



# COMAL COUNTY

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## ENGINEER'S OFFICE

RE: CME-JOYTEX-PROP A LLC

862 River Road

New Braunfels, Tx 78132

Dear Property Owner / Agent:

Thank you for your submission. We have reviewed the planning materials for the referenced permit application. The following information is needed before I can continue processing the referenced permit submittal.

1. An on site preliminary inspection will be done on 7/25/25 additional comments may follow.
2. Revise subdivision name on application.
3. Deed needed verifying property was created prior to 01/01/88.
4. Show doubling area of drain field.
5. Is the water storage tank above ground or below?
6. Maintenance Contract for permit is required.
7. Revise as needed and resubmit.

**From:** [Hernandez, Sandra](#)  
**To:** ["martyjoyce39564@gmail.com"](#)  
**Cc:** ["keith.eismann@yahoo.com"](#); [Ritzen, Brenda](#); [Olvera, Brandon](#); [Vollbrecht, David](#)  
**Subject:** 8672 River Rd. - Permit 118831  
**Date:** Thursday, July 10, 2025 3:01:00 PM  
**Attachments:** [Pages from 118831.pdf](#)  
[image001.png](#)

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RE: 8672 River Rd. – Permit 118831

Dear property owner,

We received a septic permit application in our office for the referenced property on July 10, 2025. This property shows to be in the jurisdiction of the City of New Braunfels, so we are including the city in this email. Please be advised that you will need to contact the City of New Braunfels Development Planning office at 830-221-4041 option 2 to verify this tract is compliant with their subdivision regulations and provide confirmation to our office that indicates this tract is compliant. This may involve submitting a request for a Legal Lot Determination Letter which can be done at the following link:

<https://www.newbraunfels.gov/3450/Forms-and-Applications>

Thank you,



*Sandra Ann Hernandez*

**Subdivision Coordinator**

Comal County Engineer's Office

195 David Jonas Drive | 830-608-2090 | [www.cceo.org](http://www.cceo.org)





# COMAL COUNTY

ENGINEER'S OFFICE

## OSSF DEVELOPMENT APPLICATION CHECKLIST

Staff will complete shaded items

		118831
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

24 June 2025  
Date

☐ COMPLETE APPLICATION

Check No. \_\_\_\_\_ Receipt No. \_\_\_\_\_

☐ INCOMPLETE APPLICATION  
(Missing Items Circled, Application Refused)



COMAL COUNTY  
ENGINEER'S OFFICE

## ON-SITE SEWAGE FACILITY APPLICATION

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

Date \_\_\_\_\_

Permit Number 118831

### 1. APPLICANT / AGENT INFORMATION

Owner Name CME-JOYTEX-PROP A LLC  
Mailing Address 6904 Ivy Leaf  
City, State, Zip Schertz, TX 78154  
Phone # 210-388-8728  
Email martyjoyce39564@gmail.com

Agent Name Eoff Septic Services  
Agent Address 420 Bear Creek Drive  
City, State, Zip New Braunfels, TX 78132  
Phone # 210-844-1885  
Email keith.eismann@yahoo.com

### 2. LOCATION

Subdivision Name River-L1A Lower Guadalupe-Rural Unit N/A Lot N/A Block N/A  
Survey Name / Abstract Number A-106 SUR-272 G Carrasco, Tract 6 PT WM Specht Tract Acreage .975  
Address 8672 River Road City New Braunfels State TX Zip 78132

### 3. TYPE OF DEVELOPMENT

☐ Single Family Residential

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

Number of Bedrooms \_\_\_\_\_

Indicate Sq Ft of Living Area \_\_\_\_\_

☒ 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 Short Term Rental

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 Cabin 1 - 6 Beds/Person, Cabin 2 - 2 Beds/Person + 1 Outhouse

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

Miscellaneous \_\_\_\_\_

Estimated Cost of Construction: \$ 500,000.00 (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.

Signature of Owner(s) \_\_\_\_\_

Date 24 June 2025





## ON-SITE SEWAGE FACILITY APPLICATION

Planning Materials & Site Evaluation as Required Completed By Hoyt Seidensticker

System Description Aerobic with Drip Irrigation

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

Tank Size(s) (Gallons) 1,000 GPD ATU w/1,000-Gal Pump

Absorption/Application Area (Sq Ft) 4,380

Gallons Per Day (As Per TCEQ Table III)

512

Cabin 1 - 1,758 SF - 6 Beds/People @ 60 GPD - 360 GPD

Cabin 2 - 1,484 SF - 2 Beds/People @ 60 GPD - 120 GPD

1 Outhouse - 8 People @ 4 GPD - 32 GPD

Total - 512 GPD

(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.)

Is there at least one acre per single family dwelling as per 285.40(c)(1)? ☐ Yes ☒ No

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: \_\_\_\_\_

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.

Signature of Designer

Date



202506021178 07/09/2025 01:21:31 PM 1/2

# AFFIDAVIT TO THE PUBLIC

THE COUNTY OF Comal §  
STATE OF TEXAS §

According to Texas Commission on Environmental Quality Rules for On-Site Sewage (OSSFs) Facilities, 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 (commission) to regulate on-site sewage facilities (OSSFs). Additionally, the Texas Water Code (TWC), §5.012 and §5.013, gives 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 meeting the requirements of 30 Texas Administrative Code §285 will be installed on the property described as (insert legal description for all land tracts/lots):

0.975 acre tract of land in the Galvino Carrasco Survey No. 272, Abstract 106, Comal County, Texas as described and recorded in Document Number 9606013690, Official Public Records, Comal County, Texas.

This property is owned by CME-JOYTEX-PROP A LLC

This OSSF must be covered by a continuous maintenance contract. All maintenance on this OSSF must be performed by an approved provider and/or maintenance company, and a signed maintenance contract must be submitted to the Comal County Engineers Office.

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 the OSSF may be obtained from (City of New Braunfels).

WITNESS BY HAND(S) ON THIS 24<sup>TH</sup> DAY OF June 2025.

William M. Jega  
Printed Owner Name

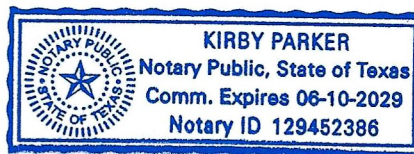
[Signature]  
Owner Signature

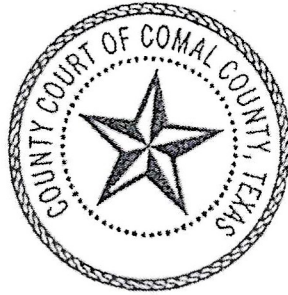
Tonya J. Joyce  
Printed Owner Name

[Signature] (William)  
Owner Signature

SWORN TO AND SUBSCRIBED BEFORE ME ON THIS 24<sup>TH</sup> DAY OF June, 2025.

[Signature]  
Notary Public, State of Texas  
Notary's Printed Name: Kirby Parker  
My Commission Expires: 6-10-29





This page has been added to comply with the statutory requirement that the clerk shall stamp the recording information at the bottom of the last page.

This page becomes part of the document identified by the file clerk number affixed on preceding pages.

Filed and Recorded  
Official Public Records  
Bobbie Koepp, County Clerk  
Comal County, Texas  
07/09/2025 01:21:31 PM  
TAMMY 2 Page(s)  
202506021178



*Bobbie Koepp*





420 Bear Creek Drive  
New Braunfels, Texas 78132  
210-844-1885

## On-Site Sewage Facility (OSSF) Maintenance Agreement

- i. **General:** This work for Hire Agreement (hereinafter referred to as "**Agreement**") is entered into by and between CME-Joytex-Prop A LLC (hereinafter referred to as "**Client**") and Eoff Septic Services (hereinafter referred to as "**Contractor**"). By this Agreement, **Contractor** agrees to render services, as described herein, and the **Client** agrees to fulfill his/her responsibilities under this agreement as described herein.
- ii. **Effective Dates:** Unless otherwise stated below, this agreement commences on the date the Licenses to Operate (LTO), date as noted below or upon receipt of full payment and runs for two (2) Year(s).  
  
Agreement Starting Date: (LTO Date) and Ending Date: (Two Years Thereafter).
- iii. **Services by Contractor:** **Contractor** will provide the following services (hereinafter referred to as the "Services"):
  - a. In compliance with **Agency** (TCEQ and/or County) and manufacturer's requirements, inspect and perform routine maintenance on the On-Site Sewage Facility (hereinafter referred to as the "OSSF") three (3) times per years (Every 4 Months).
  - b. Report to the appropriate regulatory authority and to the **Client**, as is required by both the State's on-site rules and local **Agency's** rules, if more stringent. All findings must be reported to the local agency within 14 days.
  - c. If any components of the OSSF are found to be in need of repair during the inspection, the **Contractor** will notify the **Client** of the repairs needed and provide any associated materials and labor costs.
  - d. Visit site in response to **Client's** request(s) for unscheduled service(s) within two business days from the date of **Contractor's** receipt of **Client's** request. All unscheduled responses are in addition to the fee covered by the **Agreement** and will be billed to the **Client**.
  - e. Provide notification of arrival to site to the homeowner or to site personnel. Additionally, written notification will be left at the site with site personnel or e-mailed to the **Client** upon completion of inspection, as well as, forwarded to **Agency** within 14 days.
- iv. **Site Location:** The Services are to be performed at the property located at:  
  
Site Address: 8672 River Road, New Braunfels, TX 78132 OSSF Permit #: TBA
- v. **Payment(s):** The fee for this **Agreement** only covers the **Services** described herein. This fee does not cover equipment, parts or labor supplied for repairs or charges for unscheduled **Client** requested trips to the site. By signing this **Contract**, the **Client** is authorizing the **Contractor** to remove any parts which were installed but not paid for at the end of 30 days. The **Client** is still responsible for any labor costs associated with the installation and removal of said parts.
- vi. **Client's Responsibilities:** The **Client** is responsible for each and all of the following:
  - a. Maintain chlorinator and provide proper chlorine supply, if OSSF is equipped with same.
  - b. Provide all necessary yard or lawn maintenance and removal of obstacles as needed to allow the OSSF to function properly, and to allow **Contractor** easy access to all parts of the OSSF.
  - c. Immediately notify **Contractor** and **Agency** of any and all problems with, including failure of the OSSF.
  - d. Upon receiving notification of services needed from the **Contractor**, it becomes the **Client's** responsibility to contact the **Contractor** to authorize the service. If the **Client** chooses to use a

Client Initial:   
Contractor Initial: 



-SEPTIC SERVICES-

- different contractor to perform the service, the **Client** is responsible for ensuring the **Contractor** holds the proper licenses (Installer II, Maintenance provider) and is certified by the manufacture. Also, the **Client** is responsible for ensuring proper notification is given to the **Agency**, as required by the State local Agency rules.
- e. **Clients** residing in Comal County should allow for samples at both the inlet and outlet to the OSSFF to be obtained by the **Contractor** for the purpose of evaluating, the OSSFs performance when requested by the **County**. If these samples are sent to a lab for testing, the **Client** will directly pay the lab for the cost of the testing plus pay the **Contractor** for all man-hours expending in providing this additional service at the current **Contractor's** labor rate.
  - f. Not allow backwash from water treatment or water conditioning equipment to enter the OSSF.
  - g. Maintain site drainage to prevent adverse effect on the OSSF.
  - h. Promptly and fully pay **Contractor's** bills, fee, or invoices are described herein.
- vii. **Access by Contractor:** **Contractor**, or personnel authorized by the **Contractor**, may enter the property at reasonable times without prior notice for the purpose of performing the above-described services. **Contractor** will require access to the OSSF electrical and physical components, including tanks, by means of manway or risers for the purpose of evaluations required by manufacture, and/or rules. If such manway or risers are not in place, excavation together with other labor and materials will be required, and will be billed to **Client** as an additional service. Any excavated soil is to be replaced as best as reasonable possible.
- viii. **Limits of Liability:** In no event shall the **Contractor** be liable for indirect, consequential, incidental or punitive damages, whether in contract tort of any other theory. In no event shall the **Contractor's** liability for damages exceed the price for the **Services** described in this **Agreement**.
- ix. **Entire Agreement:** this **Agreement** contains the entire **agreement** of the parties, and there are no other promises or conditions in any other **agreement**, oral or written.

**Client and/or Authorized Client Agent:**

Print Name: William M Joyner

Signature: [Signature]

Date: 24 June 2025 Email Address: [Signature] joynerhouse2017@gmail.com

Phone Number: (210) 388-8728

Site Address: 8672 River Road, New Braunfels, TX 78132 OSSF Permit #: TBA

Billing Address: 6904 Ivy Leaf, Schertz, TX 78154

=====Contractor=====

C Eoff Services Inc. dba Eoff Septic Services  
420 Bear Creek Drive  
New Braunfels, TX 78132  
210-844-1885

Signature: [Signature]

Name/Title: Keith R. Eismann / CFO

Date: 6-24-25

OSSF Maintenance Provider Licenses # - MP0001745

OSSF Installer II Licenses # - OS00029546



ON-SITE SEWAGE FACILITY  
Site Evaluation Report Information

Date: 7/1/2025

**Applicant Information:**

Name: CME-JOYTEX-PROP A LLC

Address: 6904 Ivy Leaf

City: Schertz State: Texas Zip: 78154

Phone: 210-388-8728

**Property Location:**

Lot: \_\_\_\_\_ Block: \_\_\_\_\_

Sub.: River-L 1A Lower Guadalupe Rural

Street/Road Address: 8672 River Road

City: New Braunfels State: Texas Zip: 78132

Unincorporated Area? Y or N y

Additional information \_\_\_\_\_

**Site Evaluator Information:**

Name: Hoyt Seidensticker

License OS0008771 Expires 8/31/2026

Company: Land Stewardship Services, LLC

Address: 124 Bristow Way

City: Boerne State: Texas Zip: 78006

Phone: (210) 414-6603

Email hoyt@landstewardshipservices.com

**Installer information:**

Name: Carl Eoff OS0029546

Company: Carl Eoff Services

Address: 420 Bear Creek Road

City: New Braunfels State: Texas Zip: 78132

Phone: (210) 669-6088 Fax: \_\_\_\_\_

**Schematic of Lot or Tract**

**Show:**

Compass North, adjacent streets, property lines, property lines, property dimensions, location of buildings, easements, water lines, and other surface improvements where known (drainage, patios, sidewalks).

Location of existing or proposed water wells within 150 feet of property.

Indicate slope or show contour lines from the structure to the farthest location of the proposed soil absorption or irrigation area.

Location of soil borings or dug pits (show location with respect to a known reference point).

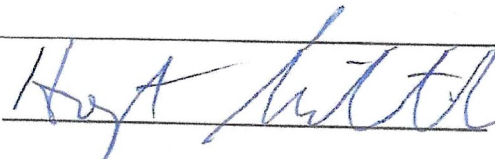
Location of natural, constructed, or proposed drainage ways, (streams, ponds, lakes, rivers, high tide of salt water bodies) water impoundments areas, cut or fill bank, sharp slopes and breaks.

**SITE DRAWING**

Lot Size: 0.975 acres

**SEE ATTACHED**

Signature of Site Evaluator



Site Evaluator License No OS0008771



# ON-SITE SEWAGE FACILITY Soil Evaluation Report Information

Date Soil Survey Performed: 7/1/2025

Site Location: 8672 River Road

Name of Site Evaluator: Hoyt Seidensticker Registration Number: OS0008771

Proposed Excavation Depth: 6 inches County: Comal

**Requirements:**

At least two soil excavations must be performed on the site, at opposite ends of the proposed disposal area.  
Location of soil boring or dug pits must be shown on the site drawing.  
For subsurface disposal, soil evaluation must be performed to a depth of at least two feet below the proposed excavation depth. For surface disposal, the surface horizon must be evaluated.

Describe each soil horizon and identify any restrictive feature on the form. Indicate depths where features appear.

Soil Boring Number <u>1</u>						
Depth (feet)	Texture Class	Soil Structure	Gravel Analysis	Drainage (Redox Features/ Water Table)	Restrictive Horizon	Observations (color, consistence)
0	II	Sandy loam	<30%	none	none	Brown
1						
2						
3						
4 <u>48 in</u>						
5						

Soil Boring Number <u>2</u>						
Depth (feet)	Texture Class	Soil Structure	Gravel Analysis	Drainage (Redox Features/ Water Table)	Restrictive Horizon	Observations (color, consistence)
0	II	Sandy loam	<30%	none	none	Brown
1						
2						
3						
4 <u>48 in</u>						
5						

## Features of Site Area

Presence of 100 year flood zone Yes x No     

Presence of adjacent ponds, streams, water improvements Yes x No     

Existing or proposed water well in nearby area Yes x No     

Organized sewage service available to lot or tract Yes      No x

Recharge feature within 150 feet Yes      No x

By my signature, I hereby certify that the information provided in this report is based on my site observations and are accurate to the best of my ability.

I understand that any misrepresentation of the information contained in this report may be grounds to revoke or suspend my license. The site evaluation determined the site is suitable for a Drip irrigation disposal system with Aerobic treatment

According to table XIII, the site is suitable for this proposed system. A copy of Table XIII has been given to the property owner to inform them of other alternatives based upon the result of this site evaluation

Hoyt Seidensticker  
Signature of Site Evaluator

7-7-25  
Date

7/7/2025

10:25 AM

Aerobic with Drip  
Irrigation System

# ON-SITE SEWAGE FACILITY DESIGN CRITERIA CME-JOYTEX-PROP A LLC

**Property Information:**St. Address: 8672 River RoadCity: New Braunfels State: TexasZip code: 78132**Predicted Quantity of Sewage (Q)**Water Saving Devices in Home (y/n): yesGallons/day (Q): 512Greywater included (yes/no): yes**Rate of Adsorption (Ra)**Application rate (g/sq. ft.): 0.25Minimum Adsorptive Area (sq. ft.): 2048Absorptive area installed (sq.ft.): 4380**Aerobic Unit**Required size of aerobic unit: 1000 gpdPretreatment Tank (gallons): 639Class 1 Aerobic Unit: NuWater B - 1000Pump tank total capacity (gal): 1000Chlorination: n/aPump Switch operation: Float systemDosing cycle quantity (gals): VariedCycling time: night timePump size and capacity: Franklin E-Series 20 GPM**House Information**No. of Bedrooms: see belowSq. footage (Approx.): see belowWater Supply: wellGallons per day 512**Supply Line from House**Length of supply line (approx. ft.): 122Type of supply line: SCH 40 PVCSize of Supply line (in): 3 or 4**Supply Line to Drip Irrigation Manifold**Length of supply line (approx. ft.): 280Type of supply line: Purple SCH 40Size of supply and flush line (in): 1Required linear foot of tubing: 1024Linear feet of tubing installed: 2190

All design criteria is in accordance with TCEQ, Title 30, TAC Chapter 285, Subchapter D, On-Site Sewage Facilities (Effective December 29, 2016). The above design was based on the best available information and should function properly under normal operating conditions. All changes or modifications made to design must be approved by the below signed designer.

Hoyt Seidensticker  
Hoyt Seidensticker, R.S. No. 3588

Date

7-7-25

Land Stewardship Services, LLC, 124 Bristow Way, Boerne, Texas 78006

Cell (210) 414-6603,

[hoyt@landstewardshipservices.com](mailto:hoyt@landstewardshipservices.com)

Effective Immediately: If any change(s) are made that require a revision to this design, a \$150.00 fee will be assessed. This includes, but not limited to, change(s) in the house size, number of bedrooms, location of house or one type of system to another.



7/7/2025  
10:25 AM  
Aerobic with Drip  
Irrigation System

# ON-SITE SEWAGE FACILITY DESIGN CRITERIA CME-JOYTEX-PROP A LLC

This design will be for Cabin 1 that is 1758 sq.ft. with 6 beds/people at 60 gallons per person for a total of 360 gpd

This design will be for Cabin 2 that is 1484 sq.ft. with 2 beds/people at 60 gallons per person for a total of 120 gpd

1 outhouse to be used by the guest at 8 people at 4 gallons per person for a total of 32 gpd

Therefore the total flow will be 512 gallons per day

Calculating the wastewater strength for the SFR

Number of people		8			
Flow, Q for the SFR		512			
BOD5	=	512 gpd	300.00	mg/ltr	*
			1000000		8.34 #/gal


BOD5 = 1.281024 Lbs of BOD produced per day  
3 Lbs of BOD a 1,000 gpd unit reduces  
-1.71898 Lbs of BOD to be reduced by

designed organic loading rate is 42.70 of the manufactures loading rate

Therefore will design for a 1000 gpd aerobic treatment unit

A class 1 aerobic treatment unit will be designed for these structures. Wastewater from the homes will flow to the pretreatment tank of the aerobic unit. From the pretreatment tank, effluent will flow to the treatment unit. Treated effluent will then flow to the pump tank for disposal through subsurface drip irrigation. All warning systems shall be installed with the aerobic unit.

All design criteria is in accordance with TCEQ, Title 30, TAC Chapter 285, Subchapter D, On-Site Sewage Facilities (Effective December 29, 2016). The above design was based on the best available information and should function properly under normal operating conditions. All changes or modifications made to design must be approved by the below signed designer.

  
Hoyt Seidensticker, R.S. No. 3588

  
Date

Land Stewardship Services, LLC, 124 Bristow Way, Boerne, Texas 78006  
Cell (210) 414-6603,  
[hoyt@landstewardshippservices.com](mailto:hoyt@landstewardshippservices.com)



7/7/2025  
10:25 AM  
Aerobic with Drip  
Irrigation System

# ON-SITE SEWAGE FACILITY DESIGN CRITERIA CME-JOYTEX-PROP A LLC

## Field loading Rates and Distribution

All flow from the treatment compartment of the aerobic unit will flow into a pump tank.  
The pump tank will be equipped with a submersible pump. The pump will dose the single zone.

All treated effluent will flow to the pump tank fitted with sensor floats on a float tree.

SPI control system or equivalent will be utilized to control the floats and timer in the pump tank to include a Omron, H3CR repeat cycle timer or equivalent.

A cyclic counter will be installed in the control system to measure the number of times the pumps come on. A elapsed time meter will be installed in the control system to measure the run time of the pumps. The counter and meter will be used to calculate the volume of effluent being dosed to the drip field. The counter and meter will be read by the maintenance provider when he conducts his inspection.

A. Single Franklin E-Series 20 gpm pump 20FE05P4-2W115 or equivalent in the pump tank

A filtering device capable of filtering particles large than 100 microns and that meets the manufactures requirements must be installed on the supply line

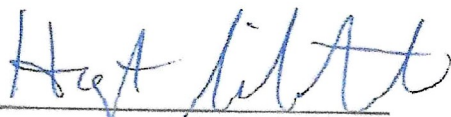
A pressure release bypass valve can be installed, by the installer, if desired on the supply line in the pump tank.

A Ball Valve must be installed on the return lines for pressure adjustment.

A pressure gauge must be installed on the return line to allow for monitoring of the pressure in the drip lines.

Ultra Air Release-Vacuum Breaking Valve or equivalent need to be installed in each zone at the highest point of both supply and return manifolds.

All design criteria is in accordance with TCEQ, Title 30, TAC Chapter 285, Subchapter D, On-Site Sewage Facilities (Effective December 29, 2016). The above design was based on the best available information and should function properly under normal operating conditions.  
All changes or modifications made to design must be approved by the below signed designer.



Hoyt Seidensticker R.S. No. 3588

7-7-25

Date

Land Stewardship Services, LLC, 124 Bristow Way, Boerne, Texas 78006

Cell (210) 414-6603,

[hoyt@landstewardshipservices.com](mailto:hoyt@landstewardshipservices.com)





7/7/2025  
10:25 AM  
Aerobic with Drip  
Irrigation System

# ON-SITE SEWAGE FACILITY DESIGN CRITERIA CME-JOYTEX-PROP A LLC

A Netafim flow meter or equivalent will be installed on the line from the pump tank to the drip field. It is recommended that the flow meter be read once a week to give the maintenance provider an idea of water usage. The flow meter shall be read by the maintenance provider when he conducts his inspection.

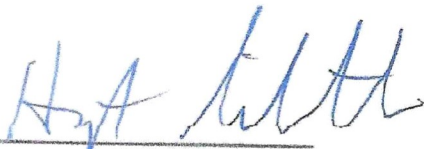
The area of the drip tubing will need to be shaped by the installer. The area will need to be leveled before installing the drip tubing. The drip tubing needs to be installed as level as possible.

Drip lines are to be placed on 2 ft centers and tied into a pressure manifold at one end and a return manifold which is run back to the pump tank for continuous flushing of the drip lines. A pressure gage and control valve on the return line at the pump tank is to be set at 35 psi, which maintains a minimum required pressure of the drip emitters. The drip lines will be flushed continuously when the pump doses the drip field. The drip lines will be continuously flushed.

If the drip lines are laid on top of the native soil and the native soil is scarified then a minimum of 6 inches of class II sandy loam or class III clay loam must be placed over the drip lines.

The drip lines will be laid on two foot centers and parallel with the contour of the land. The drip lines will not be laid perpendicular with the slope. The drip lines will then be covered with a minimum of 6 inches of the material.

All design criteria is in accordance with TCEQ, Title 30, TAC Chapter 285, Subchapter D, On-Site Sewage Facilities (Effective December 29, 2016). The above design was based on the best available information and should function properly under normal operating conditions. All changes or modifications made to design must be approved by the below signed designer.



7-7-25

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7/7/2025  
10:25 AM  
Aerobic with Drip  
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# ON-SITE SEWAGE FACILITY DESIGN CRITERIA CME-JOYTEX-PROP A LLC

Then entire area where the drip lines have been installed or disturbed, must be sodded with a type of vegetative cover or seeded curlex installed or seeded then a curlex blanket laid over the area or an equivalent county approved method of cover that is considered a high water user prior to system operation.

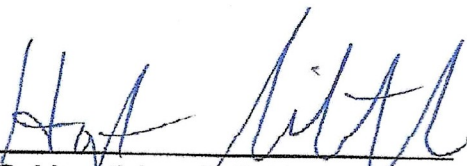
All electrical wiring will conform to the National Electrical Code, according to 30 TAC 285.32(d)(5) and 30 TAC 285.34(c). All electrical components shall have an electrical disconnect in direct vision from the place where the electrical devise is being serviced.

The aerobic treatment unit will be installed inside of the 100 year flood plain and buoyancy calculations are provided.

The installer must install the control panel and the air compressor for the aerobic unit above the established and marked BFE

All tanks must have inspection or cleanout ports located on the tank top over all inlet and outlet devises. Each inspection or cleanout port must be offset to allow for pumping of the tank. The ports may be configured in any manner as long as the smallest dimension of the opening is at least 12 inches, and large enough to provide for maintenance and equipment removal. All inspection and cleanout ports shall have riser over the port openings, which extend to 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

All design criteria is in accordance with TCEQ, Title 30, TAC Chapter 285, Subchapter D, On-Site Sewage Facilities (Effective December 29, 2016). The above design was based on the best available information and should function properly under normal operating conditions. All changes or modifications made to design must be approved by the below signed designer.

  
Hoyt Seidensticker, R.S. No. 3588

7-7-25  
Date



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Cell (210) 414-6603,  
[hoyt@landstewardshipservices.com](mailto:hoyt@landstewardshipservices.com)



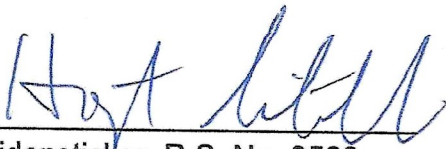
7/7/2025  
10:25 AM  
Aerobic with Drip  
Irrigation System

# ON-SITE SEWAGE FACILITY DESIGN CRITERIA CME-JOYTEX-PROP A LLC

The risers shall have inside diameters which are equal to or larger than the inspection or cleanout ports. Risers must be permanently fastened to the tank lid or cast into the tank. The connection between the riser and the tank lid must be watertight. Risers must be fitted with removable watertight caps and protected against unauthorized intrusions by either a padlock, a cover that can be removed with specialized tools, a cover having a minimum net weight of 29.5 kilograms (65 pounds) set into a recess of the tank lid, or another means approved by the executive director. Risers and riser caps exposed to sunlight must have ultraviolet light protection. Risers must be able to withstand the pressures created by the surrounding soil.

A maintenance contract for the entire system must be established at time of installation with someone holding a license to maintain the install aerobic system.

All design criteria is in accordance with TCEQ, Title 30, TAC Chapter 285, Subchapter D, On-Site Sewage Facilities (Effective December 29, 2016). The above design was based on the best available information and should function properly under normal operating conditions. All changes or modifications made to design must be approved by the below signed designer.



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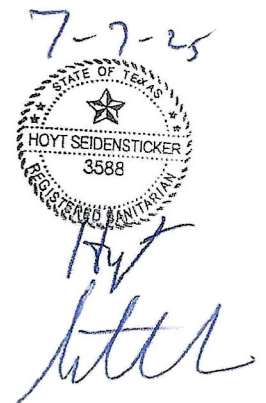
7-7-25

Date



# CME-JOYTEX-PROP A LLC

Gallons per Day	512
Application Rate (gal/sq. ft/day)	0.25
Square footage required	2048
Feet between Lines	2
Feet between emitters	2
Number of zones	1
Linear feet of dripline	2190
Number of emitters	1095
Linear Feet of Tubing Per Zone	2190
Type of emitters	Pressure compensating
Determine drip field pressure (psi)	35
Feet of head pressure	80.85
gph/emitter	0.61
gallons per minute per Zone	11.1
gallons per hour	667.95
minutes per dose	7
Minutes Per Day Per Zone	46
gallons per day	512
Doses per Zone	7
Total Doses per Day	7
Time Between Doses in Hours	3.4
Total Run time in Minutes	45.99146643
Number of Connections to Manifold	5
Linear feet of dripline per connection	438
minimum pump capacity (gpm)	11.1
header pipe size (inches)	1
Pressure loss in 100 ft. pipe (psi)	1.58
Friction head in 100 ft. of pipe (ft of head)	3.6498
Static head	
height from pump to top of tank (ft.)	4
Elevation increase (ft.)	5
Total static head (ft.)	9
Friction head	
equivalent length of fittings (ft.)	1
Distance from pump to field (ft.)	280
Total equivalent length of pipe (ft.)	281
total effective head (ft.)	10.26
head required at drip field (ft.)	80.85
Head loss through filters or headworks (ft.)	23.10
head loss through valves (ft.)	3.47
Minimum total head (ft.)	117.67





CME-JOYTEX-PROP A LLC  
 8672 River Road  
 New Braunfels, TX 78132  
 River-L 1A Lower Guadalupe-Rural  
 Comal County .975 Acres

512 GPD  
 Drain Field Configuration

Single Zone Field  
 10 Lines at 133' = 1,330 LF  
 4 Lines at 120' = 480 LF  
 2 Lines at 100' = 200 LF  
 2 Lines at 90' = 180 LF

5 Connections at 266'  
 2 Connections at 240'  
 1 Connections at 200'  
 1 Connections at 180'

Total Linear Feet - 2,190'  
 Total SF - 4,380

Required SF (512 GPD/0.25 - 2,048  
 SF Over required - 2,332  
 Percent Over - 53.2%

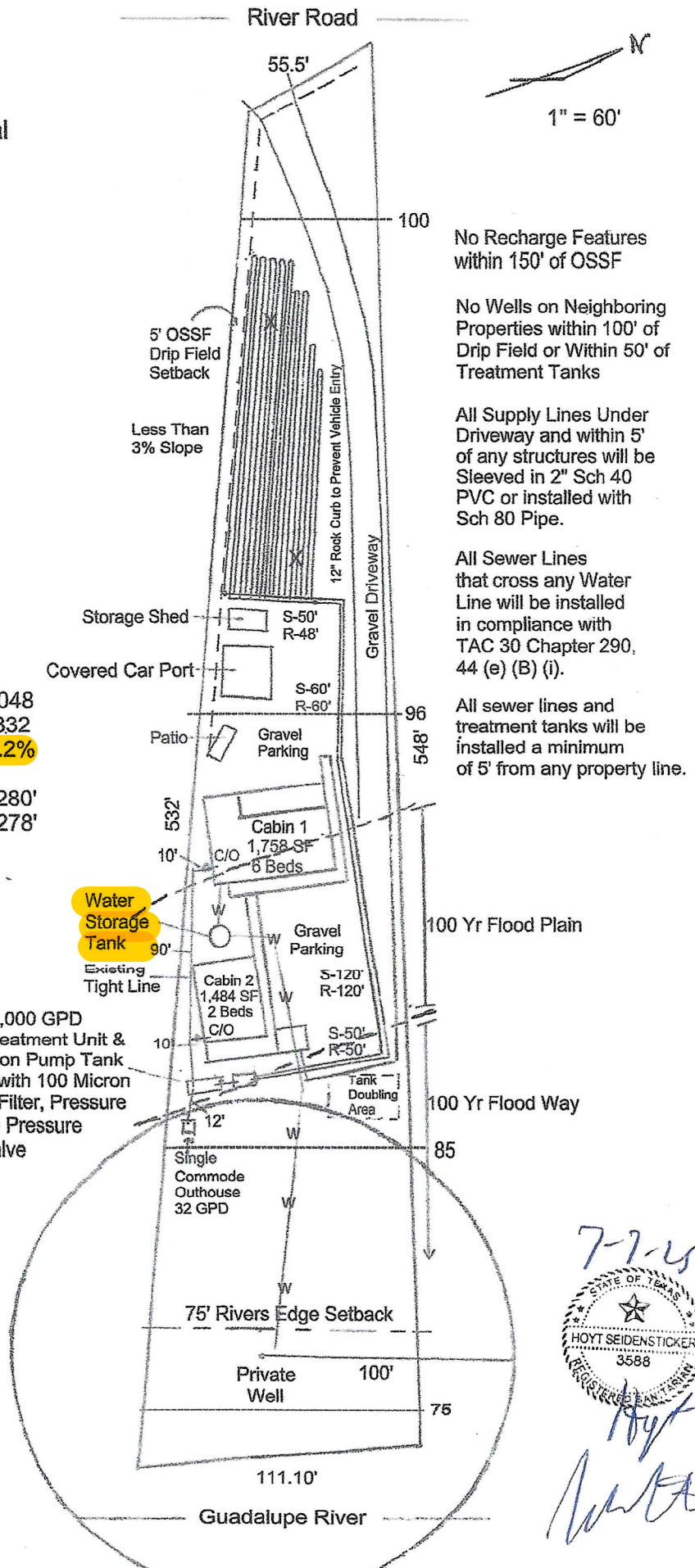
Total 1" Purple Sch 40 Supply - 280'  
 Total 1" Purple Sch 40 Supply - 278'

X Marks Test Holes

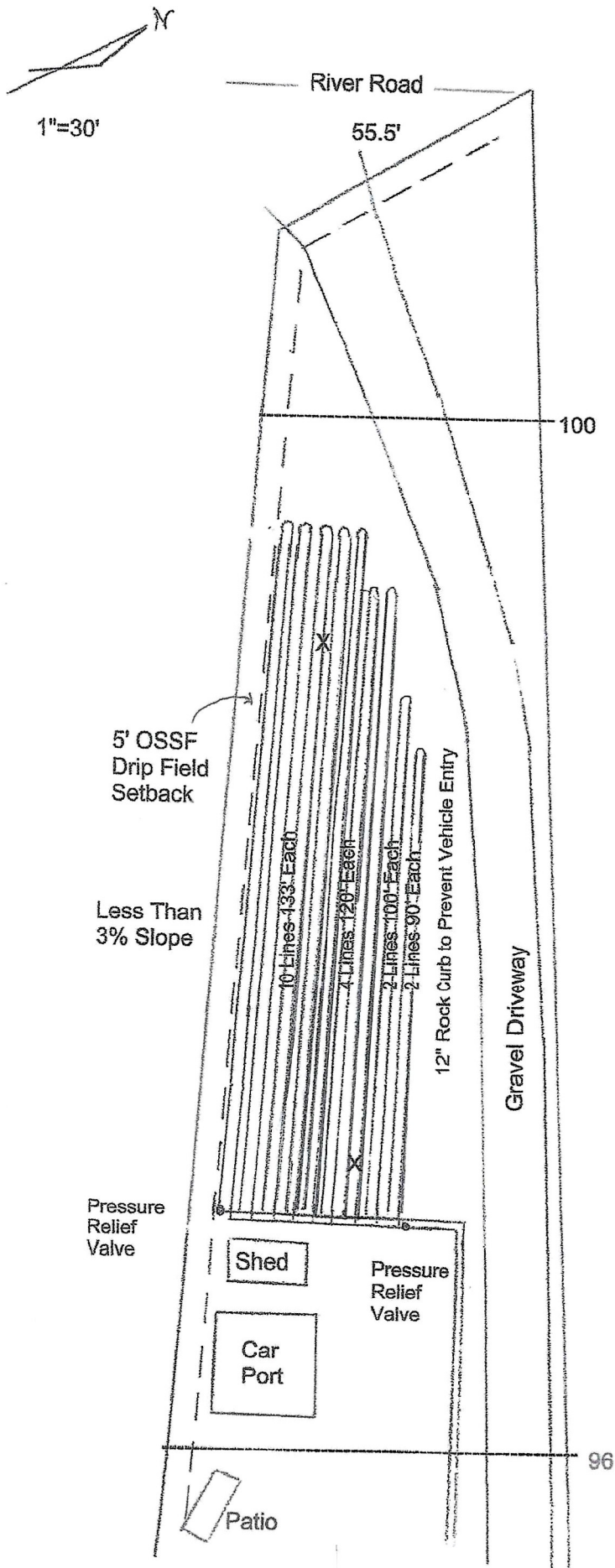
ATU and Pump Tank  
 will be installed at a depth  
 to ensure that flotation will  
 not occur during a flooding  
 event. Top of Tank to be  
 no less that 1' below native  
 ground surface.

B-1,000, 1,000 GPD  
 Aerobic Treatment Unit &  
 1,000-Gallon Pump Tank  
 Equipped with 100 Micron  
 Spin Disk Filter, Pressure  
 Gage, and Pressure  
 Control Valve

Water Well will not serve more than  
 25 People or 15 Connections



7-7-15  
 STATE OF TEXAS  
 HOYT SEIDENSTICKER  
 3588  
 REGISTERED SANITARIAN  
 [Signature]



CME-JOYTEX-PROP A LLC  
 8672 River Road  
 New Braunfels, TX 78132  
 River-L 1A Lower Guadalupe-Rural  
 Comal County .975 Acres

512 GPD  
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 SF Over required - 2,332  
 Percent Over - 53.2%

Total 1" Purple Sch 40 Supply - 280'  
 Total 1" Purple Sch 40 Supply - 278'

X Marks Test Holes

No Wells on Neighboring  
 Properties within 100' of  
 Drip Field or Within 50' of  
 Treatment Tanks

No Recharge Features  
 within 150' of OSSF





# Specs

Aerobic with Drip irrigation Distribution system

CME-Joytex-Prop A LLC

River-L 1A Lower Guadalupe-rural, .975 acres

8672 River Road

New Braunfels, Texas 78132

Comal County

100 yr flood plain does exist on this tract

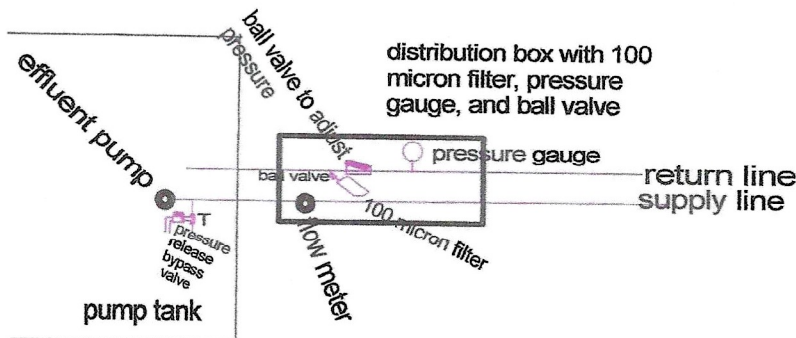
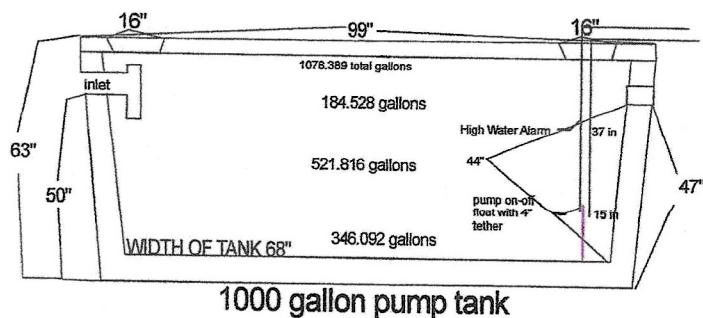
Effective September 1, 2023, inspection and cleanout ports shall have risers over the port opening, which extend to two inches above grade. A secondary plug, cap, or other suitable restraint system shall be provided below the riser cap to prevent tank entry if the cap is unknowingly damaged or removed.

The risers shall have inside diameters which are equal to or larger than the inspection or clean out ports. Risers must be permanently fastened to the tank lid or cast into the tank. The connection between the riser and the tank lid must be watertight. Risers must be fitted with removable watertight caps and protected against unauthorized intrusions by either a padlock, a cover that can be removed with specialized tools, a cover having a minimum net weight of 29.5 kilograms (65 pounds) set into a recess of the tank lid, or any other means approved by the executive director. Risers and riser caps exposed to sunlight must have ultraviolet light protection. Risers must be able to withstand the pressures created by the surrounding soil.

vacuum relief valves must be installed in each zone at the highest point of the supply line and return manifolds

The referenced property is located within the Edwards Aquifer Contributing Zone. This property is exempt from a contributing zone plan because it is not a regulated activity according to Chapter 213.5(h)(2) "exempt ... Does not exceed 20% impervious cover on the site." There is no recharge feature within 150' of the proposed septic system.

All pipes from the structures to the septic tank shall be no less than 1/4 inch fall per foot of pipe

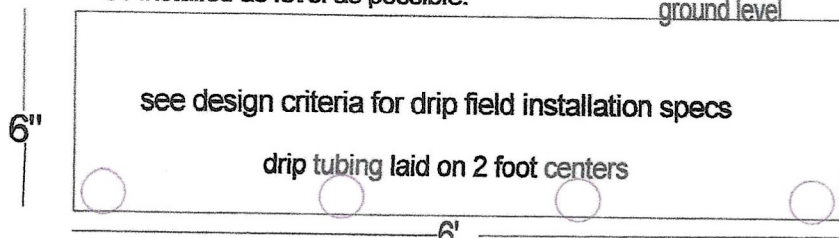


All external electrical lines must be in gray conduit

The area will need to be leveled before installing the drip tubing. the drip tubing needs to be installed as level as possible.



Where ANY water line crosses sewer line, water line must be sleeved in a minimum of sch 40 pvc, 10 feet on either side of the intersection and must maintain a 1' separation distance at the intersection and I certify that this meets the requirements of TAC Chapter 290, Subchapter D rules for Public Drinking Water Systems, Rule 290.44



Where ANY sewer line crosses driveway or sidewalk the sewer line must be either sleeved in a minimum of sch 40 pvc or installed sch 80 pvc.

native soil

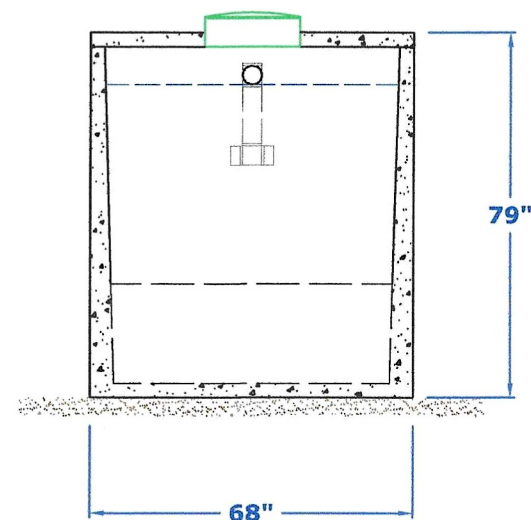
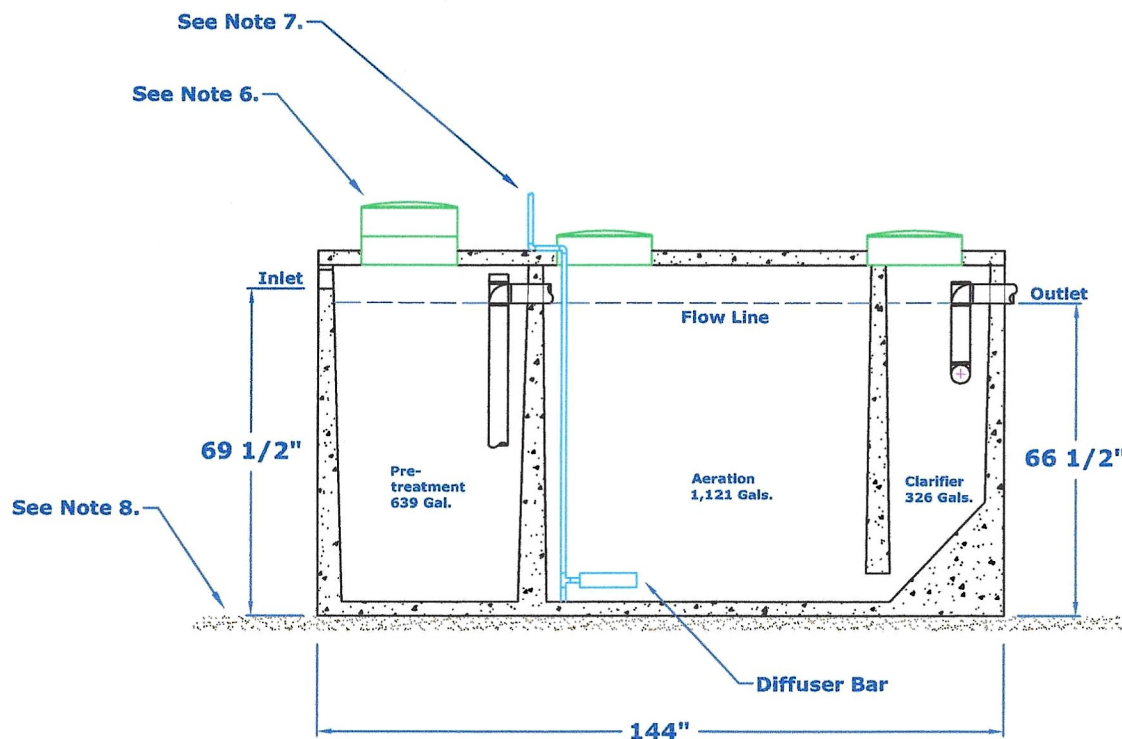
Cross Section of Drip Irrigation single connection

**MINIMUM EXCAVATION DIMENSIONS:**

Width: 80"  
Length: 156"

**GENERAL NOTES:**

1. Plant structure material to be precast concrete and steel.
2. Maximum burial depth is 30" from slab top to grade.
3. Weight = 16,600 lbs.
4. Treatment capacity is 1,000 GPD.
5. BOD Loading = 3.00 lbs. per day.
6. 20" Ø access riser w/ lid (Typical 3). Optional extension risers available.
7. 1" Sch. 40 PVC Air Line to Bio-Robic B-1000 Air Compressor (Max. 50 Lft from Plant).
8. 4" min. compacted sand or gravel pad by Contractor



**NuWater B-1000  
Aerobic Treatment Plant (Assembled)**

**Model: B-1000**

July, 2012  
By: A.S.

**Scale:**

\* All Dimensions subject to allowable specification tolerances.

Dwg. #: ADV-B1000-2



# NU WATER

## B-1000

### Flotation Calculations

Model: B-1000 & B-1000NR

Description: NuWater 1000 GPD Aerobic Treatment & Nitrogen Reduction Units

Given

Weight of Structure w/ Slab Top: 17,570 lbs.  
Weight of Water: 62.4 pcf  
Weight of Soil: 110 pcf  
Volume of Structure at Flow Line: Pretreatment Compartment = 639 gal.  
Aeration Compartment = 1,121 gal.  
Clarifier Compartment = 326 gal.

A. Weight of unit at operating condition "Down Forces":

I. Structure Weight w/ Liquid: Unit weight + (total volume/7.48 gals/cu ft)62.4 lb/ft<sup>3</sup>  
17,570 lbs + (2,086 / 7.48)x62.4 = 34,980 lbs.  
II. Weight of soil: (2" overburden) (L x W x H)110 pcf  
(12.167'x5.833'x2/12) x 110 lb/ft<sup>3</sup> = 1,303 lbs.  
III. Total Weight: Structure weight w/ Liquid + Total Soil Weight  
34,980 lb + 1,303 lb = 35,110 lbs.

B. Weight of water displacement "Up Forces": (L x W x H) x 62.4  
(at 81" depth of bury) (12.167'x5.833'x6.75')x62.4 lb/ft<sup>3</sup>= 29,893 lbs.

C. Factor of Safety (FS): Required FS:  $\geq 1$

Down Forces/Up Forces  
34,980 / 29,893 = 1.17

When the FS = 1 the "down forces" will equal the "up force" and the structure will be in equilibrium.

When the FS is less than 1 the "up force" will be greater than the "down forces" and floating will occur.

X When the FS is greater than 1 the "up force" will be less than the "down forces" and floating will not occur.

Conclusion:

Total unit weight at operating condition "down Forces" of **34,980 lbs.** is greater than the weight of water displacement "up forces" **29,893 lbs.** therefore the upward forces causing flotation will not control.

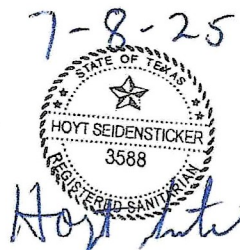
Minimum burial depth:

For functional purposes the structure must be buried 2" below grade.

Approved By: \_\_\_\_\_

Date: \_\_\_\_\_

Seal:



Ronald L Berg  
Engineering Services, LLC.  
Texas Registered Firm No. F-1570

"Providing Concrete Environmental Solutions"

# LAND STEWARDSHIP SERVICES, LLC.

124 Bristow Way  
Boerne, Texas 78006  
hoyt@landstewardshipservices.com

November 16, 2021

RE: 1000-gallon dual compartment tank Buoyancy Calculations

1000-gallon dual septic tank

Volume of Tank =  $H * W * L = 5.5' * 5.25' * 8.08' = 233 \text{ cf.}$

Upward Buoyancy Force =  $233 \text{ cf} * 8.34 \text{ \#/gal} * 7.48 \text{ gal/sf} = 14560 \text{ lbs}$

Overburden w/ 6" soil =  $L * W * \text{fill height} * \text{wt of fill/cf} = 8.08' * 5.5' * .5' * 75 \text{ \#/cf} = 1666.5 \text{ lbs}$

Tank Weight of Tank = 10000 lbs

Downward force = tank & Min. water & overburden =  $10000 \text{ lbs} + (1078 \text{ gallons} * 8.34) + 1666 \text{ lbs} = 20656 \text{ lbs}$

Downward force > Upward Force  $20656 \text{ lbs} > 14560 \text{ lbs}$

Therefore, tank will not float with min. 6 inches of cover.

If you have any questions, please call me at (210) 414-6603.

Sincerely,

Hoyt Seidensticker, R.S.



A handwritten signature in cursive script that reads "Hoyt Seidensticker".

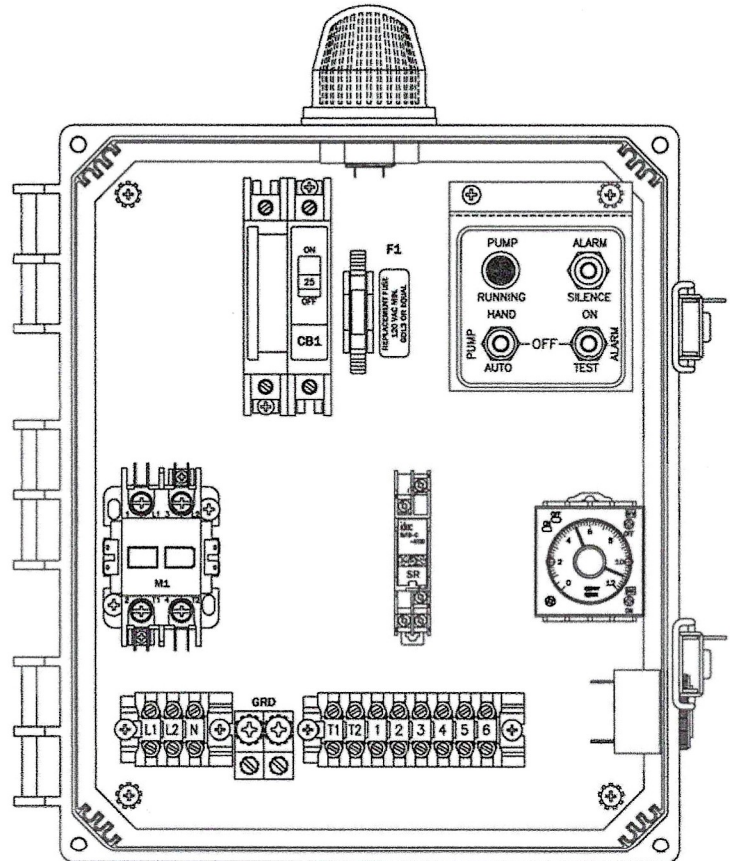


## CONTROL PANEL

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

#### **Features & Benefits**

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



(Standard 50A806 Model Shown)

#### **Available Options(\*)**

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

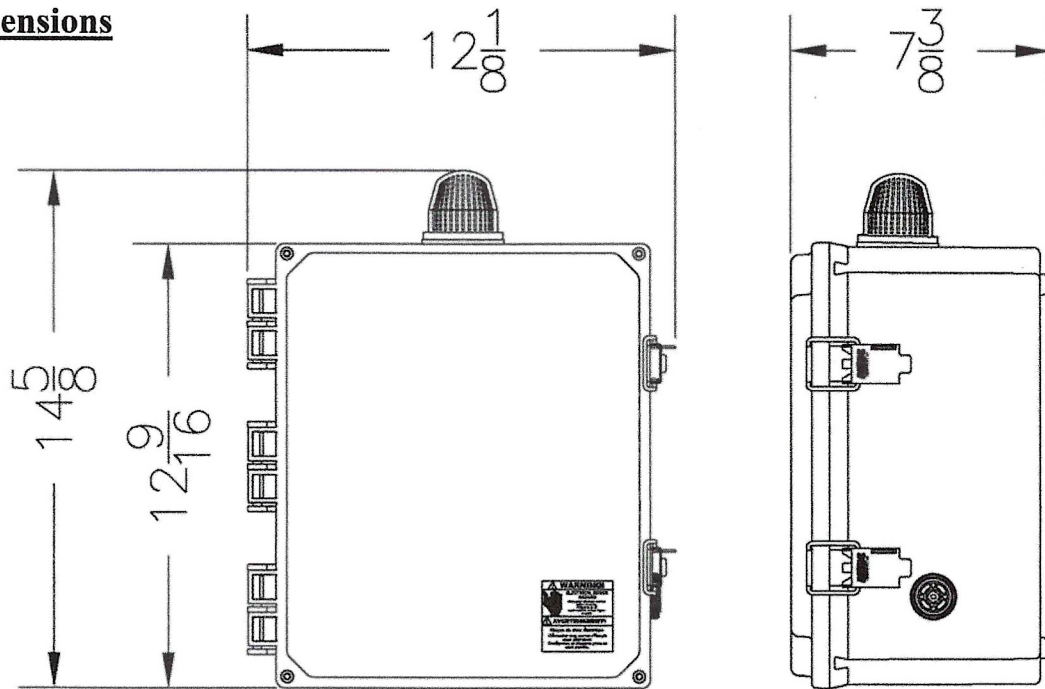


\*Note: Consult the factory for other available options. Also, some options may require an increase in the enclosure size.

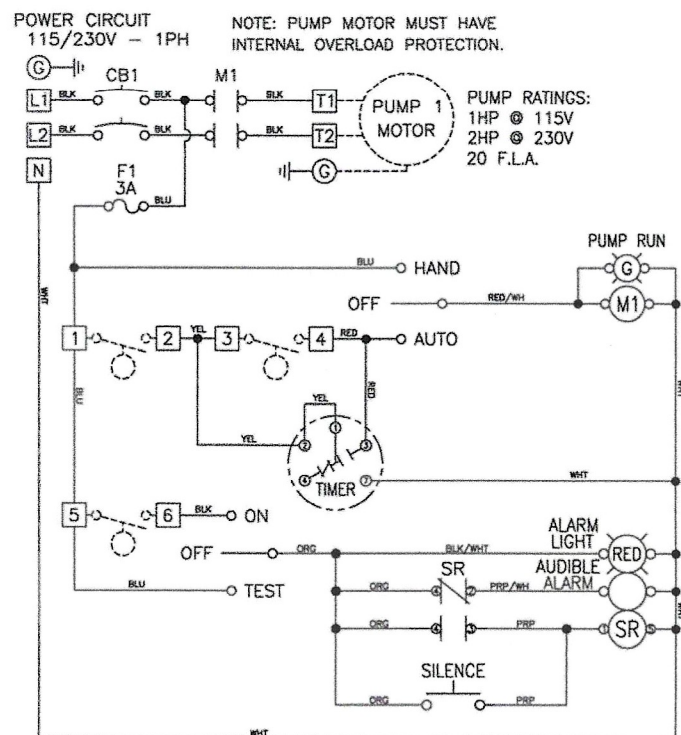


## "50A806" Model Simplex 115/230V 1 Phase Time Dosing Panel

### Panel Dimensions



### Panel Schematic





## WE SERIES - 1/2 HP

### APPLICATIONS

High head filter effluent, filtered effluent service, aeration, ornamental fountains, water fountains

### FEATURES

- Franklin Electric submersible motor
- Heavy-duty, 300 V, 10 ft (3 m) SJOW motor stripped leads
- Removable built-in check valve
- Non-corrosive thermoplastic discharge and motor brackets
- Proven "PPO" staging allows close tolerances and increased performance
- High quality top bearing for maximum durability and years of reliable service
- Hex rubber bearing has extra-large surface for shaft stability and multiple flow channels for keeping particles away from bearing surfaces
- Stainless steel up thrust washer prevents excessive wear in service applications
- CCSAus listed



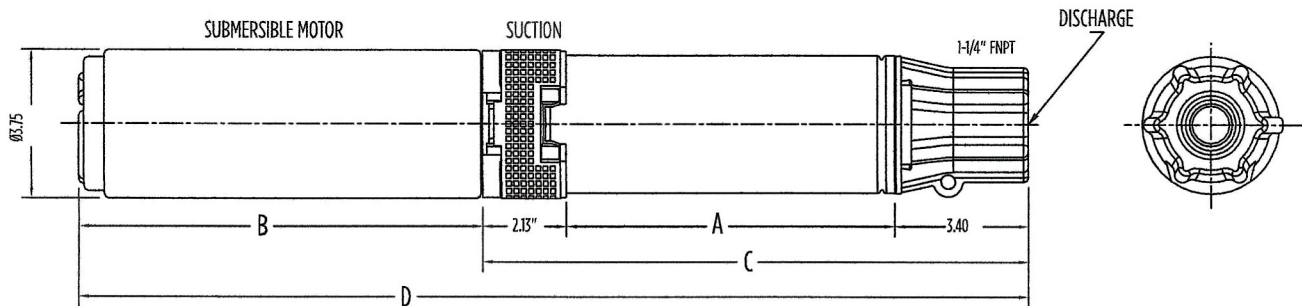
### SERIES SPECIFICATIONS

Item No.	Model	HP	Volts	Hz	Amps		Watts	Wires	Well Size	Performance (GPM @ Height in Feet)				
					FLA	Start				50'	100'	150'	200'	250'
558221	WE10G05P4-21	1/2	115	60	10	64.4	670	2	4"	15	13	10	7	2
558222	WE10G05P4-22	1/2	230	60	5	23.2	670	2	4"	15	13	10	7	2
558223	WE20G05P4-21	1/2	115	60	10	64.4	670	2	4"	26	20	8	-	-
558224	WE20G05P4-22	1/2	230	60	5	23.2	670	2	4"	26	20	8	-	-
558225	WE30G05P4-21	1/2	115	60	10	64.4	670	2	4"	32	14	-	-	-
558226	WE30G05P4-22	1/2	230	60	5	23.2	670	2	4"	32	14	-	-	-

# EFFLUENT PUMPS

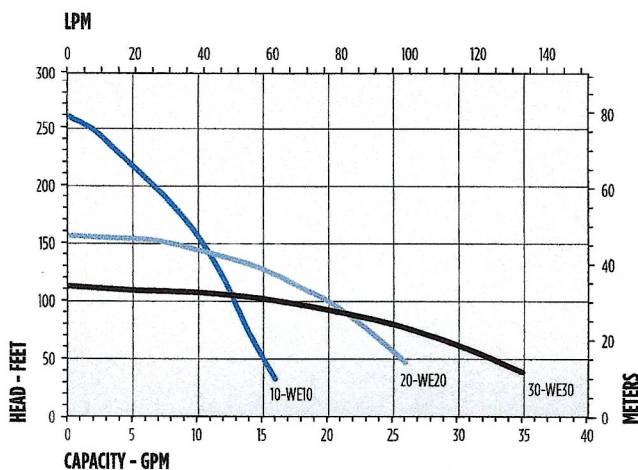
## WE SERIES - 1/2 HP

### ENGINEERING DATA



Model	A	B	C	D
2-Wire 10 gpm	7" 17.78 cm	9.38" 23.83 cm	12.53" 31.83 cm	21.91" 55.65 cm
2-Wire 20 gpm	9" 22.86 cm	9.38" 23.83 cm	14.53" 36.91 cm	23.91" 60.73 cm
2-Wire 30 gpm	6.5" 16.51 cm	9.38" 23.83 cm	12.03" 30.56 cm	21.41" 54.38 cm

### PERFORMANCE DATA



### CONSTRUCTION

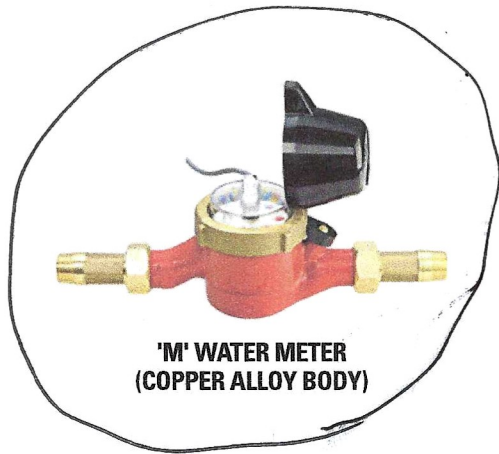
Motor Housing	Stainless steel
Impeller Material	Celcon
Diffuser	Glass-filled PPO
Power Cord	10' SJOW
Check Valve	Celcon
Fasteners	Stainless steel
Shaft	Stainless steel
Bearings	PEEK
Discharge	Glass-filled polypropylene



## WATER METERS

# 'M' AND 'WMR' WATER METERS

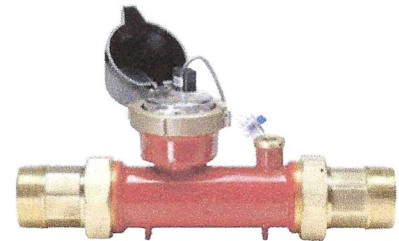
**INDUSTRY'S SMALLEST  
WATER METERS WITH THE  
BEST PERFORMANCE**



**'M' WATER METER  
(COPPER ALLOY BODY)**



**'M' WATER METER  
(PLASTIC BODY)**



**'WMR' WATER METER  
(CAST IRON BODY)**

### PRODUCT ADVANTAGES

- Industry's smallest water meters provide  $\pm 2\%$  accuracy over a wide range of flows.
- Magnetically driven sealed register are stainless steel encapsulated and guaranteed not to accumulate moisture or fog.
- 'M' Water Meters utilize the multi-jet principle assuring an equally distributed load on the impeller minimizing wear and maintaining accuracy.
- 'M' Water Meters have only one moving part, the impeller, is in contact with the water for minimum wear and the utmost reliability.
- 'WMR' Water Meters contain an in-line axial turbine which allows foreign matter to pass through the meter without clogging.
- Wide clearances in the measuring chamber provide full pipe flow measurements and high reliability.

### APPLICATIONS

- For main supply lines in agriculture and landscape applications

### SPECIFICATIONS - 'M' WATER METERS

- Iron Body Sizes: 3/4", 1" and 1 1/2"
- Plastic Body Sizes: 3/4" and 1"
- Maximum Working Pressure: 140 psi
- Maximum Liquid Temperature: 122° F
- Body Material: Corrosion Proof Copper Alloy or Polypropylene (plastic)
- Connections: Male Pipe Thread
- Register Options: Reed Switch, Photo Diode or ER Digital
- Reed Switch Register Pulse Outputs: 0.1 or 1.0
- Photo Diode Register Pulse Outputs: 0.0015, 0.0021 or 0.0074
- ER Digital Register Pulse Outputs:  
Gallons - .1, 1, 10, 100, 1000  
Acre Feet - .0001, .001, .01, .1
- Straight Pipe Installation Requirement: None

### SPECIFICATIONS - 'WMR' WATER METER

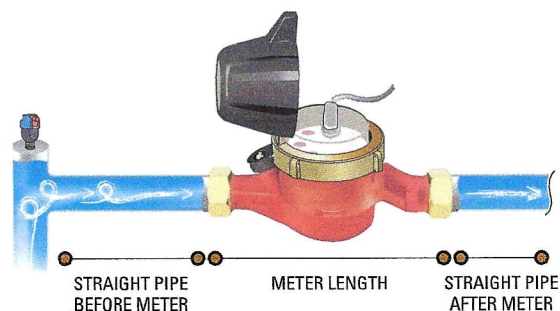
- Size: 2"
- Maximum Working Pressure: 230 psi
- Maximum Liquid Temperature: 131° F
- Body Material: Cast Iron with Polyester Coating
- Connections: Male Pipe Thread
- Register Options: Reed Switch, Photo Diode or ER Digital
- Reed Switch Register Pulse Outputs: 10 or 3.26
- Photo Diode Register Pulse Outputs: 1.0 or 0.055
- ER Digital Register Pulse Outputs:  
Gallons - .1, 1, 10, 100, 1000  
Acre Feet - .0001, .001, .01, .1
- Straight Pipe Installation Requirement: 10 x D upstream and 5 x D downstream (D=meter size)



## 'M' AND 'WMR' WATER METERS

### STRAIGHT PIPE INSTALLATION REQUIREMENT

METER SIZE	UPSTREAM DISTANCE	DOWNSTREAM DISTANCE	METER LENGTH	TOTAL REQUIREMENT
'M' WATER METERS - 0 D X 0 D				
3/4"	0"	0"	11 1/4"	11 1/4"
1"	0"	0"	14 3/4"	14 3/4"
1 1/2"	0"	0"	17 1/4"	17 1/4"
'WMR' WATER METER - 10 D X 5 D				
2"	20"	10"	14"	44"



### INSTALLATION REQUIREMENTS

#### 'M' WATER METERS

- Dial face must be horizontal
- There are no straight pipe installation requirements
- Prior to installation of the meter, the pipeline should be thoroughly flushed
- Meter must be installed so that the pipe will be full of water at all times during metering
- To eliminate air in the system, continuous acting air vents of proper size and type are required

### INSTALLATION REQUIREMENTS

#### 'WMR' WATER METER

- The meter may be installed in any position - for non-horizontal positions, the flow should be upwards
- Straight pipe installation requirement of 10 x diameter pipe upstream (before the meter) and 5 x diameter pipe downstream (after the meter)
- Prior to installation of the meter, the pipeline should be thoroughly flushed
- Meter must be installed so that the pipe will be full of water at all times during metering
- To eliminate air in the system, continuous acting air vents of proper size and type are required

### REED SWITCH REGISTERS

METER SIZE	REGISTER TOTALIZER	VOLUME UNIT	PULSE OUTPUT (GALS/PULSE)	POINTER 1	POINTER RESOLUTION POINTER 2	POINTER 3
3/4" 'M'	GALLON	GALLON x 10	0.1	x 0.01 GALLON	x 0.1 GALLON	x 1.0 GALLON
3/4", 1" & 1 1/2" 'M'	GALLON	GALLON x 100	1.0	x 0.10 GALLON	x 1.0 GALLON	x 10 GALLON
2" 'WMR'	GALLON	GALLON x 1,000	10	x 1.0 GALLON	x 10 GALLON	x 100 GALLON
2" 'WMR'	ACRE FEET	ACRE FEET x 1.000	3.26	x 0.000001	x 0.00001	x 0.0001



### PHOTO DIODE REGISTERS

METER SIZE	REGISTER TOTALIZER	VOLUME UNIT	FLOW RATE UNITS	POINTER 1	POINTER RESOLUTION POINTER 2	POINTER 3
3/4" 'M'	GALLON	GALLON x 10	0.0015	x 0.01 GALLON	x 0.1 GALLON	x 1.0 GALLON
1" 'M'	GALLON	GALLON x 100	0.0021	x 0.1 GALLON	x 1.0 GALLON	x 10 GALLON
1 1/2" 'M'	GALLON	GALLON x 100	0.0074	x 0.1 GALLON	x 1.0 GALLON	x 10 GALLON
2" 'WMR'	GALLON	GALLON x 1,000	1.0	x 1.0 GALLON	x 10 GALLON	x 100 GALLON
2" 'WMR'	GALLON	GALLON x 1,000	0.055	x 1.0 GALLON	x 10 GALLON	x 100 GALLON



### ELECTRONIC (ER) DIGITAL REGISTERS

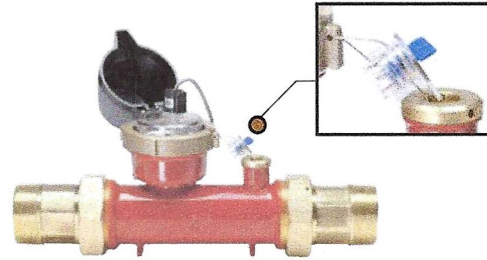
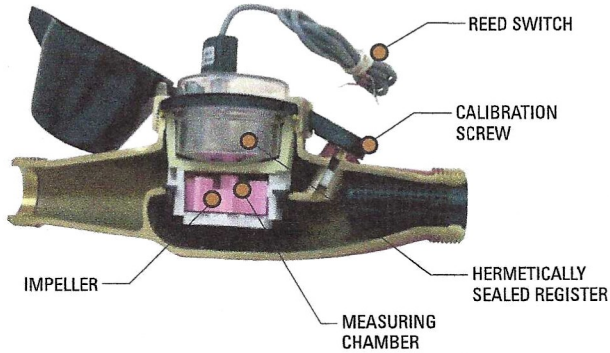
METER SIZE	REGISTER TOTALIZER	PULSE OUTPUT (GALS/PULSE)	FLOW RATE UNITS
3/4", 1", 1 1/2" 'M'	GALLON	.1, 1, 10, 100, 1000	GPM
3/4", 1", 1 1/2" 'M'	ACRE FEET	.0001, .001, .01, .1	GPM
2" 'WMR'	GALLON	.1, 1, 10, 100, 1000	GPM
2" 'WMR'	ACRE FEET	.0001, .001, .01, .1	GPM





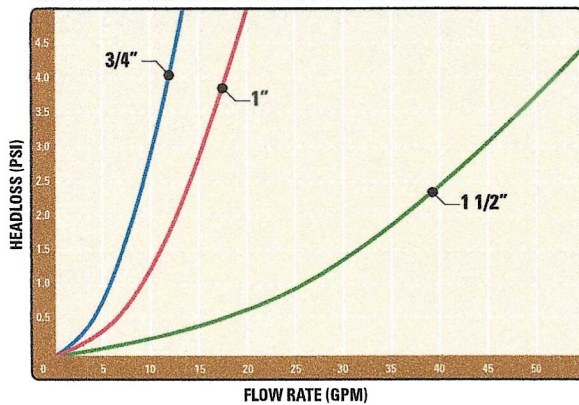
## 'M' AND 'WMR' WATER METERS

**'M' WATER METER CUT-AWAY VIEW**

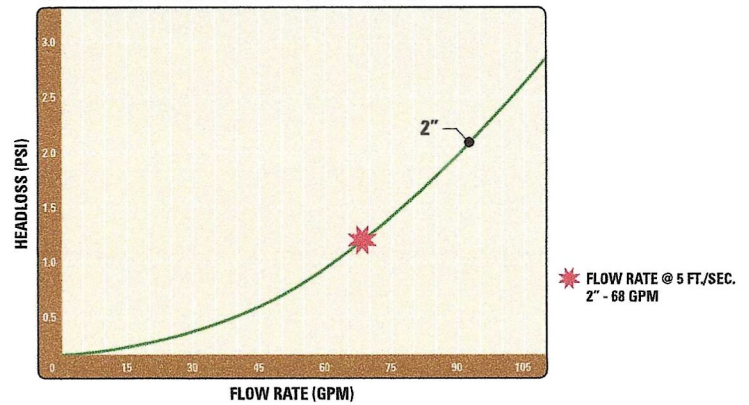


**'WMR' METER TAMPER PROOF SEAL**  
ENSURES UNAUTHORIZED REMOVAL AND/OR TAMPERING OF THE METER REGISTER

**'M' WATER METERS HEADLOSS CHART**



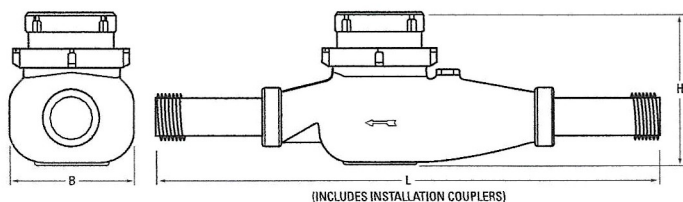
**'WMR' WATER METER HEADLOSS CHART**



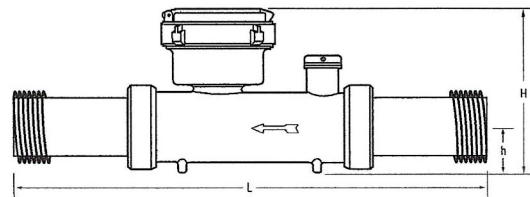
### PERFORMANCE DATA

METER SIZE	LOWEST FLOW RATE +/- 5% ACCURACY	LOWEST FLOW RATE +/- 2% ACCURACY	NOMINAL FLOW RATE +/- 2% ACCURACY	MAXIMUM FLOW RATE +/- 2% ACCURACY
3/4" 'M'	0.2 GPM	0.9 GPM	11 GPM	14 GPM
1" 'M'	0.3 GPM	1.2 GPM	15.4 GPM	20 GPM
1 1/2" 'M'	0.9 GPM	3.5 GPM	44 GPM	55 GPM
2" 'WMR'	2.0 GPM	8.8 GPM	88 GPM	110 GPM

**'M' WATER METERS**



**'WMR' WATER METER**



### DIMENSIONS & WEIGHT

METER SIZE	H HEIGHT	h HEIGHT	L LENGTH	B WIDTH	WEIGHT PLASTIC	WEIGHT IRON
3/4" 'M'	4 1/4"	-	11 1/4"	3 3/4"	3.5 LBS.	4.4 LBS.
1" 'M'	4 1/4"	-	14 3/4"	4 1/4"	4.8 LBS.	6.1 LBS.
1 1/2" 'M'	6 3/4"	-	17 1/4"	15"	-	15 LBS.
2" 'WMR'	4 3/4"	1 1/2"	14"	-	-	11 LBS.



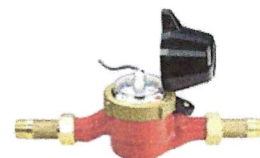
## 'M' AND 'WMR' WATER METERS

### ORDERING INFORMATION - REED SWITCH AND PHOTO DIODE REGISTERS

ITEM NUMBER	MODEL NUMBER	METER SIZE	BODY MATERIAL	REGISTER TYPE	GALLONS PER PULSE
70261-002446	36M201TP.1	3/4" 'M'	PLASTIC	REED SWITCH/GALLON	0.1
70261-002472	36M201TP1			REED SWITCH/GALLON	1.0
70261-002473	36M201TP.0015			PHOTO DIODE	0.0015
70261-002715	36M251TP	1" 'M'	PLASTIC	REED SWITCH/GALLON	1.0
70261-002727	36M251TP.0021			PHOTO DIODE	0.0021
70261-002445	36M201T.1			REED SWITCH/GALLON	0.1
70261-002450	36M201T	3/4" 'M'	COPPER ALLOY	REED SWITCH/GALLON	1.0
70261-002447	36M201T.0015			PHOTO DIODE	0.0015
70261-002720	36M251T			REED SWITCH/GALLON	1.0
70261-002725	36M251T.0021	1" 'M'	COPPER ALLOY	PHOTO DIODE	0.0021
70261-003230	36M401.5T			REED SWITCH/GALLON	1.0
70261-003240	36M401.5T.0074			PHOTO DIODE	0.0074
70261-005060	36WMR2T10	2" 'WMR'	CAST IRON	REED SWITCH/GALLON	10
70261-004900	36WMR2T10-AF			REED SWITCH/ACRE FEET	3.26
70261-005050	36WMR2T1			PHOTO DIODE	1.0
70261-005010	36WMR2T.055			PHOTO DIODE	0.055



**PLASTIC 'M' WATER METERS**



**COPPER ALLOY 'M' WATER METERS**



**CAST IRON 'WMR' WATER METER**

### ORDERING INFORMATION - ER DIGITAL REGISTERS

**36**    MODEL    SIZE    REGISTER    VOLUME    FLOW RATE    OUTPUT 1    OUTPUT 2    DIRECTION

MODEL	SIZE	REGISTER	VOLUME	FLOW RATE	OUTPUT 1 AND OUTPUT 2 *	FLOW DIRECTION
M	201TP = 3/4" P	ER = ER DIGITAL REGISTER	1 = GALLONS	1 = GPM	A = NO OUTPUT	F = FORWARD
WMR	251TP = 1" P		2 = ACRE FEET		C = .1 GALLON PER PULSE	R = REVERSE
	201T = 3/4" CA	EM = ER DIGITAL REGISTER W/OUTPUT MODULE			D = 1 GALLON PER PULSE	A = ALTERNATING
	251T = 1" CA				E = 10 GALLONS PER PULSE	N = NET
	401.5T = 1 1/2" CA				F = 100 GALLONS PER PULSE	
	2T = 2" IRON				G = 1000 GALLONS PER PULSE	
					H = 0.0001 ACRE FT. PER PULSE	
					I = 0.001 ACRE FT. PER PULSE	
					J = 0.01 ACRE FT. PER PULSE	
					K = 0.1 ACRE FT. PER PULSE	

**M** 3/4" - 1 1/2" Sizes only  
**WMR** 2" Size only  
**P** = Plastic body  
**CA** = Copper Alloy body

#### ORDERING EXAMPLE:

#### 36WMR2TER11EEF

2" WMR Series Water Meter, ER Register,  
 Volume in Gallons, Flow Rate in Gallons per Minute,  
 Pulse Output 1 is 10 Gallons per Pulse, Pulse Output 2  
 is 10 Gallons per Pulse, Forward Flow Direction

\* Pulse rate is based on volume units.  
 If volume is in Acre Feet and Option D is chosen for  
 Output 1 or 2, it will result in 1 pulse every acre foot  
 of water that passes through the meter.  
 To convert Acre Feet to Gallons per Pulse, multiply  
 by 325,850.

### INDUSTRY'S LONGEST WARRANTY

Netafim stands behind our water meters with an unprecedented warranty - the industry's longest - three (3) years on the metering components (register and metering assembly) and five (5) years on the meter body.

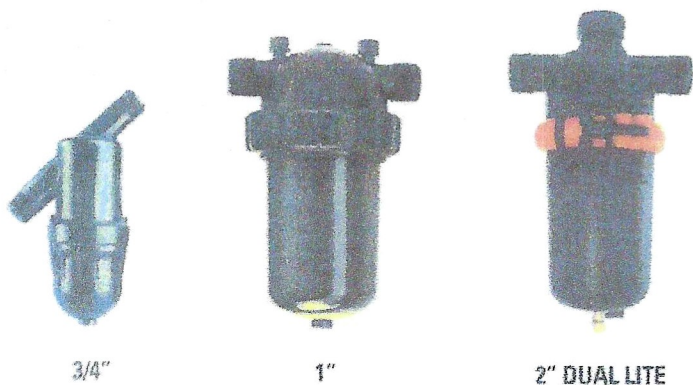


**NETAFIM USA**  
 5470 E. HOME AVE.  
 FRESNO, CA 93727  
 CS 888 638 2346  
[www.netafimusa.com](http://www.netafimusa.com)



# MANUAL DISC FILTERS

RELIABLE, EFFICIENT PLASTIC DISCS  
CREATE SUPERIOR FILTRATION



## PRODUCT ADVANTAGES

- Highly effective multiple disc ring design captures and holds more debris.
- Greater holding capacity of the rings vs. screen filters mean less frequent cleaning.
- Rings are easily removed for fast cleaning without the need for scrubbing.
- Color-coded disc rings make identification of mesh rating fast and easy.

## APPLICATIONS

- Primary irrigation filter for relatively clean or average water quality
- Protection of irrigation systems from clogging and/or abrasion



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

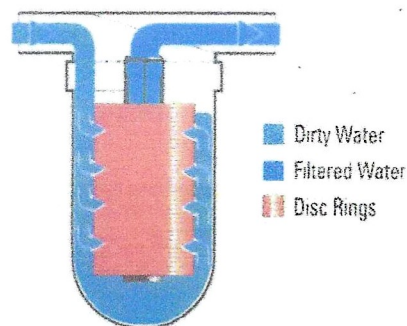
Substitute \*\*\* in Model Number for proper mesh

## THE FILTERING PROCESS

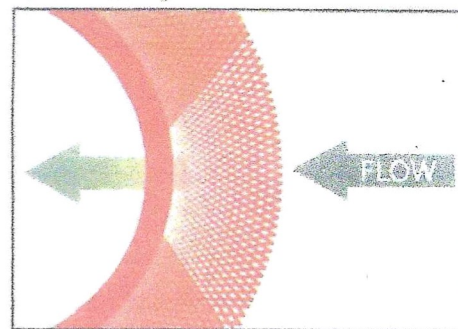
Grooved, compressed plastic disc rings produce a deep filtration process. As dirty water is pumped into the filter and pressure increases on the outside of the filter, the water pressure compresses the rings together tightly.

Grooves in the disc rings crisscross, forming a three dimensional network that traps particles. The number of crisscrossed intersection points on each groove varies, depending on filtration grade. The turbulence in the varying paths and the large number of intersections create an environment where particles are eventually trapped.

This design filters the dirty water thoroughly, not only on the outer surface of the cylindrical disc filter, but through the entire depth of every ring's grooves. The result is a larger, more efficient filtering area (when compared to screen filters) with more debris being captured and cleaner water exiting from the filter.



Top view of disc ring



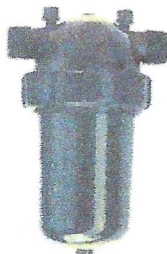


# MANUAL DISC FILTERS



## 3/4" FILTER

FLOW RANGE	1 - 12 GPM
MAXIMUM PRESSURE	140 psi
FILTERING SURFACE AREA	25 sq. in.
FILTERING VOLUME	5.8 cu. in.
LENGTH	5 22/32"
WIDTH	7 15/32"
WEIGHT	.66 lbs.
DISTANCE BETWEEN ENDS	6"
INLET/OUTLET DIAMETER	3/4" Male
MODEL NUMBER	25A45-***



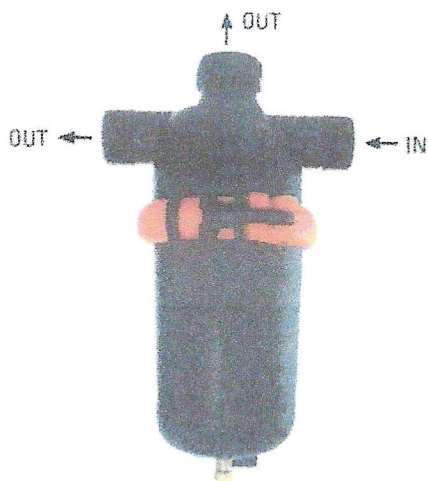
## 1" FILTER

FLOW RANGE	5 - 26 GPM
MAXIMUM PRESSURE	140 psi
FILTERING SURFACE AREA	49 sq. in.
FILTERING VOLUME	27 cu. in.
LENGTH	9 11/32"
WIDTH	6 7/32"
WEIGHT	2.2 lbs.
DISTANCE BETWEEN ENDS	6 7/32"
INLET/OUTLET DIAMETER	1" Male
MODEL NUMBER	25A47-***



## 1" SUPER FILTER

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
MODEL NUMBER	25A48-***



## 2" DUAL LITE FILTER

FLOW RANGE	40 - 110 GPM
MAXIMUM PRESSURE	115 psi
FILTERING SURFACE AREA	147 sq. in.
FILTERING VOLUME	75.7 cu. in.
LENGTH	16 5/16"
WIDTH	10 1/4"
WEIGHT	6.6 lbs.
DISTANCE BETWEEN ENDS	10 1/4"
INLET/OUTLET DIAMETER	2" Male
MODEL NUMBER	25A20L-***



## 3" TWIN LITE FILTER

FLOW RANGE	80 - 220 GPM
MAXIMUM PRESSURE	115 psi
FILTERING SURFACE AREA	294.5 sq. in.
FILTERING VOLUME	174 cu. in.
LENGTH	28 3/4"
WIDTH	9 14/32"
WEIGHT	17 lbs.
DISTANCE BETWEEN ENDS	12 19/32"
INLET/OUTLET DIAMETER	3" Flanged
MODEL NUMBER	25A3TL-***F



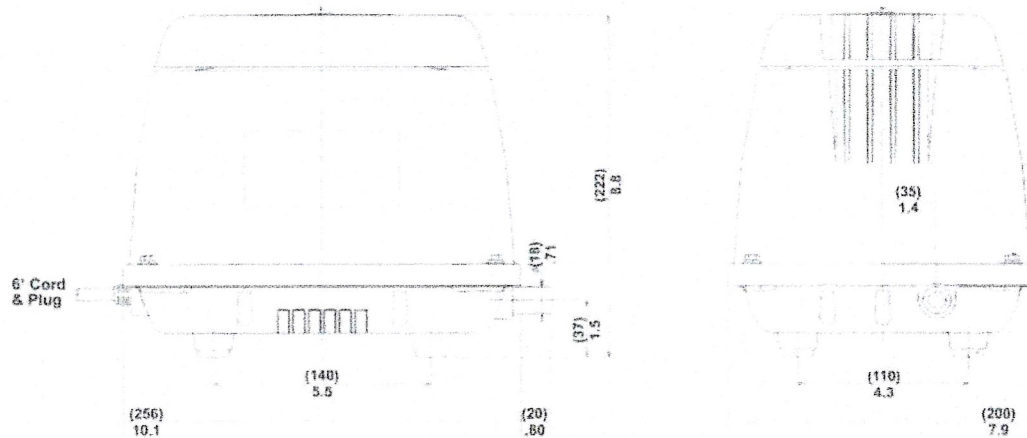
# HP Series Linear Pumps

Models HP100, 120, 150 and 200

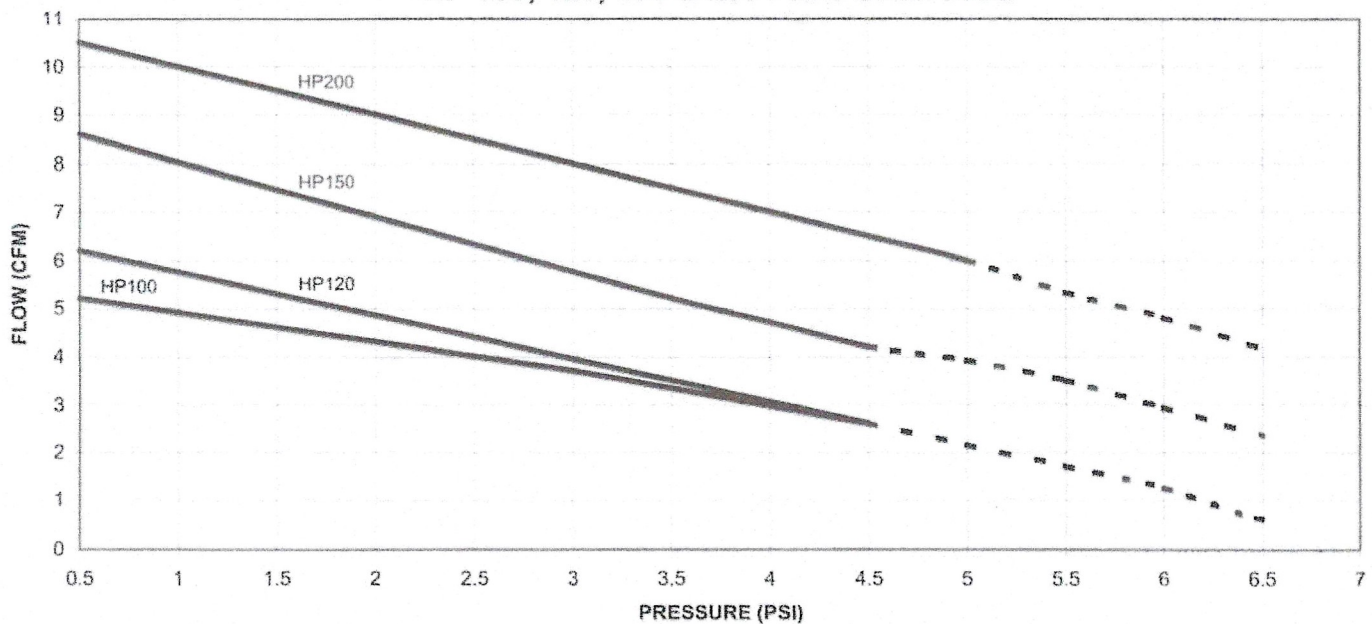


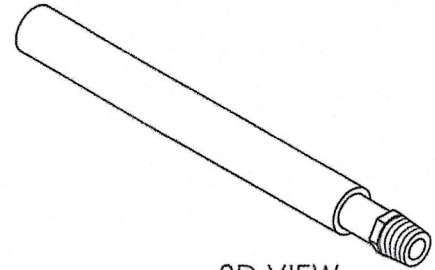
Model Number	HP100-0110	HP120-0110	HP150-0110	HP200-0110
Voltage (Vac)	120	120	120	120
Frequency (Hz)	60	60	60	60
Max. Cont. Pressure (psig)	4.5	4.5	4.5	5
Max. Inter. Pressure (psig)	6.5	7.5	6.5	6.5
Open Flow (c.f.m.)	5.2	6.1	8.6	10.5
Power Consumption (amps)	1.2	2.1	2.1	3.4
Sound Level (dBA@3 ft.)	38	40	48	47
Weight (lbs.)	19	19	20	20
Service Kit # Chambr. Bk.	120PC20011	120PC20011	200PC20011	200PC20011

Performance data noted is representative of typical values. Specifications and performance data are subject to change without notice. Purchaser is responsible for determining suitability for product applications.



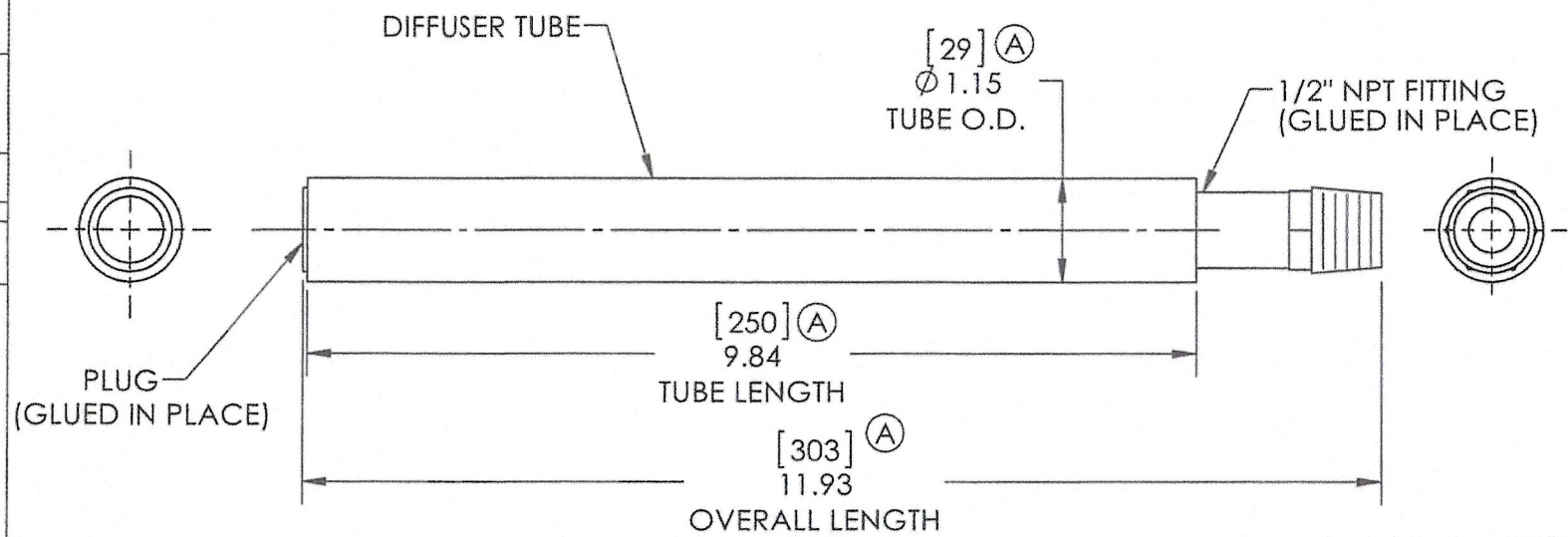
## HP 100, 120, 150 & 200 PERFORMANCE





3D VIEW  
SCALE: NTS (A)

- NOTES:
1. CONSISTS OF (3) COMPONENTS EACH:
    - (1) 1/2" NPT FITTING
    - (1) TUBE - POROUS PLASTIC  
PORE SIZE 20-35 MICRONS
    - (1) PLUG
  - (A) 2. ALL DIMENSIONS ARE IN INCHES & MILLIMETERS AND ARE FOR REFERENCE ONLY UNLESS TOLERANCED.



MATERIAL: NOTED
UNLESS OTHERWISE NOTED, SURFACE FINISH MEASURED IN Ra (µin)
<input checked="" type="checkbox"/> CONTROL CHARACTERISTIC
REL. FOR PROD DATE: 9/28/07      ECN NO.: 07-2201
SUPERSEDES: C50811 REV NONE      ECN NO.: 07-2201

UNLESS OTHERWISE NOTED, THIS DRAWING CONFORMS TO ANSI Y14 DRAFTING STANDARD.	
UNSPECIFIED RADII: FILLETS: DRAFT: °	UNSPECIFIED TOLERANCES: ANGLES ± 2° .XX ± .XXX ±

DRAWN BY RLK	DATE 9/28/07
CHECKED BY EAA	DATE 09/02/2015
SCALE 1:2	 THIRD ANGLE PROJECTION

**THOMAS**  
by Gardner Denver

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PART NO.	REV
C50811	A

REV	DATE	ECN NO.	REVISION	BY	REV	DATE	ECN NO.	REVISION	BY
A	8/24/15	15-2038	RE-INSTATED, REVISED REDRAWN IN SOLIDWORKS ADDED 3D VIEW, ADDED NOTE 2 AND ENGLISH DIMS	RLK					

TITLE

DIFFUSER ASSEMBLY 1/2" PVC



## WASTEWATER DIVISION

# 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.

### 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
- Maximum recommended system pressure: 58 psi
- Tubing diameter: 0.66" OD, 0.56" 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	283	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

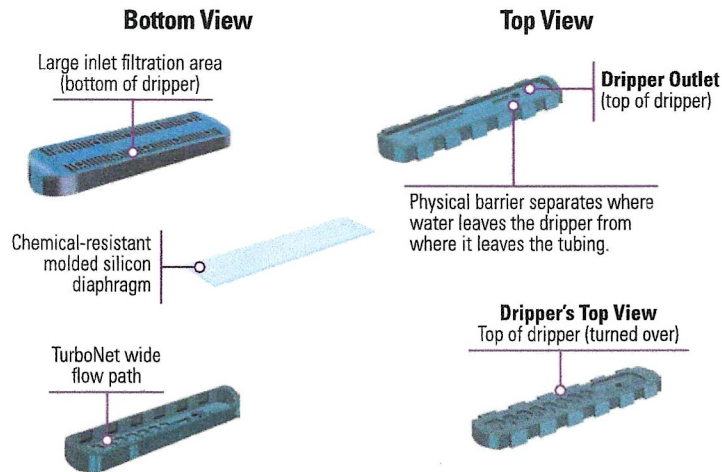
Lateral lengths are based on flows allowing for a 0.5 fps flushing/scouring velocity

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.



## EXPLODED VIEW OF BIOLINE DRIPPER



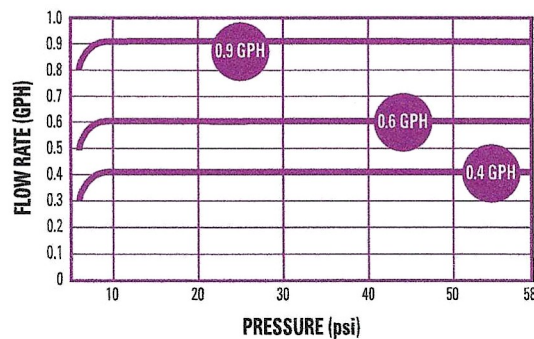
## BIOLINE DRIPPER OPERATION

Bioline® drippers are pressure compensating - delivering the water uniformly into the soil for further treatment or for reuse by the landscape. These unique drippers allow the tubing to be installed on flat topography or steep slopes.

Bioline drippers are protected against microbial slime. Each dripper is impregnated with an antimicrobial agent to resist biological build-up.

Netafim drippers are continuously self-cleaning during operation, not just at the beginning and end of a cycle. The result is dependable, clog-free operation, year after year.

## DRIPPER FLOW RATE VS. PRESSURE



Between 0 and 7 psi, the dripper functions as a turbulent flow emitter, ensuring that the nominal design flow is not exceeded at system start-up.

## FLOW PER 100 FEET

DRIPPER SPACING	0.4 GPH DRIPPER		0.6 GPH DRIPPER		0.9 GPH DRIPPER	
	GPH	GPM	GPH	GPM	GPH	GPM
12"	40.0	0.67	61.0	1.02	92.0	1.53
18"	26.7	0.44	41.0	0.68	61.0	1.02
24"	20.0	0.34	31.0	0.51	46.0	0.77

## SPECIFYING INFORMATION

**SAMPLE MODEL NUMBER**

**08WRAM.6-24 V**

**A** Bioline Dripline = 08WRAM

**1** DRIPPER FLOW RATE  
0.4 GPH = .4  
0.6 GPH = .6  
0.9 GPH = 1

**2** DRIPPER SPACING  
12" = 12  
18" = 18  
24" = 24

**3** COIL LENGTH  
500' = V500  
1,000' = V

BLANK Tubing Model Number: 250' = 08WRAM-250

## ORDERING INFORMATION

FLOW RATE	DRIPPER SPACING	COIL LENGTH	MODEL NUMBER
0.4 GPH	12"	1,000' 500'	08WRAM.4-12V 08WRAM.4-12V500
0.4 GPH	18"	1,000' 500'	08WRAM.4-18V 08WRAM.4-18V500
0.4 GPH	24"	1,000' 500'	08WRAM.4-24V 08WRAM.4-24V500
0.6 GPH	12"	1,000' 500'	08WRAM.6-12V 08WRAM.6-12V500
0.6 GPH	18"	1,000' 500'	08WRAM.6-18V 08WRAM.6-18V500
0.6 GPH	24"	1,000' 500'	08WRAM.6-24V 08WRAM.6-24V500
0.9 GPH	12"	1,000' 500'	08WRAM1-12V 08WRAM1-12V500
0.9 GPH	18"	1,000' 500'	08WRAM1-18V 08WRAM1-18V500
0.9 GPH	24"	1,000' 500'	08WRAM1-24V 08WRAM1-24V500
Blank Tubing 17mm		250'	08WRAM-250

# BIOLINE FITTINGS

## FITTING APPLICATIONS

- Fits Bioline Dripline

## FITTING SPECIFICATIONS

- Barbed fittings for a secure fit
- Easy installation without glue or tools
- Allows for easy on-site inspection of proper fitting installation



**TLCOUP**  
Insert Coupling



**TLELL**  
Insert Elbow



**TLTEE**  
Insert Tee



**TLCROS**  
Insert Cross



**TL050MA**  
1/2" Male Adapter



**TL075MA**  
3/4" Male Adapter



**TL075FTEE**  
Combination Tee  
Ins x Ins x 3/4" FPT



**TL2W075MA**  
2-Way Insert  
3/4" MPT x Insert



**TLIAPE-B**  
Insert Adapter for 1" or  
Larger PE (Requires 11mm  
or 7/16" drill or punch)



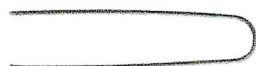
**TLIAPVC-B**  
Insert Adapter with Grommet  
1 1/2" or larger PVC Pipe



**TDBIT16.5**  
Drill Bit for TLIAPVC  
Fitting (16.5mm or 21/32")



**TLFIG8**  
Figure 8 Line End



**TLS6**  
6" Soil Staple

## FITTING DEFINITIONS

FPT = Female Pipe Thread  
MPT = Male Pipe Thread  
Ins x Ins = Insert by Insert



**TLSOV**  
Shut-Off Valve  
Ins x Ins



**TLCV**  
Inline Check Valve

- Flow Range: 0.9 to 4.4 GPM
- Opening Pressure: 10.2 psi
- Closing Pressure: 5.8 psi  
(13.4 Feet Column of Water)





**NETAFIM USA**  
5470 E. Home Ave.  
Fresno, CA 93727  
CS 888 638 2346  
[www.netafimusa.com](http://www.netafimusa.com)





Grantee, Grantee's heirs, executors, administrators, successors, and assigns against any person whomsoever claiming or to claim the same or any part thereof.

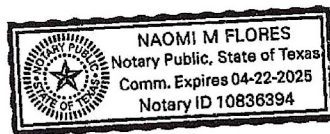
DATED this the 4 day of **March, 2025**.

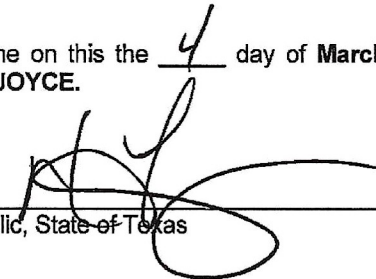
  
\_\_\_\_\_  
WILLIAM M. JOYCE  
  
\_\_\_\_\_  
TONYA J. JOYCE

STATE OF TEXAS  
COUNTY OF Guadalupe

§  
§

This instrument was acknowledged before me on this the 4 day of **March, 2025**, by WILLIAM M. JOYCE and wife, TONYA J. JOYCE.



  
\_\_\_\_\_  
Notary Public, State of Texas

GRANTEE'S MAILING ADDRESS:

16904 Ivy Leaf  
Schertz TX 78154

3126.deeds  
Old Republic Title Co. (NF)  
GF #1581SG



Galvino Carrasco Survey No. 272, Abstract 106  
Comal County, Texas  
0.975 Acre

EXHIBIT "A"

BEING A 0.975 ACRE TRACT OF LAND IN THE GALVINO CARRASCO SURVEY NO. 272, ABSTRACT 106, COMAL COUNTY, TEXAS, AS DESCRIBED AND RECORDED IN DOCUMENT NUMBER (DOC#) 9606013690, OFFICIAL PUBLIC RECORDS, COMAL COUNTY, TEXAS (OPRCC, TX), SAID 0.975 ACRE TRACT OF LAND BEING MORE PARTICULARLY DESCRIBED BY METES AND BOUNDS AS FOLLOWS:

BEGINNING at a 1/2 inch iron rod for the northwest corner of the herein described tract, being also the southwest corner of a 2.074 acre tract of land recorded in DOC# 201906016826, OPRCC, TX, and lying in the East right-of-way (ROW) line of River Road (River Rd.) (based on a 40' wide ROW), from which the northeast corner of said Galvino Carrasco survey on the West boundary of the Guadalupe River bears N 05°00'46" E a distance of 700.75 feet;

THENCE S 64°53'08" E with the South boundary line of said 2.074 acre tract a distance of 548 feet to 1/2 inch iron rod on the now apparent top bank of the Guadalupe River for the northeast corner of the herein described tract, being also the southeast corner of said 2.074 acre tract;

THENCE S 24°37'26" W with the West bank of the Guadalupe River and all of its meanders a distance of 111.10 feet to a 1/2 inch iron rod for the southeast corner of the herein described tract, being also the northeast corner of a 0.923 acre tract of land recorded in DOC# 201106010984, OPRCC, TX;

THENCE N 58°11'08" W with the North boundary line of said 0.923 acre tract a distance of 532 feet to a 1/2 inch iron rod for the southwest corner of the herein described tract, being also the northwest corner of said 0.923 acre tract, and lying in the East ROW line of River Rd.;

THENCE N 03°17'08" W with the East ROW line of River Rd a distance of 55.50 feet to the PLACE OF BEGINNING and containing 0.975 acre of land.

Bearing Basis: All bearings shown herein are referenced to the Texas Plane Coordinate System, North American Datum of 1983, South Central Zone.

  
Wesley C. Hunter  
Registered Professional Land Surveyor  
No. 6268 - State of Texas



**HUNTER SURVEYING**

818 CAMEL BACK DR., NEW BRAUNFELS, TX 78130

(361) 624-9182 TEXASSURVEYOR1@GMAIL.COM

FORM 9-10-08 REVISED BY THE TEXAS BOARD OF PROFESSIONAL LAND SURVEYING



Filed and Recorded  
Official Public Records  
Bobbie Koepp, County Clerk  
Comal County, Texas  
03/06/2025 11:23:38 AM  
TRACY 3 Page(s)  
202506006345



*Bobbie Koepp*