnex® mechanically-activated, narrow angle float switches with quick release connections  
 \*\* EZconnex® mechanically-activated, wide angle float switches with quick release connections.



**PL-122 Filter**

The PL-122 was the original Polylok filter. It was the first filter on the market with an automatic shut-off ball installed with every filter. When the filter is removed for regular servicing, the ball will float up and prevent any solids from leaving the tank. Our patented design cannot be duplicated.

**Features:**

- Offers 122 linear feet of 1/16" filter slots, which significantly extends time between cleaning.
- Has a flow control ball that shuts off the flow of effluent when the filter is removed for cleaning.
- Has its own gas deflector ball which deflects solids away.
- Installs easily in new tanks, or retrofits in existing systems.
- Comes complete with its own housing. No gluing of tees or pipe, no extra parts to buy.
- Has a modular design, allowing for increased filtration.

**PL-122 Installation:**

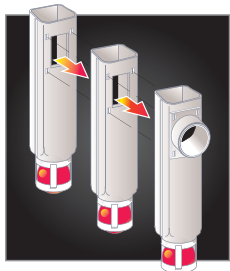
Ideal for residential waste flows up to 3,000 gallons per day (GPD). Easily installs in any new or existing 4" outlet tee.

1. Locate the outlet of the septic tank.
2. Remove the tank cover and pump tank if necessary.
3. Glue the filter housing to the outlet pipe, or use a Polylok Extend & Lok if not enough pipe exists.
4. Insert the PL-122 filter into tee.
5. Replace and secure the septic tank cover.

**PL-122 Maintenance:**

The PL-122 Effluent Filter will operate efficiently for several years under normal conditions before requiring cleaning. It is recommended that the filter be cleaned every time the tank is pumped, or at least every three years.

1. Do not use plumbing when filter is removed.
2. Pull PL-122 cartridge out of the tee.
3. Hose off filter over the septic tank. Make sure all solids fall back into septic tank.
4. Insert filter back into tee/housing.



Polylok offers the only filter on the market where you can get more GPD by simply snapping our filters together!

Patent Numbers  
 6,015,488 & 5,871,640



**1/16" Filtration Slots**

**3,000 GPD**



Filter Ready Adapter  
 Connects to Septic Tank Wall

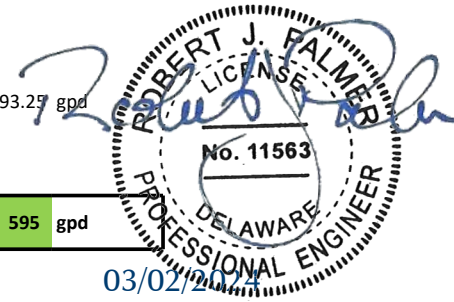


**Outdoor SmartFilter® Alarm**  
 Polylok, Zabel & Best filters accept the SmartFilter® switch and alarm.

**Flow Rate Calculations**

Number Employees **113** x 5.25 gpd/Employee = 593.25 gpd  
Value determined from Owner Supplied  
Meter Readings - See Enclosed Calculations

**Q design = 595 gpd**



**Seepage Bed Design (Q < 120 MPI)**

Permeability specified in Site Evaluation approval = **100** MPI = t  
0.42 Bed System  
0.33 Trench System  
A = 0.42 Q (t)<sup>0.5</sup>  
A = 2,499.00

**A design = 2,500 SF**

Length : Width = 4:1  
Max Length = 100 Feet

Total Field Width = (A/4)<sup>0.5</sup> = 25 Feet  
Total Field Length = L = 4W = 100 Feet  
Number of Zones = Width / 25 = 1 Say 1 Zones

Round to next whole number of zones and divide width to determine zone width.

**Field Dimensions = 25.00 Feet Wide x 100.00 Feet Long**

**Dosing Calculations:**

Zone Size = 2500 Square Feet  
Lateral Center Spacing = **4.75** Feet  
Total Lateral Space from Edge of bed = 3 Feet  
Number of Laterals = **5.00** **1** inch diameter pvc laterals  
Total Lateral Length = 5.00 x 99 Feet = 495 Feet  
Total End Length = 2 x 19 Feet = 38 Feet  
533 Feet  
Volume of Lateral Piping = 22 Gallons  
Estimate Length of piping from pump station to seepage bed = **425** Feet  
Transmission pipe size = **2.5** inch diameter

**Min. Dose Volume (5 pipe volumes) = 109 Gallons**  
**Design Dose Volume = 150 Gallons**

Select pump operating point that will work within the best efficiency point of the pumps - typically in the center of the pump operating curve.

Q min = 30.6 gpm

**Dosing Chamber Design:**

If  $Q < 500$  gpd,  $V = \text{design dose plus } 1 Q_{\text{design}}$ . If  $Q > 500$  gpd,  $V = 2$  design dose volumes.  
Select dosing chamber working volume to achieve dosing for all zones.

V = 595 Gallons + 150 Gallons = 745 Gallons if  $Q < 500$  gpd  
V = 595 Gallons + 300 Gallons = 895 Gallons if  $Q > 500$  gpd  
Dosing Chamber Surface Area = 39.1 Square Feet  
**Choose 1,000 Gallon Dosing Chamber**

Working volume interval = 3.1 Feet  
One Dose Volume Interval = 0.51 Feet  
1000 gal Dosing Chamber max working depth = 3.67 ft.

Septic Tank Invert In = 50.00  
Septic Tank Invert Out = 49.83  
Septic Tank Bury Depth = 1 foot  
Grade Elevation = 51.50  
Assume overflow to each tank is 5 feet from the upstream tank.  
Pump Height = 16 inches

				Design Values	
	Elevation	Depth Below Grade (ft)	Height above Floor (ft)	Elev	Depth (ft)
Pump Station Invert In =	49.78	1.72		49.75	1.75
Pump Station HWL Elev =	49.28	2.22	3.17	49.25	2.25
Pump On Elev =	47.96	3.54		47.93	3.57
Pump Off Elev =	47.45	4.05		47.42	4.08
Bottom of Station Elev =	46.11	5.39		46.08	5.42

**Timer Schedule:**

The average daily demand is calculated as  $Q_a / 1440$  minutes/day.

$Q_a = 0.41$  gpm

To fill One 150 gallon dose, the following time would be required:

$T = 363.03$  Minutes

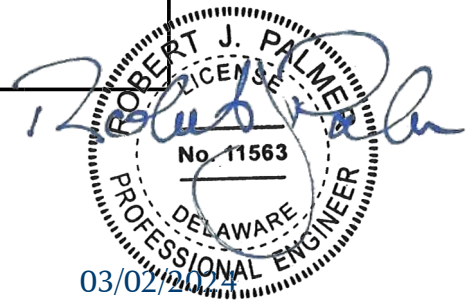
**Set Cycle timer to run pump for 2.21 minutes when float is triggered.**  
**Total number of doses per day that are expected = 3.97**

**Hydraulics Calculations:**

**Static Head:**

Field Elevation = 56.00 Feet  
Pump Off Elevation = 47.45 Feet  
Lateral Residual Pressure = 2.31 Feet

**Static Head = 10.86 Feet of Water**



**Criteria for Calculating Friction Losses:**

Pump Station Pipe & Fittings 2 Inch Diameter Sch 40 PVC

Fitting	Qty	EPL	Total Length
Inlet	1	3	3
Check Valve	1	19	19
Ball Valve	1	1.5	1.5
90° Bend	1	8.5	8.5
Branch Tee	0	12	0
			32 Feet
Estimated Pipe Length =			10 Feet
			42 Feet of

2 Inch Diameter Sch 40 PVC

Pump Station to Farthest Field 2.5 Inch Diameter Sch 40 PVC

**VERIFY Regulations for the system to be designed**

Fitting	Qty	EPL	Total Length
2 x 1.5 Reducer	0	1	0
2.5 x 1 Reducer	1	3.5	3.5
45° Bend	1	3.1	3.1
90° Bend	6	9.3	55.8
Thru Tee	2	5.1	10.2
Branch Tee	1	15	15
			87.6 Feet
Estimated Pipe Length =			425 Feet
			513 Feet of

Ke = 0.184  
Ke = 0.353

2.5 Inch Diameter Sch 40 PVC

Lateral Friction Losses 1 Inch Diameter Sch 40 PVC

Q dose = 67.80 gpm  
Hole spacing per lateral = 96 Inches  
Number of openings = 12  
Q lateral = 13.56 gpm  
Q orifice = 1.13 gpm

Number of Laterals = 5  
Orifice Size, d = 0.25 Inch Diameter

A = 0.000340885 Square Feet  
C = 0.61

$$H_{\text{orifice}} = \left[ \frac{Q}{C \times A} \right]^2 / 64.4$$

H orifice = 2.28 Feet d/D <= 0.3? OK

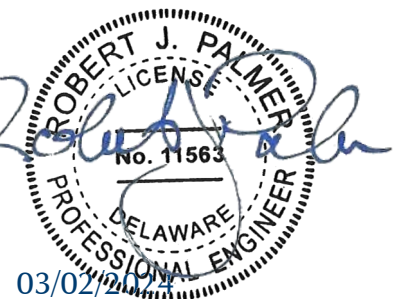
Q (gpm)	H (ft)	Factor	H Lateral (ft)
5.00	2.99	0.379	1.13
10.00	10.81	0.379	4.10
13.56	19.01	0.379	7.21
15.00	22.92	0.379	8.69
20.00	39.08	0.379	14.81

F = 0.379 From EPA Process Design Manual for the application of municipal wastewater Table E-7.

**Determine System Curve for Pump System:**

Q (gpm)	Hs (ft)	Hv (ft)	H Main to Fields (ft)	H Lateral (ft)	H Orifice (ft)	TDH (ft)
25	10.86	0.32	4.37	1.13	2.28	18.96
50	10.86	0.63	15.80	4.10	2.28	33.67
67.8	10.86	0.86	27.78	7.21	2.28	48.99
75	10.86	0.95	33.50	8.69	2.28	56.28
100	10.86	1.27	57.11	14.81	2.28	86.33

Note: Head pressures were taken from the attached friction loss spreadsheets.



**Zone Lateral Raw Friction Losses** **Pump System Curve**

SYSTEM CURVE - HAZEN WILLIAMS  
 WHERE  $4.73 Q^{1.85} L/C^{1.85} d^{4.87}$  = friction head  
 WHERE  $V^2/2G$  = velocity head  
 WHERE  $M V^2/2G$  = minor loss head

JOB NO. CH101-03

2024  
 02-Mar  
 02:09 PM

FILE NAME: M:\Projects\CH101-03 Chick's Proposed Warehouses\Calculations\Septic Comps\CH101-03 Sand Mound Calculation

ENTER STATIC HEAD:

FOR LENGTH 1:	FOR LENGTH 2:	FOR LENGTH 3:	FOR LENGTH 4:
ENTER C: <input type="text" value="120"/>	ENTER C: <input type="text" value="130"/>	ENTER C: <input type="text" value="130"/>	ENTER C: <input type="text" value="130"/>
ENTER DIA. INCHES: <input type="text" value="1"/>	ENTER DIA. INCHES: <input type="text" value="100"/>	ENTER DIA. INCHES: <input type="text" value="100"/>	ENTER DIA. INCHES: <input type="text" value="100"/>
ENTER LENGTH: <input type="text" value="99"/>	ENTER LENGTH: <input type="text" value="0"/>	ENTER LENGTH: <input type="text" value="0"/>	ENTER LENGTH: <input type="text" value="0"/>
ENTER MINOR COEF: <input type="text" value="0"/>	ENTER MINOR COEF: <input type="text" value="0"/>	ENTER MINOR COEF: <input type="text" value="0"/>	ENTER MINOR COEF: <input type="text" value="0"/>

**FOR LENGTH 5:**

ENTER C: <input type="text" value="130"/>
ENTER DIA. INCHES: <input type="text" value="100"/>
ENTER LENGTH: <input type="text" value="0"/>
ENTER MINOR COEF: <input type="text" value="0"/>

ENTER Q-1: <input type="text" value="5"/>
ENTER Q-2: <input type="text" value="10"/>
ENTER Q-3: <input type="text" value="13.56"/>
ENTER Q-4: <input type="text" value="15"/>
ENTER Q-5: <input type="text" value="20"/>

Additional Required Pressure  
 psi

DATA OUTPUT TABLE (feet)

Q (gpm)	H(stat)	H(f)	H(m)	H(v)	H(tdh)	H(tdh) psi	Velocity (fps)
5	0.000	2.927	0.000	0.065	2.992	1.295	2.04
10	0.000	10.552	0.000	0.259	10.811	4.680	4.09
13.56	0.000	18.536	0.000	0.477	19.012	8.230	5.54
15	0.000	22.341	0.000	0.583	22.924	9.924	6.13
20	0.000	38.039	0.000	1.037	39.076	16.916	8.17



**Friction Losses - Pump Station and main to fields**

**Pump System Curve**

SYSTEM CURVE - HAZEN WILLIAMS  
 WHERE  $4.73 Q^{1.85} L / C^{1.85} d^{4.87}$  = friction head  
 WHERE  $V^2 / 2G$  = velocity head  
 WHERE  $M V^2 / 2G$  = minor loss head

JOB NO. CH101-03

2024  
 02-Mar  
 02:09 PM

FILE NAME: M:\Projects\CH101-03 Chick's Proposed Warehouses\Calculations\Septic Comps\CH101-03 Sand Mound Calculation

ENTER STATIC HEAD:

FOR LENGTH 1:	FOR LENGTH 2:	FOR LENGTH 3:	FOR LENGTH 4:
ENTER C: <input type="text" value="120"/>	ENTER C: <input type="text" value="120"/>	ENTER C: <input type="text" value="130"/>	ENTER C: <input type="text" value="130"/>
ENTER DIA. INCHES: <input type="text" value="2"/>	ENTER DIA. INCHES: <input type="text" value="2.5"/>	ENTER DIA. INCHES: <input type="text" value="100"/>	ENTER DIA. INCHES: <input type="text" value="100"/>
ENTER LENGTH: <input type="text" value="42"/>	ENTER LENGTH: <input type="text" value="513"/>	ENTER LENGTH: <input type="text" value="0"/>	ENTER LENGTH: <input type="text" value="0"/>
ENTER MINOR COEF: <input type="text" value="0"/>	ENTER MINOR COEF: <input type="text" value="0"/>	ENTER MINOR COEF: <input type="text" value="0"/>	ENTER MINOR COEF: <input type="text" value="0"/>

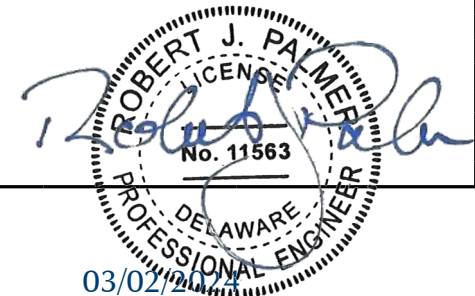
FOR LENGTH 5:
ENTER C: <input type="text" value="130"/>
ENTER DIA. INCHES: <input type="text" value="100"/>
ENTER LENGTH: <input type="text" value="0"/>
ENTER MINOR COEF: <input type="text" value="0"/>

ENTER Q-1: <input type="text" value="25"/>
ENTER Q-2: <input type="text" value="50"/>
ENTER Q-3: <input type="text" value="67.8"/>
ENTER Q-4: <input type="text" value="75"/>
ENTER Q-5: <input type="text" value="100"/>

Additional Required Pressure  
 0 psi

DATA OUTPUT TABLE (feet)

Q (gpm)	H(stat)	H(f)	H(m)	H(v)	H(tdh)	H(tdh) psi	Velocity (fps)
25	0.000	4.270	0.000	0.101	4.371	1.892	2.55
50	0.000	15.392	0.000	0.405	15.797	6.839	5.11
67.8	0.000	27.039	0.000	0.745	27.783	12.027	6.92
75	0.000	32.589	0.000	0.911	33.500	14.502	7.66
100	0.000	55.489	0.000	1.620	57.109	24.723	10.21



**Lift Station Design**

Grade Elevation = 53.50 Approximate  
5x5 Volume per Inch = 12.14 Gallons/Inch  
Dose Volume = 30 Gallons  
Max Pump Interval = 2.47 Inches  
Pump Height = 16 inches

	Elevation	Depth Below Grade (ft)	Depth Above Tank Bottom (ft)
Pump Station Invert In =	51.50	2.00	
Pump Station HWL Elev =	49.61	3.89	2.02
Pump On Elev =	49.11	4.39	
Pump Off Elev =	48.92	4.58	
Bottom of Station Elev =	47.59	5.91	

**Hydraulics Calculations:**

**Static Head:**

Field Elevation = 51.50 Feet  
Pump Off Elevation = 48.92 Feet  
Residual Pressure = 5.00 Feet - Overcome pressure from other pumps

**Static Head = 7.58 Feet of Water**

**Criteria for Calculating Friction Losses:**

Pump Station Pipe & Fittings 2 Inch Diameter Sch 40 PVC

Fitting	Qty	EPL	Total Length	
Inlet	1	3	3	0.42
Check Valve	1	19	19	
Ball Valve	1	1.5	1.5	
90° Bend	1	8.5	8.5	
Branch Tee	1	12	12	
			44 Feet	
Estimated Pipe Length =			10 Feet	
			54 Feet of	2 Inch Diameter Sch 40 PVC

Pump Station to Farthest Field 1.5 Inch Diameter Sch 40 PVC

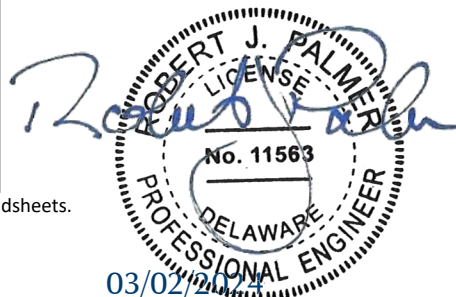
**VERIFY Regulations for the system to be designed**

Fitting	Qty	EPL	Total Length	Ke =	
2 x 1.5 Reducer	1	1.5	1.5		0.184
Thru Tee	0	4.3	0		
45° Bend	4	2.6	10.4		
90° Bend	2	8.5	17		
Outlet	1	7.5	7.5	Ke =	1
			36.4 Feet		
Estimated Pipe Length =			500 Feet		
			537 Feet of		1.5 Inch Diameter Sch 40 PVC

**Determine System Curve for Pump System:**

C = 120				
Q (gpm)	Hs (ft)	Hv (ft)	Hf (ft)	TDH (ft)
10	7.58	0.05	8.19	15.82
15	7.58	0.12	17.35	25.05
20.00	7.58	0.20	29.56	37.34
30	7.58	0.46	62.61	70.64
40	7.58	0.82	106.63	115.03

Note: Head pressures were taken from the attached friction loss spreadsheets.



Friction Losses - Pump Station and main to fields

Pump System Curve

SYSTEM CURVE - HAZEN WILLIAMS  
 WHERE  $4.73 Q^{1.85} L / C^{1.85} d^{4.87}$  = friction head  
 WHERE  $V^2 / 2G$  = velocity head  
 WHERE  $M V^2 / 2G$  = minor loss head

JOB NO. CHI01-03

2024  
 02-Mar  
 02:25 PM

FILE NAME: M:\Projects\CHI01-03 Chick's Proposed Warehouses\Calculations\Septic Comps\CHI001-03 Lift Station.xlsx\$y\$8 C

ENTER STATIC HEAD:

FOR LENGTH 1:	FOR LENGTH 2:	FOR LENGTH 3:	FOR LENGTH 4:
ENTER C: <input type="text" value="120"/>	ENTER C: <input type="text" value="120"/>	ENTER C: <input type="text" value="130"/>	ENTER C: <input type="text" value="130"/>
ENTER DIA. INCHES: <input type="text" value="2"/>	ENTER DIA. INCHES: <input type="text" value="1.5"/>	ENTER DIA. INCHES: <input type="text" value="100"/>	ENTER DIA. INCHES: <input type="text" value="100"/>
ENTER LENGTH: <input type="text" value="54"/>	ENTER LENGTH: <input type="text" value="537"/>	ENTER LENGTH: <input type="text" value="0"/>	ENTER LENGTH: <input type="text" value="0"/>
ENTER MINOR COEF: <input type="text" value="0"/>	ENTER MINOR COEF: <input type="text" value="0"/>	ENTER MINOR COEF: <input type="text" value="0"/>	ENTER MINOR COEF: <input type="text" value="0"/>

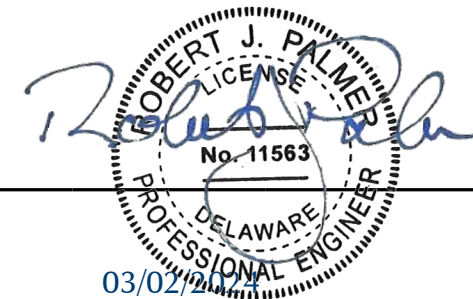
FOR LENGTH 5:
ENTER C: <input type="text" value="130"/>
ENTER DIA. INCHES: <input type="text" value="100"/>
ENTER LENGTH: <input type="text" value="0"/>
ENTER MINOR COEF: <input type="text" value="0"/>

ENTER Q-1: <input type="text" value="10"/>
ENTER Q-2: <input type="text" value="15"/>
ENTER Q-3: <input type="text" value="20.00"/>
ENTER Q-4: <input type="text" value="30"/>
ENTER Q-5: <input type="text" value="40"/>

Additional Required Pressure  
 0 psi

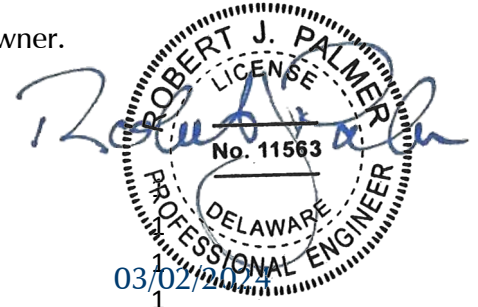
DATA OUTPUT TABLE (feet)

Q (gpm)	H(stat)	H(f)	H(m)	H(v)	H(tdh)	H(tdh) psi	Velocity (fps)
10	0.000	8.142	0.000	0.051	8.193	3.547	1.82
15	0.000	17.238	0.000	0.115	17.354	7.512	2.72
20	0.000	29.352	0.000	0.205	29.556	12.795	3.63
30	0.000	62.144	0.000	0.461	62.605	27.102	5.45
40	0.000	105.813	0.000	0.819	106.632	46.161	7.26





Water Meter Readings and personnel census data provided by the Owner.  
 Meter was installed on only well at the property.

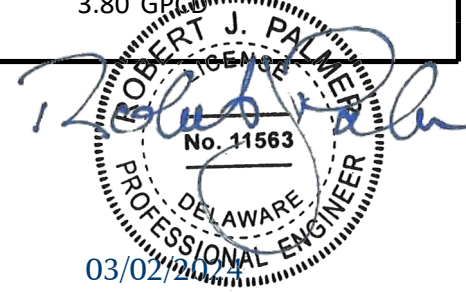


Date	Reading (gal.)	Daily Use	Personnel	GPD/Employee	
12/13/2022	221	221	52	4.25	
12/14/2022	401	180	52	3.46	
12/15/2022	575	174	52	3.35	
12/16/2022	736	161	52	3.10	
12/17/2022	900	164	37	4.43	1
12/18/2022	955	55	3	18.33	1
12/19/2022	1059	104	49	2.12	1
12/20/2022	1219	160	52	3.08	1
12/21/2022	1352	133	50	2.66	1
12/22/2022	1504	152	48	3.17	1
12/23/2022	NR				
12/24/2022	1710	206	7		1
12/25/2022	NR				
12/26/2022	NR				
12/27/2022	1762	52	48	1.08	1
12/28/2022	1912	150	48	3.13	1
12/29/2022	2060	148	48	3.08	1
12/30/2022	2198	138	48	2.88	1
12/31/2022	2302	104	7	14.86	1
1/1/2023	NR				
1/2/2023	NR				
1/3/2023	2476	174	47	3.70	1
1/4/2023	2629	153	47	3.26	1
1/5/2023	2751	122	47	2.60	1
1/6/2023	2883	132	48	2.75	1
1/7/2023	2985	102	7	14.57	1
1/8/2023	3034	49	3	16.33	1
1/9/2023	3075	41	43	0.95	1
1/10/2023	NR				
1/11/2023	3388	313	39	8.03	1
1/12/2023	3554	166	39	4.26	1
1/13/2023	3693	139	39	3.56	1
1/14/2023	NR				
1/15/2023	NR				
1/16/2023	NR				
1/17/2023	4062	369	43	8.58	1
1/18/2023	4203	141	43	3.28	1
1/19/2023	4369	166	43	3.86	1
1/20/2023	4498	129	43	3.00	1

30

150                      39                      5.23 averages based on dataset  
 3.80 gpcd

Straight Average Demand for Days Recorded =	150 GPD
Straight Average Number Employees for Days Recorded =	39 Employees
<b>USE FOR DESIGN</b> Average of Daily GPCD/Employee =	<b>5.25 GPCD</b>
Long Term Average GPD/Employee =	3.80 GPCD

  
 ROBERT J. PALMIERI  
 No. 11563  
 DELAWARE  
 PROFESSIONAL ENGINEER  
 03/02/2024

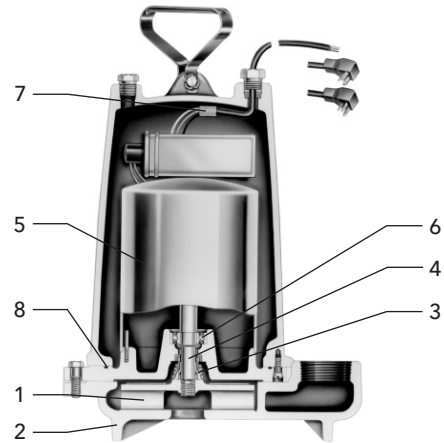
# DOSING CHAMBER

## PERFORMANCE RATINGS (gallons per minute)

Order No.	WE-03L	WE-03M	WE-05H	WE-07H	WE-10H	WE-15H	WE-05HH	WE-15HH	WE-20H
HP	1/3	1/3	1/2	3/4	1	1 1/2	1/2	1 1/2	2
RPM	1750	1750	3500	3500	3500	3500	3500	3500	3500
5	86	-	-	-	-	-	-	-	-
10	70	63	78	94	-	-	58	95	-
15	52	52	70	90	103	128	53	93	138
20	27	35	60	83	98	123	49	90	136
25	5	15	48	76	94	117	45	87	133
30	-	-	35	67	88	110	40	83	130
35	-	-	22	57	82	103	35	80	126
40	-	-	-	45	74	95	30	77	121
45	-	-	-	35	64	86	25	74	116
50	-	-	-	25	53	77	-	70	110
55	-	-	-	-	40	67	-	66	103
60	-	-	-	-	30	56	-	63	96
65	-	-	-	-	20	45	-	58	89
70	-	-	-	-	-	35	-	55	81
75	-	-	-	-	-	25	-	51	74
80	-	-	-	-	-	-	-	47	66
90	-	-	-	-	-	-	-	37	49
100	-	-	-	-	-	-	-	28	30

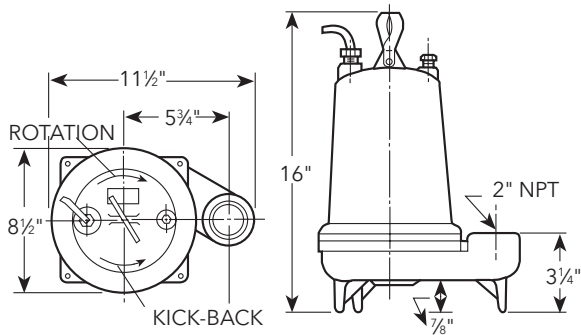
## COMPONENTS

Item No.	Description
1	Impeller
2	Casing
3	Mechanical Seal
4	Motor Shaft
5	Motor
6	Ball Bearings
7	Power Cable
8	Casing O-Ring



## DIMENSIONS

(All dimensions are in inches. Do not use for construction purposes.)



**xylem**  
Let's Solve Water

Xylem, Inc.  
2881 East Bayard Street Ext., Suite A  
Seneca Falls, NY 13148  
Phone: (866) 325-4210  
Fax: (888) 322-5877  
[www.xylem.com/brands/gouldswatertechnology](http://www.xylem.com/brands/gouldswatertechnology)

Goulds is a registered trademark of Goulds Pumps, Inc. and is used under license.  
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# MODEL TD Control Panel

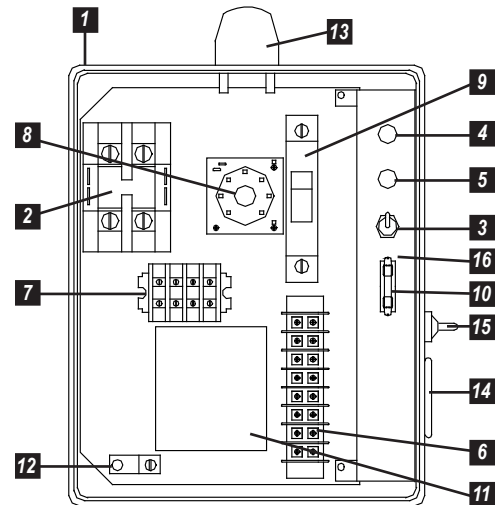
## Single phase, simplex timed dosing pump control.

The Model TD control panel provides a reliable means of controlling one single phase pump in onsite septic installations. A programmable timer activates a magnetic motor contactor to turn the pump on and off. A low level cutout float overrides the timer to prevent the pump from running dry. An alarm float activates the audio/visual alarm system indicating a high liquid level. Common applications include sand filter systems, pressure distribution systems, mound systems, or any application requiring a timed dose.

## PANEL COMPONENTS

1. **Enclosure** measures 10 x 8 x 4 inches (25.40 x 20.32 x 10.16 cm) NEMA 4X (ultraviolet stabilized thermoplastic with removable mounting feet for outdoor or indoor use).
2. **Magnetic Motor Contactor** controls pump by switching electrical lines.
3. **HOA Switch** for manual pump control.
4. **Control Fuse**
5. **Alarm Fuse**
6. **Float Switch Terminal Block**
7. **Incoming Power Terminal Block**
8. **Programmable Timer** with separate variable controls allows for setting the on and off times from .05 seconds to 30 hours.
9. **Circuit Breaker** provides pump disconnect and branch circuit protection.
10. **Spare Fuse**
11. **Backplate Label** includes diagram of float, pump, and power connections.
12. **Ground Lug**

**NOTE:** Timer Installation Label and Pump/Float Switch Installation Specification Label are located inside the panel on enclosure cover.



Model Shown TD1W914X

## STANDARD ALARM PACKAGE

13. **Red Alarm Beacon** provides 360° visual check of alarm condition.
14. **Alarm Horn** provides audio warning of alarm condition (83 to 85 decibel rating).
15. **Exterior Alarm Test/Normal/Silence Switch** allows horn and light to be tested and horn to be silenced in an alarm condition. Alarm automatically resets once alarm condition is cleared.
16. **Horn Silence Relay** (mounted under bracket).

**NOTE:** other options available.



## FEATURES

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

## OPTIONAL FEATURE

- **34" (86.36cm) Panel Mounting Post** (Factory Installed). Includes Duplex Installation Kit (Enclosure upsized to 10" x 8" x 6" (25.4 x 20.32 x 15.24 cm). Max. Enclosure size 14" x 12" x 6" (35.56 x 30.48 x 15.24 cm)



**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](http://www.sjerhombus.com) B.61

**SEE BACKSIDE FOR COMPLETE LISTING OF AVAILABLE OPTIONS.  
SEE PRICE BOOK FOR LIST PRICE.**

**TD** **1** **W** **1** **2** **4** **H** **21E 4E 8A 8C**  
**10E**

**MODEL TD**

**ALARM PACKAGE**

- 0 = select option (If you select "0", you must select option 1F)
- 1 = alarm package (includes test/normal/silence switch, red beacon, horn)

**ENCLOSURE RATING**

- W = Weatherproof, NEMA 4X (engineered thermoplastic)

**STARTING DEVICE**

- 1 = magnetic motor contactor 120/208/240V
- 9 = magnetic motor contactor 120V only

**PUMP FULL LOAD AMPS**

- 0 = 0-7 FLA
- 1 = 7-15 FLA
- 2 = 15-20 FLA

**PUMP DISCONNECTS**

- 4 = circuit breaker

**FLOAT SWITCH APPLICATION**

- H = 20' low level cutout (select 17 or 21 option)
- E = EZconnex® float switch system (select 33, 35 or 36 option)
- X = no floats

**OPTIONS** *Listed below*

- | CODE                                    | DESCRIPTION   |
|---|---|
| <input type="checkbox"/> 1F             | Door mounted alarm indicator with horn and test/normal/silence switch<br><i>(must select "0" as an alarm package)</i> |
| <input type="checkbox"/> 4B             | Red redundant off indicator and alarm<br><i>(must select option "4D" if floats included)</i>                          |
| <input type="checkbox"/> 4D             | Redundant off float   |
| <input checked="" type="checkbox"/> 4E  | Redundant off float, alarm activation<br><i>(20' SJE PumpMaster® SPDT )</i>   |
| <input type="checkbox"/> 6A             | Auxiliary alarm contact, form A   |
| <input checked="" type="checkbox"/> 8A  | Elapsed time meter  |
| <input checked="" type="checkbox"/> 8C  | Event (cycle) counter   |
| <input checked="" type="checkbox"/> 10E | Lockable latch  |
| <input type="checkbox"/> 10K            | Anti-condensation heater  |
| <input type="checkbox"/> 10P            | Panel Mounting Post (Factory Installed. Includes Duplex Install. Kit)(Encl. upsized to 10x8x6.Max 14x12x6)            |
| <input type="checkbox"/> 16A            | 10' cord in lieu of 20' <i>(per float)</i>  |
| <input type="checkbox"/> 16B            | 15' cord in lieu of 20' <i>(per float)</i>  |
| <input type="checkbox"/> 16C            | 30' cord in lieu of 20' <i>(per float)</i>  |
| <input type="checkbox"/> 16D            | 40' cord in lieu of 20' <i>(per float)</i>  |
| <input type="checkbox"/> 17E            | Sensor Float® Mini (redundant off, high level alarm)<br>▲ <i>(per float)</i>  |
| <input type="checkbox"/> 18A            | Timer override float<br><i>(20' SJE PumpMaster®) ●</i>  |
| <input type="checkbox"/> 19X            | Door mounted pump run indicator   |
| <input checked="" type="checkbox"/> 21E | SJE PumpMaster® (redundant off, high level alarm)<br>● <i>(per float)</i>   |

- | CODE                         | DESCRIPTION  |
|------------------------------|--|
| <input type="checkbox"/> 33U | EZconnex® 3-Port, 50', w/10' floats (3) / pipe clamp **              |
| <input type="checkbox"/> 35D | EZconnex® 4-Port, 25', w/10' floats (4) / pipe clamp *               |
| <input type="checkbox"/> 35E | EZconnex® 4-Port, 50', w/10' floats (4) / pipe clamp *               |
| <input type="checkbox"/> 35G | EZconnex® 4-Port, 25', w/20' floats (4) / pipe clamp *               |
| <input type="checkbox"/> 35H | EZconnex® 4-Port, 50', w/20' floats (4) / pipe clamp *               |
| <input type="checkbox"/> 36D | EZconnex® 3-Port, 25', w/10' floats (2) / pipe clamp, sealing plug * |
| <input type="checkbox"/> 36E | EZconnex® 3-Port, 50', w/10' floats (2) / pipe clamp, sealing plug * |
| <input type="checkbox"/> 36G | EZconnex® 3-Port, 25', w/20' floats (2) / pipe clamp, sealing plug * |
| <input type="checkbox"/> 36H | EZconnex® 3-Port, 50', w/20' floats (2) / pipe clamp, sealing plug * |

● Mechanically-activated ▲ Mercury-activated \* EZconnex® mechanically-activated, narrow angle float switches with quick release connections  
 \*\* EZconnex® mechanically-activated, wide angle float switches with quick release connections.

**PL-122 Filter**

The PL-122 was the original Polylok filter. It was the first filter on the market with an automatic shut-off ball installed with every filter. When the filter is removed for regular servicing, the ball will float up and prevent any solids from leaving the tank. Our patented design cannot be duplicated.

**Features:**

- Offers 122 linear feet of 1/16" filter slots, which significantly extends time between cleaning.
- Has a flow control ball that shuts off the flow of effluent when the filter is removed for cleaning.
- Has its own gas deflector ball which deflects solids away.
- Installs easily in new tanks, or retrofits in existing systems.
- Comes complete with its own housing. No gluing of tees or pipe, no extra parts to buy.
- Has a modular design, allowing for increased filtration.

**PL-122 Installation:**

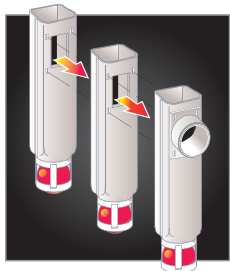
Ideal for residential waste flows up to 3,000 gallons per day (GPD). Easily installs in any new or existing 4" outlet tee.

1. Locate the outlet of the septic tank.
2. Remove the tank cover and pump tank if necessary.
3. Glue the filter housing to the outlet pipe, or use a Polylok Extend & Lok if not enough pipe exists.
4. Insert the PL-122 filter into tee.
5. Replace and secure the septic tank cover.

**PL-122 Maintenance:**

The PL-122 Effluent Filter will operate efficiently for several years under normal conditions before requiring cleaning. It is recommended that the filter be cleaned every time the tank is pumped, or at least every three years.

1. Do not use plumbing when filter is removed.
2. Pull PL-122 cartridge out of the tee.
3. Hose off filter over the septic tank. Make sure all solids fall back into septic tank.
4. Insert filter back into tee/housing.



Polylok offers the only filter on the market where you can get more GPD by simply snapping our filters together!

Patent Numbers  
 6,015,488 & 5,871,640



**1/16" Filtration Slots**

**3,000 GPD**



Filter Ready Adapter  
 Connects to Septic Tank Wall

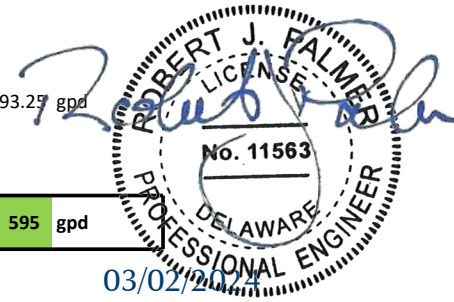


**Outdoor SmartFilter® Alarm**  
 Polylok, Zabel & Best filters accept the SmartFilter® switch and alarm.

**Flow Rate Calculations**

Number Employees **113** x 5.25 gpd/Employee = 593.25 gpd  
Value determined from Owner Supplied  
Meter Readings - See Enclosed Calculations

**Q design = 595 gpd**



**Seepage Bed Design (Q < 120 MPI)**

Permeability specified in Site Evaluation approval = **100** MPI = t  
0.42 Bed System  
0.33 Trench System  
A = 0.42 Q (t)<sup>0.5</sup>  
A = 2,499.00

**A design = 2,500 SF**

Length : Width = 4:1  
Max Length = 100 Feet

Total Field Width = (A/4)<sup>0.5</sup> = 25 Feet  
Total Field Length = L = 4W = 100 Feet  
Number of Zones = Width / 25 = 1 Say 1 Zones

Round to next whole number of zones and divide width to determine zone width.

**Field Dimensions = 25.00 Feet Wide x 100.00 Feet Long**

**Dosing Calculations:**

Zone Size = 2500 Square Feet  
Lateral Center Spacing = **4.75** Feet  
Total Lateral Space from Edge of bed = 3 Feet  
Number of Laterals = **5.00** **1** inch diameter pvc laterals  
Total Lateral Length = 5.00 x 99 Feet = 495 Feet  
Total End Length = 2 x 19 Feet = 38 Feet  
533 Feet  
Volume of Lateral Piping = 22 Gallons  
Estimate Length of piping from pump station to seepage bed = **425** Feet  
Transmission pipe size = **2.5** inch diameter

**Min. Dose Volume (5 pipe volumes) = 109 Gallons**  
**Design Dose Volume = 150 Gallons**

Select pump operating point that will work within the best efficiency point of the pumps - typically in the center of the pump operating curve.

Q min = 30.6 gpm

**Dosing Chamber Design:**

If  $Q < 500$  gpd,  $V = \text{design dose plus } 1 Q_{\text{design}}$ . If  $Q > 500$  gpd,  $V = 2$  design dose volumes.  
Select dosing chamber working volume to achieve dosing for all zones.

V = 595 Gallons + 150 Gallons = 745 Gallons if  $Q < 500$  gpd  
 V = 595 Gallons + 300 Gallons = 895 Gallons if  $Q > 500$  gpd  
 Dosing Chamber Surface Area = 39.1 Square Feet **Choose 1,000 Gallon Dosing Chamber**

Working volume interval = 3.1 Feet  
 One Dose Volume Interval = 0.51 Feet  
 1000 gal Dosing Chamber max working depth = 3.67 ft.

Septic Tank Invert In = 50.00 Septic Tank Bury Depth = 1 foot  
 Septic Tank Invert Out = 49.83 Grade Elevation = 51.50  
 Assume overflow to each tank is 5 feet from the upstream tank.  
 Pump Height = 16 inches

				Design Values	
	Elevation	Depth Below Grade (ft)	Height above Floor (ft)	Elev	Depth (ft)
Pump Station Invert In =	49.78	1.72		49.75	1.75
Pump Station HWL Elev =	49.28	2.22	3.17	49.25	2.25
Pump On Elev =	47.96	3.54		47.93	3.57
Pump Off Elev =	47.45	4.05		47.42	4.08
Bottom of Station Elev =	46.11	5.39		46.08	5.42

**Timer Schedule:**

The average daily demand is calculated as  $Q_a / 1440$  minutes/day.

$Q_a = 0.41$  gpm

To fill One 150 gallon dose, the following time would be required:

$T = 363.03$  Minutes

**Set Cycle timer to run pump for 2.21 minutes when float is triggered.**  
**Total number of doses per day that are expected = 3.97**

**Hydraulics Calculations:**

**Static Head:**

Field Elevation = 56.00 Feet  
 Pump Off Elevation = 47.45 Feet  
 Lateral Residual Pressure = 2.31 Feet

**Static Head = 10.86 Feet of Water**





**Criteria for Calculating Friction Losses:**

Pump Station Pipe & Fittings 2 Inch Diameter Sch 40 PVC

Fitting	Qty	EPL	Total Length
Inlet	1	3	3
Check Valve	1	19	19
Ball Valve	1	1.5	1.5
90° Bend	1	8.5	8.5
Branch Tee	0	12	0
			32 Feet
Estimated Pipe Length =			10 Feet
			42 Feet of

2 Inch Diameter Sch 40 PVC

Pump Station to Farthest Field 2.5 Inch Diameter Sch 40 PVC

**VERIFY Regulations for the system to be designed**

Fitting	Qty	EPL	Total Length
2 x 1.5 Reducer	0	1	0
2.5 x 1 Reducer	1	3.5	3.5
45° Bend	1	3.1	3.1
90° Bend	6	9.3	55.8
Thru Tee	2	5.1	10.2
Branch Tee	1	15	15
			87.6 Feet
Estimated Pipe Length =			425 Feet
			513 Feet of

Ke = 0.184  
Ke = 0.353

2.5 Inch Diameter Sch 40 PVC

Lateral Friction Losses 1 Inch Diameter Sch 40 PVC

Q dose = 67.80 gpm  
Hole spacing per lateral = 96 Inches  
Number of openings = 12  
Q lateral = 13.56 gpm  
Q orifice = 1.13 gpm

Number of Laterals = 5  
Orifice Size, d = 0.25 Inch Diameter

A = 0.000340885 Square Feet  
C = 0.61

$$H_{\text{orifice}} = \left[ \frac{Q}{C \times A} \right]^2 / 64.4$$

H orifice = 2.28 Feet

d/D <= 0.3? OK

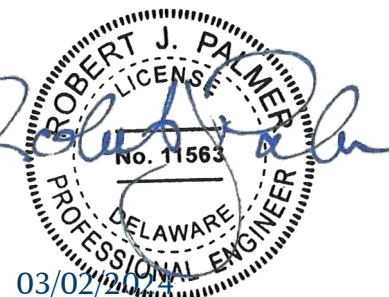
Q (gpm)	H (ft) Factor	H Lateral (ft)
5.00	2.99	0.379
10.00	10.81	0.379
13.56	19.01	0.379
15.00	22.92	0.379
20.00	39.08	0.379

F = 0.379 From EPA Process Design Manual for the application of municipal wastewater Table E-7.

**Determine System Curve for Pump System:**

Q (gpm)	Hs (ft)	Hv (ft)	H Main to Fields (ft)	H Lateral (ft)	H Orifice (ft)	TDH (ft)
25	10.86	0.32	4.37	1.13	2.28	18.96
50	10.86	0.63	15.80	4.10	2.28	33.67
67.8	10.86	0.86	27.78	7.21	2.28	48.99
75	10.86	0.95	33.50	8.69	2.28	56.28
100	10.86	1.27	57.11	14.81	2.28	86.33

Note: Head pressures were taken from the attached friction loss spreadsheets.



**Zone Lateral Raw Friction Losses** | **Pump System Curve**

SYSTEM CURVE - HAZEN WILLIAMS  
 WHERE  $4.73 Q^{1.85} L/C^{1.85} d^{4.87}$  = friction head  
 WHERE  $V^2/2G$  = velocity head  
 WHERE  $M V^2/2G$  = minor loss head

JOB NO. CHI01-03

2024  
 02-Mar  
 02:09 PM

FILE NAME: M:\Projects\CHI01-03 Chick's Proposed Warehouses\Calculations\Septic Comps\CHI01-03 Sand Mound Calculation

ENTER STATIC HEAD:

FOR LENGTH 1:	FOR LENGTH 2:	FOR LENGTH 3:	FOR LENGTH 4:
ENTER C: <input type="text" value="120"/>	ENTER C: <input type="text" value="130"/>	ENTER C: <input type="text" value="130"/>	ENTER C: <input type="text" value="130"/>
ENTER DIA. INCHES: <input type="text" value="1"/>	ENTER DIA. INCHES: <input type="text" value="100"/>	ENTER DIA. INCHES: <input type="text" value="100"/>	ENTER DIA. INCHES: <input type="text" value="100"/>
ENTER LENGTH: <input type="text" value="99"/>	ENTER LENGTH: <input type="text" value="0"/>	ENTER LENGTH: <input type="text" value="0"/>	ENTER LENGTH: <input type="text" value="0"/>
ENTER MINOR COEF: <input type="text" value="0"/>	ENTER MINOR COEF: <input type="text" value="0"/>	ENTER MINOR COEF: <input type="text" value="0"/>	ENTER MINOR COEF: <input type="text" value="0"/>

FOR LENGTH 5:
ENTER C: <input type="text" value="130"/>
ENTER DIA. INCHES: <input type="text" value="100"/>
ENTER LENGTH: <input type="text" value="0"/>
ENTER MINOR COEF: <input type="text" value="0"/>

ENTER Q-1: <input type="text" value="5"/>
ENTER Q-2: <input type="text" value="10"/>
ENTER Q-3: <input type="text" value="13.56"/>
ENTER Q-4: <input type="text" value="15"/>
ENTER Q-5: <input type="text" value="20"/>

Additional Required Pressure  
 0 psi

DATA OUTPUT TABLE (feet)

Q (gpm)	H(stat)	H(f)	H(m)	H(v)	H(tdh)	H(tdh) psi	Velocity (fps)
5	0.000	2.927	0.000	0.065	2.992	1.295	2.04
10	0.000	10.552	0.000	0.259	10.811	4.680	4.09
13.56	0.000	18.536	0.000	0.477	19.012	8.230	5.54
15	0.000	22.341	0.000	0.583	22.924	9.924	6.13
20	0.000	38.039	0.000	1.037	39.076	16.916	8.17



**Friction Losses - Pump Station and main to fields**

**Pump System Curve**

SYSTEM CURVE - HAZEN WILLIAMS  
 WHERE  $4.73 Q^{1.85} L/C^{1.85} d^{4.87}$  = friction head  
 WHERE  $V^2/2G$  = velocity head  
 WHERE  $M V^2/2G$  = minor loss head

JOB NO. CH101-03

2024  
 02-Mar  
 02:09 PM

FILE NAME: M:\Projects\CH101-03 Chick's Proposed Warehouses\Calculations\Septic Comps\CH101-03 Sand Mound Calculation

ENTER STATIC HEAD:

FOR LENGTH 1:	FOR LENGTH 2:	FOR LENGTH 3:	FOR LENGTH 4:
ENTER C: <input type="text" value="120"/>	ENTER C: <input type="text" value="120"/>	ENTER C: <input type="text" value="130"/>	ENTER C: <input type="text" value="130"/>
ENTER DIA. INCHES: <input type="text" value="2"/>	ENTER DIA. INCHES: <input type="text" value="2.5"/>	ENTER DIA. INCHES: <input type="text" value="100"/>	ENTER DIA. INCHES: <input type="text" value="100"/>
ENTER LENGTH: <input type="text" value="42"/>	ENTER LENGTH: <input type="text" value="513"/>	ENTER LENGTH: <input type="text" value="0"/>	ENTER LENGTH: <input type="text" value="0"/>
ENTER MINOR COEF: <input type="text" value="0"/>	ENTER MINOR COEF: <input type="text" value="0"/>	ENTER MINOR COEF: <input type="text" value="0"/>	ENTER MINOR COEF: <input type="text" value="0"/>

FOR LENGTH 5:
ENTER C: <input type="text" value="130"/>
ENTER DIA. INCHES: <input type="text" value="100"/>
ENTER LENGTH: <input type="text" value="0"/>
ENTER MINOR COEF: <input type="text" value="0"/>

ENTER Q-1: <input type="text" value="25"/>
ENTER Q-2: <input type="text" value="50"/>
ENTER Q-3: <input type="text" value="67.8"/>
ENTER Q-4: <input type="text" value="75"/>
ENTER Q-5: <input type="text" value="100"/>

Additional Required Pressure  
 0 psi

DATA OUTPUT TABLE (feet)

Q (gpm)	H(stat)	H(f)	H(m)	H(v)	H(tdh)	H(tdh) psi	Velocity (fps)
25	0.000	4.270	0.000	0.101	4.371	1.892	2.55
50	0.000	15.392	0.000	0.405	15.797	6.839	5.11
67.8	0.000	27.039	0.000	0.745	27.783	12.027	6.92
75	0.000	32.589	0.000	0.911	33.500	14.502	7.66
100	0.000	55.489	0.000	1.620	57.109	24.723	10.21



**Lift Station Design**

Grade Elevation = 53.50 Approximate  
5x5 Volume per Inch = 12.14 Gallons/Inch  
Dose Volume = 30 Gallons  
Max Pump Interval = 2.47 Inches  
Pump Height = 16 inches

	Elevation	Depth Below Grade (ft)	Depth Above Tank Bottom (ft)
Pump Station Invert In =	51.50	2.00	
Pump Station HWL Elev =	49.61	3.89	2.02
Pump On Elev =	49.11	4.39	
Pump Off Elev =	48.92	4.58	
Bottom of Station Elev =	47.59	5.91	

**Hydraulics Calculations:**

**Static Head:**

Field Elevation = 51.50 Feet  
Pump Off Elevation = 48.92 Feet  
Residual Pressure = 5.00 Feet - Overcome pressure from other pumps

**Static Head = 7.58 Feet of Water**

**Criteria for Calculating Friction Losses:**

Pump Station Pipe & Fittings 2 Inch Diameter Sch 40 PVC

Fitting	Qty	EPL	Total Length	
Inlet	1	3	3	0.42
Check Valve	1	19	19	
Ball Valve	1	1.5	1.5	
90° Bend	1	8.5	8.5	
Branch Tee	1	12	12	
			44 Feet	
Estimated Pipe Length =			10 Feet	
			54 Feet of	2 Inch Diameter Sch 40 PVC

Pump Station to Farthest Field 1.5 Inch Diameter Sch 40 PVC

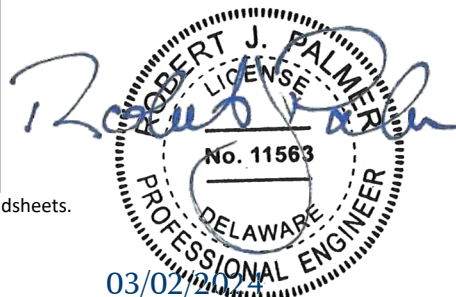
**VERIFY Regulations for the system to be designed**

Fitting	Qty	EPL	Total Length	Ke =	
2 x 1.5 Reducer	1	1.5	1.5		0.184
Thru Tee	0	4.3	0		
45° Bend	4	2.6	10.4		
90° Bend	2	8.5	17		
Outlet	1	7.5	7.5	Ke =	1
			36.4 Feet		
Estimated Pipe Length =			500 Feet		
			537 Feet of		1.5 Inch Diameter Sch 40 PVC

**Determine System Curve for Pump System:**

C = 120				
Q (gpm)	Hs (ft)	Hv (ft)	Hf (ft)	TDH (ft)
10	7.58	0.05	8.19	15.82
15	7.58	0.12	17.35	25.05
20.00	7.58	0.20	29.56	37.34
30	7.58	0.46	62.61	70.64
40	7.58	0.82	106.63	115.03

Note: Head pressures were taken from the attached friction loss spreadsheets.



Friction Losses - Pump Station and main to fields

Pump System Curve

SYSTEM CURVE - HAZEN WILLIAMS  
 WHERE  $4.73 Q^{1.85} L/C^{1.85} d^{4.87}$  = friction head  
 WHERE  $V^2/2G$  = velocity head  
 WHERE  $M V^2/2G$  = minor loss head

JOB NO. CHI01-03

2024  
 02-Mar  
 02:25 PM

FILE NAME: M:\Projects\CHI01-03 Chick's Proposed Warehouses\Calculations\Septic Comps\CHI001-03 Lift Station.xlsx\$y\$8 C

ENTER STATIC HEAD:

FOR LENGTH 1:	FOR LENGTH 2:	FOR LENGTH 3:	FOR LENGTH 4:
ENTER C: <input type="text" value="120"/>	ENTER C: <input type="text" value="120"/>	ENTER C: <input type="text" value="130"/>	ENTER C: <input type="text" value="130"/>
ENTER DIA. INCHES: <input type="text" value="2"/>	ENTER DIA. INCHES: <input type="text" value="1.5"/>	ENTER DIA. INCHES: <input type="text" value="100"/>	ENTER DIA. INCHES: <input type="text" value="100"/>
ENTER LENGTH: <input type="text" value="54"/>	ENTER LENGTH: <input type="text" value="537"/>	ENTER LENGTH: <input type="text" value="0"/>	ENTER LENGTH: <input type="text" value="0"/>
ENTER MINOR COEF: <input type="text" value="0"/>	ENTER MINOR COEF: <input type="text" value="0"/>	ENTER MINOR COEF: <input type="text" value="0"/>	ENTER MINOR COEF: <input type="text" value="0"/>

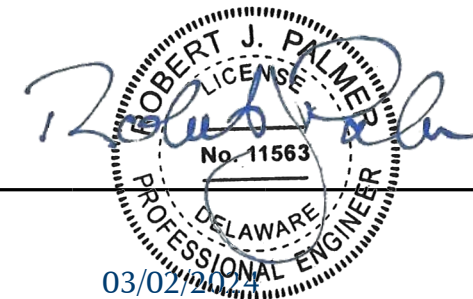
FOR LENGTH 5:
ENTER C: <input type="text" value="130"/>
ENTER DIA. INCHES: <input type="text" value="100"/>
ENTER LENGTH: <input type="text" value="0"/>
ENTER MINOR COEF: <input type="text" value="0"/>

ENTER Q-1: <input type="text" value="10"/>
ENTER Q-2: <input type="text" value="15"/>
ENTER Q-3: <input type="text" value="20.00"/>
ENTER Q-4: <input type="text" value="30"/>
ENTER Q-5: <input type="text" value="40"/>

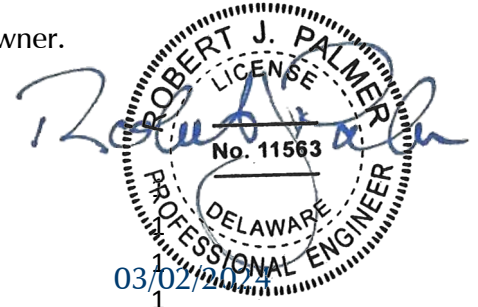
Additional Required Pressure  
 0 psi

DATA OUTPUT TABLE (feet)

Q (gpm)	H(stat)	H(f)	H(m)	H(v)	H(tdh)	H(tdh) psi	Velocity (fps)
10	0.000	8.142	0.000	0.051	8.193	3.547	1.82
15	0.000	17.238	0.000	0.115	17.354	7.512	2.72
20	0.000	29.352	0.000	0.205	29.556	12.795	3.63
30	0.000	62.144	0.000	0.461	62.605	27.102	5.45
40	0.000	105.813	0.000	0.819	106.632	46.161	7.26



Water Meter Readings and personnel census data provided by the Owner.  
 Meter was installed on only well at the property.

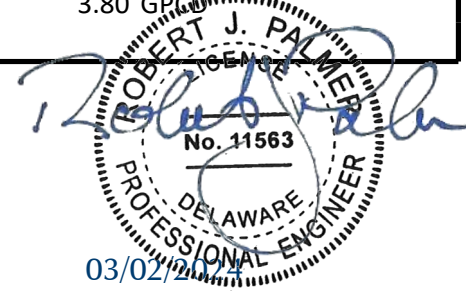


Date	Reading (gal.)	Daily Use	Personnel	GPD/Employee	
12/13/2022	221	221	52	4.25	
12/14/2022	401	180	52	3.46	
12/15/2022	575	174	52	3.35	
12/16/2022	736	161	52	3.10	
12/17/2022	900	164	37	4.43	1
12/18/2022	955	55	3	18.33	1
12/19/2022	1059	104	49	2.12	1
12/20/2022	1219	160	52	3.08	1
12/21/2022	1352	133	50	2.66	1
12/22/2022	1504	152	48	3.17	1
12/23/2022 NR					
12/24/2022	1710	206	7		1
12/25/2022 NR					
12/26/2022 NR					
12/27/2022	1762	52	48	1.08	1
12/28/2022	1912	150	48	3.13	1
12/29/2022	2060	148	48	3.08	1
12/30/2022	2198	138	48	2.88	1
12/31/2022	2302	104	7	14.86	1
1/1/2023 NR					
1/2/2023 NR					
1/3/2023	2476	174	47	3.70	1
1/4/2023	2629	153	47	3.26	1
1/5/2023	2751	122	47	2.60	1
1/6/2023	2883	132	48	2.75	1
1/7/2023	2985	102	7	14.57	1
1/8/2023	3034	49	3	16.33	1
1/9/2023	3075	41	43	0.95	1
1/10/2023 NR					
1/11/2023	3388	313	39	8.03	1
1/12/2023	3554	166	39	4.26	1
1/13/2023	3693	139	39	3.56	1
1/14/2023 NR					
1/15/2023 NR					
1/16/2023 NR					
1/17/2023	4062	369	43	8.58	1
1/18/2023	4203	141	43	3.28	1
1/19/2023	4369	166	43	3.86	1
1/20/2023	4498	129	43	3.00	1

30

150                      39                      5.23 averages based on dataset  
 3.80 gpcd

Straight Average Demand for Days Recorded =	150 GPD
Straight Average Number Employees for Days Recorded =	39 Employees
<b>USE FOR DESIGN</b> Average of Daily GPCD/Employee =	<b>5.25 GPCD</b>
Long Term Average GPD/Employee =	3.80 GPCD

  
 ROBERT J. PALMIERI  
 No. 11563  
 DELAWARE  
 PROFESSIONAL ENGINEER  
 03/02/2024