

#### License to Operate On-Site Sewage Treatment and Disposal Facility

Issued This Date:	03/27/2023		Permit Number:	115302
Location Description:	1165 EAGLE F CANYON LAK			
	Subdivision: Unit: Lot: Block: Acreage:	Canyon Lake Hill 4 1922 N/A 0.1800		
Type of System:	Aerobic Drip Irrigation			
Issued to:	Gordon Keogh			

This license is authorization for the owner to operate and maintain a private facility at the location described in accordance to the rules and regulations for on-site sewerage facilities of Comal County, Texas, and the Texas Commission on Environmental Quality.

The license grants permission to operate the facility. It does not guarantee successful operation. It is the responsibility of the owner to maintain and operate the facility in a satisfactory manner.

Alterations to this permit including, but not limited to:

- Increase in the square feet of living area
- Increase in the number of bedrooms
- A change of use (i.e. residential to commercial)
- Relocation of system components (including the relocation of spray heads)
- Installation of landscaping
- Adding new structures to the system

may require a new permit. It is the responsibility of the owner to apply for a new permit, if applicable.

Inspection and licensing of a facility indicates only that the facility meets certain minimum requirements. It does not impede any governmental entity in taking the proper steps to prevent or control pollution, to abate nuisance, or to protect the public health.

This license to operate is valid for an indefinite period. The holder may transfer it to a succeeding owner, provided the facility has not been remodeled and is functioning properly.

Licensing Authority Comal County Environmental Health

TRONMENTAL HEALTH INSPECTOR

ENVIRONMENTAL HEALTH OORDINATOR OS0007722

Installer Name:	OSSF Installer #:	
1st Inspection Date:	2nd Inspection Date:	3rd Inspection Date:
Inspector Name:	Inspector Name:	Inspector Name:

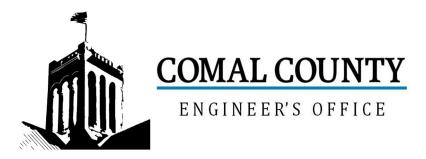
Permit#: Address: No. Description Answer Citations 1st Insp. 2nd Insp. 3rd Insp. Notes SITE AND SOIL CONDITIONS & 285.31(a) SETBACK DISTANCES Site and Soil 285.30(b)(1)(A)(iv) Conditions Consistent with Submitted Planning Materials 285.30(b)(1)(A)(v) 285.30(b)(1)(A)(iii) 285.30(b)(1)(A)(ii) 285.30(b)(1)(A)(i) SITE AND SOIL CONDITIONS & SETBACK DISTANCES Setback 285.91(10) Distances 285.30(b)(4) Meet Minimum Standards 285.31(d) SEWER PIPE Proper Type Pipe from Structure to Disposal System (Cast Iron, Ductile Iron, Sch. 40, 285.32(a)(1) SDR 26) 3 SEWER PIPE Slope from the Sewer to the Tank at least 1/8 Inch Per 285.32(a)(3) Foot SEWER PIPE Two Way Sanitary -Type Cleanout Properly Installed (Add. C/O Every 100' &/or 90 285.32(a)(5) degree bends) PRETREATMENT Installed (if required) TCEQ Approved List 285.32(b)(1)(G) PRETREATMENT Septic Tank(s) 285.32(b)(1)(E)(iii) Meet Minimum Requirements 285.32(b)(1)(E)(iv) 285.32(b)(1)(F) 285.32(b)(1)(B) 285.32(b)(1)(C)(i) 285.32(b)(1)(C)(ii) 285.32(b)(1)(D) 285.32(b)(1)(E) 285.32(b)(1)(A) 285.32(b)(1)(E)(ii)(II) 285.32(b)(1)(E)(i) 285.32(b)(1)(E)(ii)(I) 6 PRETREATMENT Grease Interceptors if required for 285.34(d) commercial

**Inspector Notes:** 

No.	Description	Answer	Citations	Notes	1st Insp.	2nd Insp.	3rd Insp.
8	SEPTIC TANK Tank(s) Clearly Marked SEPTIC TANK If SingleTank, 2Compartments Provided withBaffle SEPTIC TANK Inlet Flowline Greater than3" and " T " Provided on Inlet and OutletSEPTIC TANK Septic Tank(s) MeetMinimum Requirements		285.32(b)(1) (E)285.91(2)285.32(b)(1) (F)285.32(b)(1)(E) (iii)285.32(b)(1)(E)(ii) (I)285.32(b)(1)(E)(ii) (I)285.32(b)(1)(E) (i)285.32(b)(1)(C) (ii)285.32(b)(1)(C) (ii)285.32(b)(1)(C) (i)285.32(b)(1) (B)285.32(b)(1) (A)285.32(b)(1)(E)(iv)				
	ALL TANKS Installed on 4" Sand Cushion/ Proper Backfill Used		285.32(b)(1)(F) 285.32(b)(1)(G) 285.34(b)				
	SEPTIC TANK Inspection / Clean Out Port & Risers Provided on Tanks Buried Greater than 12" Sealed and Capped		285.38(d)				
11	SEPTIC TANK Secondary restraint system providedSEPTIC TANK Riser permanently fastened to lid or cast into tank SEPTIC TANK Riser cap protected against unauthorized intrusions		285.38(d) 285.38(e)				
	SEPTIC TANK Tank Volume						
	Installed						
12	PUMP TANK Volume Installed						
	AEROBIC TREATMENT UNIT Size Installed						
14	AEROBIC TREATMENT UNIT Manufacturer AEROBIC TREATMENT UNIT Model Number						
16	DISPOSAL SYSTEM Absorptive		285.33(a)(4) 285.33(a)(1) 285.33(a)(2) 285.33(a)(3)				
17	DISPOSAL SYSTEM Leaching Chamber		285.33(a)(1) 285.33(a)(3) 285.33(a)(4) 285.33(a)(2)				
	DISPOSAL SYSTEM Drip Irrigation		285.33(c)(3)(A)-(F)				
18							

No.	Description	Answer	Citations	Notes	1st Insp.	2nd Insp.	3rd Insp.
32	EFFLUENT DISPOSAL SYSTEM Utilized Only by Single Family Dwelling EFFLUENT DISPOSAL SYSTEM Topographic Slopes < 2.0% EFFLUENT DISPOSAL SYSTEM Adequate Length of Drain Field (1000 Linear ft. for 2 bedrooms or Less & an additional 400 ft. for each additional bedroom ) EFFLUENT DISPOSAL SYSTEM Lateral Depth of 18 inches to 3 ft. & Vertical Separation of 1ft on bottom and 2 ft. to restrictive horizon and ground water respectfully EFFLUENT DISPOSAL SYSTEM Lateral Drain Pipe (1.25 - 1.5" dia.) & Pipe Holes (3/16 - 1/4" dia. Hole Size ) 5 ft. Apart		285.33(b)(3)(A) 285.33(b)(3)(A) 285.33(b)(3) (B)285.91(13) 285.33(b)(3)(D) 285.33(b)(3)(F)				
33	AEROBIC TREATMENT UNIT IS Aerobic Unit Installed According to Approved Guidelines.		285.32(c)(1)				
34	AEROBIC TREATMENT UNIT Inspection/Clean Out Port & Risers Provided AEROBIC TREATMENT UNIT Secondary restraint system provided AEROBIC TREATMENT UNIT Riser permanently fastened to lid or cast into tank AEROBIC TREATMENT UNIT Riser cap protected against unauthorized intrusions						
35	AEROBIC TREATMENT UNIT Chlorinator Properly Installed with Chlorine Tablets in Place.						
	PUMP TANK Is the Pump Tank an approved concrete tank or other acceptable materials & construction PUMP TANK Sampling Port Provided in the Treated Effluent Line PUMP TANK Check Valve and/or Anti- Siphon Device Present When Required PUMP TANK Audible and Visual High Water Alarm Installed on Separate Circuit From Pump						
37	PUMP TANK Inspection/Clean Out Port & Risers Provided PUMP TANK Secondary restraint system provided PUMP TANK Riser permanently fastened to lid or cast into tank PUMP TANK Riser cap protected against unauthorized intrusions						
	PUMP TANK Secondary restraint system provided						
	PUMP TANK Electrical Connections in Approved Junction Boxes / Wiring Buried						

No.	Description	Answer	Citations	Notes	1st Insp.	2nd Insp.	3rd Insp.
	APPLICATION AREA Distribution Pipe, Fitting, Sprinkler Heads & Valve Covers Color Coded Purple?		285.33(d)(2)(G)(iii)(II) 285.33(d)(2)(G)(iii)(III) 285.33(d)(2)(G)(v) 285.33(d)(2)(G)(iv) 285.33(d)(2)(G)(iv) 285.33(d)(2)(G)(i) 285.33(d)(2)(G)(ii) 285.33(d)(2)(G)(iii)(I)				
	APPLICATION AREA Low Angle Nozzles Used / Pressure is as required APPLICATION AREA Acceptable Area, nothing within 10 ft of sprinkler heads? APPLICATION AREA The Landscape Plan is as Designed		285.33(d)(2)(G) (i)285.33(d)(2) (A)285.33(d)(2)(F)				
42	APPLICATION AREA Area Installed						
	PUMP TANK Meets Minimum Reserve Capacity Requirements						
44	PUMP TANK Material Type & Manufacturer						
45	PUMP TANK Type/Size of Pump Installed						



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

Permit Number:	115302
Issued This Date:	10/26/2022
This permit is hereby given to:	Gordon Keogh

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

# 1165 EAGLE FLIGHT DR CANYON LAKE, TX 78133

Subdivision:	Canyon Lake Hill
Unit:	4
Lot:	1922
Block:	N/A
Acreage:	0.1800

#### 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 CO	DUNTY
E N G I N E E R' S	OFFICE

# OSSF DEVELOPMENT APPLICATION CHECKLIST

Staff will complete shaded items

Date Received Initials

Permit Number

115302

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 <u>must</u> accompany the completed application.

OSSF	F 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
1 1	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 Refeused)

Revised: September 2019

		E FACILITY APPLI	CATION	Ν	IEW BR	AVID JONAS DR AUNFELS, TX 78132 30) 608-2090 W.CCEO.ORG
Date 08/19/202	22		Permit N	lumber	115	302
1. APPLICANT	AGENT INFORMATION					
	Gordon Keogh	Agent Name	lohn I Ha			
	s 1156 Sherwood Lane	Agent Address	John J. Ha			
	Canyon Lake, Texas 78133	City, State, Zip			17	
Phone #	210-381-6999		210-705-42		.47	
Email	gk94092@yahoo.com	Email	jhaag@sat			
2. LOCATION	gite reet (g) anot com		Jilddy@3dl	x.11.00111		
	me Canyon Lake Hills		Init 4	Lot 10	222	Block
	Abstract Number					0.1761
			0			
	Eagle Flight		e	Olale	I X.	Zip 78133
Non-Singl (Planning r Type of F Offices, F Restaura Hotel, Mo Travel Tr	Sq Ft of Living Area <u>1435</u> Sq Ft of Living Area <u>1435</u> The Family Residential materials must show adequate land area for doul facility	ndicate Number Of Occ f Seats ber of Beds	upants			
Estimated Co	est of Construction: \$ 275000	(Structure Only)				
	of the proposed OSSF located in the Unite		Engineers (	USACE) f	owage	easement?
	No (If yes, owner must provide approval from USA				175	
Learning Learning	ter X Public Private Well					
4. SIGNATURE	Lances Lances					
By signing this ap The completed a facts. I certify th property. Authorization is site/soil evaluati I understand tha by the Comal Co	pplication, I certify that: application and all additional information submitted at I am the property owner or I possess the appr hereby given to the permitting authority and desi- tion and inspection of private sewage facilities at a permit of authorization to construct will not be ounty Flood Damage Prevention Order. onsent to the online posting/public release of my o	opriate land rights necessa gnated agents to enter upo sissued until the Floodplair	ary to make th on the above n Administrate	ne permitted described p or has perfo	d improv property prmed ti	vements on said for the purpose on the reviews requir
- animatively co	Sinsent to the online posting/public release of my			nit applicati	on, as a	applicable.
2	Dwner	<u>7-7</u>	- 22			

Signature of Owner

COMAL COUNTY
ENGINEER'S OFFICE

#### **ON-SITE SEWAGE FACILITY APPLICATION**

Planning Materials & Site Evaluation as Required Completed By John J. Haag, P.E.
System Description Proprietary aerobic drip disposal
Size of Septic System Required Based on Planning Materials & Soil Evaluation
Tank Size(s) (Gallons) 600 gpd min.       Absorption/Application Area (Sq Ft) 1200 min
Gallons Per Day (As Per TCEQ Table III) 240
(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? Xes 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.

E

Signature of Designer

05/25/22

Date

THE COUNTY OF COMAL



202206041736 09/19/2022 03:59:10 PM 1/1

STATE OF TEXAS

TIG

#### **CERTIFICATION OF OSSF REQUIRING MAINTENANCE**

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

The Texas Health and Safety Code, Chapter 366 authorizes the TCEQ to regulate on-site sewage facilities (OSSFs). Additionally, the Texas Water Code (TWC), § 5.012 and § 5.013, gives the TCEQ 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 TCEQ, 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 TCEQ 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 TCEQ of the suitability of this OSSF, nor does it constitute any guarantee by the TCEQ that the appropriate OSSF was installed.

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

Legal Description: Lot 1922, Canyon Lake Hills, Unit 4

This property is owned by: Gordon Keogh

Gordon Kcogh (Owner)

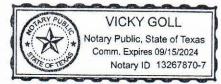
This OSSF must be covered by a continuous maintenance contract for the first two years. After the initial two-year service policy, the owner of an aerobic system for a single-family residence shall either obtain a maintenance contract within 30 days or maintain the system personally.

The owner will, upon any sale or transfer of the above-described property, request a transfer of the permit for the OSSF to the buyer or new owner. A copy of the planning materials for the OSSF can be obtained from Comal County.

DAY OF September WITNESS BY HAND(S) ON THIS

П

SWORN TO AND SUBSCRIBED BEFORE ME ON THIS 5 DAY OF September, 2022



Notary Public, State of Texas

Filed and Recorded ficial Public Records Bobbie Koepp, County Clerk Texas Comal County 2022 03:59:10 PM 1 Page(s) Babbie Keepp

#### Aerobic Maintenance Solutions LLC P O Box 311899 New Braunfels, TX 78131

# RECEIVED

By Brandon M. Olvera at 9:41 am, Oct 26, 2022

Phone: (830) 312-8776

sherrie@gatcotreatment.com office@aerobicsolutions.net

Contract Period Start Date: LTO End Date: Customer ID: 1179

Main Phone: (210) 381-6999 Cell Phones: Alternate Cell;

and and the state of the state

Email: gk94092@yahoo.com Aerobic Maintenance Solutions LLC 3 visits per year - one every 4 months

To: Gordon Keogh 1156 Sherwood Dr. Canyon Lake, TX 78133

Site: 1165 Eagle Flight Dr , Canyon Lake, TX 78133 County: Comal Instafler: Rocky Ridge Septic/Dave Agency: Comal County Environmental Health Mfg/Brand: -SOLAR AIRE-

#### Agreement

1. General: This work for Hire Agreement (hereinafter referred to as "Agreement") is entered into by and between the Client and Aerobic Maintenance Solutions LLC (hereinafter referred to as Contractor), located at 4222 FM 482 New Braunfels, Texas 78132, (830-312-8776). By this agreement, Contractor agrees to render services, as described herein, and Client agrees to fulfill his/her/ their responsibilities under the agreement as described herein.

II. Effective Dates: If this is an Initial Contract, contract will be for two years and begins when the License To Operate (LTO) has been issued. A 30 day written notice is required if there is a cancellation before the year of the agreement is up. The written notice will be sent to the local regulatory Agency and any of the agreement unused funds is non-refundable.

Contractor or Client, if choosing to terminate the contract, must give the other and the local regulatory Agency written notice after Thirty (30) Days prior to the ending of the Contract.

IV. Services by Contractor: Contractor will provide the following services (Referred to as the "Services").

1. In compliance with the Local Regulatory Agency and Manufacture's requirements, inspect and perform routine maintenance and upkeep on all parts within the On-Site Sewage Facility (hereafter referred to as the "OSSF") three times per year. Contractor **does not** provide chlorine. Client is solely responsible for maintaining the chlorine in the chlorinator at all times.

2. Contractor will provide a weather proof tag on the control panel containing company name, phone number and inspection dates.

3. Contractor will do inspections 3 times a year, every 4 months.

4. Contractor will report all findings to the appropriate regulatory and authority and to the Client, as required by both the State's On-Site rules and the local Agency's rules. All findings must be reported to local Agency's within 14 days, email is acceptable.

5. The contractor's inspection will include the following; Effluent Quality (Color, Turbity, overflow and Odor), Alarm Function Filters, Operation of Effluent Pump and Chlorine Availability in the Chlorinator, (BOD and TSS Annually on Commercial Accounts, Client is responsible for charges for test)

6. Contractor will respond to client calls and complaints, regarding visual or audible alarms, suspicious conditions and or problems that might confront the Client within 48 hours, excluding weekend and holidays. The Contractor will maintain a 24 hour answering service at 830-312-8776. The unscheduled responses may be billed to the client at going rate.

#### V. Clients Responsibilities:

1. Maintain Chlorinator and Proper Chlorine supply, if OSSF is equipped with.

2. Provide all necessary lawn or yard maintenance and remove all obstacles, including dogs and other animals as needed to allow the OSSF to function properly and to allow the Contractor easy and safe access to all parts of the OSSF.

3. Immediately notify the Contractor of any alarms of problems with, including failure of the OSSF.

4. Provide for pumping of tanks, generally every 3 years or as suggested by the Contractor at Clients own expense.

5. Contractor will not be responsible for any warranty work; Client must contact the Installer for Warranty Problems.

6. Not allow the backwash from water treatment of water conditioning equipment to enter the OSSF.

7. Maintain site drainage to prevent adverse effects on OSSF.

8. Promptly and fully pay Contractor's Bills, Fees or invoices as described herein.

VI. Contractor will schedule with client, dates to perform the above described Services of repairs. If Contractor is not able to access the site on the date of appointment, a charge of \$75.00 will be billed if the inspection for repairs is not able to be completed and are required to be scheduled on another date. The contractor requires access to the OSSF electrical and physical components, including tanks, by means of man ways or risers for the purpose of evaluation of system and equipment as required by the manufacturer and /or rules. If such man ways or risers are not in place, excavation together with other labor and materials will be required and be billed to the Client an additional service at a rate of \$50.00 per hour plus materials billed at list process. Excavated soil is to be replaced as best as reasonably possible.

VII. Payments: The fee for this agreement only covers the Services described herein. This fee does not cover equipment or labor supplied for non-warranty repairs or for charges for unscheduled Client, request trips to the Client's site of pumping of the OSSF. Payments not received within 10 days from the date will be subject to a \$30.00 late penalty and or a 1.5% carrying charge, whichever is greater, in addition to reasonable attorney's fees. And all cost of collection incurred by contractor in collection of any unpaid debt. Invoice due when service is completed. Contract fee is \$\_\_\_\_\_\_.

VIII. Severability: If any provision of this agreement shall be held to be invalid or unenforceable for any reason the remaining provisions shall continue to be held valid and enforceable. If a court finds that any provision of the agreement is invalid or unenforceable, by limiting such provision it would become valid and enforceable, then such provision shall be deemed to be written, construed and enforced as so limited.

Client Print Name:Gordon Keogh	Signature:	19. augusta and a supervised an	Date: 9-4-22
Client Phone number Home 210-381-6999	Work	Celi	
Email Addressgk94092@yahoo.com	75		
Any Gate or Combo code for inspections N/A			
Contractor Aerobic Maintenance Solutions L	19:	,	
Al Xiel	Vac	iplanta	

MP Signature: James I Xichlen Date 10/25/2022 MP NUMBER MP 0000996

Date Printed: 8/24/2022

#### ON-SITE SEWAGE FACILITY (OSSF) SITE EVALUATION FORM

#### 1. OWNER INFORMATION

Property Owner's Full Legal Name: Gordon Keogh

2. PROPERTY INFORMATION							
City: Canyon Lake Zip Code: 78133							
Legal Descrip	otion:						
Lot: 1922	Block:	Subdivision: Canyon Lake Hills		Sec:	Unit: 4		
If not located in subdivision: Survey:							
Abstract: Recorded (Vol/Pg):							

3. SITE EVALUATION INFORMATION:	
Name of Site Evaluator: John J. Haag	PE #: 90158
Date Performed: 10/10/2022	Proposed Excavation Depth: Surface

#### 4. **REQUIREMENTS**:

- At least two soil evaluations must be performed on the site at opposite ends of the proposed disposal area. Locations of soil evaluations must be shown on the application site drawing or designer's site drawing.
- For subsurface disposal, soil evaluations must be performed to a depth of at least 2 feet below the proposed excavation depth. For surface disposal, the surface horizon must be evaluated.

Soil Profile Ho	Soil Profile Hole Number: 1						
			Drainage				
Depth	Textural	Gravel	(Mottles/Water	Restrictive	Observations		
(ft.)	Class	Analysis	Table)	Horizon			
0	111	<30%	No	Yes	Type III to 16" then limestone		
1							
2							
3							
4							
5							

#### ON-SITE SEWAGE FACILITY (OSSF) SITE EVALUATION FORM

Soil Profile Ho	Soil Profile Hole Number: 2						
			Drainage				
Depth	Textural	Gravel	(Mottles/Water	Restrictive	Observations		
(ft.)	Class	Analysis	Table)	Horizon			
0		<30%	No	Yes	Type III to 14" then limestone		
1							
2							
3							
4							
5							

#### 5. FEATURES OF SITE AREA:

Presence of 100 year flood zone:	🗆 Yes	🛛 No
Presence of adjacent ponds, streams or water impoundments	$\Box$ Yes	🛛 No
Existing or proposed water well in nearby area	$\Box$ Yes	🛛 No
Organized sewage available to lot or tract	$\Box$ Yes	🛛 No
Recharge features within 150 feet	$\Box$ Yes	🛛 No

6. I certify that the above statements are true and correct and are based on my own field observations.



10/10/2022

Haag Engineering Consultants, Inc. Firm: F-5789

# AEROBIC TREATMENT DRIP TUBING SYSTEM FOR: LOT 1922 CANYON LAKE HILLS, UNIT 4

#### SITE DESCRIPTION:

Located in Canyon Lake Hills, Unit 4, lot 1922 the proposed system will serve at 3-bedroom, 1435 s.f. residence situated with soils per the Site Evaluation report. An aerobic treatment plant utilizing drip irrigation was chosen as the most appropriate system to serve the conditions on this lot.

#### **PROPOSED SYSTEM:**

A 3 or 4 inch SCH-40 pipe discharges from the residence into a Solar Aerobic SA600-768LP (600 gpd) aerobic treatment plant containing a 376 gallon pretreatment tank and a 778 gallon pump chamber. The pump chamber contains a 0.5 HP Franklin C1-Series-20XC1-05P4-2W115 submersible well pump. The well pump is activated by a Intermatic Model FM1D20-120 time controller (pin timer shall not be used) allowing the distribution ten times per day with the float setting at min. 240 gallons. A high level audible and visual alarm will activate should the pump fail. Distribution is through a self-flushing 100-micron Arkal Disk filter then through a 1" SCH-40 manifold to a minimum 1200 sf drip tubing field with Netifim Bioline drip lines approximately two feet apart with 0.61 gph emitters set every two feet as per the attached schematic. A pressure regulator Model PMR35MF 35 psi installed in the pump tank on the manifold to the field will maintain pressure at 35 psi. A 1" SCH-40 return line is installed to continuously flush the system by cycling a 1" ball valve. Solids caught in the disk filter are flushed each cycle back to the trash tank. Agricultural Products, Inc. (Model #VBK-1) 1" PVC vacuum breakers installed on the highest point on each manifold will prevent siphoning of effluent from higher to lower parts in the field. The field area shall be scarified and then built up so that a minimum of 12" of Type II or III soil is above any bedrock or type IV soils then the drip tubing shall be laid and capped with a minimum of 6" of Type II or Type III soil (NOT SAND). The field area shall be covered with a Bermuda seeded erosion control mat prior to system startup. The tank must have at grade risers on each opening with watertight caps that must be 65# or have a padlock or can only be removed with tools – all risers shall meet the minimum requirements of 30 TAC 285 effective 12/29/16. A secondary plug, cap or suitable restraint must be provided below riser cap to prevent tank entry should the cap be damaged or removed.

#### **DESIGN SPECIFICATIONS:**

Daily flow = Q=240 gpd Pretreatment tank size: 376 gal Plant size: SA600-768LP; 600 gpd (TCEQ approved) Pump tank size: 778 gal Min. Reserve capacity after high level: 80 gal (1/3 day req'd) Application rate: Ra=0.2 gal/sf Total absorption area: Q/Ra = min. 1200 sf (1656 sf actual) Total linear feet of drip tubing: 828' Netifim Bioline drip tubing Pump requirement: 0.5 HP Franklin C1-Series-20XC1-05P4-2W115

#### **PIPE AND FITTINGS:**

All pipes and fittings in this drip tubing system shall be 1" schedule 40 pvc. All joints shall be sealed with approved solvent type pvc cement. Clipper type cutters are recommended to prevent pvc burrs during cutting of pipes causing possible plugging.

Designed in accordance with Chapter 285, Subchapter D, §285 and §285.40 Texas Commission on Environmental Quality (Revised March 2013).



10/11/2022

Haag Engineering Consultants, Inc. Firm No.: F-5786

Calculation Outputs	
Total System Information	
Application Area Provided (square feet)	1,656
Total Amount of Bioline <sup>®</sup> Required (feet)	828
Total Number of Emitters in the Dripfield	414
Zone Information	
Number of Zones	1
Amount of Bioline <sup>®</sup> Per Zone (feet)	828
Number of Emitters Per Zone	414
Minimum Number of Laterals Per Zone	2
Maximum Number of Laterals Per Zone	10
Number of Laterals That Will be Used	4
Maximum Length of Bioline <sup>®</sup> Laterals Based on Inlet Pressure	391
Flow Rate Per Zone (GPM) Holding Capacity of Dripperline Per Zone (Gallons)	4.2 11.0
Additional Flow Requirement to Accommodate Flushing Velocity	6.4
	0.4
Holding Capacity of Piping	
Holding Capacity (Gallons) of Supply Line & Supply & Flush Manifolds	5.4
Holding Capacity (Gallons per Zone) of Bioline	11.0
Holding Capacity (Gallons) of Supply Line, Manifolds and Dripperline	16.4
Head Loss Data - Dosing & Flushing Cycle	•
Friction Loss per 100' (psi) in Supply Line & Manifolds	2.7
Velocity (fps)	3.9
Friction Loss in Supply Line & Supply Manifolds (psi)	3.2
Friction Loss in Supply Line & Supply Manifolds (Feet of Head)	7.4
Additional Pressure Required for Return Manifold and Piping to Tank (psi) Additional Pressure Required for Return Manifold and Piping to Tank (Feet of Head)	3.0 6.9
TDH (Total Dynamic Head) in Feet of Head	98.2
Control Settings Information	
Total System Runtime Per Day (Minutes)	57
Total Runtime Per Zone Per Day (Minutes) Total System Dosing Events Per Day	57 10
Runtime For Each Dose (Minutes)	6
Off Time Between Doses in the Same Zone (Hours to nearest 0.1)	2.3
Miscellaneous Information	
Dosing Volume Per Emitter Per Dose (gallons)	0.06
Inches Per Week of Dosing Volume of a Single Dose (gallons)	1.63 25.3
volume of a Single Dose (gallons)	23.3
Pump Selection	
Pump Flow Rating (GPM)	10.6
TDH (Total Dynamic Head in Feet of Head)	98.2
Pump Manufacturer	Franklin
Pump Model <sup>2</sup> 20	XC1-05P4-2W115

#### GENERAL NOTES:

NO VEHICULAR TRAFFIC IS ALLOWED ON ANY PORTION OF THE DISPOSAL SYSTEM, UNLESS THE DESIGN SPECIFIES OTHERWISE.

PIPE ALIGNMENT TO THE DISPOSAL BEDS MAY BE ALTERED AS REQUIRED. ANY CHANGE FROM THE PLANS MUST BE APPROVED BY THE ENGINEER AND THE APPROPRIATE GOVERNMENTAL AGENCY(IES).

CONTRACTOR SHALL PROTECT TREES WHICH ARE NOT IN THE EXCAVATED CONSTRUCTION AREAS. CONTRACTOR SHALL MINIMIZE ROOT DAMAGE AND REASONABLY ADHERE TO THE DESIGN.

CONTRACTOR IS RESPONSIBLE FOR VERIFYING A MINIMUM OF 1/4" PER FOOT OF FALL FROM THE BUILDING TO THE SEPTIC TANK.

NOT AUTOMATIC SPRINKLER SYSTEM SHALL BE INSTALLED OVER THE DISPOSAL AREAS. ANY WATERING IN THESE AREAS SHALL BE DONE BY HAND AND ONLY WHEN REQUIRED TO MAINTAIN GRASS COVER.

ALL CONSTRUCTION SHALL CONFORM TO THE RULES AND REGULATIONS OF THE APPROPRIATE AUTHORITY - TEXAS COMMISSION ON ENVIRONMENTAL QUALITY (TCEQ) AND ANY APPLICABLE LOCAL BUILDING AND SAFETY CODES.

7. CONTRACTOR SHALL BE RESPONSIBLE FOR LOCATING AND VERIFYING THE LOCATION OF ALL EXISTING UNDERGROUND UTILITIES THAT MAY BE AFFECTED BY THE CONSTRUCTION OF THIS SYSTEM.

THE DRIP FIELD SHALL BE VEGETATED WITH EITHER ST. AUGUSTINE OR BERMUDA SOD.

9. FIELDS MUST BE MOWED AT REGULAR INTERVALS. FAILURE TO PROPERLY MAINTAIN VEGETATIVE COVER MAY RESULT IN SYSTEM FAILURE AND SHALL BE THE RESPONSIBILITY OF THE OWNER.

10. ALL PIPES SHALL BE SCHEDULE 40 PVC OR APPROVED EQUAL, UNLESS NOTED OTHERWISE. ALL JOINTS SHALL BE CLEANED WITH THE APPROPRIATE SOLVENT AND GLUED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATION.

11. ALL POTABLE WATER LINES SHALL BE A MINIMUM OF 10 FEET FROM ANY DISPOSAL SYSTEM OR SEWERAGE PIPE. THE CONTRACTOR SHALL NOTIFY THE ENGINEER OF WATER LINES LESS THAN 10 FEET FROM THE DISPOSAL AREA. HIGH WATER ALARM SHALL BE LOCATED IN A NOTICEABLE LOCATION. THE

ALARM SHALL BE A VISUAL AND AUDIBLE ALARM AND WIRED ON A SEPARATE CIRCUIT FROM THE PUMPS. ALL EXTERIOR CONTROLS AND CONNECTIONS SHALL BE ENCLOSED IN A WEATHER-PROOF HOUSING. ELECTRICAL CONSTRUCTION SHALL COMPLY WITH ALL LOCAL ELECTRICAL AND BUILDING CODES.

13. NO EXCAVATION IS PERMITTED NEAR THE DISPOSAL FIELDS THAT WILL RESULT IN THE NONCOMPLIANCE OF APPLICABLE SETBACKS STATED IN THE RULES AND REGULATIONS OF THE APPROPRIATE AUTHORITY.

14. ONLY GOOD QUALITY SANDY LOAM SHALL BE APPLIED OVER THE DISPOSAL FIELDS. CLAY LOAM IS UNACCEPTABLE AND WILL CAUSE SYSTEM FAILURE. SANDY LOAM SHALL BE DEFINED AS SHOWN IN TABLE VI (USDA SOIL TEXTURAL CLASSIFICATIONS) OF THE RULES AND REGULATIONS OF THE TCEQ. THE INSTALLER IS RESPONSIBLE FOR VERIFYING THE QUALITY OF EACH LOAD OF LOAM PLACED ON

THE SYSTEM. 15. STORM WATER (RAINFALL RUNOFF) SHOULD NOT BE ALLOWED TO FLOW OVER THE DISPOSAL FIELDS OR THE TANKS. DIVERSION BERMS, SWALES AND/OR RAIN

GUTTERS SHOULD BE INSTALLED AS NECESSARY TO PREVENT SUCH RUNOFF. THE CONTRACTOR IS RESPONSIBLE FOR STAKING AND VERIFYING THE GRADES PRIOR TO EXCAVATION. ANY DISCREPANCIES OF MORE THAN 6 INCHES SHALL BE REPORTED TO THE ENGINEER PRIOR TO EXCAVATION. THE CONTRACTOR SHALL NOT DEVIATE FROM THESE PLANS WITHOUT THE WRITTEN CONSENT OF THE APPROPRIATE AUTHORITY AND THE ENGINEER.

17. CONTRACTOR SHALL REPORT TO THE ENGINEER ANY ELEVATION DIFFERENCES GREATER THAN 4 FEET BETWEEN THE HIGHEST AND LOWEST TRENCH IN THE FIELD. THIS SHOULD BE CHECKED PRIOR TO INSTALLING THE LATERALS AND MANIFOLD.

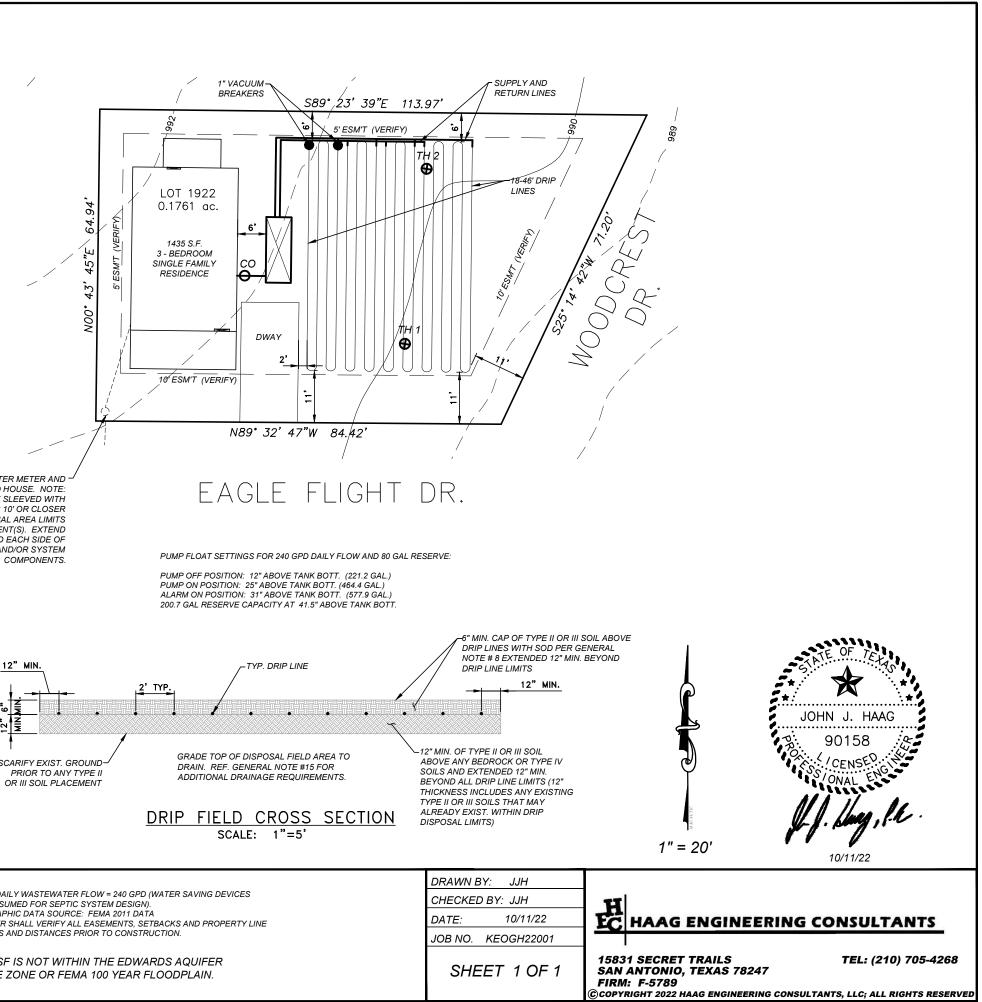
18. THIS DISPOSAL SYSTEM HAS BEEN DESIGNED TO OPERATE PROPERLY AT SPECIFICATIONS NOTED IN THESE PLANS. ALTERATIONS TO THE SYSTEM BY THE OWNER, INCLUDING BUT NOT LIMITED TO LANDSCAPING, DRAINAGE, BUILDING AND/OR WATER USAGE, MAY CAUSE PREMATURE FAILURE AND SHALL BE THE SOLE RESPONSIBILITY OF THE OWNER.

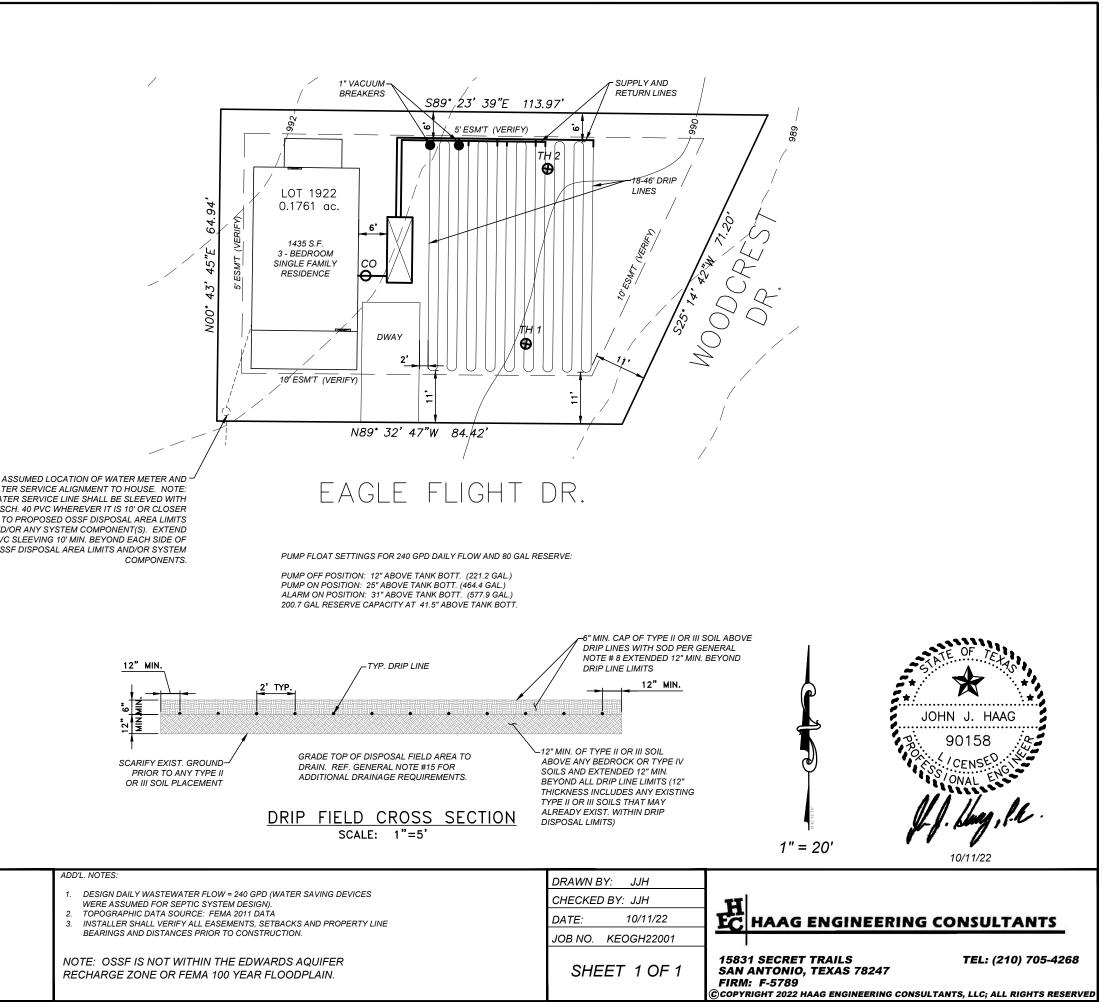
19. CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING ALL PLUMBING FIXTURES ARE CONNECTED TO THE DESIGNATED SEPTIC TANK(S). LOW FLOW TOILETS (1.6 GAL), SHOWERHEADS AND FAUCETS SHALL BE USED IN THE STRUCTURES.

20. CONTRACTOR SHALL BE RESPONSIBLE FOR JOBSITE SAFETY AND PROTECTION OF THE PUBLIC FROM INJURY DURING CONSTRUCTION. THE OWNER SHALL BE RESPONSIBLE FOR THE PREVENTION OF PERSONAL INJURY TO ANYONE ON OR NEAR THE DISPOSAL SYSTEM.

21. CONTRACTOR SHALL BE RESPONSIBLE TO ENSURE THAT ALL TANKS HAVE ADEQUATE STRENGTH AND INTEGRITY TO PERFORM SATISFACTORILY AS SHOWN ON THESE PLANS.

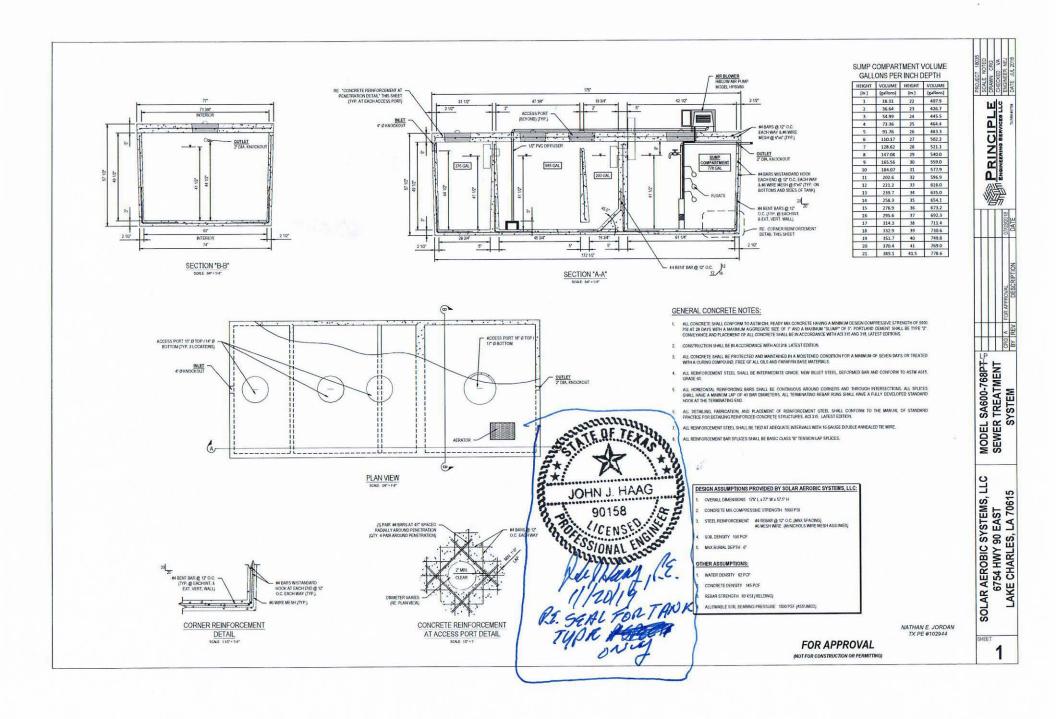
22. THE WASTEWATER FLOW TO THE SEPTIC SYSTEM SHALL NOT EXCEED THE DESIGN FLOW SHOWN ON THIS PLAN.





	ADD'L. NOTES:	DRAWN BY: JJH	
OSSF LAYOUT	<ol> <li>DESIGN DAILY WASTEWATER FLOW = 240 GPD (WATER SAVING DEVICES WERE ASSUMED FOR SEPTIC SYSTEM DESIGN).</li> </ol>	CHECKED BY: JJH	च
LOT 1922, WOODCREST DR.	<ol> <li>TOPOGRAPHIC DATA SOURCE: FEMA 2011 DATA</li> <li>INSTALLER SHALL VERIFY ALL EASEMENTS, SETBACKS AND PROPERTY LINE</li> </ol>	DATE: 10/11/22	EC HAA
	BEARINGS AND DISTANCES PRIOR TO CONSTRUCTION.	JOB NO. KEOGH22001	
CANYON LAKE HILLS, UNIT 4	NOTE: OSSF IS NOT WITHIN THE EDWARDS AQUIFER		15831 SECR
CANYON LAKE, TEXAS	RECHARGE ZONE OR FEMA 100 YEAR FLOODPLAIN.	SHEET 1 OF 1	SAN ANTON FIRM: F-578
			COPYRIGHT 20

WATER SERVICE ALIGNMENT TO HOUSE. NOTE: WATER SERVICE LINE SHALL BE SLEEVED WITH SCH. 40 PVC WHEREVER IT IS 10' OR CLOSER TO PROPOSED OSSF DISPOSAL AREA LIMITS AND/OR ANY SYSTEM COMPONENT(S). EXTEND PVC SLEEVING 10' MIN. BEYOND EACH SIDE OF OSSF DISPOSAL AREA LIMITS AND/OR SYSTEM



# C1 SERIES CISTERN PUMPS

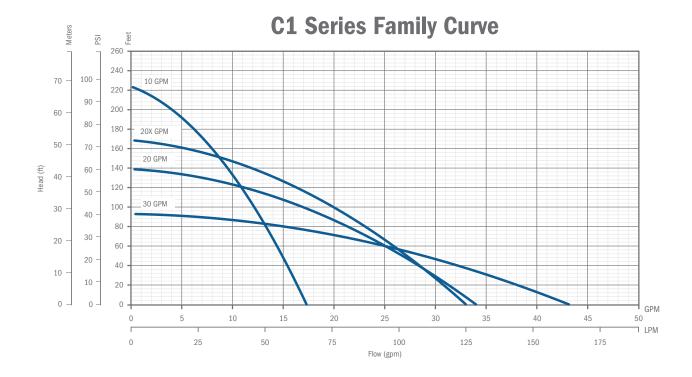
Designed for use in gray water / filtered effluent service applications, the C1 Series cistern pump provides high performance and long life in less than ideal water conditions. The C1 Series pump is able to pass solids up to 1/8" without having a negative effect on the internal hydraulic components.

The pump's unique bottom suction design allows 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.





franklinwater.com



# 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
- 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, ½ hp motor
- Fluid flows of 10, 20, and 30 gpm, with a max shut-off pressure of over 100 psi
- Heavy duty 600 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

URDERI	ORDERING INFORMATION								
	C1 Series Pumps								
GPM	HP	Volts	Stage	Model No.	Order No.	Length (in)	Weight (lbs)		
10		115	7	10C1-05P4-2W115	90301005	26	17		
10		230	7	10C1-05P4-2W230	90301010	26	17		
20	20	115	5	20C1-05P4-2W115	90302005	25	16		
20	1/2	230	5	20C1-05P4-2W230	90302010	25	16		
20X	$\rightarrow$	115	6	20XC1-05P4-2W115	90302015	26	17		
20/		230	6	20XC1-05P4-2W230	90302020	26	17		
30		115	4	30C1-05P4-2W115	90303005	25	16		
		230	4	30C1-05P4-2W230	90303010	25	16		

Note: All units have 10 foot long SJOOW leads.





# **FM1D20 Series Electronic Time Switches**

#### Project:

Location:

Product Type:

Contact/Phone:

Model #:



# FM1D20 Series **One Channel Panel Mount**

The FM1D20 Series One Channel Electronic Time Switches are compact electronic 24-Hour/7-Day modules with heavy-duty relay contacts for switching low or line voltage loads. The timers are applicable for time-of-day control of pumps, fans, heaters, HVAC control circuits, lighting, machinery and many other types of commercial, industrial, and agricultural equipment.

#### **Features**

- 24-Hour or 7-Day applications
- 20 setpoint programs
- 3 preset adjustable block programs
- Easy-to-follow menu driven programming
- Manual override with status indication
- Battery backup
- Large LCD

#### Ratings

natingo	
Size:	2.37" x 2.37" (60.1 mm x 60.1 mm)
Power Consumption:	4VA
Supply Voltage:	24, 120, 240 VAC
Switch Rating:	SPDT relay
N.O. Contact:	<ul> <li>½ HP, 120 VAC</li> <li>1 HP, 240 VAC</li> <li>12A, Ballast 120 VAC</li> <li>8A, Ballast 240 VAC</li> <li>720 VA, 240 VAC Pilot Duty</li> <li>360 VA, 120 VAC Pilot Duty</li> <li>600W, Tungsten 120 VAC</li> <li>1000W, Tungsten 240 VAC</li> </ul>
N.C. Contact:	16A, 277 VAC Resistive 8A, 24 VDC Pilot Duty 360 VA, 120 VAC Pilot Duty
Wiring Connections:	1/4" quick connect terminals
Operating Temperature:	-13°F to 131°F (-25°C to 55°C) (limited display function at -13°F)
Shipping Weight:	.10 lbs
Warranty:	Limited 1 year





# FM1D20 Series



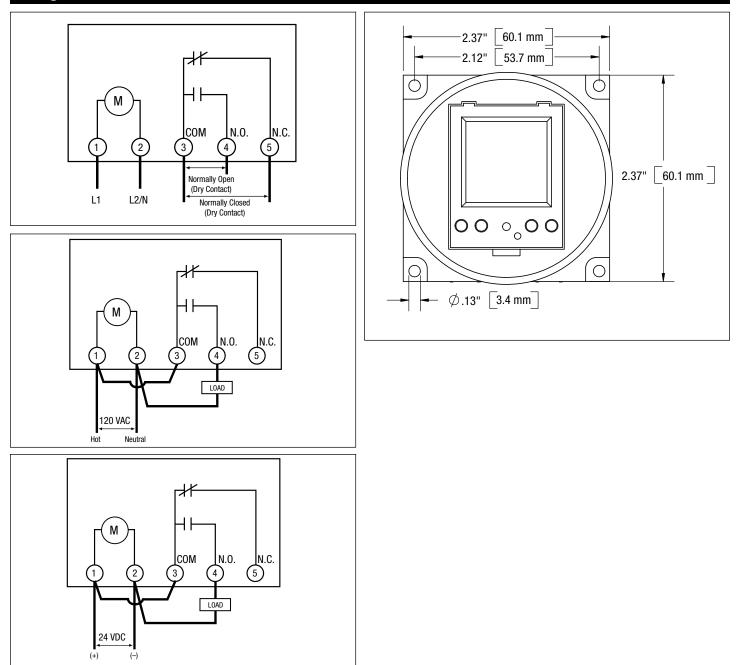
	Voltage	Programs	Mounting
FM1D20-24*	24 VDC, 50/60Hz	20	Panel
FM1D20-120	120 VAC, 50/60Hz	20	Panel
FM1D20-240	240 VAC, 50/60Hz	20	Panel

\*24V model will operate on AC or DC

#### Specification

Furnish and install a Grässlin FM1D20\_\_\_\_24-Hour/7-Day electronic time switch. This 1-circuit control shall have 24-Hour/7-Day programming, 10 ON and 10 OFF setpoint programs, and 3 preset block programs to allow a selection of any combination of days for different weekday schedules. The LCD shall display time of day in AM/PM or 24-Hour (military time) format. A Daylight Saving Time adjustment button shall also be provided. The time switch will be programmable to-the-minute and also offer a manual override for temporary ON or OFF to the next scheduled event. The LCD shall provide load status indication. The SPDT relay output will be rated for 16A Resistive @277 VAC. Reserve carryover of 7 years (non-replaceable, non-rechargeable battery).

#### Diagrams





# **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.

	1	
		r
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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
рН	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 tighening the filter cover.

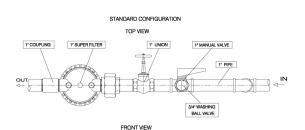
# MAINTENANCE AND CLEANING

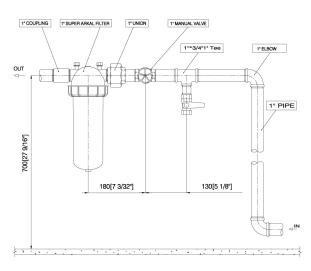
#### DISMANTLING

- 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.
- 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.

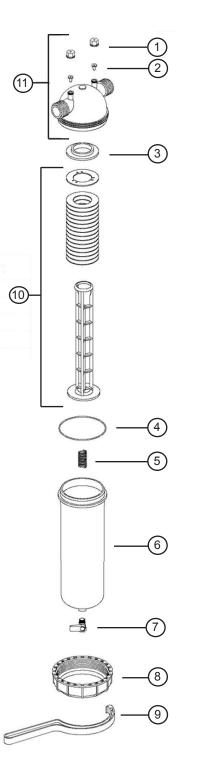
#### WINTERIZATION

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

PART	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	РР						
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							





5470 E. Home Ave. Fresno, CA 93727 888.638.2346 • 559.453.6800 FAX 800.695.4753 www.netafimusa.com

# 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.
- 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 nonpotable
- 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″	
DRIP	PER 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
щ	15	102	94	84	136	127	113	161	151	137
PRESSURE	25	151	136	118	203	184	161	245	223	197
PRES	35	193	171	146	260	232	200	315	283	245
INLET	40	211	186	158	286	254	218	347	311	267
Z	45	228	200	169	310	274	233	377	335	287
Flov	v 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

1	DRIPPER SPACING		12″			18″			24″	
DRIP	PER 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
ш	15	128	115	100	172	155	136	205	187	165
PRESSURE	25	183	161	137	248	220	188	301	268	231
RES	35	228	198	166	310	272	229	379	333	283
INLET	40	248	214	178	338	295	247	413	362	305
≧	45	266	229	190	364	316	263	447	389	327
Flov	/ 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″	
DRIP	PER 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
	15	161	141	119	217	191	164	263	233	201
SUR	25	221	190	157	302	261	218	369	321	270
PRESSURE	35	269	229	187	370	316	260	455	391	324
INLET	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 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 275 201 171 140 235 194 337 15 289 241 PRESSURE 25 266 222 179 366 308 251 453 383 313 35 316 262 210 437 365 295 543 455 369 INLET 40 337 469 393 280 223 391 313 583 487 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″	
DRIP	PER 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
ш	15	248	205	163	344	285	228	427	355	285
PRESSURE	25	315	258	203	440	361	286	549	453	359
PRES	35	367	299	234	513	419	331	643	527	417
INLET I	40	389	316	248	545	445	350	683	559	441
Z	45	409	332	260	574	468	367	721	589	463
Flow	v 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″	
DRIP	PER 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
щ	15	301	242	188	422	341	265	531	429	335
SUR	25	369	296	228	520	418	323	655	527	409
PRESSURE	35	421	337	260	595	476	368	749	603	467
INLET	40	443	354	273	626	501	387	790	635	491
Z	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.

#### Olvera, Brandon

From:	Olvera,Brandon
Sent:	Monday, October 24, 2022 3:19 PM
То:	'jhaag@satx.rr.com'; 'gk94092@yahoo.com'
Subject:	115302

RE: 1165 Eagle Flight Canyon Lake Hills 4 Lot 1922

Property Owner & Agent,

We received planning materials for the referenced permit application on 10-11-2022 and found those planning materials to be deficient. In order to continue processing this permit, we need the following:

Maintenance Contract needs to be signed by the licensed manintenance provider.

- a. Also include the maintenance provider number.
- 2. Revise accordingly and resubmit.

If you have any questions, you can email me or call the office.

Thank You,

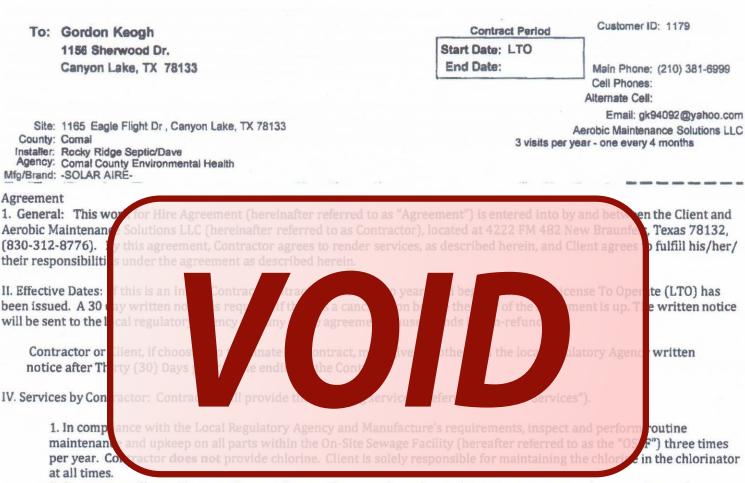
Brandon Olvera | Designated Representative | Comal County | www.cceo.org

195 David Jonas Dr, New Braunfels, TX-78132 | t: 830-608-2090 | f: 830-608-2078 | e: olverb@co.comal.tx.us

#### Aerobic Maintenance Solutions LLC P O Box 311899 New Braunfels, TX 78131

Phone: (830) 312-8776

sherrie@gatcotreatment.com office@aerobicsolutions.net



2. Contractor will provide a weather proof tag on the control panel containing company name, phone number and inspection dates.

Contractor will do inspections 3 times a year, every 4 months.

4. Contractor will report all findings to the appropriate regulatory and authority and to the Client, as required by both the State's On-Site rules and the local Agency's rules. All findings must be reported to local Agency's within 14 days, email is acceptable.

5. The contractor's inspection will include the following; Effluent Quality (Color, Turbity, overflow and Odor), Alarm Function Filters, Operation of Effluent Pump and Chlorine Availability in the Chlorinator, (BOD and TSS Annually on Commercial Accounts, Client is responsible for charges for test)

6. Contractor will respond to client calls and complaints, regarding visual or audible alarms, suspicious conditions and or problems that might confront the Client within 48 hours, excluding weekend and holidays. The Contractor will maintain a 24 hour answering service at 830-312-8776. The unscheduled responses may be billed to the client at going rate.

#### V. Clients Responsibilities:

1. Maintain Chlorinator and Proper Chlorine supply, if OSSF is equipped with.

2. Provide all necessary lawn or yard maintenance and remove all obstacles, including dogs and other animals as needed to allow the OSSF to function properly and to allow the Contractor easy and safe access to all parts of the OSSF.

3. Immediately notify the Contractor of any alarms of problems with, including failure of the OSSF.

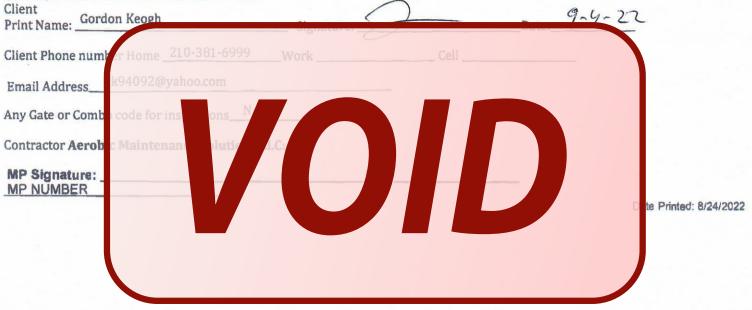
- 4. Provide for pumping of tanks, generally every 3 years or as suggested by the Contractor at Clients own expense.
- 5. Contractor will not be responsible for any warranty work: Client must contact the Installer for Warranty Problems.
- Not allow the backwash from water treatment of water conditioning equipment to enter the OSSF.
- 7. Maintain site drainage to prevent adverse effects on OSSF.

8. Promptly and fully pay Contractor's Bills, Fees or invoices as described herein.

VI. Contractor will schedule with client, dates to perform the above described Services of repairs. If Contractor is not able to access the site on the date of appointment, a charge of \$75.00 will be billed if the inspection for repairs is not able to be completed and are required to be scheduled on another date. The contractor requires access to the OSSF electrical and physical components, including tanks, by means of man ways or risers for the purpose of evaluation of system and equipment as required by the manufacturer and /or rules. If such man ways or risers are not in place, excavation together with other labor and materials will be required and be billed to the Client an additional service at a rate of \$50.00 per hour plus materials billed at list process. Excavated soil is to be replaced as best as reasonably possible.

VII. Payments: The fee for this agreement only covers the Services described herein. This fee does not cover equipment or labor supplied for non-warranty repairs or for charges for unscheduled Client, request trips to the Client's site of pumping of the OSSF. Payments not received within 10 days from the date will be subject to a \$30.00 late penalty and or a 1.5% carrying charge, whichever is greater, in addition to reasonable attorney's fees. And all cost of collection incurred by contractor in collection of any unpaid debt. Invoice due when service is completed. Contract fee is \$\_\_\_\_\_.

VIII. Severability: If any provision of this agreement shall be held to be invalid or unenforceable for any reason the remaining provisions shall continue to be held valid and enforceable. If a court finds that any provision of the agreement is invalid or unenforceable, by limiting such provision it would become valid and enforceable, then such provision shall be deemed to be written, construed and enforced as so limited.



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 0/\_, 2022

Grantor: Arnulfo Quintana, Jr. and wife, Sonia Quintana

#### **Grantor's Mailing Address:**

5822 Northgap St. San Antonio, Texas 78239

Grantee: Gordon Keogh

#### Grantee's Mailing Address:

1156 Sherwood Dr. Canyon Lake, Texas 78133

#### **Consideration:**

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

#### Property (including any improvements):

Lot 1922, CANYON LAKE HILLS, Unit No. 4, Comal County, Texas, according to map or plat thereof recorded in Volume 2, Page 37, Map and Plat Records of 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 2022, which Grantee assumes and agrees to pay, and subsequent assessments for that and prior years due to change in land usage, ownership, or both, the payment of which Grantee 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.

POOR QUALITY

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

a

Arnulfo Quintana, Jr.

Sonia Quintana

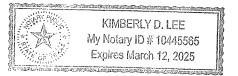
STATE OF TEXAS

COUNTY OF BEXAR

)

)

This instrument was acknowledged before me on March 2022, by Arnulfo Quintana, Jr. and Sonia Quintana.



Notary Public, State of Texas My commission expires:

#### PREPARED IN THE OFFICE OF:

David L. Ricker P. O. Box 1571 Boerne, Texas 78006 Tel: (210) 737-6097

AFTER RECORDING RETURN TO:

Alamo Title Company 434 N. Loop 1604 West, #2208 San Antonio, Texas 78232

**Filed and Recorded Official Public Records Bobbie Koepp, County Clerk Comal County, Texas** 03/02/2022 11:14:43 AM TERRI 2 Pages(s) 202206010000

Bobbie Koepp

#### **Aerobic Maintenance Solutions LLC** P O Box 311899 New Braunfels, TX 78131

To: Gordon Keogh

1156 Sherwood Or. Canyon Lake, TX 78133 Phone: (830) 312-8778

sherrie@gatcotreatment.com office@aerobicsolutions.net

Contract Period	Customer ID: 1179				
Start Date: LTO					
End Date:	Main Phone: (210) 381-6999				
	Cell Phones:				
	Alternate Cell:				
	Email: gk94092@yahoo.com				
	Aerobic Maintenance Solutions LLC				
3 visits per	year - one every 4 months				

Site: 1165 Eagle Flight Dr., Canyon Lake, TX 78133 County: Comal Installer. Rocky Ridge Septic/Dave Agency: Comal County Environmental Health Mfg/Brand: -SOLAR AIRE-

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#### Agreement

1. General: This work for Hire Agreement (hereinafter referred to as "Agreement") is entered into by and between the Client and Aerobic Maintenance Solutions LLC (hereinafter referred to as Contractor), located at 4222 FM 482 New Braunfels, Texas 78132, (830-312-8776). By this agreement, Contractor agrees to render services, as described herein, and Client agrees to fulfill his/her/ their responsibilities under the agreement as described herein.

II. Effective Dates: If this is an Initial Contract, contract will be for two years and begins when the License To Operate (LTO) has been issued. A 30 day written notice is required if there is a cancellation before the year of the agreement is up. The written notice will be sent to the local regulatory Agency and any of the agreement unused funds is non-refundable.

Contractor or Client, if choosing to terminate the contract, must give the other and the local regulatory Agency written notice after Thirty (30) Days prior to the ending of the Contract.

IV. Services by Contractor: Contractor will provide the following services (Referred to as the "Services").

1. In compliance with the Local Regulatory Agency and Manufacture's requirements, inspect and perform routine maintenance and upkeep on all parts within the On-Site Sewage Facility (hereafter referred to as the "OSSF") three times per year. Contractor does not provide chlorine. Client is solely responsible for maintaining the chlorine in the chlorinator at all times.

2. Contractor will provide a weather proof tag on the control panel containing company name, phone number and inspection dates.

3. Contractor will do inspections 3 times a year, every 4 months.

4. Contractor will report all findings to the appropriate regulatory and authority and to the Client, as required by both the State's On-Site rules and the local Agency's rules. All findings must be reported to local Agency's within 14 days, email is acceptable.

5. The contractor's inspection will include the following; Effluent Quality (Color, Turbity, overflow and Odor), Alarm Function Filters, Operation of Effluent Pump and Chlorine Availability in the Chlorinator, (BOD and TSS Annually on Commercial Accounts, Client is responsible for charges for test)

6. Contractor will respond to client calls and complaints, regarding visual or audible alarms, suspicious conditions and or problems that might confront the Client within 48 hours, excluding weekend and holidays. The Contractor will maintain a 24 hour answering service at 830-312-8776. The unscheduled responses may be billed to the client at going rate.

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4. Provide for pumping of tanks, generally every 3 years or as suggested by the Contractor at Clients own expense.

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VIII. Severability: If any provision of this agreement shall be held to be invalid or unenforceable for any reason the remaining provisions shall continue to be held valid and enforceable. If a court finds that any provision of the agreement is invalid or unenforceable, by limiting such provision it would become valid and enforceable, then such provision shall be deemed to be written, construed and enforced as so limited.

Client Print Name:Gordon Keogh	Signatur	e:	Date:
Client Phone number Home 210-381-6999	Work	Cell	<u></u>
Email Addressgk94092@yahoo.com		······	
Any Gate or Combo code for inspections	'A		
Contractor Aerobic Maintenance Solutions	417		
MP Signature:	filer	Date 10/25	2022
MP NUMBER OMPOUOO	796		Dat

Date Printed: 8/24/2022