



# COMAL COUNTY

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## ENGINEER'S OFFICE

### **Permit of Authorization to Construct an On-Site Sewage Facility Permit Valid For One Year From Date Issued**

Permit Number: 117369  
Issued This Date: 04/29/2024  
This permit is hereby given to: Karen Jochimsen

To start construction of a private, on-site sewage facility located at:

1440 CANYON EDGE  
CANYON LAKE, TX 78133

Subdivision: Canyon Lake Hills  
Unit: 3  
Lot: 1641  
Block: 0  
Acreage: 0.0000

#### APPROVED MINIMUM SIZES AS PER ATTACHED DESIGN

Type of System: Aerobic  
Drip Irrigation

This permit gives permission for the construction of the above referenced on-site facility to commence. Installation must be completed by an installer holding a valid registration card from the Texas Commission on Environmental Quality (TCEQ). Installation and inspection must comply with current TCEQ and Comal County requirements.

Call (830) 608-2090 to schedule inspections.



COMAL COUNTY  
ENGINEER'S OFFICE

## ON-SITE SEWAGE FACILITY APPLICATION

195 DAVID JONAS DR.  
NEW BRAUNFELS, TX 78132  
(830) 608-2090  
WWW.CCEO.ORG

Date \_\_\_\_\_

Permit Number 117369

### 1. APPLICANT / AGENT INFORMATION

Owner Name Karen Jochimsen  
Mailing Address 5822 Wanakah Dr.  
City, State, Zip Houston, TX 77069  
Phone # 713-504-8585  
Email \_\_\_\_\_

Agent Name David Winters Septics LLC.  
Agent Address P.O Box 195  
City, State, Zip Spring Branch, TX 78070  
Phone # 830-935-2477  
Email Wintersseptics@gvtc.com

### 2. LOCATION

Subdivision Name Canyon Lake Hills Unit 3 Lot 1641 Block \_\_\_\_\_  
Survey Name / Abstract Number \_\_\_\_\_ Acreage \_\_\_\_\_  
Address 1440 Canyon Edge City Canyon Lake State Tx Zip 78133

### 3. TYPE OF DEVELOPMENT

☒ Single Family Residential

Type of Construction (House, Mobile, RV, Etc.) House

Number of Bedrooms 2

Indicate Sq Ft of Living Area 1200

☐ Non-Single Family Residential

(Planning materials must show adequate land area for doubling the required land needed for treatment units and disposal area)

Type of Facility \_\_\_\_\_

Offices, Factories, Churches, Schools, Parks, Etc. - Indicate Number Of Occupants \_\_\_\_\_

Restaurants, Lounges, Theaters - Indicate Number of Seats \_\_\_\_\_

Hotel, Motel, Hospital, Nursing Home - Indicate Number of Beds \_\_\_\_\_

Travel Trailer/RV Parks - Indicate Number of Spaces \_\_\_\_\_

Miscellaneous \_\_\_\_\_

Estimated Cost of Construction: \$ 92,450 (Structure Only)

Is any portion of the proposed OSSF located in the United States Army Corps of Engineers (USACE) flowage easement?

☐ Yes ☒ No (If yes, owner must provide approval from USACE for proposed OSSF improvements within the USACE flowage easement)

Source of Water ☒ Public ☐ Private Well ☐ Rainwater

### 4. SIGNATURE OF OWNER

By signing this application, I certify that:

- The completed application and all additional information submitted does not contain any false information and does not conceal any material facts. I certify that I am the property owner or I possess the appropriate land rights necessary to make the permitted improvements on said property.
- Authorization is hereby given to the permitting authority and designated agents to enter upon the above described property for the purpose of site/soil evaluation and inspection of private sewage facilities..
- I understand that a permit of authorization to construct will not be issued until the Floodplain Administrator has performed the reviews required by the Comal County Flood Damage Prevention Order.
- I affirmatively consent to the online posting/public release of my e-mail address associated with this permit application, as applicable.

Karen Jochimsen  
Signature of Owner

4-4-24  
Date



## ON-SITE SEWAGE FACILITY APPLICATION

Planning Materials & Site Evaluation as Required Completed By \_\_\_\_\_

System Description \_\_\_\_\_

Size of Septic System Required Based on Planning Materials & Soil Evaluation

Tank Size(s) (Gallons) \_\_\_\_\_ Absorption/Application Area (Sq Ft) \_\_\_\_\_

Gallons Per Day (As Per TCEQ Table III) \_\_\_\_\_

(Sites generating more than 5000 gallons per day are required to obtain a permit through TCEQ.)

Is the property located over the Edwards Recharge Zone? ☐ Yes ☐ No

(If yes, the planning materials must be completed by a Registered Sanitarian (R.S.) or Professional Engineer (P.E.))

Is there an existing TCEQ approved WPAP for the property? ☐ Yes ☐ No

(If yes, the R.S. or P.E. shall certify that the OSSF design complies with all provisions of the existing WPAP.)

If there is no existing WPAP, does the proposed development activity require a TCEQ approved WPAP? ☐ Yes ☐ No

(If yes, the R.S. or P.E. shall certify that the OSSF design will comply with all provisions of the proposed WPAP. A Permit to Construct will not be issued for the proposed OSSF until the proposed WPAP has been approved by the appropriate regional office.)

Is the property located over the Edwards Contributing Zone? ☐ Yes ☐ No

Is there an existing TCEQ approval CZP for the property? ☐ Yes ☐ No

(If yes, the P.E. or R.S. shall certify that the OSSF design complies with all provisions of the existing CZP.)

If there is no existing CZP, does the proposed development activity require a TCEQ approved CZP? ☐ Yes ☐ No

(If yes, the R.S. or P.E. shall certify that the OSSF design will comply with all provisions of the proposed CZP. A Permit to Construct will not be issued for the proposed OSSF until the CZP has been approved by the appropriate regional office.)

Is this property within an incorporated city? ☐ Yes ☐ No

If yes, indicate the city: \_\_\_\_\_



*Garrett R. Winters* R.S.

By signing this application, I certify that:

- The information provided above is true and correct to the best of my knowledge.
- I affirmatively consent to the online posting/public release of my e-mail address associated with this permit application, as applicable.

*Garrett R. Winters* R.S.

Signature of Designer

Date





202406010223 04/05/2024 10:05:12 AM 1/1

COUNTY OF COMAL  
STATE OF TEXAS

AFFIDAVIT TO THE PUBLIC

CERTIFICATION OF OSSF REQUIRING MAINTENANCE

According to Texas Commission on Environmental Quality (TCEQ) Rules for On-Site Sewage Facilities (OSSFs), this document is filed in the Deed Records of Comal County, Texas.

I  
The Texas Health and Safety Code, Chapter 366 authorizes the Texas Commission on Environmental Quality (TCEQ) to regulate on-site sewage facilities (OSSFs). Additionally, the Texas Water Code (TWC), § 5.012 and § 5.013, give the commission primary responsibility for implementing the laws of the State of Texas relating to water and adopting rules necessary to carry out its powers and duties under the TWC. The commission, under the authority of the TWC and the Texas Health and Safety Code, requires owners to provide notice to the public that certain types of OSSFs are located on specific pieces of property. To achieve this notice, the commission requires a recorded affidavit. Additionally, the owner must provide proof of the recording to the OSSF permitting authority. This recorded affidavit is not a representation or warranty by the commission of the suitability of this OSSF, nor does it constitute any guarantee by the commission that the appropriate OSSF was installed.

II  
An OSSF requiring a maintenance contract, according to 30 Texas Administrative Code § 285.91 (12) will be installed on the property described as (insert legal description):

Lot 1641, CANYON LAKE HILLS, UNIT NO. 3, a subdivision in  
Comal County, Texas

The property is owned by (Insert owner's full name):

Karen Jochimsen

This OSSF must be covered by a continuous maintenance contract for the first two years. After the initial two-year service policy, the owner of an aerobic treatment system for a single family residence shall either obtain a maintenance contract within 30 days or maintain the system personally.

Upon sale or transfer of the above described property, the permit for the OSSF shall be transferred to the buyer or new owner. A copy of the planning materials for OSSF may be obtained from Comal County Engineer's Office.

WITNESS BY HAND(S) ON THIS 5 DAY OF April 2024

Karen Jochimsen  
Owner(s) signature(s)

KAREN JOCHIMSEN  
(PRINTED NAME)

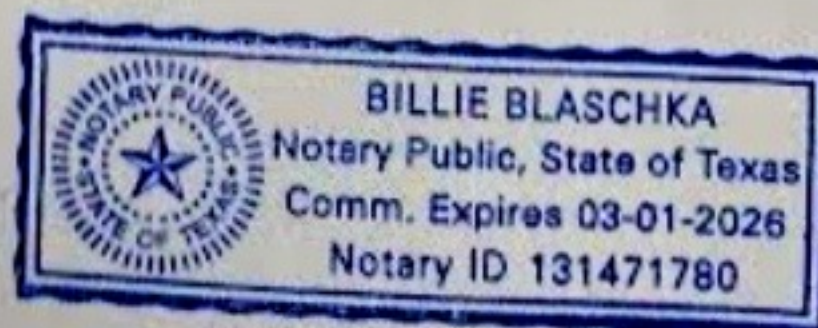
SWORN TO AND SUBSCRIBED BEFORE ME ON THIS 5 DAY OF April 2024

Billie Blaschka  
Notary Public, State of Texas

Notary's Printed Name:

My Commission Expires:

Billie Blaschka  
03-01-2026



Filed and Recorded  
Official Public Records  
Bobbie Koepp, County Clerk  
Comal County, Texas  
04/05/2024 10:05:12 AM  
MARY 1 Page(s)  
202406010223



Bobbie Koepp



**DAVID WINTERS SEPTICS, LLC**  
**PO BOX 195**  
**SPRING BRANCH, TX 78070**  
**830-935-2477 OFFICE**  
**830-935-2477 FAX**  
**wintersseptics@gvvc.com**

Routine Maintenance and Inspection Agreement

This Work-for-Hire Agreement (hereafter referred to as this "Agreement") is entered into, by, and between  
Karen Jochimsen (referred to as "Client") and David Winters Septic's, LLC, Inc.  
(hereafter referred to as "Contractor") located at 1440 Canyon Edge Date beginning on Issue Date of  
and contract ending 2 years from Issue Date of License to Operate License to Operate  
By this agreement the Contractor agrees to render professional service, as described herein, and the Client agrees to fulfill the  
terms of this Agreement as described herein.

This agreement will provide for all required inspections, testing, and service for your Aerobic Treatment System.  
The policy will include the following:

1. Three (3) inspections per year/service calls (at least one every four months), for a total of six (6) over the two-year period, including inspection, adjustment, and servicing of the mechanical, electrical and other applicable component parts to ensure proper function. This includes inspecting control panel, air pumps, air filters, diffuser operation, and replacing or repairing any component not found to be functioning correctly. Any alarm situations affecting the proper function of the Aerobic process will be addressed within a 48-hour time frame. This contract does not include labor on warranty and non-warranty parts.
2. An effluent quality inspection consisting of a visual check of color, turbidity, scum overflow and examination for odors. A test for chlorine residual and pH will be taken and reported as necessary.
3. If any improper operation is observed, which cannot be corrected at the time of the service visit, you will be notified on your inspection report.
4. The Client is responsible for the chlorine tablets and/or liquid chlorine; they must be filled before or during the service visit.
5. Any additional visits, inspections or sample collection required by specific Municipalities, Water/River Authorities, and County Agencies the TCEQ or any other authorized regulatory agency in your jurisdiction will not be covered by this policy.

At the conclusion of the initial service policy, our company will make available, for purchase on an annual basis, a continuing service policy cover NORMAL inspection, maintenance and repair.

The Homeowners Manual must be strictly followed or warranties are subject invalidation. Pumping of sludge build up is not covered by this policy and will result in additional charges.

This agreement does not cover any labor or parts for items which must be replaced due to acts of God, i.e., lightning strikes, high winds, flooding, freezing.

This agreement DOES NOT COVER materials or parts which must be replaced due to misuse or abuse of the system. These include but are not limited to: Sewage flows exceeding the recommended daily hydraulic design capabilities, Disposal of Non-Biodegradable materials, such as chemicals, grease or oil, sanitary napkins, tampons, baby wipes, disposable diapers, Clogs in the line between the house and the tank.

This agreement DOES NOT COVER LABOR OR PARTS for out- of- warranty items.

Service calls made outside of the regular maintenance schedule are subject to a **\$75.00 SERVICE CALL FEE** due at the time of service.

**ACCESS BY CONTRACTOR**

The contractor or anyone authorized by the contractor may enter the property at reasonable times without prior notice for the purpose of service described above.

First 2 years  
included with new

**PAYMENT AGREEMENT**

The client will pay compensation to the contractor for the services in the amount of install. This compensation shall be payable in one lump sum payment upon acceptance of this agreement. Payments not received within 30 days of the above described due date will be subject to a \$25.00 late penalty.

**TERMINATION OF THIS AGREEMENT**

Either party may terminate this agreement within 10 days of written notice in the event of substantial failure to perform in accordance with its terms by other party without fault of the terminating party. If this agreement is terminated, the contractor will immediately notify the appropriate health authority.

**LIMIT OF LIABILITY**

The Contractor will not be liable for indirect, consequential, incidental or punitive damages, whether in contract or any other theory. In no event shall the Contractor's liability for direct damages exceed the price for the services described in this agreement.

Permit # \_\_\_\_\_

The effective date of this initial maintenance agreement shall be the date the license to operate is issued.

**Client**

Karen Jochimsen

Name

1440 Canyon Edge

Address

Canyon Lake, TX 78133


City/State/Zip Code

713-504-8585

Phone

jkjoch1@sbcglobal.net

Email address

  
Signature of Client

**Contractor**

David Winters Septic's, LLC, Inc.

P.O. Box 195

Spring Branch, Texas 780170

Office 830-935-2477 Fax 830-935-2477

By: 

Signature of Contractor

Maintenance Provider #-MP0001686



# OSSF Soil & Site Evaluation

Page 1 (Soil & Site Evaluation)

Date Performed: \_\_\_\_/\_\_\_\_/\_\_\_\_

Property Owner: \_\_\_\_\_

Site Location: \_\_\_\_\_ Proposed Excavation Depth: \_\_\_\_\_

## REQUIREMENTS:

At least two soil excavations must be performed on the site, at opposite ends of the proposed disposal area. Locations of soil borings or dug pits must be shown on the site drawing. For subsurface disposal, soil evaluations must be performed to a depth of at least two feet below the proposed disposal field excavation depth. For surface disposal, the surface horizon must be evaluated. Describe each soil horizon and identify any restrictive features on this form. Indicate depths where features appear.

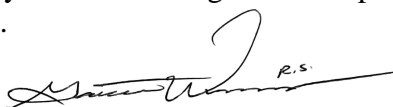
Soil Boring Number:					
Depth (Feet)	Texture Class	Gravel Analysis (If Applicable)	Drainage (Mottles/ Water Table)	Restrictive Horizon	Observations
1 FT.					
2 FT.					
3 FT.					
4 FT.					
5 FT.					

Soil Boring Number:					
Depth (Feet)	Texture Class	Gravel Analysis (If Applicable)	Drainage (Mottles/ Water Table)	Restrictive Horizon	Observations
1 FT.					
2 FT.					
3 FT.					
4 FT.					
5 FT.					

## FEATURES OF SITE AREA

Presence of 100 year flood zone ☐ Yes ☐ No  
Presence of upper water shed ☐ Yes ☐ No  
Presence of adjacent ponds, streams, water impoundments ☐ Yes ☐ No  
Existing or proposed water well in nearby area (within 150 feet) ☐ Yes ☐ No  
Ground Slope \_\_\_\_\_ %

I certify that the findings of this report are based on my field observations and are accurate to the best of my ability.

  
(Signature of person performing evaluation)

\_\_\_\_\_  
(Date)

\_\_\_\_\_  
Registration Number and Type

# OSSF Soil & Site Evaluation

Page 1 (Soil & Site Evaluation)

Date Performed: \_\_\_\_/\_\_\_\_/\_\_\_\_

Property Owner: \_\_\_\_\_

Site Location: \_\_\_\_\_ Proposed Excavation Depth: \_\_\_\_\_

## REQUIREMENTS:

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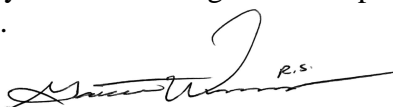
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I certify that the findings of this report are based on my field observations and are accurate to the best of my ability.

  
(Signature of person performing evaluation)

\_\_\_\_\_  
(Date)

\_\_\_\_\_  
Registration Number and Type



# GW Septic Designs



## *On-Site Sewage Facility Application and Design*

***Prepared By:***  
***Garrett R. Winters***  
***Registered Professional Sanitarian***  
***R.S# 5213***



### **Contact Information**

***Phone: (210) 854-2673***  
***Email: Gwintersseptics@gmail.com***  
***1332 Mountain View Dr.***  
***Canyon Lake, TX 78133***

### **Owner/Site Location**

Owner: Karen Jochimsen

Address: 1440 Canyon Edge. Canyon Lake, TX 78133

Subdivision: Canyon Lake Hills Unit 3

LOT: 1641

### **LOT DESCRIPTION**

The proposed method of wastewater treatment is aerobic treatment with Drip irrigation. The sizing of the OSSF was determined as specified in the Texas Commission on Environmental Quality (TCEQ) CHAPTER 285.33 (C)(2). Water saving devices are assumed for the septic system design. This site is not within the 100-Year flood plain (see site plan). Water to the property will be serviced by a public water supply. All parts of the system will maintain at least a 10' setback from all water lines and 6' from property lines.

### **System Summary**

***This design was performed in conformance with Chapter 285 of Texas Commission on Environmental Quality.***

- 600gpd Aerobic DRIP treatment unit
- Manual 12hr control timer
- 20gpm submersible effluent pump
- SCH40 PVC Sewer line
- 1" purple PVC SCH40 supply/return manifold
- NETAFIM Arkal 100-micron disk filter
- Pressure Gauge
- 30 PSI pressure regulator - Model PMR30MF
- Vacuum Breakers installed at the highest points of the drip field.
- Spin lock connectors to prevent kinking of tubing.
- Drip Tubing (Netafim Bioline)
- Visual and audio alarms monitoring high water and aerator failure placed in a noticeable location.

### **Wastewater Design Flow**

Structure: Single Family Residence (1200sf)

# of Bedrooms: 2

Wastewater Usage Rate: 180gpd

Application Rate: 0.2

Application Area Required: 900sf

Actual Application Area: 1024sf

### **System Components**

Pretreatment Tank: 500gal

Pump Tank: 800gal

Aeration Tank: 600gpd

Pump: C1 20gpm submersible pump (Model no. 20C1-05P4-2W115 or equivalent)

Pump tank reserve minimum: 60gal

### **Potable Water Lines**

Potable water lines must be at a minimum distance of 10 feet from OSSF components. If a water line is within 10 feet, it must be sleeved with 2" SCH40 PVC Pipe in order to provide equivalent protection of a 10' separation in compliance with TAC chapter 290, Subchapter D, Rules for Public Drinking Water Systems.





## **Electrical Components**

All electrical wiring shall conform to the requirements of the National Electric Code (1999) or under any other standards approved by the executive director. Additionally, all external wiring shall be installed in approved, rigid, non-metallic gray code electrical conduit. The conduit shall be buried according to the requirements in the National Electric Code and terminated at a main circuit breaker panel or sub-panel. Connections shall be in approved junction boxes. All electrical components shall have an electrical disconnect within direct vision from the place where the electrical device is being serviced. Electrical disconnects must be weatherproof (approved for outdoor use) and have maintenance lockout provisions.

## **Installation**

A 3" or 4" solid-wall SCH40 or SDR 26 PVC pipe with a minimum downward slope of 1/8 inch per foot will be installed between the tank and house. A 2-way cleanout must be included in the line between the house and tank. All piping from house-to-tank and tank-to-drain field must be bedded with class Ib, II, or III soils containing less than 30% gravel. The bottom of the excavation for the tank shall be level and free of large rocks/debris, the tanks shall then be bedded with a 4"-6" layer of sand, sandy loam, 3/4 dust or pea gravel. All openings in the tank are to be sealed to prevent the escape of wastewater. For all OSSF's permitted on or after September 1, 2023, inspection and cleanout ports shall have risers over the port openings which extend to a minimum of two inches above grade. A secondary plug, cap, or other suitable restraint system shall be provided below the riser cap to prevent tank entry if the cap is unknowingly damaged or removed. A secondary plug, cap, or other suitable restraint system shall be provided below the riser cap to prevent tank entry if the cap is unknowingly damaged or removed. Risers must be fitted with removable watertight caps and protected against unauthorized intrusions. Acceptable protective measures include: a padlock and a cover that can be removed with tools.

## **LANDSCAPING**

The native vegetation in the distribution area should consist of low-level shrubs, plains grass, bluestem, or Bermuda. The entire area of the drip disposal must be covered with a ground cover such as grass seed or sod prior to the final inspection. The placement of the drip tubing will be on soil that has been scarified. The location of an individual sewage system shall not be in a poorly drained or filled area, or in any area where seasonal flooding/seeping occurs, without prior written approval. Stormwater runoff should not be allowed to flow over the drip field or tanks. Berms, swales and/or rain gutters should be installed by the owner/contractor to minimize erosion and field saturation. If the slope in the drain field area is greater than 30% or is complex, the area is unsuitable for the disposal method, suitable fill shall be brought into the field area to meet this requirement. *The drip field shall then either be seeded and covered with Curlex or sodded.*

## **Maintenance Contract**

For any OSSF with a pump, the installer shall provide the Designated Representative with proof of an executed two-year full-service maintenance contract as required by the TCEQ. The maintenance company will verify that the system is operating properly and that they will provide on-going maintenance of the installation. The initial contract will be for a minimum of 2 years. A maintenance contract will authorize the Maintenance Company to maintain and repair the system as needed. The owner must continuously maintain a signed written contract with a valid maintenance company and shall submit a copy of the contract to the permitting authority at least 30 days prior to the date service will cease.



## **Affidavit**

Prior to issuance of a permit, a certified copy of an affidavit must be submitted to the County Clerk's office. The affidavit is a recorded file in reference to the real property deed on which the surface application is installed on the property. The permit issued to the previous owner of the property being transferred to the new owner in accordance with §285.20(5) of the TCEQ OSSF Rules. The permit will be issued in the name of the owner of the OSSF. Permits shall be transferred to the new owner automatically upon legal sale of the OSSF. The transfer of an OSSF permit under this section shall occur upon actual transfer of the property on which the OSSF is located unless the ownership of the OSSF has been severed from the property.

## **Proposed System**

A 3- or 4-inch SCH-40 pipe discharges from the residence into an Aquaklear AKA600CA (600GPD) aerobic treatment plant containing a 500-gallon pretreatment tank and an 800-gallon pump chamber. A threaded union will be installed in the pump tank on the supply manifold to the drip field, and a pressure regulator will be installed on the supply manifold to maintain a pressure of 30 psi. The pump chamber contains a 0.5 HP Franklin C1-Series-20XC1-05P4-2W115 submersible well pump (or equivalent). Distribution is through a self-flushing 100-micron Arkal Disk filter then through a 1" SCH-40 manifold to a minimum of 1,024sf drip tubing field with Netifim Bioline drip lines approximately two feet apart with 0.61gph emitters set every two feet as per the attached schematic. A 1" SCH-40 return line is installed to periodically flush the system. Solids caught in the disk filter are flushed each cycle back to the Pre-Treatment tank. Vacuum breakers installed at the highest point on each manifold will prevent siphoning of effluent from higher to lower parts of the field. The field area shall be scarified and built up with 8" of Imported TYPE II OR TYPE III soil (Not Sand) and capped with 6." The drip field will then either be seeded and covered with Curlex or sodded.



The following design is intended to follow and meet the TCEQ 30 TAC 285 OSSF Regulations. The performance of this system cannot be guaranteed even though all provisions of 30 TAC 285 have been met or exceeded.



Float Settings For 180gpd Waste Flow

(Measure From TANK Floor)

800gal pump tank at 52.5 to bottom outlet = 15.3gal/in

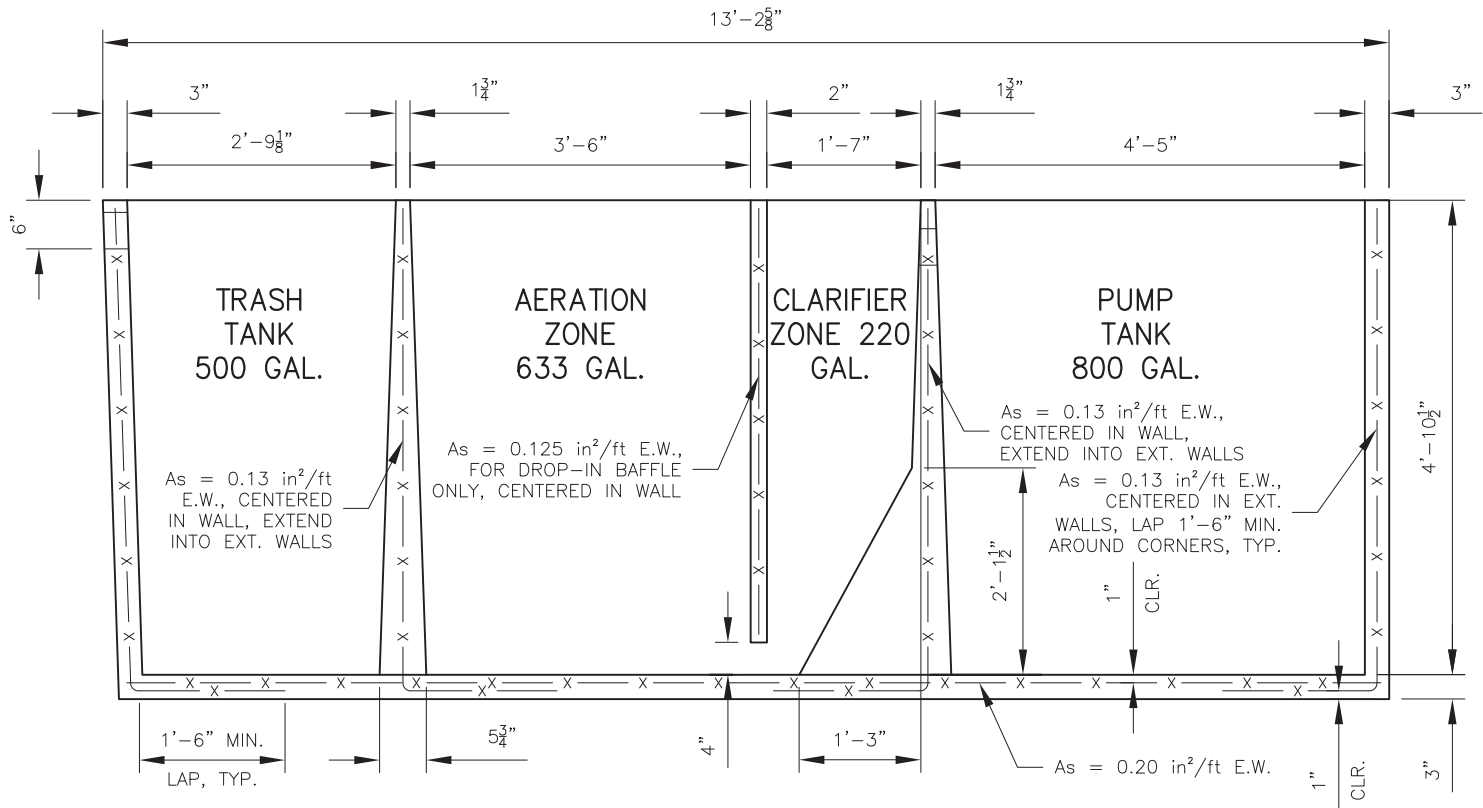
Pump OFF: 16" (244.8gal)

Pump ON: 21" (367.2gal)

ALARM: 34" (520.2gal)

Reserve: 279.8gal

Minimum: 60gal



## REINFORCING SECTION



*Garrett R. Winters* R.S.

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REV. NO.	DATE	REVISION																					
PREPARED BY:   <b>DELTA</b> SPECIALTY PRECAST CONCRETE ENGINEERS 860 HOOPER ROAD, ENDWELL, NY 13760-1564 PHONE (607) 231-6600 FAX (607) 231-6650			DATE: 09/20/2021 SCALE: N.T.S. PROJECT: AQUAKLEAR WASTEWATER TREATMENT SYSTEM MODEL AKA600CA																				
SHEET TITLE: REINFORCING SECTION			DRWN BY: CCFH CKD BY:																				
CONTRACTOR: DELTA PROJ. NO.: 2021.750.001			DWG. I.D. RS-02 SHT. NO. 2 OF 2																				





# C1 SERIES

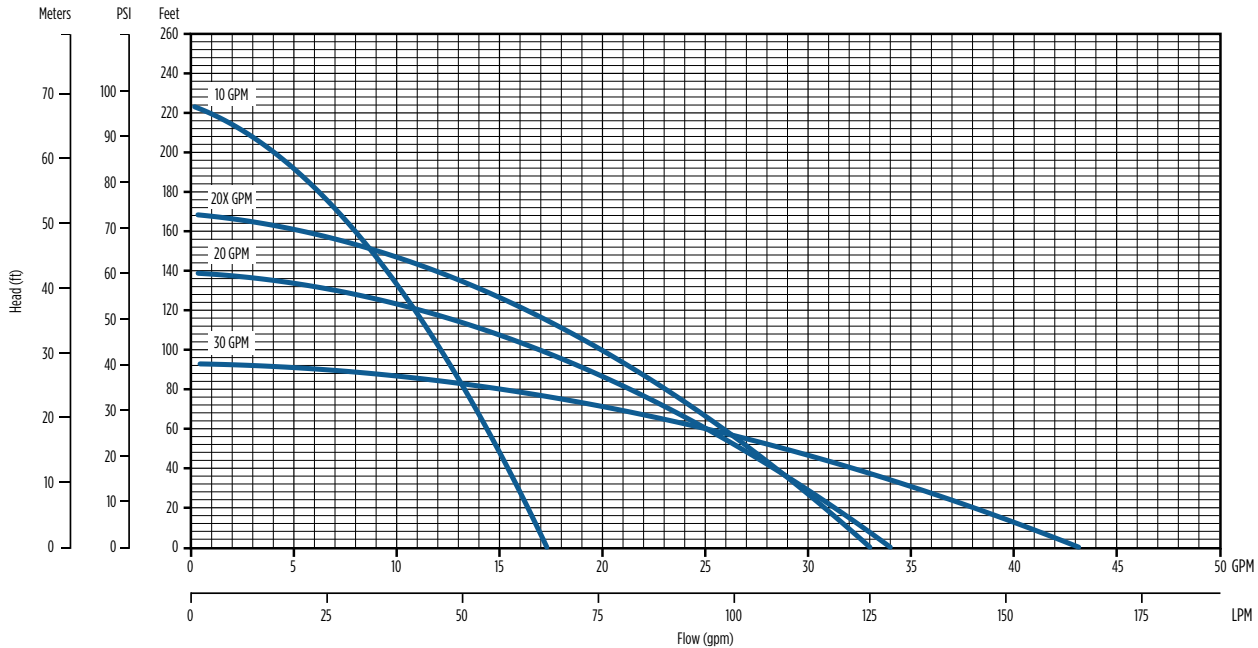
## CISTERN PUMPS

Designed for use in gray water and filtered effluent service applications, the C1 Series cistern pump provides high performance and long life in less than ideal water conditions. Able to pass solids up to 1/8" without having a negative effect on the internal hydraulic components, the pump features a unique bottom suction design allowing for maximum fluid drawdown without compromising durability or overall life, and it does not require the use of a flow induction sleeve. Intended specifically for use in a cistern or tank, C1 Series pumps are suitable for use in agricultural, residential, and commercial installations.





## C1 SERIES FAMILY CURVE



## FEATURES

- Supplied with a removable 5" base for secure and reliable mounting
- Bottom suction design
- Robust thermoplastic discharge head design resists breakage during installation and operation
- Standard backflow prevention through a built-in, but removable, check valve.
- Single shell housing design provides a compact unit while ensuring cool and quiet operation
- Hydraulic components molded from high quality engineered thermoplastics
- Optimized hydraulic design allows for increased performance and decreased power usage
- All metal components are made of high grade stainless steel for corrosion resistance
- Available with a high quality 115 V or 230 V, 1/2 hp motor
- Fluid flows of 10, 20, and 30 gpm, with a max shut-off pressure of over 100 psi
- Heavy-duty 300 V 10 foot SJ00W jacketed lead

## APPLICATIONS

- Gray water pumping
- Filtered effluent service water pumping
- Water reclamation projects such as pumping from rain catchment basins
- Aeration and other foundation or pond applications
- Agriculture and livestock water pumping

## ORDERING INFORMATION

GPM	HP	Volts	Stage	Model No.	Order No.	Length (in)	Weight (lbs)
10	1/2	115	6	10C1-05P4-2W115	90301005	26	17
		230	6	10C1-05P4-2W230	90301010	26	17
20		115	4	20C1-05P4-2W115	90302005	25	16
		230	4	20C1-05P4-2W230	90302010	25	16
20X		115	5	20XC1-05P4-2W115	90302015	26	17
		230	5	20XC1-05P4-2W230	90302020	26	17
30		115	3	30C1-05P4-2W115	90303005	25	16
		230	3	30C1-05P4-2W230	90303010	25	16

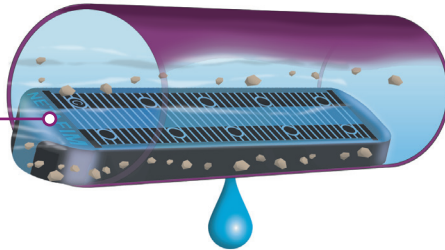
NOTE: All units have 10 foot long SJ00W leads

# BIOLINE® DRIPLINE

THE WORLD'S MOST ADVANCED CONTINUOUS  
SELF-CLEANING, PRESSURE COMPENSATING DRIPLINE  
SPECIFICALLY DESIGNED FOR WASTEWATER

## CROSS SECTION OF BIOLINE DRIPLINE

Bioline dripper inlets are positioned in the center of flow where water is the cleanest



## PRODUCT ADVANTAGES

- Pressure compensation - all drippers deliver equal flow, even on sloped or rolling terrain.
- Unique flow path - Turbonet technology provides more control of water and a high resistance to clogging.
- Continuous self-flushing dripper design - flushes debris, as it is detected - throughout operation, not just at the beginning or end of a cycle. Ensures uninterrupted dripper operation.
- Single hole dripper outlet from tubing:
  - Better protection against root intrusion
  - Allows the dripline to be used in subsurface applications without need for chemical protection
- Drippers capture water flow from the center of the tubing - ensures that only the cleanest flow enters the dripper.
- Built-in physical root barrier - drippers are protected from root intrusion without the need for chemical protection. Water exits dripper in one location while exiting the tubing in another.
- Three dripper flow rates - provides the broadest range of flow rates available. Allows the designer to match the dripline to any soil or slope condition.
- Bioline tubing is completely wrapped in purple - easily identifying it for non-potable use, regardless of how the tubing is installed.
- Anti-bacterial-impregnated drippers - prevents buildup of microbial slime.
- Can be used subsurface - Bioline can be installed on-surface, under cover or subsurface.
- No special storage requirements - does not degrade if stored outdoors.
- Techfilter compatible - an optional level of protection, provides a limited lifetime warranty against root intrusion.

## APPLICATIONS

- Typically installed following a treatment process
- Can be used with domestic septic tank effluent with proper design, filtration and operation
- Reuse applications including municipally treated effluent designated for irrigation and other disinfected and non-disinfected water sources.

## SPECIFICATIONS

- Dripper flow rates: 0.4, 0.6 or 0.9 GPH
- Dripper spacings: 12", 18" or 24" dripper spacings and blank tubing
- Pressure compensation range: 7 to 58 psi (stainless steel clamps recommended above 50 psi)
- Maximum recommended system pressure: 50 psi
- Tubing diameter: 0.66" OD, 0.57" ID
- Tubing color: Purple color indicates non-potable
- Coil lengths: 500' or 1,000' (Blank tubing in 250')
- Recommended filtration: 120 mesh
- Bending radius: 7"
- UV resistant
- Tubing material: Linear low-density polyethylene

Additional spacing and pipe sizes available by special order. Please contact Netafim USA Customer Service for details.

# BIOLINE DRIPLINE

## MAXIMUM LENGTH OF A SINGLE LATERAL WITH 3.0 fps FLUSH VELOCITY

ADDITIONAL FLOW OF 2.3 GPM REQUIRED PER LATERAL TO ACHIEVE 3 fps

DRIPPER SPACING		12"			18"			24"		
DRIPPER FLOW RATE (GPH)		0.4 GPH	0.6 GPH	0.9 GPH	0.4 GPH	0.6 GPH	0.9 GPH	0.4 GPH	0.6 GPH	0.9 GPH
INLET PRESSURE	15	102	94	84	136	127	113	161	151	137
	25	151	136	118	203	184	161	245	223	197
	35	193	171	146	260	232	200	315	283	245
	40	211	186	158	286	254	218	347	311	267
	45	228	200	169	310	274	233	377	335	287
Flow per 100' (GPM / GPH)		0.67/40	1.02/61	1.53/92	0.44/26.67	0.68/41	1.02/61	0.34/20	0.51/31	0.77/46

Lateral lengths are based on flows allowing for a 3 fps flushing/scouring velocity

## MAXIMUM LENGTH OF A SINGLE LATERAL WITH 2.5 fps FLUSH VELOCITY

ADDITIONAL FLOW OF 2.0 GPM REQUIRED PER LATERAL TO ACHIEVE 2.5 fps

DRIPPER SPACING		12"			18"			24"		
DRIPPER FLOW RATE (GPH)		0.4 GPH	0.6 GPH	0.9 GPH	0.4 GPH	0.6 GPH	0.9 GPH	0.4 GPH	0.6 GPH	0.9 GPH
INLET PRESSURE	15	128	115	100	172	155	136	205	187	165
	25	183	161	137	248	220	188	301	268	231
	35	228	198	166	310	272	229	379	333	283
	40	248	214	178	338	295	247	413	362	305
	45	266	229	190	364	316	263	447	389	327
Flow per 100' (GPM / GPH)		0.67/40	1.02/61	1.53/92	0.44/26.67	0.68/41	1.02/61	0.34/20	0.51/31	0.77/46

Lateral lengths are based on flows allowing for a 2.5 fps flushing/scouring velocity

## MAXIMUM LENGTH OF A SINGLE LATERAL WITH 2.0 fps FLUSH VELOCITY

ADDITIONAL FLOW OF 1.6 GPM REQUIRED PER LATERAL TO ACHIEVE 2.0 fps

DRIPPER SPACING		12"			18"			24"		
DRIPPER FLOW RATE (GPH)		0.4 GPH	0.6 GPH	0.9 GPH	0.4 GPH	0.6 GPH	0.9 GPH	0.4 GPH	0.6 GPH	0.9 GPH
INLET PRESSURE	15	161	141	119	217	191	164	263	233	201
	25	221	190	157	302	261	218	369	321	270
	35	269	229	187	370	316	260	455	391	324
	40	290	246	200	399	340	278	493	421	347
	45	310	261	212	427	362	296	527	449	369
Flow per 100' (GPM / GPH)		0.67/40	1.02/61	1.53/92	0.44/26.67	0.68/41	1.02/61	0.34/20	0.51/31	0.77/46

Lateral lengths are based on flows allowing for a 2 fps flushing/scouring velocity

## MAXIMUM LENGTH OF A SINGLE LATERAL WITH 1.5 fps FLUSH VELOCITY

ADDITIONAL FLOW OF 1.2 GPM REQUIRED PER LATERAL TO ACHIEVE 1.5 fps

DRIPPER SPACING		12"			18"			24"		
DRIPPER FLOW RATE (GPH)		0.4 GPH	0.6 GPH	0.9 GPH	0.4 GPH	0.6 GPH	0.9 GPH	0.4 GPH	0.6 GPH	0.9 GPH
INLET PRESSURE	15	201	171	140	275	235	194	337	289	241
	25	266	222	179	366	308	251	453	383	313
	35	316	262	210	437	365	295	543	455	369
	40	337	280	223	469	391	313	583	487	393
	45	358	296	235	497	413	331	619	517	415
Flow per 100' (GPM / GPH)		0.67/40	1.02/61	1.53/92	0.44/26.67	0.68/41	1.02/61	0.34/20	0.51/31	0.77/46

Lateral lengths are based on flows allowing for a 1.5 fps flushing/scouring velocity

## MAXIMUM LENGTH OF A SINGLE LATERAL WITH 1.0 fps FLUSH VELOCITY

ADDITIONAL FLOW OF 0.8 GPM REQUIRED PER LATERAL TO ACHIEVE 1.0 fps

DRIPPER SPACING		12"			18"			24"		
DRIPPER FLOW RATE (GPH)		0.4 GPH	0.6 GPH	0.9 GPH	0.4 GPH	0.6 GPH	0.9 GPH	0.4 GPH	0.6 GPH	0.9 GPH
INLET PRESSURE	15	248	205	163	344	285	228	427	355	285
	25	315	258	203	440	361	286	549	453	359
	35	367	299	234	513	419	331	643	527	417
	40	389	316	248	545	445	350	683	559	441
	45	409	332	260	574	468	367	721	589	463
Flow per 100' (GPM / GPH)		0.67/40	1.02/61	1.53/92	0.44/26.67	0.68/41	1.02/61	0.34/20	0.51/31	0.77/46

Lateral lengths are based on flows allowing for a 1 fps flushing/scouring velocity

## MAXIMUM LENGTH OF A SINGLE LATERAL WITH 0.5 fps FLUSH VELOCITY

ADDITIONAL FLOW OF 0.4 GPM REQUIRED PER LATERAL TO ACHIEVE 0.5 fps

DRIPPER SPACING		12"			18"			24"		
DRIPPER FLOW RATE (GPH)		0.4 GPH	0.6 GPH	0.9 GPH	0.4 GPH	0.6 GPH	0.9 GPH	0.4 GPH	0.6 GPH	0.9 GPH
INLET PRESSURE	15	301	242	188	422	341	265	531	429	335
	25	369	296	228	520	418	323	655	527	409
	35	421	337	260	595	476	368	749	603	467
	40	443	354	273	626	501	387	790	635	491
	45	464	371	285	656	524	404	829	665	513
Flow per 100' (GPM / GPH)		0.67/40	1.02/61	1.53/92	0.44/26.67	0.68/41	1.02/61	0.34/20	0.51/31	0.77/46

Lateral lengths are based on flows allowing for a 0.5 fps flushing/scouring velocity

Netafim recommends flushing velocities capable of breaking free any accumulated bioslimes and debris in the piping network.

- Notes:
1. Refer to local regulations for information on flushing velocities that may be written into codes.
  2. Netafim does not endorse a specific flushing velocity.
  3. Flushing velocities should be determined based on regulations, quality of effluent, and type of flushing control.
  4. Using a flushing velocity less than 1 fps does not provide turbulent flow as defined by Reynolds Number.
  5. Higher flushing velocities provide more aggressive flushing.



# 1" SUPER/LONG MANUAL DISC FILTER

## INSTALLATION, OPERATION & MAINTENANCE INSTRUCTIONS

### FEATURES

- A "T" shaped reinforced plastic filter with two 1" male connections.
- Filter element consists of grooved discs, mounted on a spine, forming a cylindrical filter element. The discs are compressed together by a spring located at the bottom of the filter cover.
- Screw-on filter cover.
- Resistant to chemicals and liquid fertilizers.
- Available filtration grades: 040, 080, 120, 140 and 200.



### TECHNICAL DATA

FLOW RANGE	10 - 35 GPM
MAXIMUM PRESSURE	140 psi
FILTERING SURFACE AREA	78 sq. in.
FILTERING VOLUME	36 cu. in.
LENGTH	13 13/32"
WIDTH	6 7/32"
WEIGHT	3.11 lbs.
DISTANCE BETWEEN ENDS	6 7/32"
INLET/OUTLET DIAMETER	1" Male
MAXIMUM TEMPERATURE	158° F
pH	5 - 11

### MESH/MICRON

MESH	MICRON	DISC COLOR
040	400	Blue
080	200	Yellow
120	130	Red
140	115	Black
200	55	Green

### INSTALLATION

1. Filter can be installed either vertically or horizontally.
2. Use Teflon tape on filter threads - Do Not Use Pipe Dope.
3. Ensure correct inlet/outlet direction.
4. When connecting filter to pipe, do not overtighten.
5. Never use spanners for tightening the filter cover.

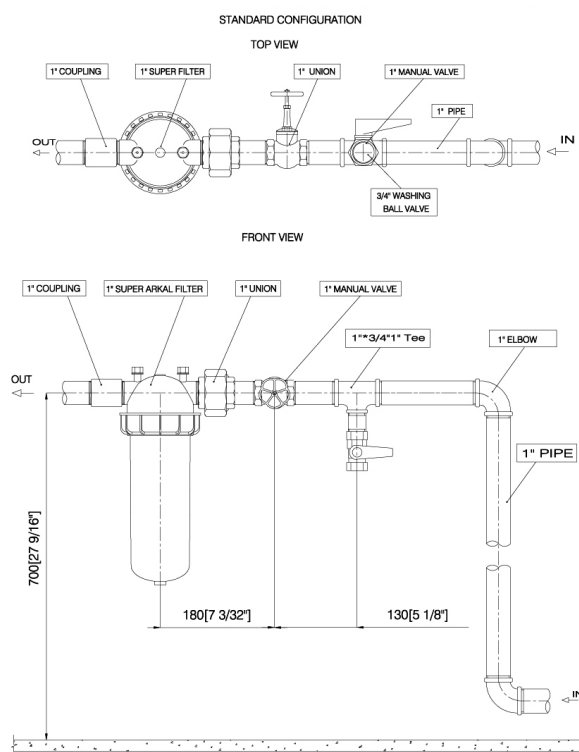
### MAINTENANCE AND CLEANING

#### DISMANTLING

1. Ensure system is turned off and no pressure remains in the pipeline.
2. Unscrew cover from the filter body.
3. Pull out entire filter element.

#### CLEANING

1. Move tightening ring to end of spine and flush discs with pressurized water.
2. If discs are not clean after flushing with water:
  - a. If the discs have an accumulation of algae in the grooves, soak the discs and spine in a small bucket of Clorox bleach for one hour and then reflush with fresh water.
  - b. If the discs have an accumulation of iron in the grooves, soak the discs and spine in a small bucket of 10% Muriatic Acid for one hour and then reflush with fresh water. Muriatic Acid can be purchased at any pool supply store.



## MAINTENANCE AND CLEANING

### ASSEMBLY

1. Verify that spring is in place inside the filter cover.
2. Insert filter element and make sure it is seated correctly.
3. Replace cover.
4. Tighten filter cover securely by turning the fixing nut clockwise and do not overtighten.

### WINTERIZATION

Drain all the water from the filter to avoid cracking due to freezing.

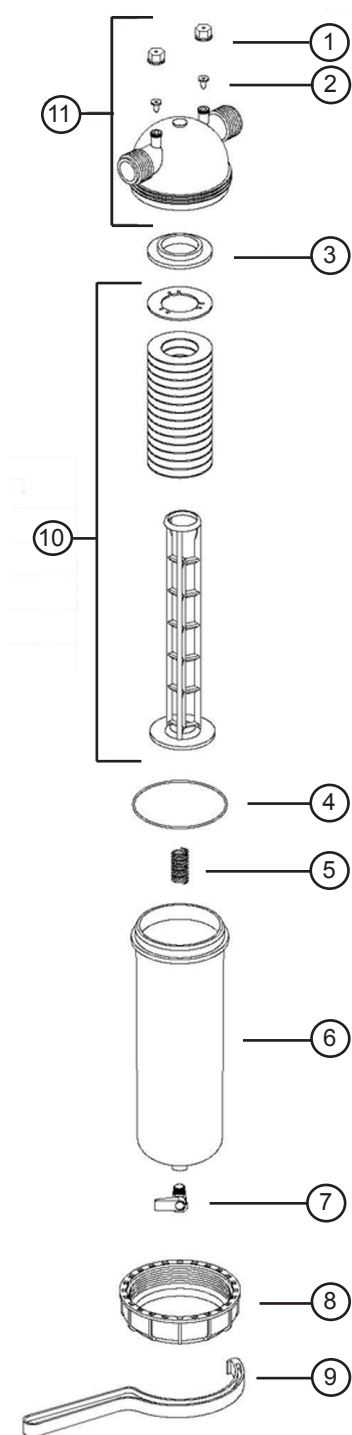
### PARTS BREAKDOWN - 1" SUPER/LONG FILTER

KEY	MODEL NUMBER	DESCRIPTION	MATERIALS
1	SEE # 11	GAUGE PORT NUT	R.PP
2	SEE # 11	GAUGE PORT SEAL	EPDM
3	-	FILTER ADAPTER RING	R.PA
4	25AP531140	COVER O RING	NR
5	25AP50440011	COMPRESSION SPRING	SS
6	25AP23113	FILTER COVER	R.PA
7	-	1/4" TAP (OPTIONAL)	BRASS
8	25AP231131	FIXING NUT	R.PA
9	25AP131199	FILTER WRENCH	R.PA
10	25AP21121-***	RING SET WITH SPINE	PP
11	25AP25000101	FILTER BODY COMPLETE	-

Substitute \*\*\* for proper mesh size.

### MATERIALS KEY

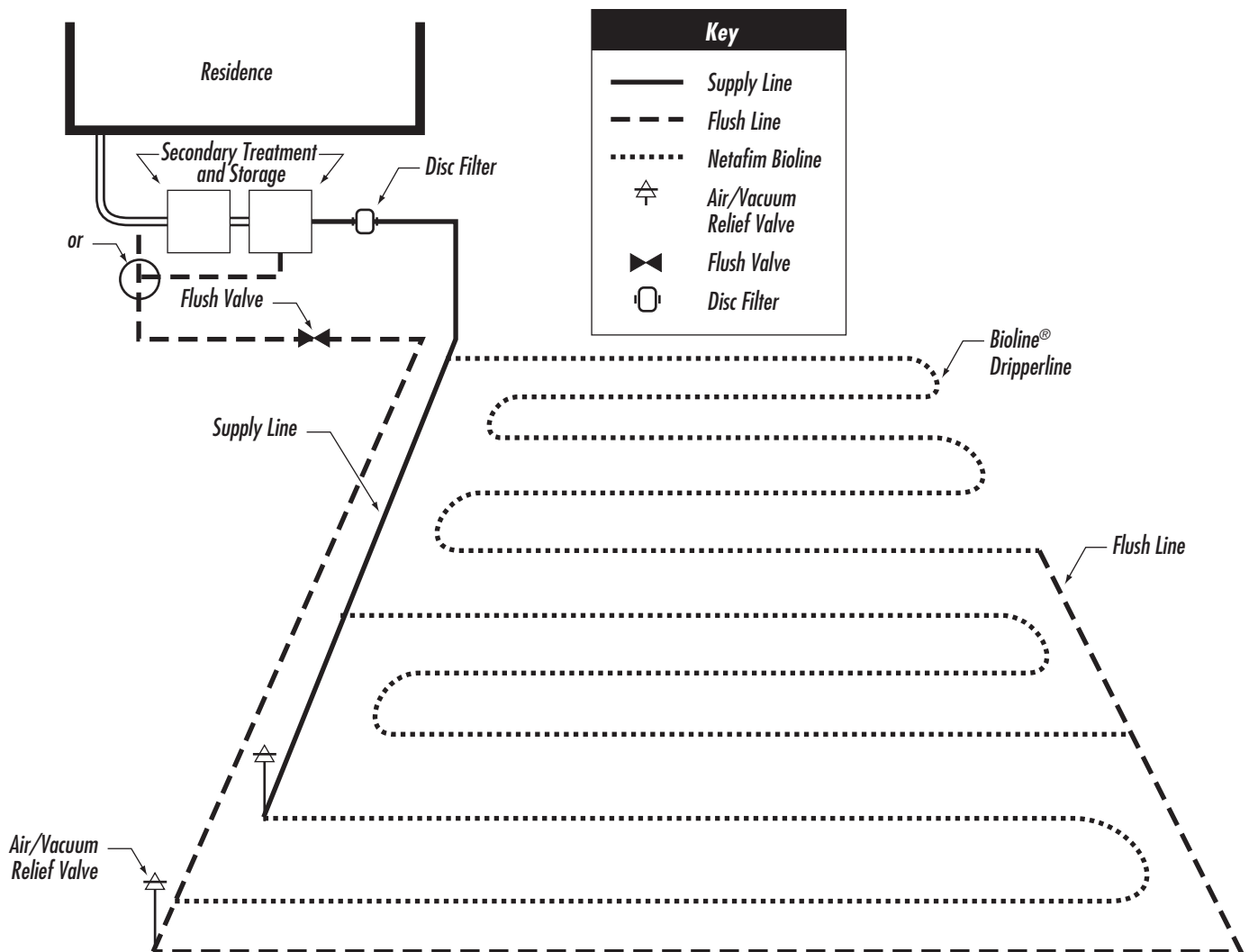
CODE	MATERIAL
SS	STAINLESS STEEL
PP	POLYPROPYLENE
NR	NITRILE RUBBER
R.PP	REINFORCED POLYPROPYLENE
R.PA	REINFORCED POLYAMIDE
EPDM	ETH. PROPY. RUBBER



## IRREGULAR FIELD SHAPE LAYOUT

Triangular field with looping and varied positioning of flush manifolds:

- Used when site limitations dictate unequal dripperline length with respect to dispersal field length
- Loop the Bioline® to increase lateral length and reduce the number of connections
- Keep the Bioline laterals as close to the same length as possible to provide for an equal field flush
- The flush manifold may be located on the same or opposite side of the supply manifold
- As pictured, it may be necessary to make one or more distal end connections to the flush line on an opposing side in order to balance dripperline lateral lengths and to limit the number of connections





# ArcGIS Web Map



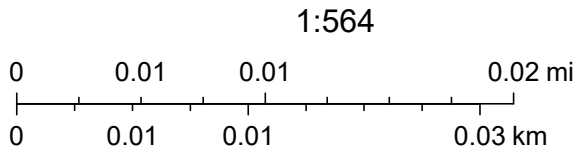
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Permits

- S Septic
- P Piprow/Driveway
- F Floodplain

- U Utility
- TCEQ Contributing Zone
- Parcels

- Streets
- Addresses
- County Maintained Roads





**NOTICE OF CONFIDENTIALITY RIGHTS: IF YOU ARE A NATURAL PERSON, YOU MAY REMOVE OR STRIKE ANY OR ALL OF THE FOLLOWING INFORMATION FROM ANY INSTRUMENT THAT TRANSFERS AN INTEREST IN REAL PROPERTY BEFORE IT IS FILED FOR RECORD IN THE PUBLIC RECORDS: YOUR SOCIAL SECURITY NUMBER OR YOUR DRIVER'S LICENSE NUMBER.**

**GENERAL WARRANTY DEED**

**Date:** March 15, 2024

**Grantor:** JEREMIAH E. BUCKLES and CYNTHIA K. PAVLICA, Trustees of the BUCKLES PAVLICA LIVING TRUST DATED MAY 17, 2018

**Grantor's Mailing Address:** 3424 Misty Pl., Virginia Beach, VA 23452

**Grantee:** KAREN JOCHIMSEN, a single person

**Grantee's Mailing Address, and after Recording, Return to:** 5822 Wanakah Dr., Houston, TX 77069

**Consideration:** Cash and other good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged.

**Property (including any improvements):**

Lot 1641, CANYON LAKE HILLS, UNIT NO. 3, a subdivision in Comal County, Texas, according to the map or plat thereof recorded in Volume 2, Page 19 of the Map and Plat Records, Comal County, Texas.

**Reservations from Conveyance:** None

**Exceptions to Conveyance and Warranty:** Validly existing easements, rights-of-way, and prescriptive rights, whether of record or not; all presently recorded and validly existing instruments, other than conveyances of the surface fee estate, that affect the Property; and taxes for 2024, which Grantee assumes and agrees to pay, but not subsequent assessments for that and prior years due to change in land usage, ownership, or both, the payment of which Grantor assumes.

Grantor, for the Consideration and subject to the Reservations from Conveyance and the Exceptions to Conveyance and Warranty, grants, sells, and conveys to Grantee the Property, together with all and singular the rights and appurtenances thereto in any way belonging, to have and to hold it to Grantee and Grantee's heirs, successors, and assigns forever. Grantor binds Grantor and Grantor's heirs and successors to warrant and forever defend all and singular the Property to Grantee and Grantee's heirs, successors, and assigns against every person whomsoever lawfully claiming or to claim the same or any part thereof, except as to the Reservations from Conveyance and the Exceptions to Conveyance and Warranty.

The Contract between Grantor as the Seller and Grantee as the Buyer, if any, may contain limitations as to warranty or other agreed matters; to the extent that such Contract provides for limitations or other agreed matters that will survive the closing and this conveyance, then such limitations or other agreed matters are hereby deemed incorporated by reference. The warranty of title contained in this Deed is hereby expressly excluded from the limitations or other agreed matters referenced in this paragraph.

When the context requires, singular nouns and pronouns include the plural.

*Jeremiah E. Buckles Trustee of the Buckles Pavlica Living Trust dated May 17, 2018*  
JEREMIAH E. BUCKLES Trustee of the  
BUCKLES PAVLICA LIVING TRUST DATED  
MAY 17, 2018  
*Cynthia K. Pavlica, Trustee of the Buckles Pavlica Living Trust Dated May 17, 2018*  
CYNTHIA K. PAVLICA, Trustee of the BUCKLES  
PAVLICA LIVING TRUST DATED MAY 17,  
2018

STATE OF VIRGINIA )

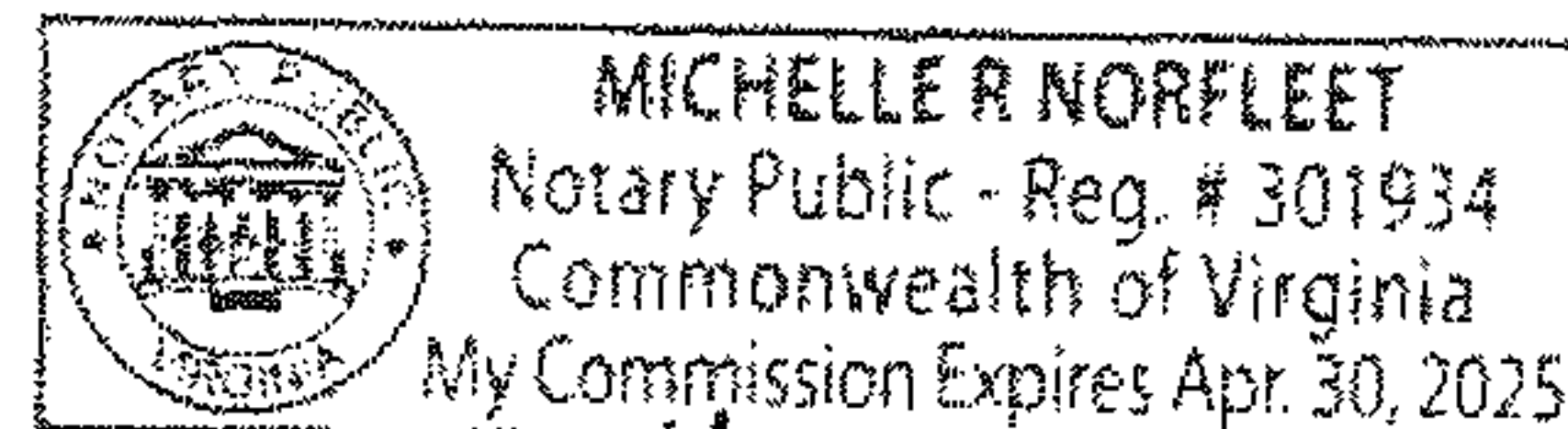
COUNTY OF ~~PRINCESS ANNE~~ *Virginia Beach City*

This instrument was acknowledged before me on March 25<sup>th</sup>, 2024 by JEREMIAH E. BUCKLES, Trustee of the BUCKLES PAVLICA LIVING TRUST DATED MAY 17, 2018, for the purposes and in the capacities therein stated.

*Michelle R. Norfleet*  
Notary Public, State of Virginia

STATE OF VIRGINIA )

COUNTY OF ~~PRINCESS ANNE~~ *Virginia Beach City*



This instrument was acknowledged before me on March 25<sup>th</sup>, 2024 by CYNTHIA K. PAVLICA, Trustee of the BUCKLES PAVLICA LIVING TRUST DATED MAY 17, 2018, for the purposes and in the capacities therein stated.

*Michelle R. Norfleet*  
Notary Public, State of Virginia



Filed and Recorded  
Official Public Records  
Bobbie Koepp, County Clerk  
Comal County, Texas  
03/27/2024 09:16:24 AM  
TERRI 2 Pages(s)  
202406009092



*Bobbie Koepp*





**COMAL COUNTY**  
ENGINEER'S OFFICE

**OSSF DEVELOPMENT APPLICATION  
CHECKLIST**

*Staff will complete shaded items*

		117369
Date Received	Initials	Permit Number

Instructions:

Place a check mark next to all items that apply. For items that do not apply, place "N/A". This OSSF Development Application Checklist **must** accompany the completed application.

OSSF Permit

- ☒ Completed Application for Permit for Authorization to Construct an On-Site Sewage Facility and License to Operate
- ☒ Site/Soil Evaluation Completed by a Certified Site Evaluator or a Professional Engineer
- ☒ Planning Materials of the OSSF as Required by the TCEQ Rules for OSSF Chapter 285. Planning Materials shall consist of a scaled design and all system specifications.
- ☒ Required Permit Fee - See Attached Fee Schedule
- ☒ Copy of Recorded Deed
- ☒ Surface Application/Aerobic Treatment System
- ☒ Recorded Certification of OSSF Requiring Maintenance/Affidavit to the Public
- ☒ Signed Maintenance Contract with Effective Date as Issuance of License to Operate

I affirm that I have provided all information required for my OSSF Development Application and that this application constitutes a completed OSSF Development Application.

  
\_\_\_\_\_  
Signature of Applicant

  
\_\_\_\_\_  
Date

___ COMPLETE APPLICATION	
Check No. _____	Receipt No. _____

INCOMPLETE APPLICATION	
___ (Missing Items Circled, Application Refused)	