Preliminary Field Check For Drip Systems

DATE: 6/6/25

INSPECTOR: Hendry

COMMENTS: Probing in the area if the proposed drip field showed an average of 10” of soil above a restrictive horizon.

June 5, 2025

118640

COMAL COUNTY

ENGINEER'S OFFICE

RE: ***425 Lighthouse***
Canyon Lake Hills 1
Lot 251

Dear Property Owner & Agent,

Thank you for your submission. We have reviewed the planning materials for the referenced permit application. To proceed with processing this permit, we require the following:

1. Our office will be conducting a site visit on 06-06-2025
2. Revise accordingly and resubmit.

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

Thank You,

| **Brandon Olvera** | **Designated Representative OS0034792** |

| Comal County | www.cceo.org | f: 830-608-2078 | e: olverb@co.comal.tx.us |

195 David Jonas Dr, New Braunfels, Texas 78132 - Phone (830) 608-2090

RECEIVED
By Kathy Griffin at 2:37 pm, May 13, 2025

COMAL COUNTY
ENGINEER'S OFFICE

OSSF DEVELOPMENT APPLICATION CHECKLIST

Staff will complete shaded items

		118640
Date Received	*Initials*	*Permit Number*

Instructions:

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

OSSF Permit

☒ Completed Application for Permit for Authorization to Construct an On-Site Sewage Facility and License to Operate

☒ Site/Soil Evaluation Completed by a Certified Site Evaluator or a Professional Engineer

☒ Planning Materials of the OSSF as Required by the TCEQ Rules for OSSF Chapter 285. Planning Materials shall consist of a scaled design and all system specifications.

☒ Required Permit Fee - See Attached Fee Schedule

☒ Copy of Recorded Deed

☒ Surface Application/Aerobic Treatment System

- ☒ Recorded Certification of OSSF Requiring Maintenance/Affidavit to the Public
- ☒ Signed Maintenance Contract with Effective Date as Issuance of License to Operate

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

_____ Signature of Applicant

_____ Date

___ COMPLETE APPLICATION

Check No. _____ Receipt No._____

___ INCOMPLETE APPLICATION
(Missing Items Circled, Application Refeused)

Revised: September 2019

RECEIVED
By Kathy Griffin at 2:36 pm, May 13, 2025

COMAL COUNTY
ENGINEER'S OFFICE

ON-SITE SEWAGE FACILITY APPLICATION

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

Date 05/09/2025 Permit Number 118640

1. APPLICANT / AGENT INFORMATION

Owner Name	Havenbrook Homes of Texas, LLC	Agent Name	John J. Haag, P.E.
Mailing Address	17310 FM 306, Box 1	Agent Address	15831 Secret Trails
City, State, Zip	Canyon Lake, Texas 78133	City, State, Zip	San Antonio, Tx. 78247
Phone #	830-935-2098	Phone #	210-705-4268
Email	lars@havenbrooktx.com	Email	jhaag@satx.rr.com

2. LOCATION

Subdivision Name Canyon Lake Hills Unit 1 Lot 251 Block

Survey Name / Abstract Number Acreage 0.21

Address 425 Lighthouse City Canyon Lake State Tx. Zip 78133

3. TYPE OF DEVELOPMENT

☒ Single Family Residential

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

Number of Bedrooms 3

Indicate Sq Ft of Living Area 1314

☐ Non-Single Family Residential

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

Type of Facility

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

Restaurants, Lounges, Theaters - Indicate Number of Seats

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

Travel Trailer/RV Parks - Indicate Number of Spaces

Miscellaneous

Estimated Cost of Construction: $ 220000 (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

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

5/12/25
Date

Revised January 2021

COMAL COUNTY
ENGINEER'S OFFICE

ON-SITE SEWAGE FACILITY APPLICATION

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

Planning Materials & Site Evaluation as Required Completed By John J. Haag, P.E.

System Description Proprietary aerobic treatment with drip disposal

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

Tank Size(s) (Gallons) NuWater B-550 (600 gpd) 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.)

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

05/08/2025
Date

Revised March 2024

1/13

202506013842 05/12/2025 01:43:36 PM 1/1

THE COUNTY OF COMAL

STATE OF TEXAS

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.

I

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.

II

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

Legal Description: Lot 251, Canyon Lake Hills, Unit 1

This property is owned by: Havenbrook Homes of Texas, LLC

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.

WITNESS BY HAND(S) ON THIS 12th DAY OF May, 2025.

Chad Rutten (Owner)

SWORN TO AND SUBSCRIBED BEFORE ME ON THIS 12th DAY OF May, 2025

Notary Public, State of Texas

CARRIE NIELSEN
Notary Public, State of Texas
Comm. Expires 01-30-2026
Notary ID 131429505

Filed and Recorded
Official Public Records
Bobbie Koepp, County Clerk
Comal County, Texas
05/12/2025 01:43:36 PM
TERRI 1 Page(s)
202506013842

Bobbie Koepp

WASTEWATER TREATMENT FACILITY MONITORING AGREEMENT

Regulatory Authority Comal
Block Creek Aerobic Services, LLC
444 A Old Hwy #9
Comfort, TX 78013
Off. (830) 995-3189
Fax. (830) 995-4051

Permit/License Number _____
Customer Havenbrook Homes of Texas, LLC
Site Address 425 Lighthouse
City Canyon Lake **Zip** 78133
Mailing Address 17310 FM 306, Box 1, Canyon Lake, Tx. 78133
County Comal **Map #** _____
Phone 830-935-2098
Email lars@havenbrooktx.com

I. General: This Work for Hire Agreement (hereinafter referred to as "Agreement") is entered into by and between Havenbrook Homes of Texas, LLC (hereinafter referred to as "Customer") and Block Creek Aerobic Services, LLC. By this agreement, Block Creek Aerobic Services, LLC and its employees (hereinafter inclusively referred to as "Contractor") agree to render services at the site address stated above, as described herein, and the Customer agrees to fulfill his/her/their responsibilities, as described herein.

II. Effective Date:

This Agreement commences on License to Construct and ends on _____ for a total of two (2) years (initial agreement) or one (1) year (thereafter). If this is an initial agreement (new installation), the Customer shall notify the Contractor within two (2) business days of the system's first use to establish the date of commencement. If no notification is received by Contractor within ninety (90) days after completion of installation or where county authority mandates, the date of commencement will be the date the "License to operate" (Notice of Approval) was issued by the permitting authority. This agreement may or may not commence at the same time as any warranty period of installed equipment, but in no case shall it extend the specified warranty.

III. Termination of Agreement:

This Agreement may be terminated by either party for any reason, including for example, substantial failure of either party to perform in accordance with the terms of this Agreement, without fault or liability of the terminating party. The terminating party must provide written notice to the non-terminating party thirty (30) days prior to the termination of this Agreement. If this Agreement is terminated, Contractor will be paid at the rate of $75.00 per hour for any work performed and for which compensation has not been received. After the deduction of all outstanding charges, any remaining monies from prepayment for services will be refunded to customer within thirty (30) days of termination of this Agreement. Either party terminating this Agreement for any reason, including non-renewal, shall notify in writing the equipment manufacturer and the appropriate regulatory agency a minimum of thirty (30) days prior to the date of such termination. Nonpayment of any kind shall be considered breach of contract and a termination of contract.

IV. Services:

Contractor will:

a. Inspect and perform routine upkeep on the On-Site Sewage Facility (hereinafter referred to as OSSF) as recommended by the treatment system manufacturer, and required by state and/or local regulation, for a total of three visits to site per year. The list of items checked at each visit shall be the: control panel, Electrical circuits, timer, Aeration including compressor and diffusers, CFM/PSI measured, lids safety pans, pump, compressor, sludge levels, and anything else required as per the manufacturer.

b. Provide a written record of visits to the site by means of an inspection tag attached to or contained in the control panel.

c. Repair or replace, if Contractor has the necessary materials at site, any component of the OSSF found to be failing or inoperative during the course of a routine monitoring visit. If such services are not covered by warranty, and the service(s) cost less than $100.00, Customer hereby authorizes Contractor to perform the service(s) and bill Customer for said service(s). When service costs are greater than $100.00, or if contractor does not have the necessary supplies at the site, Contractor will notify Customer of the required service(s) and the associated cost(s). Customer must notify Contractor of arrangements to affect repair of system with in two (2) business days after said notification.

d. Provide sample collection and laboratory testing of TSS and BOD on a yearly basis (commercial systems only).

e. Forward copies of this Agreement and all reports to the regulatory agency and the Customer.

f. Visit site in response to Customer's request for unscheduled services within forty-eight (48) hours of the date of notification (weekends and holidays excluded) of said request. Unless otherwise covered by warranty, costs for such unscheduled responses will be billed to Customer.

V. Disinfection:

_____ RC

Customer's Initials

Contractor's Initials

_____Not required; X required. The responsibility to maintain the disinfection device(s) and provide any necessary chemicals is that of the Customer.

VI. Electronic Monitoring:

Electronic Monitoring is not included in this Agreement.

VII. Performance of Agreement:

Commencement of performance by Contractor under this Agreement is contingent on the following conditions:

a. If this is an initial Agreement (new installation):

I. Contractor's receipt of a fully executed original copy or facsimile of this agreement and all documentation requested by Contractor.

If the above conditions are not met, Contractor is not obligated to perform any portion of this Agreement.

VIII. Customer's Responsibilities:

The customer is responsible for each and all of the following:

a. Provide all necessary yard or lawn maintenance and removal of all obstacles, including but not limited to dogs and other animals, vehicles, trees, brush, trash, or debris, as needed to allow the OSSF to function properly, and to allow Contractor safe and easy access to all parts of the OSSF.

b. Protect equipment from physical damage including but not limited to that damage caused by insects.

c. Maintain a current license to operate, and abide by the conditions and limitations of that license, and all requirements for and OSSF from the State and/or local regulatory agency, whichever requirements are more stringent, as well as the proprietary system's manufacturer recommendations.

d. Notify Contactor immediately of any and all alarms, and/or any and all problems with, including failure of, the OSSF.

e. Provide, upon request by Contractor, water usage records for the OSSF so that the Contractor can perform a proper evaluation of the performance of the OSSF.

f. Allow for samples at both the inlet and outlet of the OSSF to be obtained by Contractor for the purpose of evaluating the OSSF's performance. If these samples are taken to a laboratory for testing, with the exception of the service provided under Section IV (d) above, Customer agrees to pay Contractor for the sample collection and transportation, portal to portal, at a rate of $35.00 per hour, plus the associated fees for laboratory testing.

g. Prevent the backwash or flushing of water treatment or conditioning equipment from entering the OSSF.

h. Prevent the condensation from air conditioning or refrigeration units, or the drains of icemakers, from hydraulically overloading the aerobic treatment units. Drain lines may discharge into the surface application pump tank if approved by system designer.

i. Provide for pumping and cleaning of tanks and treatment units, when and as recommended by Contactor, at Customer's expense.

j. Maintain site drainage to prevent adverse effects on the OSSF.

k. Pay promptly and fully, all Contractor's fees, bills, or invoices as described herein.

IX. Access by Contractor:

Contractor is hereby granted an easement to the OSSF for the purpose of performing services described herein. Contractor may enter the property during Contractor's normal business hours and/or other reasonable hours without prior notice to Customer to perform the Services and/or repairs described herein. Contractor shall have access to the OSSF electrical and physical components. Tanks and treatment units shall be accessible by means of man ways, or risers and removable covers, for the purpose of evaluation as required by State and/or local rules and the proprietary system manufacturer. It is Customers responsibility to keep lids exposed and accessible at all times.

X. Limit of Liability:

Contractor shall not be held liable for any incidental, consequential, or special damages, or for economic loss due to expense, or for loss of profits or income, or loss of use to Customer, whether in contract tort or any other theory. In no event shall Contractor be liable in an amount exceeding the total Fee for Services amount paid by Customer under this Agreement.

XI. Indemnification:

Customer (whether one or more) shall and does hereby agree to indemnify, hold harmless and defend Contractor and each of its successors, assigns, heirs, legal representatives, devisees, employees, agents and/or counsel (collectively "Indemnitees") from and against any and all liabilities, claims, damages, losses, liens, causes of action, suits, fines, judgments and other expenses (including, but not limited to, attorneys' fees and expenses and costs of investigation), of any kind, nature or description, (hereinafter collectively referred to as "Liabilities") arising out of, caused by, or resulting, in whole or in part, from this Agreement.

RC

Customer's Initials

Contractor's Initials

THIS INDEMNITIFCATION APPLIES EVEN IF SUCH LIABILITIES ARE CAUSED BY THE CONCURRENT OR CONTRIBUTORY NEGLIGENCE OR BY THE STRICT LIABILITY OF ANY INDEMNITEE.

Customer hereby waives its right of recourse as to any Indemnitee when Indemnification applies, and Customer shall require its insurer(s) to waive its/their right of subrogation to the extent such action is required to render such waiver of subrogation effective. Customer shall be subrogated to Indemnitees with respect to all rights Indemnitees may have against third parties with respect to matters as to which Customer provides indemnity and/or defense to Indemnitees. No Indemnification is provided to Indemnitees when the liability or loss results from (1) the sole responsibility of such Indemnitee; or, (2) the willful misconduct of such Indemnitee. Upon irrevocable acceptance of this Indemnification obligation, Customer, in its sole discretion, shall select and pay counsel to defend Indemnitees of and from any action that is subject to this Indemnification provision. Indemnitees hereby covenant not to compromise or settle any claim or cause of action for which Customer has provided Indemnification without the consent of Customer.

XII. Severability:

If any provision of the "Proposal and Contract" shall be held to be invalid or unenforceable for any reason, the remaining provisions shall continue to be valid and enforceable. If a court finds that any provision of the "Agreement" is invalid or unenforceable, but that 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.

XIII. Fee for Services:

The Fee for Services does not include any fees for equipment, material, labor necessary for non-warranty repairs, unscheduled inspections, or Customer requested visits to the site.

XIV. Payment:

Full payment is due upon execution of this Agreement (Required of new Customer). For any other service(s) or repair(s) provided by Contractor the Customer shall pay the invoice(s) for said service(s) or repair(s) within thirty (30) days of the invoice date. The Contractor shall mail all invoices on the date of invoice. All payments not received within thirty (30) days from the invoice date will be subject to a $29.00 late penalty and a 1.5% per month carrying charge, as well as any reasonable attorney's fees, and all collection and court costs incurred by Contractor in collection of unpaid debt(s). Contractor may terminate contract at any time for nonpayment for services. Any check returned to Contractor for any reason will be assessed a $30.00 return check fee.

XV. Application or Transfer of payment:

The fees paid for this agreement may be transferred to subsequent property owner(s); however, this Agreement is not transferable. Customer shall advise the subsequent property owner(s) of the State requirement that they sign a replacement agreement authorizing Contractor to perform the herein described Services, and accepting Customer's Responsibilities. This replacement Agreement must be signed and received in Contractor's offices within ten (10) business days of date of transfer of property ownership. Contractor will apply all funds received from Customer first to any past due obligation arising from this Agreement including late fees or penalties, return check fees, and/or charges for services or repairs not paid within thirty (30) days of invoice date. Any remaining monies shall be applied to the funding of the replacement Agreement. The consumption of funds in this manner may cause a reduction in the termination date of effective coverage per this Agreement. See Section IV.

XVI. Entire Agreement:

This agreement contains the entire Agreement of the parties, and there are no other conditions in any other agreement, oral or written.

Rudy Carson

Block Creek Aerobic Services, LLC,
Contractor
MP# 0002036

Customer Signature

5/12/25
Date

RC

Customer's Initials

Contractor's Initials

ON-SITE SEWAGE FACILITY (OSSF)
SITE EVALUATION FORM

1. OWNER INFORMATION
Property Owner's Full Legal Name: Havenbrook Homes of Texas, LLC

2. PROPERTY INFORMATION				
City: Canyon Lake			Zip Code: 78133	
Legal Description:				
Lot: 251	Block:	Subdivision: Canyon Lake Hills	Unit: 1	Phase:
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: 05/12/2025	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 Hole Number: 1					
Depth (ft.)	Textural Class	Gravel Analysis	Drainage (Mottles/Water Table)	Restrictive Horizon	Observations
0	III	<30%	No	Yes	Type III to approx. 4" then hand auger refusal
1					
2					
3					
4					
5					

ON-SITE SEWAGE FACILITY (OSSF)
SITE EVALUATION FORM

Soil Profile Hole Number: 2					
Depth (ft.)	Textural Class	Gravel Analysis	Drainage (Mottles/Water Table)	Restrictive Horizon	Observations
0	III	<30%	No	Yes	Type III to approx. 10" then hand auger refusal
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	☐ Yes	☒ No
Existing or proposed water well in nearby area	☐ Yes	☒ No
Organized sewage available to lot or tract	☐ Yes	☒ No
Recharge features within 150 feet	☐ Yes	☒ No

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

05/12/2025

Haag Engineering Consultants, LLC
Firm: F-5789

AEROBIC TREATMENT
DRIP TUBING SYSTEM
FOR:
LOT 251, LIGHTHOUSE
CANYON LAKE HILLS, UNIT 1

SITE DESCRIPTION:

Located in Canyon Lake Hills, Unit 1, Lot 251 the proposed system will serve at 3-bedroom, 1314 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 NuWater B-550 (600 gpd) aerobic treatment plant containing a 353 gallon pretreatment tank and a 768 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 time controller allowing the distribution ten times per day with a 7-minute run time 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 35psi 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 pump 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 sodded with grass prior to system startup. The tank must have risers 2-inches minimum above finished grade 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 July 6, 2023. 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: 353 gal
Plant size: NuWater B-550; 600 gpd (TCEQ approved)
Pump tank size: 768 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 (1,280 sf actual)
Total linear feet of drip tubing: 640' Netifim Bioline drip tubing 0.61 gph
Pump requirement: 0.5 HP Franklin C1-Series-20XC1-05P4-2W115

Calculation Outputs

Total System Information

Application Area Required (square feet)	1,280
Total Amount of Bioline® Required (feet)	640
Total Number of Emitters in the Dripfield	320

Zone Information

Number of Zones	1
Amount of Bioline® Per Zone (feet)	640
Number of Emitters Per Zone	320
Minimum Number of Laterals Per Zone	1
Maximum Number of Laterals Per Zone	11
Number of Laterals That Will be Used	3
Maximum Length of Bioline® Laterals Based on Inlet Pressure	391
Flow Rate Per Zone (GPM)	3.3
Holding Capacity of Dripperline Per Zone (Gallons)	8.5
Additional Flow Requirement to Accommodate Flushing Velocity	4.8

Holding Capacity of Piping

Holding Capacity (Gallons) of Supply Line & Supply & Flush Manifolds	14.8
Holding Capacity (Gallons per Zone) of Bioline	8.5
Holding Capacity (Gallons) of Supply Line, Manifolds and Dripperline	23.3

Head Loss Data - Dosing & Flushing Cycle

Friction Loss per 100' (psi) in Supply Line & Manifolds	1.6
Velocity (fps)	3.0
Friction Loss in Supply Line & Supply Manifolds (psi)	5.3
Friction Loss in Supply Line & Supply Manifolds (Feet of Head)	12.2
Additional Pressure Required for Return Manifold and Piping to Tank (psi)	2.0
Additional Pressure Required for Return Manifold and Piping to Tank (Feet of Head)	4.6
TDH (Total Dynamic Head) in Feet of Head	106.7

Control Settings Information

Total System Runtime Per Day (Minutes)	74
Total Runtime Per Zone Per Day (Minutes)	74
Total System Dosing Events Per Day	10
Runtime For Each Dose (Minutes)	7
Off Time Between Doses in the Same Zone (Hours to nearest 0.1)	2.3

Miscellaneous Information

Dosing Volume Per Emitter Per Dose (gallons)	0.08
Inches Per Week of Dosing	2.11
Volume of a Single Dose (gallons)	26.0

Pump Selection

Pump Flow Rating (GPM)	8.1
TDH (Total Dynamic Head in Feet of Head)	106.7
Pump Manufacturer	Franklin
Pump Model	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.

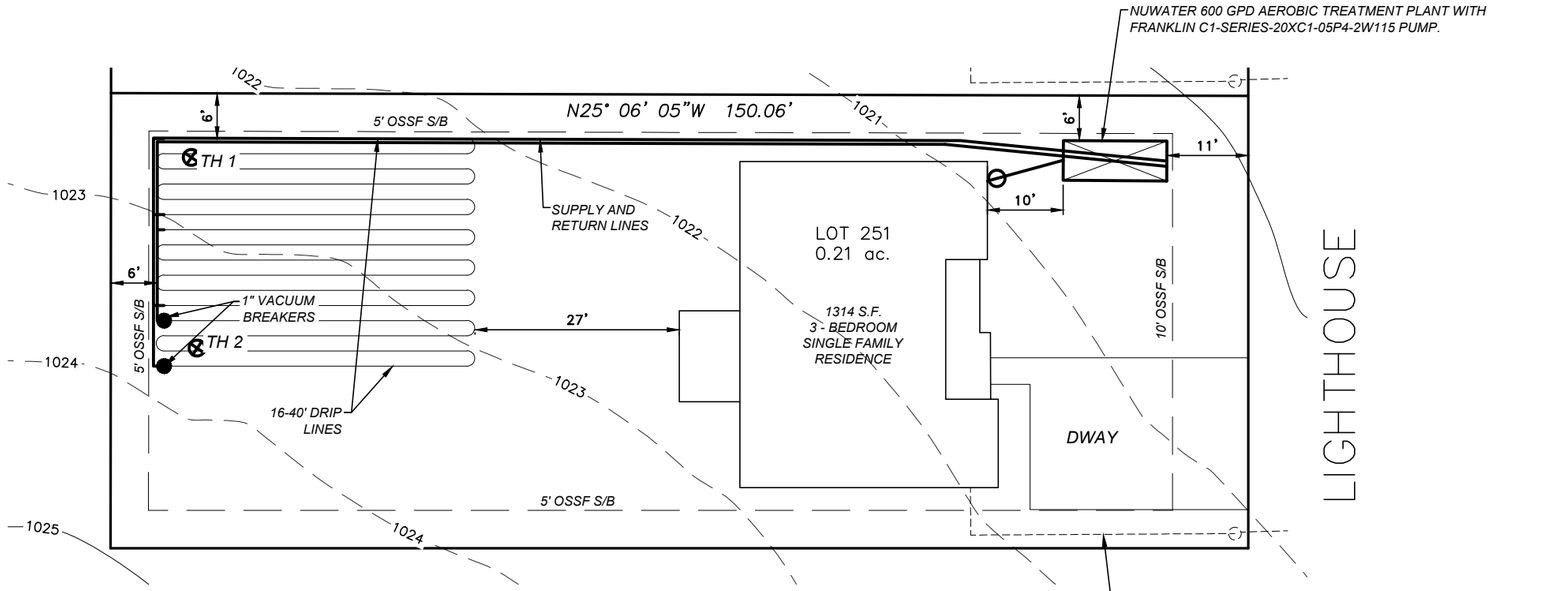
Designed in accordance with Chapter 285, Subchapter D, §285 and §285.40 Texas Commission on Environmental Quality (Revised March 2013).

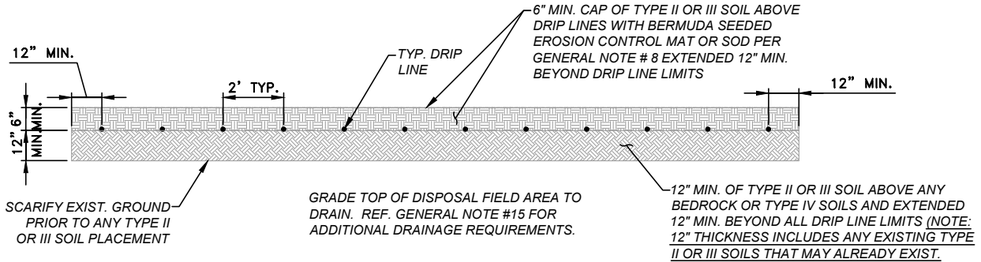
05/12/2023

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

GENERAL NOTES:

1. NO VEHICULAR TRAFFIC IS ALLOWED ON ANY PORTION OF THE DISPOSAL SYSTEM, UNLESS THE DESIGN SPECIFIES OTHERWISE.
2. 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).
3. CONTRACTOR SHALL PROTECT TREES WHICH ARE NOT IN THE EXCAVATED CONSTRUCTION AREAS. CONTRACTOR SHALL MINIMIZE ROOT DAMAGE AND REASONABLY ADHERE TO THE DESIGN.
4. CONTRACTOR IS RESPONSIBLE FOR VERIFYING A MINIMUM OF 1/4" PER FOOT OF FALL FROM THE BUILDING TO THE SEPTIC TANK.
5. 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.
6. 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.
8. THE DRIP FIELD SHALL BE VEGETATED WITH EITHER BERMUDA SEEDED EROSION CONTROL MAT, ST. AUGUSTINE SOD 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.
12. 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.
16. 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. 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.
18. 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.
19. 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.
20. CONTRACTOR SHALL BE RESPONSIBLE TO ENSURE THAT ALL TANKS HAVE ADEQUATE STRENGTH AND INTEGRITY TO PERFORM SATISFACTORILY AS SHOWN ON THESE PLANS.
21. THE WASTEWATER FLOW TO THE SEPTIC SYSTEM SHALL NOT EXCEED THE DESIGN FLOW SHOWN ON THIS PLAN.





DRIP FIELD CROSS SECTION
SCALE: 1"=5'

1" = 20'

STATE OF TEXAS
JOHN J. HAAG
90158
LICENSED
PROFESSIONAL ENGINEER

05/12/25

OSSF LAYOUT
LOT 251, CANYON LAKE HILLS, UNIT 1
CANYON LAKE, TEXAS

ADD'L. NOTES:
1. DESIGN DAILY WASTEWATER FLOW = 240 GPD (WATER SAVING DEVICES WERE ASSUMED FOR SEPTIC SYSTEM DESIGN).
2. TOPOGRAPHIC DATA SOURCE: FEMA 2011 DATA
3. INSTALLER SHALL VERIFY ALL EASEMENTS, SETBACKS AND PROPERTY LINE BEARINGS AND DISTANCES PRIOR TO CONSTRUCTION.
3. ALL RISERS SHALL MEET THE MINIMUM REQUIREMENST OF 30 TAC 285 EFFECTIVE 07/06/2023.

NOTE: OSSF IS NOT WITHIN THE EDWARDS AQUIFER RECHARGE ZONE OR FEMA 100 YEAR FLOODPLAIN.
SITE EVALUATION BY JOHN J. HAAG, P.E. ON 05/12/2025

DRAWN BY: JJH
CHECKED BY: JJH
DATE: 05/12/25
JOB NO. RUT25003

SHEET 1 OF 1

HAAG ENGINEERING CONSULTANTS
15831 SECRET TRAILS
SAN ANTONIO, TEXAS 78247
FIRM: F-5789
TEL: (210) 705-4268

Assembly Details

OSSF

Pump float settings for 240 gpd design flow and min. 80 gal reserve:

Pump off position: 12 inches above tank bottom (166.90 gal)

Pump on position: 29 inches above tank bottom (409.90 gal)

Alarm on position: 36 inches above tank bottom (512.22 gal)

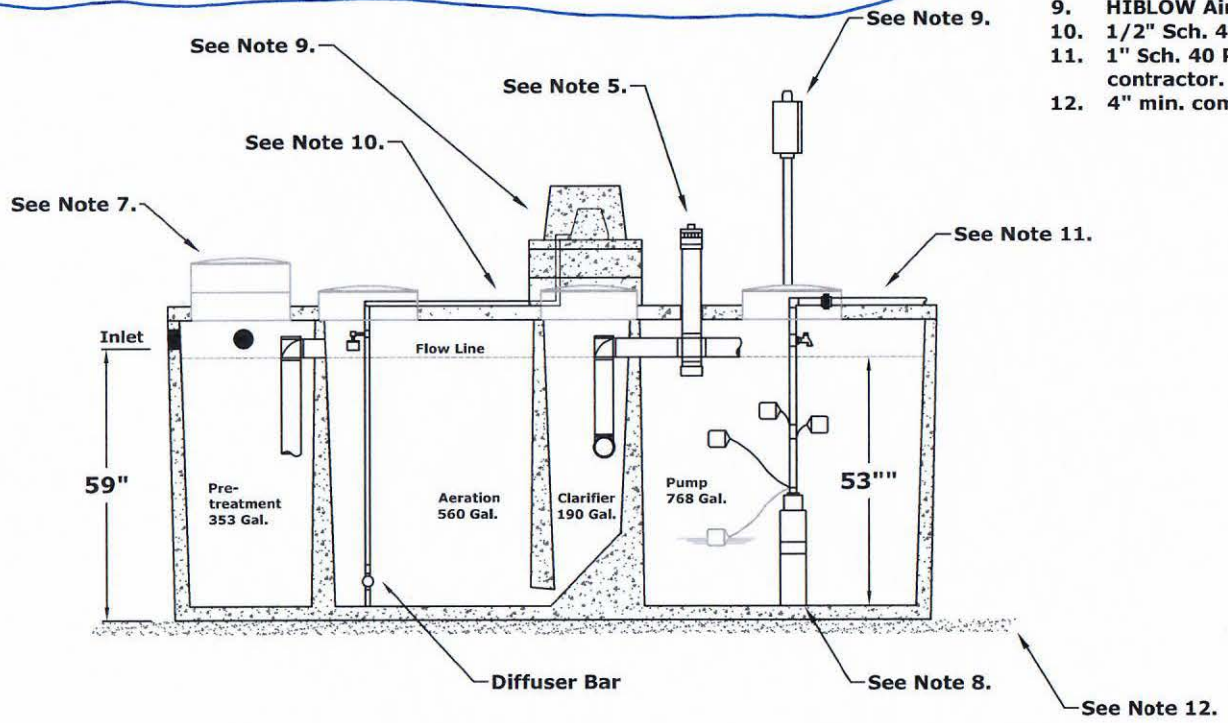
254.04 gal reserve capacity at approx. 53 inches above tank bottom

STATE OF TEXAS
JOHN J. HAAG
90158
LICENSED
PROFESSIONAL ENGINEER

06/26/18

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 = 14,900 lbs.
4. Treatment capacity is 600 GPD. Pump compartment set-up for a 360 GPD Flow Rate (4 beedroom, < 4,000 sq/ft living aera). Please specify for additional set-up requirements. BOD Loading = 1.62 lbs. per day.
5. Standard tablet chlorinator or Optional Liquid chlorinator. NSF approved chlorinators (tablet & liquid) available.
6. Bio-Robix B-550 Control Center w/ Timer for night spray application. Optional Micro Dose (min/sec)timer available for drip applications. Electrical Requirement to be 115 Volts, 60 Hz, Single Phase, 30 AMP, Grounded Receptacle.
7. 20" Ø acess riser w/ lid (Typical 4). Optional extension risers available.
8. 20 GPM 1/2 HP, high head effluent pump.
9. HIBLOW Air Compressor w/ concrete housing.
10. 1/2" Sch. 40 PVC Air Line (Max. 50 Lft from Plant).
11. 1" Sch. 40 PVC pipe to distribution system provided by contractor.
12. 4" min. compacted sand or gravel pad by Contractor



DIMENSIONS:

Outside Height: 67"
Outside Width: 63"
Outside Length: 164"

MINIMUM EXCAVATION DIMENSIONS:

Width: 76"
Length: 176"

NuWater B-550 (600 GPD) Aerobic Treatment Plant (Assembled)

Model: B-550-PC-400PT

March, 2012 - Rev 1
By: A.S.

Scale:
* All Dimensions subject to allowable specification tolerances.

Dwg. #: ADV-B550-3

Advantage Wastewater Solutions llc

Advantage Wastewater Solutions llc.
444 A Old Hwy No 9
Comfort, TX 78013
830-995-3189
fax 830-995-4051

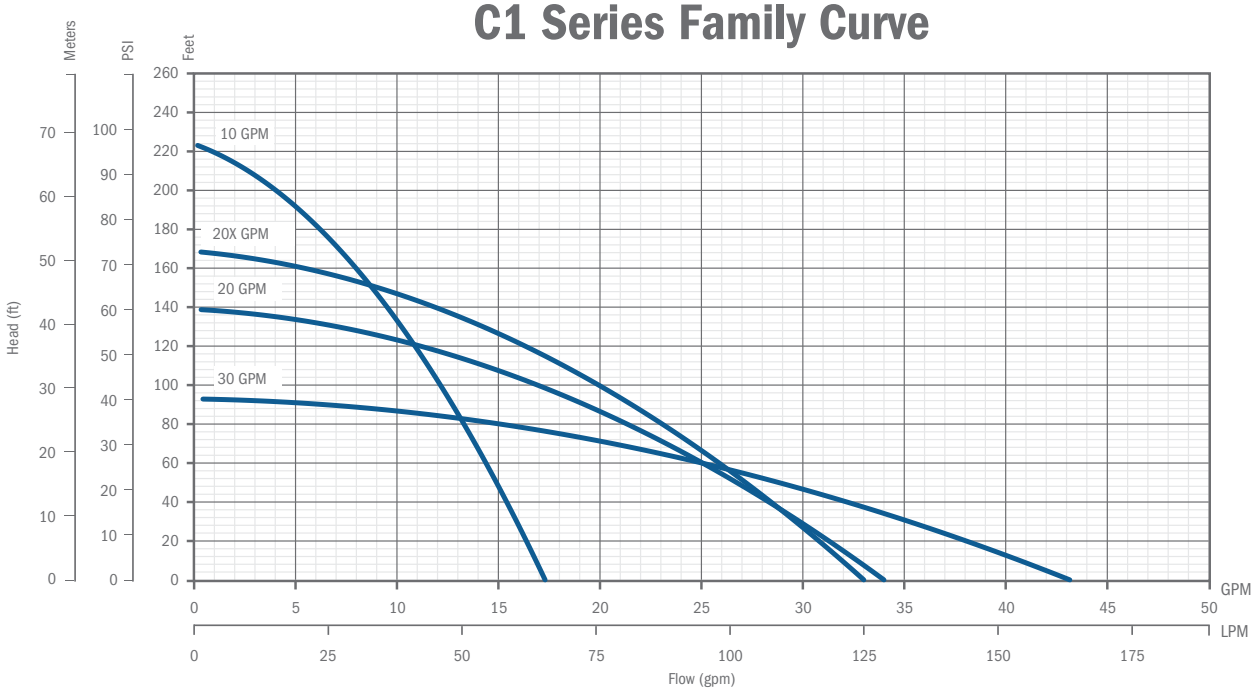
C1 SERIES
CISTERN PUMPS

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.

Franklin Electric

C1 Series Family Curve



FEATURES

- Supplied with a removable 5" base for secure and reliable mounting
- Bottom suction design
- Robust thermoplastic discharge head design resists breakage during installation and operation
- 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 SJOOW jacketed lead

APPLICATIONS

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

ORDERING INFORMATION

C1 Series Pumps							
GPM	HP	Volts	Stage	Model No.	Order No.	Length (in)	Weight (lbs)
10	1/2	115	7	10C1-05P4-2W115	90301005	26	17
		230	7	10C1-05P4-2W230	90301010	26	17
20		115	5	20C1-05P4-2W115	90302005	25	16
		230	5	20C1-05P4-2W230	90302010	25	16
20X		115	6	20XC1-05P4-2W115	90302015	26	17
		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.

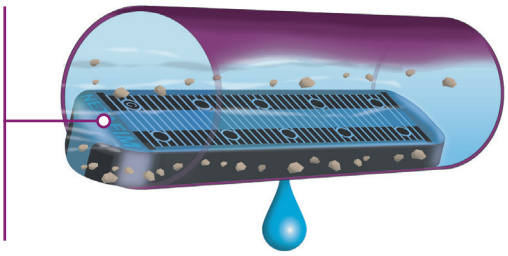
WASTEWATER DIVISION

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 non-potable
- Coil lengths: 500' or 1,000' (Blank tubing in 250')
- Recommended filtration: 120 mesh
- Bending radius: 7"
- UV resistant
- Tubing material: Linear low-density polyethylene

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

BIOLINE DRIPLINE

MAXIMUM LENGTH OF A SINGLE LATERAL WITH 3.0 fps FLUSH VELOCITY

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

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

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

MAXIMUM LENGTH OF A SINGLE LATERAL WITH 2.5 fps FLUSH VELOCITY

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

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

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

MAXIMUM LENGTH OF A SINGLE LATERAL WITH 2.0 fps FLUSH VELOCITY

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

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

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

MAXIMUM LENGTH OF A SINGLE LATERAL WITH 1.5 fps FLUSH VELOCITY

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

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

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

MAXIMUM LENGTH OF A SINGLE LATERAL WITH 1.0 fps FLUSH VELOCITY

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

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

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

MAXIMUM LENGTH OF A SINGLE LATERAL WITH 0.5 fps FLUSH VELOCITY

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

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

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

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

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

ORT/GF#16812 Closer RS
NB

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

THE STATE OF TEXAS §
KNOW ALL MEN BY THESE PRESENTS:
COUNTY OF COMAL §

THAT **RODRIGO J. SOLIS, not joined herein by my spouse, if any, because the herein conveyed property forms no part of any property claimed as homestead,** hereinafter called Grantor, for and in consideration of the sum of TEN AND NO/100 DOLLARS ($10.00) cash and other good and valuable consideration in hand paid by **HAVENBROOK HOMES OF TEXAS, LLC,** hereinafter called Grantee, the receipt and sufficiency of which is hereby acknowledged;

HAS GRANTED, SOLD and CONVEYED, and by these presents does GRANT, SELL and CONVEY unto the said Grantee the following described property situated in Comal County, Texas, to-wit:

> **Lot 251 of CANYON LAKE HILLS UNIT NO. 1,** a subdivision in Comal County, Texas, according to the plat recorded in **Volume 2, Page 17,** Map and Plat Records, Comal County, Texas.

This conveyance is made subject to, all and singular, the restrictions, conditions, easements, and covenants, if any, applicable to and enforceable against the above described property as reflected by the records of the County Clerk of Comal County, Texas.

Taxes for the current year have been prorated and are thereafter assumed by Grantee.

TO HAVE AND TO HOLD the above described premises, together with, all and singular, the rights and appurtenances thereto *in anywise belonging unto the said* Grantee, Grantee's heirs, executors, administrators, successors, or assigns forever.

Grantor does hereby bind Grantor, Grantor's heirs, executors, administrators, and successors to warrant and forever defend, all and singular, the said premises unto the said 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 7th day of **February, 2025**.

RODRIGO J. SOLIS

STATE OF TEXAS §
COUNTY OF Bexar §

This instrument was acknowledged before me on this the 7th day of **February, 2025**, by **RODRIGO J. SOLIS.**

CONNIE S. SMITH
Notary Public, State of Texas
Comm. Expires 03-24-2028
Notary ID 3442297

Notary Public, State of Texas

GRANTEE'S MAILING ADDRESS:
17310 Fm 306
Canyon Lake, TX 78133

3113.deeds
Old Republic Title Co (RS)
GF #16812nb

Filed and Recorded
Official Public Records
Bobbie Koepp, County Clerk
Comal County, Texas
02/11/2025 08:09:20 AM
TERRI 2 Pages(s)
202506003882

Bobbie Koepp

OLD REPUBLIC TITLE

290 S Castell Ave Ste 200, New Braunfels, TX 78130 : 830.608.1551

February 24, 2025

Havenbrook Homes of Texas, LLC
c/o Gary Rutten
17310 Fm 306
Canyon Lake, TX 78133

Re: Our GF# 16550NB RS
Havenbrook Homes of Texas, LLC
425 Lighthouse, Canyon Lake, TX 78133

Dear Gary,

Enclosed herewith please find the following:

Original recorded Correction Affidavit

Your title policy will be emailed to you once completed. Should you have any questions, please feel free to give me a call.

Thank You,

Old Republic Title
Yvette Medina
Escrow Assistant to Renay Smith

CORRECTION INSTRUMENT AS TO A RECORDED ORIGINAL INSTRUMENT

[Non-material correction pursuant to §5.028, Texas Property Code, where the parties to the recorded original Instrument have not signed the correction affidavit (Instrument)]

Date: February 20, 2025
GF# 16812NB RS
Title Company: Old Republic Title
Affiant: Renay Smith

Description of Original Instrument (include name of instrument, date, parties and recording information):

> Warranty Deed filed February 11, 2025 with Document number 202506003882, filed in Comal County, Texas
> Grantor is Rodrigo J. Solis, not joined herein by my spouse, if any, because the herein conveyed property forms no part of any property claimed as homestead
> Grantee is Havenbrook Homes of Texas

Affiant on oath swears that the following statements are true and within the personal knowledge of Affiant:

1. My name is Renay Smith. My address is 290 S. Castell Avenue, Suite 200, New Braunfels, TX 78130. I am over the age of eighteen (18) years and am otherwise competent to make this Correction Affidavit.

2. I have personal knowledge of the facts relevant to the correction of the above referenced Original Instrument as evidenced by the following facts (describe facts indicating personal knowledge below):
    a. The real estate transaction resulting in the recording of the above reference Original Instrument was closed by a Title Company. I have reviewed Title Company's electronic files and the instruments recorded in public records in connection with the real estate transaction.

3. I am making this Affidavit as a correction instrument pursuant to §5.028 of the Texas Property Code, with regard to the following clerical error in the Original Instrument (describe error below):
    a. The Warranty Deed was filed with the following issues;
    Incomplete Grantee's Name

CORRECTION INSTRUMENT AS TO A RECORDED ORIGINAL INSTRUMENT

[Non-material correction pursuant to §5.028, Texas Property Code, where the parties to the recorded original Instrument have not signed the correction affidavit (Instrument)]

Date: February 20, 2025
GF# 16812NB RS
Title Company: Old Republic Title
Affiant: Renay Smith

Description of Original Instrument (include name of instrument, date, parties and recording information):

> Warranty Deed filed February 11, 2025 with Document number 202506003882, filed in Comal County, Texas
> Grantor is Rodrigo J. Solis, not joined herein by my spouse, if any, because the herein conveyed property forms no part of any property claimed as homestead
> Grantee is Havenbrook Homes of Texas

Affiant on oath swears that the following statements are true and within the personal knowledge of Affiant:

1. My name is Renay Smith. My address is 290 S. Castell Avenue, Suite 200, New Braunfels, TX 78130. I am over the age of eighteen (18) years and am otherwise competent to make this Correction Affidavit.

2. I have personal knowledge of the facts relevant to the correction of the above referenced Original Instrument as evidenced by the following facts (describe facts indicating personal knowledge below):

    a. The real estate transaction resulting in the recording of the above reference Original Instrument was closed by a Title Company. I have reviewed Title Company's electronic files and the instruments recorded in public records in connection with the real estate transaction.

3. I am making this Affidavit as a correction instrument pursuant to §5.028 of the Texas Property Code, with regard to the following clerical error in the Original Instrument (describe error below):

    a. The Warranty Deed was filed with the following issues;
    Incomplete Grantee's Name

4. The Original Instrument should correctly read as follows with respect to the clerical error described above, this being a non-material change to the Original Instrument (Insert corrected language below):

   The correct Grantee's Name should read HAVENBROOK HOMES OF TEXAS, LLC, a Texas Limited Liability Company

5. I have given notice of this correction of the Original Instrument by sending a copy of this Correction Affidavit by mail to each party to the Original Instrument, in accordance with §5.028 (d) (2) of the Texas Property Code. The evidence of said notice is attached to this affidavit as required by §5.028 (d) (l) of the Texas Property Code.

AFFIANT:

Renay Smith

Renay Smith

STATE OF TEXAS §
COUNTY OF COMAL §

SWORN TO AND SUBSCRIBED before me on this 20TH day of February, 2025 by Renay Smith, to certify which witness my hand and seal of office.

YVETTE M. MEDINA
Notary Public, State of Texas
Comm. Expires 11-06-2026
Notary ID 7336288

Yvette M. Medina

Notary Public, State of Texas
Notary Name Printed: Yvette M. Medina

4. The Original Instrument should correctly read as follows with respect to the clerical error described above, this being a non-material change to the Original Instrument (Insert corrected language below):

   The correct Grantee's Name should read HAVENBROOK HOMES OF TEXAS, LLC, a Texas Limited Liability Company

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AFFIANT:

Renay Smith

STATE OF TEXAS §
COUNTY OF COMAL §

SWORN TO AND SUBSCRIBED before me on this 20TH day of February, 2025 by Renay Smith, to certify which witness my hand and seal of office.

YVETTE M. MEDINA
Notary Public, State of Texas
Comm. Expires 11-06-2026
Notary ID 7336286

Notary Public, State of Texas
Notary Name Printed: Yvette M. Medina

Filed and Recorded
Official Public Records
Bobbie Koepp, County Clerk
Comal County, Texas
02/20/2025 02:22:54 PM
JESS 2 Pages(s)
202506004907

Bobbie Koepp