

Comal County OSSF Inspection Sheet

Permit#: 103033 Location: C.L. Village / 510 Rhodes Dr.

Installer Name: Countryside License # 050002929
(if more than one installer is used list them according to inspection)

1st Inspection: 07-12/18/15 2nd Inspection: _____ Final Inspection: _____
(inspector initials & date) (inspector initials & date) (inspector initials & date)

Are additional inspections required: _____

Re-inspection fee owed: _____ Re-inspection fee paid: _____

Existing soil conditions:

Site/soil conditions match soil evaluation: Notes: _____

System Description:

Aerobic with spray: Aerobic with drip emitters: _____ Low Pressure Dosing: _____ Absorptive drainfield: _____
Evapotranspirative (ET) system: _____ Gravel-less drainfield piping: _____ Leaching chambers: _____
Soil substitution drainfield: _____ other: _____

Tank Inspection:

Tank set level & watertight: Inlet/Outlet: Tank Size or GPD: 600 Manuf./Brand: NORWELCO
Model#: _____ Pump Tank Size: _____ Alarms/Audible & Visual: _____ Operational: _____
Is timer required/provided?: _____ Chlorination required/provided? _____

Notes: Tank set only, tested.

Maintenance Tag for Aerobic: () _____

System installation:

Pipe check/house to tank: _____ Clean-out at structure/every 50 ft./@90's _____ Pipe check/tank to drainfield: _____
(1/8"-ft., SDR 26 or Sch. 40)
Trenches/Excavations: Width/Depth: _____ Trenches/Excavations Level: _____ Pipe & Gravel: _____
Slope within drainfield/spray area: _____ Leaching Chambers: _____ GeoTex: _____
Spray irrigation purple pipe: _____ Spray irrigation area checked: _____

Notes:

Separation Distances

Prop. Lines: _____ Water lines: _____ Water Wells: _____ Bldgs/Driveway/Improvements: _____ Creeks/Rivers/Ponds: _____
Drainage Easements/Sharp Slopes: _____ If over Recharge Zone check for recharge features: _____ Are there water
lines crossing tightlines/or within 10 feet of system?: _____ Have they been properly sleeved: _____ Are there sewer
lines crossing under driveways, sidewalks, or within 5 ft. of surface improvements: _____ Have the sewer lines been
properly sleeved?: _____

Notes:

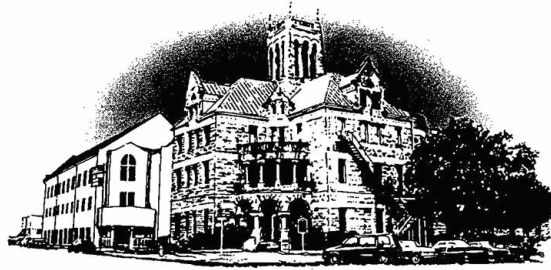
Final Inspection:

Tank(s) Backfilled: _____
System Backfilled: _____ ET Systems Class II backfill & vegetative cover for transpiration in place: _____
Surface application area properly landscaped/vegetation acceptable: _____

Notes:

Size of Installed Drainfield/Spray Area: 1500 sq. ft. drip-emitters.

_____ Check here to confirm that service agreement has been received, entered and activated in CASST.



Comal County

OFFICE OF COMAL COUNTY ENGINEER

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

Permit Number: 103033
Issued This Date: 04/17/2015
This permit is hereby given to: Laura L. & Glenn E, Graef

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

510 RHODES
CANYON LAKE, TX 78133

Subdivision: Canyon Lake Village
Unit: 2
Lot: A3 & D3
Block:
Acreage:

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.

OSSF/FLOOD PLAIN DEVELOPMENT
APPLICATION CHECKLIST

Staff will complete shaded items

[Shaded box for Date Received]

Date Received

Initials

[Shaded box for Permit Number]

Permit Number

Instructions:

Place a check mark next to all items that apply. For items that do not apply, place "N/A". This OSSF Permit Application Completion Form **must** accompany 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
- Surface Application/Aerobic Treatment System
- Recorded Certification of OSSF Requiring Maintenance/Affidavit to the Public

Floodplain Development Permit

- Completed Application
- Boundary Map Indicating Location of Proposed Improvements
- Copy of Recorded Deed
- Required Permit Fee

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COMPLETE APPLICATION

INCOMPLETE APPLICATION
(Missing Items Circled, Application Refused)

*** COMAL COUNTY OFFICE OF ENVIRONMENTAL HEALTH ***

APPLICATION FOR PERMIT FOR AUTHORIZATION TO CONSTRUCT AN ON-SITE SEWAGE FACILITY AND LICENSE TO OPERATE

Date March 24, 2015

Permit # 103033

Owner Name LAURA L. & GLENN E, GRAEF
Mailing Address 13919 CHARTERHOUSE WAY
City, State, Zip SUGAR LAND, TEXAS 77498
Phone # (713) 254-3717
Email _____

Agent Name: GREG W. JOHNSON, P.E.
Agent Address: 170 HOLLOW OAK
City, State, Zip: NEW BRAUNFELS, TEXAS 78132
Phone #: (830) 905-2778
Email: _____

All correspondence should be sent to. Owner Agent Both Method: Mail Email

Subdivision Name CANYON LAKE VILLAGE Unit/Phase/Section 2 Lot A3 & D3 Block _____

Acreage/Legal _____

Street Name/Address 510 RHODES City CANYON LAKE Zip 78133

Type of Development:

Single Family Residential

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

Number of Bedrooms 3

Indicate Sq Ft of Living Area 1900

Commercial or Institutional Facility

(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 _____

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

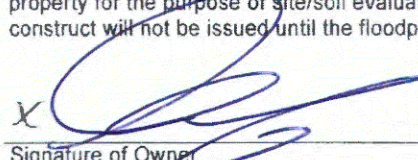
Yes No

(if yes, owner must provide approval from USACE for proposed OSSF improvements within the USACE flowage easement)

Source of Water Public Private Well Other: _____

Are Water Saving Devices Being Utilized Within the Residence? Yes No

I certify that the completed application and all additional information submitted does not contain any false information and does not conceal any material facts. 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 also understand that a permit of authorization to construct will not be issued until the floodplain administrator has approved and released the development permit for this property.


Signature of Owner

Date March 24, 2015

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*** COMAL COUNTY OFFICE OF ENVIRONMENTAL HEALTH ***

APPLICATION FOR PERMIT FOR AUTHORIZATION TO CONSTRUCT AN ON-SITE SEWAGE FACILITY AND LICENSE TO OPERATE

103033

Planning Materials & Site Evaluation as Required Completed By GREG W. JOHNSON, P.E.

System Description PROPRIETARY; AEROBIC TREATMENT AND DRIP TUBING

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

Tank Size(s) (Gallons) NUWATER B-550-PC Absorption/Application Area (Sq Ft) 1500sf

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? 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

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I certify that the information provided above is true and correct to the best of my knowledge.

[Handwritten Signature]

Signature of Designer

March 24, 2015

Date

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**THE COUNTY OF COMAL
STATE OF TEXAS**

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CERTIFICATION OF OSSF REQUIRING MAINTENANCE

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

I

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

II

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

2 UNIT/PHASE/SECTION _____ BLOCK A3 & D3 LOT _____ CANYON LAKE VILLAGE SUBDIVISION

IF NOT IN SUBDIVISION: _____ ACREAGE _____ SURVEY

The property is owned by (insert owner's full name): LAURA L. & GLENN E, GRAEF

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

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

WITNESS BY HAND(S) ON THIS 30th DAY OF MARCH, 2015

[Handwritten Signature]
Owner(s) signature(s)

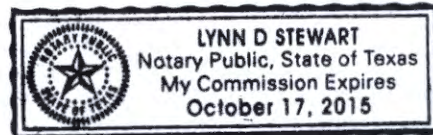
LAURA L. + GLENN E, GRAEF SWORN TO AND SUBSCRIBED BEFORE ME ON THIS 30th DAY OF

March, 2015

[Handwritten Signature]
Notary Public, State of Texas

Notary's Printed Name: LYNN D. STEWART

My Commission Expires: Oct 17, 2015



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THE COUNTY OF COMAL §
STATE OF TEXAS §

Before me, the undersigned authority, on this day personally appeared LAURA L. & GLENN E. GRAEF, who after being by me duly sworn, upon oath state that they are the owner of record of that certain tract or parcel of land lying and being situated in Comal County, Texas, and being more particularly described as follows:

2 UNIT PHASE/SECTION _____ BLOCK A3 & D3 LOT _____ CANYON LAKE VILLAGE _____ SUBDIVISION

IF NOT IN SUBDIVISION: _____ ACREAGE _____ SURVEY

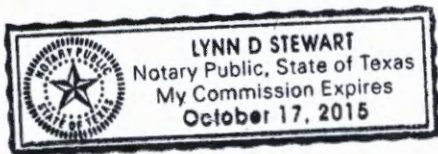
The undersigned further state that the on-site sewage facility for the referenced properties crosses the boundary between the properties. These properties cannot be sold separately and must be sold as one. Any buyer or transferee is hereby notified of this requirement.

WITNESS MY/OUR HAND(S) on this 30th day of March, 20 15.

X [Signature]
GLENN E. GRAEF

X [Signature]
LAURA L. GRAEF

SWORN TO AND SUBSCRIBED BEFORE ME on this 30th day of March, 20 15.



Lynn D. Stewart
Notary Public, State of Texas
My commission expires Oct 17, 2015
LYNN D. STEWART
(Printed name of Notary)

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FILED AND RECORDED

Instrument Number: 201506012077

Recording Fee: 31.00

Number Of Pages: 3

Filing and Recording Date: 04/06/2015 12:26PM

Deputy: LAURA JENDRUSCH

I hereby certify that this instrument was FILED on the date and time stamped hereon and RECORDED in the OFFICIAL PUBLIC RECORDS of Comal County, Texas.



Bobbie Koepf

Bobbie Koepf, County Clerk
Comal County, Texas

NOTICE: It is a crime to intentionally or knowingly file a fraudulent court record or instrument with the clerk.

DO NOT DESTROY - *Warning, this document is part of the Official Public Record.*

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Regulatory Authority COMAL

Permit/License Number _____

WASTEWATER TREATMENT FACILITY MONITORING AGREEMENT

Block Creek Aerobic Services, LLC

Customer LAURA L. & GLENNE GRAEF

444 A Old Hwy #9

Site Address 510 RHODES

Comfort, TX 78013

City CANYON LAKE Zip 78133

Off.(830) 995-3189

Mailing Address _____

Fax. (830) 995-4051

County COMAL Map # 356 F7

Phone 713-254-3717

Email [REDACTED]

I. General: This Work for Hire Agreement (hereinafter referred to as "Agreement") is entered into by and between LAURA L. & GLENNE E. GRAEF (hereinafter referred to as "Customer") and Block Creek Aerobic Service, LLC. By this agreement, Block Creek Aerobic Service, 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 Dates: This Agreement commences on LTO and end on _____ for a total of two (2) years (initial agreement) or one (1) year (there after). If this is an initial agreement (new installation), the Customer will 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 with thirty (30) days written notice for any reason, including for example, substantial failure to perform in accordance with its terms, without fault or liability of the terminating party. If this Agreement is so 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. 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.
- 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 necessary materials at site, any component of the OSSF to be failing or inoperative during the course of a routine monitoring visit. If such services are not covered by warranty, and services costs are \$100.00, or less. Customer hereby authorizes Contractor to perform the service and bill Customer for said service. When service costs are greater than \$100.00, or if contractor does not have necessary supplies at the site. Contractor will notify Customer of required service(s) and associated cost(s). Customer must notify Contractor of arrangements to affect repair of system with 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: Not required required. The responsibility to maintain the disinfection device(s) and provide any necessary chemicals is that of the Customer. _____ (Initial)

V. Electronic Monitoring is not included in this Agreement.

VI. 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.
 - ii. Contractor's receipt of payment of the wastewater-monitoring fee in accordance with the terms as described in Section XIV of this Agreement.
- b. If this is not an initial Agreement (existing system):
 - i. Contractor's receipt of a fully executed original copy or facsimile of this agreement and all documentation requested by Contractor.
 - ii. Contractor's receipt of payment of the wastewater-monitoring fee in accordance with the terms as described in Section XIV of this Agreement.
- c. If the above conditions are not met, Contractor is not obligated to perform any portion of this Agreement.

VII. Customer's Responsibilities: The customer is responsible for each and all of the following:


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- 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 limitation of that license, and all requirements for and OSSF from the State and/or local regulatory agency, whichever are more stringent, as well as 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 evaluation by Contractor as to 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 evaluation the OSSF's performance. If these samples are taken to a laboratory for testing, with the exception of the service provided under Section V, sub-section d. above. Customer agrees to pay contractor for 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.

X. 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. Initial _____ It is customers responsibility to keep lids exposed and accessible at all times

VIII. Limit of Liability: Contractor shall not be held liable for any incidental, consequential, or special damages, or for economic loss sue 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.

IX. 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.

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

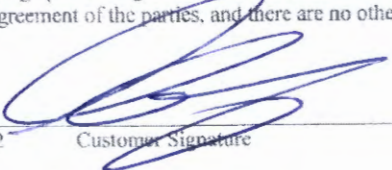
XI. Payment: Full amount due upon signature (Required of new Customer). Payment of invoice(s) for any other service or repair provided by contractor in due upon receipt of invoice. Invoices are mailed on the date of invoice. All payments not received within thirty (30) days form the invoice date will 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.

XII. Application or Transfer of payment: The fees paid for this agreement may transfer to the subsequent property owner(s); however this Agreements not transferable. Customer will advise 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.

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

Block Creek Aerobic Service MC# 0000042 MC#0000002


Customer Signature

3-31-2015
Date



CANYON LAKE VILLAGE UNIT 2, LOT A3, D3
510 RHODES

**ON-SITE SEWERAGE FACILITY
SOIL EVALUATION REPORT INFORMATION**

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COUNTY ENGINEER

Date Soil Survey Performed: March 23, 2015

Site Location: CANYON LAKE VILLAGE, UNIT 2, LOTS A3 & D3

Proposed Excavation Depth: N/A

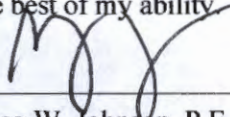
Requirements:

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

SOIL BORING NUMBER <u> </u> SURFACE EVALUATION <u> </u>						
Depth (Feet)	Texture Class	Soil Texture	Gravel Analysis	Drainage (Mottles/ Water Table)	Restrictive Horizon	Observations
0	III	CLAY LOAM	N/A	NONE OBSERVED	LIMESTONE @ 6"	BROWN
1						
2						
3						
4						
5						

SOIL BORING NUMBER <u> </u> SURFACE EVALUATION <u> </u>						
Depth (Feet)	Texture Class	Soil Texture	Gravel Analysis	Drainage (Mottles/ Water Table)	Restrictive Horizon	Observations
0	SAME		AS		ABOVE	
1						
2						
3						
4						
5						

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



Greg W. Johnson, P.E. 67587-F2585, S.E. 11561

03/23/2015
Date

OSSF SOIL EVALUATION REPORT INFORMATION

Date: March 24, 2015

Applicant Information:

Name: LAURA L. & GLENN E. GRAEF
Address: 13919 CHARTERHOUSE WAY
City: SUGAR LAND State: TEXAS
Zip Code: 77498 Phone: (713) 254-3717

Site Evaluator Information:

Name: Greg W. Johnson, P.E., R.S. S.E. 11561
Address: 170 Hollow Oak
City: New Braunfels State: Texas
Zip Code: 78132 Phone & Fax (830)905-2778

Property Location:

Lot ^{SEE}_{BELOW} Unit 2 Blk ___ Subd. CANYON LAKE VILLAGE
Street Address: 510 RHODES
City: CANYON LAKE Zip Code: 78133
Additional Info.: LOTS A3 & D3

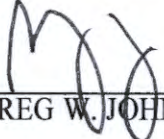
Installer Information:

Name: _____
Company: _____
Address: _____
City: _____ State: _____
Zip Code: _____ Phone _____

Topography: Slope within proposed disposal area: 2 %
Presence of 100 yr. Flood Zone: YES ___ NO
Existing or proposed water well in nearby area: YES ___ NO
Presence of adjacent ponds, streams, water impoundments: YES ___ NO
Presence of upper water shed: YES ___ NO
Organized sewage service available to lot: YES ___ NO

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I HAVE PERFORMED A THOROUGH INVESTIGATION BEING A REGISTERED PROFESSIONAL ENGINEER AND SITE EVALUATOR IN ACCORDANCE WITH CHAPTER 285, SUBCHAPTER D, §285.30, & §285.40 (REGARDING RECHARGE FEATURES), TEXAS COMMISSION OF ENVIRONMENTAL QUALITY. (EFFECTIVE DECEMBER 27, 2012).


GREG W. JOHNSON, P.E. 67587 - F#2585

03/24/2015
DATE



DRIP TUBING SYSTEM
DESIGNED FOR:
LAURA L. & GLENN E. GRAEF
13919 CHARTERHOUSE WAY
SUGAR LAND, TX 77498

SITE DESCRIPTION:

Located in Canyon Lake Village, Unit 2, lots A3 & D3 at 510 Rhodes, this septic will serve a three bedroom residence (1900 sf) in area with Type-III soil as described in the Soil 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 inch SCH-40 pipe discharges from the residence into a Nu Water B550-400PT, 600 gpd aerobic treatment plant containing a 353 gal. pretreatment chamber and a 768 gal. pump chamber. The effluent after processing gravity feeds into the pump chamber. The pump chamber contains a 0.5 HP FPS E-Series-20FE05P4-2W115 . The well pump is activated by mercury floats and a timer set to cycle eight times per day with a ten minute run time with a tank operating level from 50-70 gallons. A high level audible and visual alarm will activate should the pump fail. Distribution is through a self flushing 100 micron Arkal Disc filter then through a 1" SCH-40 manifold to a 1500 sf. drip tubing field, with *Netifim Bioline* drip lines set approximately two feet apart with 0.61 gph emitters set every two feet, as per the attached schematic. A pressure regulator Model PMR30MF installed in the pump tank on the manifold to the field will maintain pressure at 30 psi. A 1" SCH-40 return line is installed to periodically flush the system by cycling a 1" ball valve. Solids caught in the spin filter are flushed each cycle back to the trash tank. Agricultural Products, Inc. (Model #VBK-1) 1" PVC vacuum breakers installed at the highest point on each manifold will prevent siphoning of effluent from higher to lower parts of the field. Prior to trenching the site must be scarified and built up with 6" of Type II or III soil. Drip tubing will be laid and the entire field area will be capped with 6" of sandy loam (Type 2 - **NOT SAND**). The field area will be sodded with a hearty grass such as Bermuda, St. Augustine, etc. prior to system startup.

DESIGN SPECIFICATIONS:

Q = 240 gallons per day - 3 bedroom residence (Table III)
Pretreatment tank size: 353 Gal
Plant Size: Nu Water B550-400PT, 600 gpd (TCEQ Approved)
Pump tank size: 768 Gal
Reserve capacity after High Level: 80 gal. (>1/3 day usage)
Application Rate: Ra = 0.2 gal/sf
Total absorption area: $Q/Ra = 240 \text{ GPD}/0.2 = 1200 \text{ sf.}$ (Actual 1500 sf.)

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Total linear feet drip tubing: 750' *Netifim Bioline* drip tubing .61 GPH

Pump requirement: 375 emitters @ 0.61 gph @ 30 psi = 3.8125 gpm

Pump: 0.5 HP FPS E-Series-20FE05P4-2W115 or equivalent.

Dosing volume: 50-70 gal.

Pump Tank Calculations: 768 Gal (14.5 gal/in.)

Volume below working level = 15" = 218 gal

Working level = 360 gal = 25"

Reserve Requirement = 1/3 day = 120 gal. = 8.5"

MINIMUM SCOUR VELOCITY (MSV) > 2 FPS

IN DRIP TUBING W/ NOM. DIA. 0.55" ID

MSV = 2 FPS $(\frac{\pi d^2}{4} * 7.48 \text{ gal/cf} * 60 \text{ sec/min})$

MSV = $2(3.14159((.55/12)^2)/4) * 7.48 * 60$

MSV = 1.5 gpm x 3 = 4.5 gpm MIN FLOW RATE

IN RETURN MANIFOLD W/ NOM. DIA 1.049" ID

MSV = 2 FPS $(\frac{\pi d^2}{4} * 7.48 \text{ gal/cf} * 60 \text{ sec/min})$

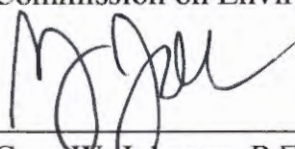
MSV = $2(3.14159((1.049/12)^2)/4) * 7.48 * 60$

MSV = 5.4 GPM

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. Drip tubing 0.61 gph drip tubing to be used in field. The manifold trench should be kept shallow to prevent interconnection of the trenches.

Designed in accordance with Chapter 285, Subchapter D, §285.30 and §285.40 Texas Commission on Environmental Quality (Effective December 27, 2012)

 03/24/2015

Greg W. Johnson, P.E. No. 67587, F#2585

170 Hollow Oak
New Braunfels, Texas 78132
830/905-2778

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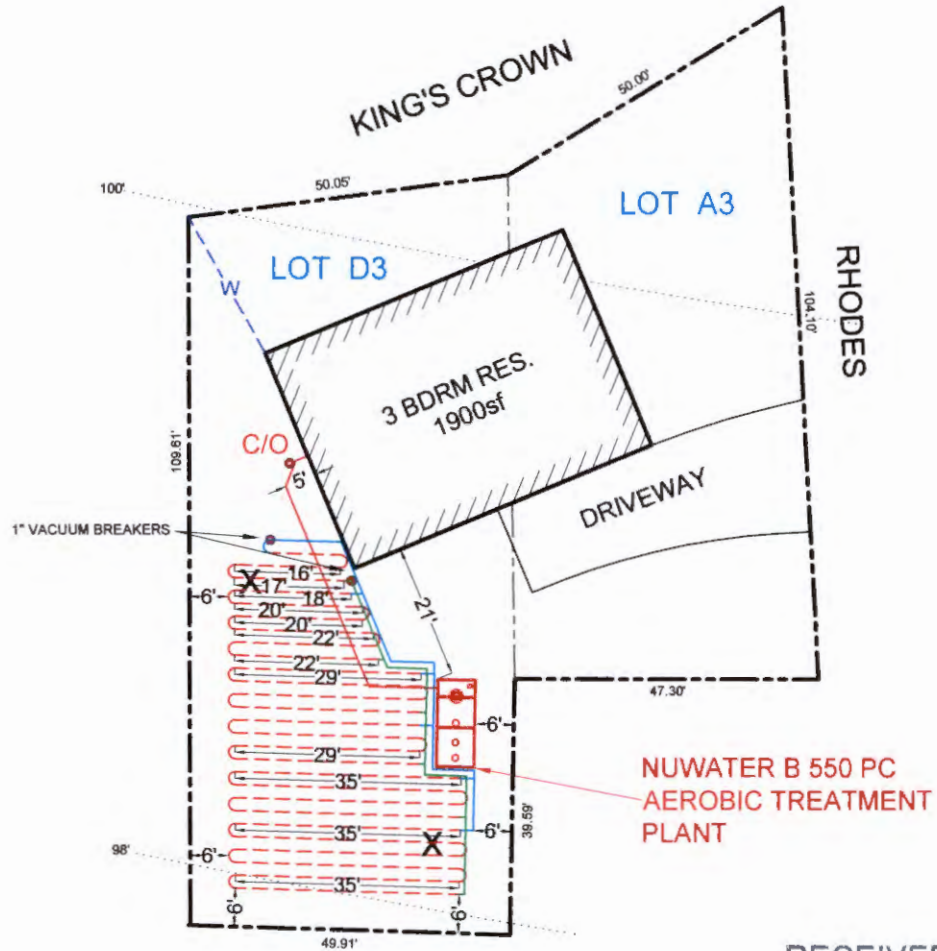
INSTALL 1500sf OF
FIELD USING 750' OF
DRIP TUBING

103033

*USE TWO WAY
CLEAN OUT
**USE SCH-40 OR
SDR-26 TO TANK

X= TEST HOLE

NOTE:
NO OSSF SYSTEM
CAN BE INSTALLED
ON THE SAME
PROPERTY AS THE
SINGLE FAMILY
DWELLING, DUE TO
PLACEMENT OF
HOUSE AND SIZE OF
LOT. LAURA L. &
GLENN E. GRAEF
OWN BOTH
PROPERTIES.



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OWNER: LAURA L. & GLENN E. GRAEF			DRAWN BY:	
STREET ADDRESS: 510 RHODES				
LEGAL DESC: CANYON LAKE VILLAGE	UNIT/SECTION/PHASE: 2	BLOCK:	LOT: A3 & D3	
PREPARED BY: GREG W. JOHNSON, P.E. F#002585	SCALE: 1"=30'	DATE: 3/24/2015	REVISED: 3/26/2015	

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TANK NOTES:

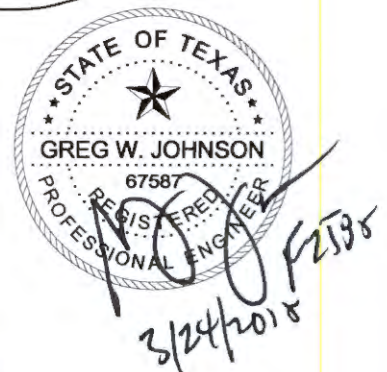
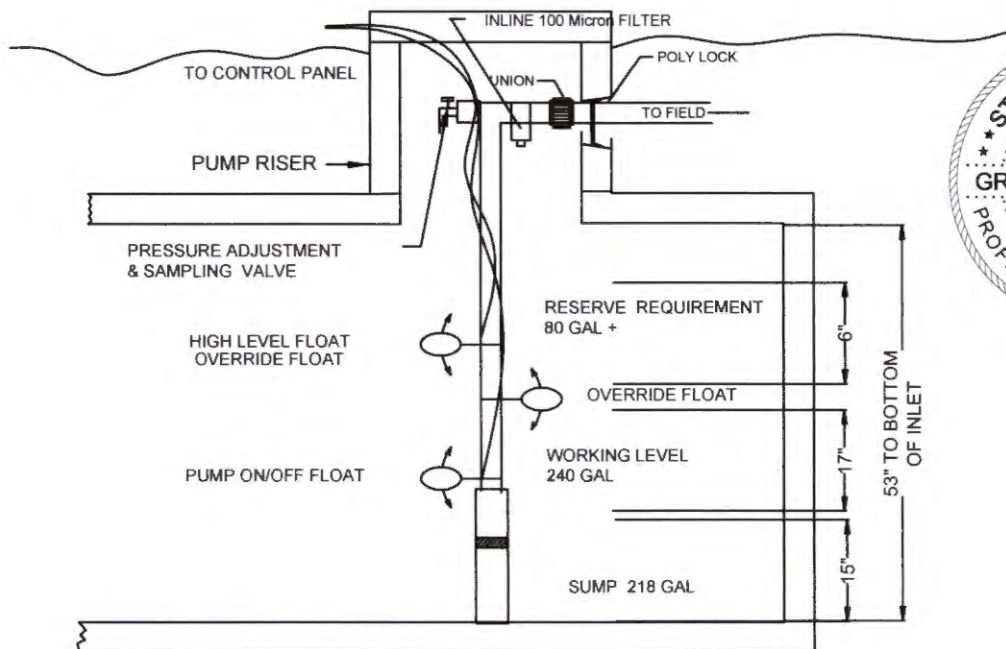
Tanks must be set to allow a minimum of 1/8" per foot fall from the residence.

Tightlines to the tank shall be SCH-40 PVC.

A two way sanitary tee is required between residence and tank.

A minimum of 4" of sand, sandy loam, clay loam free of rock shall be placed under and around tanks

ALL WIRING MUST BE IN COMPLIANCE WITH
THE MOST RECENT NATIONAL ELECTRIC CODE



TYPICAL PUMP TANK CONFIGURATION
NU-WATER 550PC -400PT 768 GAL PUMP TANK



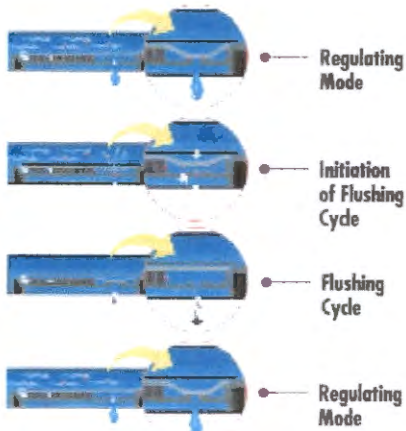
Bioline® Dripperline



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Pressure Compensating Dripperline for Wastewater



Bioline's Self-Cleaning, Pressure Compensating Dripper is a fully self-contained unit molded to the interior wall of the dripper tubing.

As shown at left, BioLine is continuously self-cleaning during operation, not just at the beginning and end of a cycle. The result is dependable, clog free operation, year after year.



Product Advantages

The Proven Performer

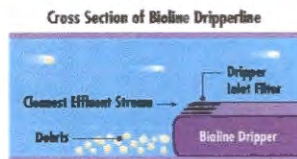
- Tens of millions of feet used in wastewater today.
- Bioline is permitted in every state allowing drip disposal.
- Backed by the largest, most quality-driven manufacturer of drip products in the U.S.
- Preferred choice of major wastewater designers and regulators.
- Proven track record of success for many years of hard use in wastewater applications.

Quality Manufacturing with Specifications Designed to Meet Your Needs

- Pressure compensating drippers assure the highest application uniformity - even on sloped or rolling terrain.
- Excellent uniformity with runs of 400 feet or more - reducing installation costs.
- Highest quality-control standards in the industry: Cv of 0.25 (coefficient of manufacturer's variation).
- A selection of flows and spacings to satisfy the designer's demand for almost any application rate.

Long-Term Reliability

- Protection against plugging:
 - Dripper inlet raised 0.27" above wall of tubing to prevent sediment from entering dripper.
 - Drippers impregnated with Vinyzene to prevent buildup of microbial slime.
 - Unique self-flushing mechanism passes small particles before they can build up.



Root Safe

- A physical barrier on each BioLine dripper helps prevent root intrusion.
- Protection never wears out - never depletes - releases nothing to the environment.
- Working reliably for up to 15 years in subsurface wastewater installations.
- Additional security of chemical root inhibition with Techfilter - supplies Trifluralin to the entire system, effectively inhibiting root growth to the dripper outlets.



Applications

- For domestic strength wastewater disposal.
- Installed following a treatment process.
- Can be successfully used on straight septic effluent with proper design, filtration and operation.
- Suitable for reuse applications using municipally treated effluent designated for irrigation water.

Specifications

Wall thickness (mil): 45*

Nominal flow rates (GPH): .4, .6, .9*

Common spacings: 12", 18", 24"*

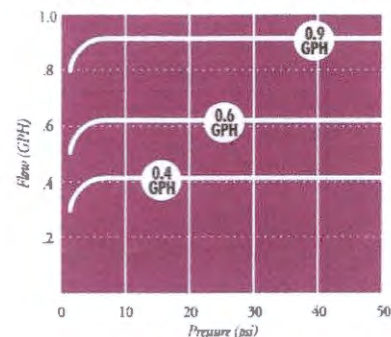
Recommended filtration: 120 mesh

Inside diameter: .570*

Color: Purple tubing indicates non-potable source

*Additional flows, spacings, and pipe sizes available by request. Please contact Netafim USA Customer Service for details.

BIOLINE Flow Rate vs. Pressure



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

NETAFIM WASTEWATER DISPERSAL SYSTEM DESIGN GUIDE

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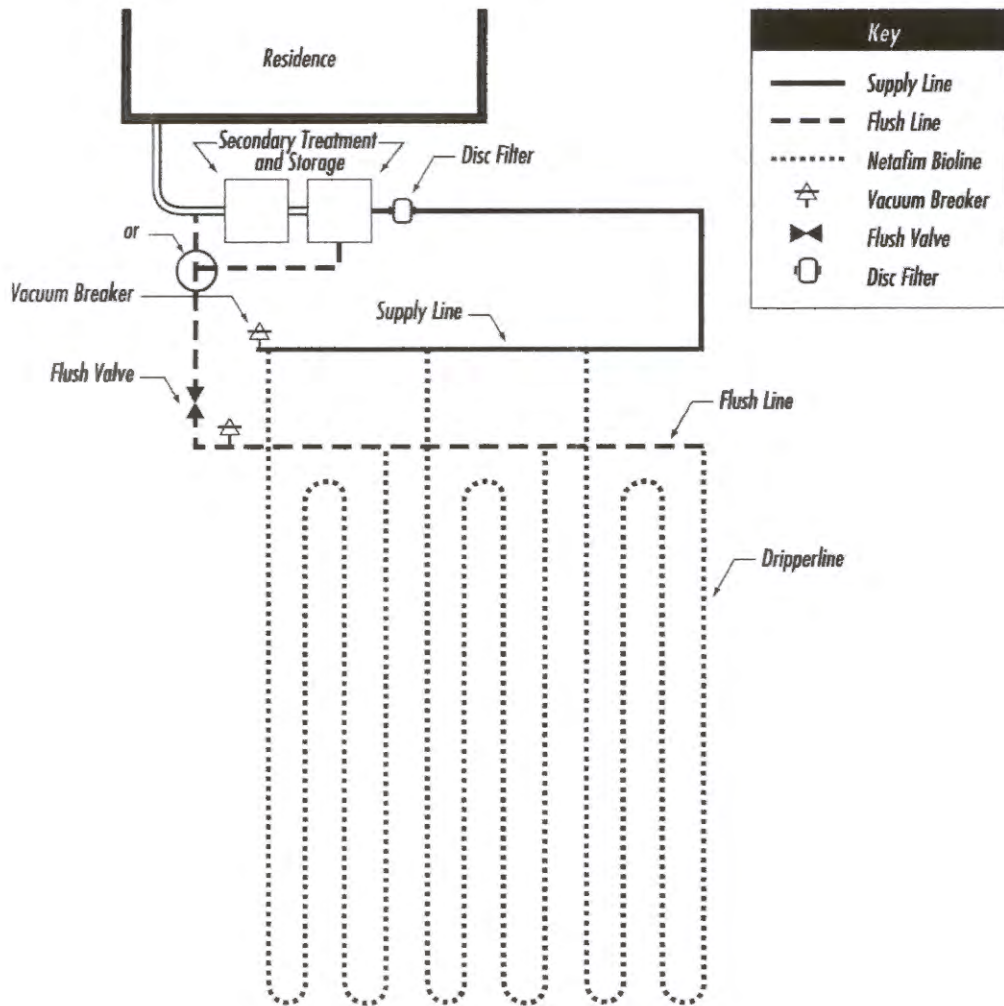
SAMPLE DESIGNS

SINGLE TRENCH LAYOUT

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Rectangular field with supply and flush manifold on same side and in same trench;

- Locate supply and flush manifold in same trench
- Dripperlines are looped at the end opposite the supply and flush manifolds
- The longest Bioline length should not exceed 400 ft. Drip fields 200 ft. in length might loop the Bioline once; drip dispersal fields under 100 ft. might be looped twice, as illustrated



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Arkal 1" Super Filter

Catalog No. 1102 0 _ _ _

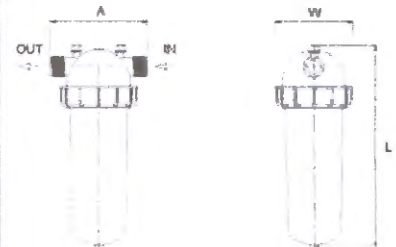
Features

- A "T" shaped filter with two 1" male threads.
- A "T" volume filter for in-line installation on 1" pipelines.
- The filter prevents clogging due to its enlarged filtering area that collects sediments and particles.
- Manufactured entirely from fiber reinforced plastic.
- A cylindrical column of grooved discs constitutes the filter element.
- Spring keeps the discs compressed.
- Screw-on filter cover.
- Filter discs are available in various filtration grades.



Technical Data

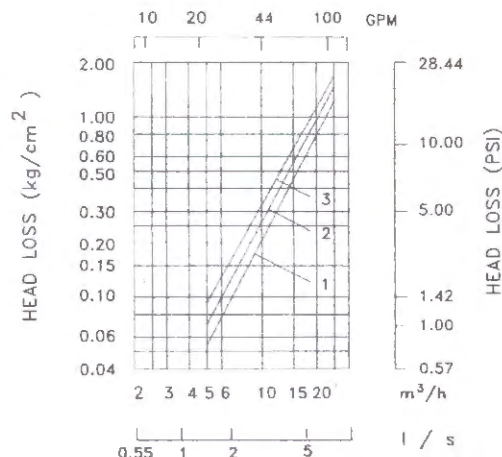
Inlet/outlet diameter	1" BSPT (male)	1" NPT (male)
	25.0 mm – nominal diameter	
	33.6 mm – pipe diameter (O. D.)	
Maximum pressure	10 atm	145 psi
Maximum flow rate	8 m ³ /h (1.7 l/sec)	35 gpm
General filtration area	500 cm ²	77.5 in ²
Filtration volume	600 cm ³	37 in ³
Filter length L	340 mm	13 13/32"
Filter width W	130 mm	5 3/32"
Distance between end connections A	158 mm	6 7/32"
Weight	1.420 kg	3.13 lbs.
Maximum temperature	70° C	158 °F
pH	5-11	5-11



Filtration Grades

- Blue (400 micron / 40 mesh)
- Yellow (200 micron / 80 mesh)
- Red (130 micron / 120 mesh)
- Black (100 micron / 140 mesh)
- Green (55 micron)

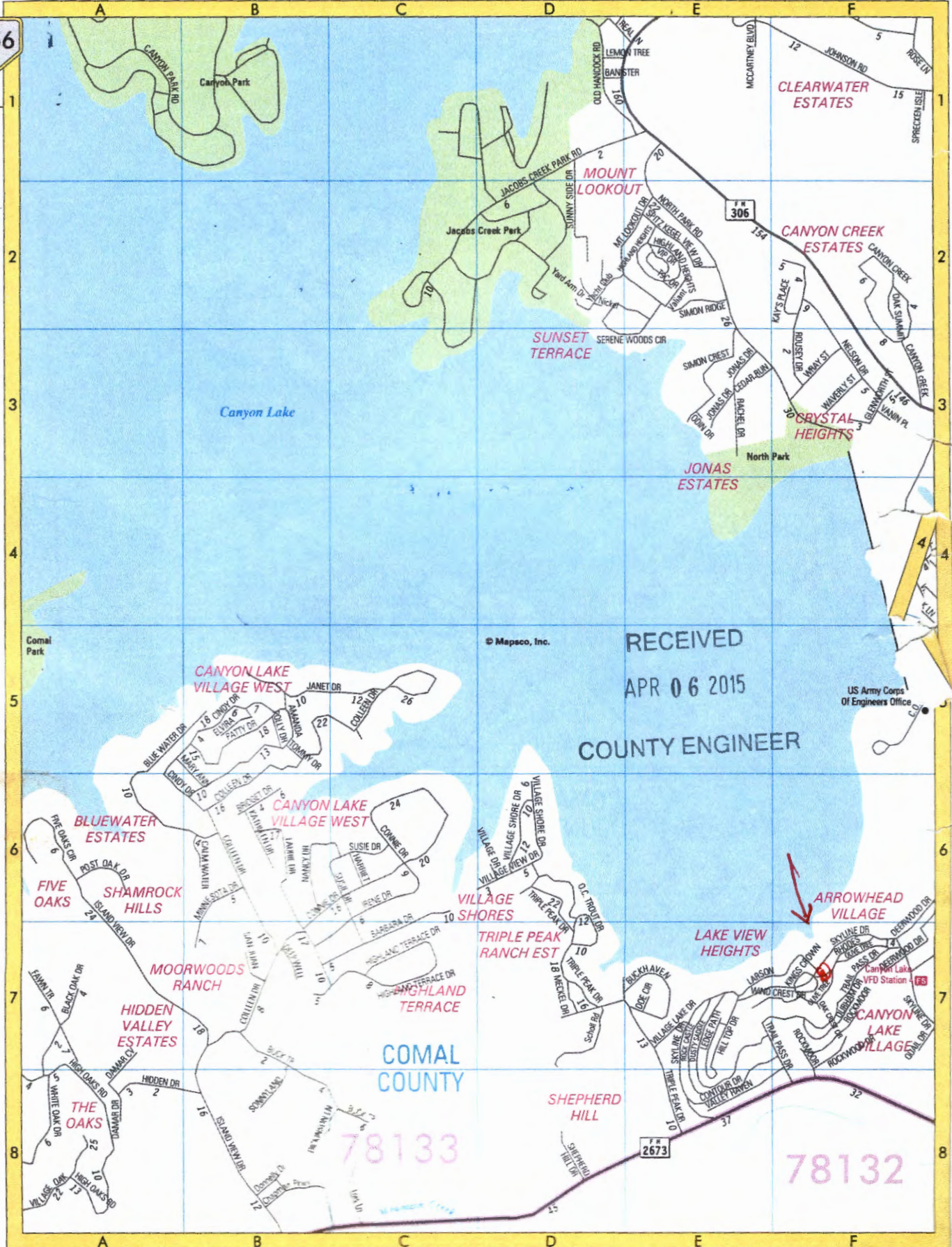
Head Loss Chart



356

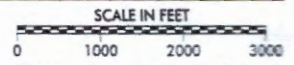
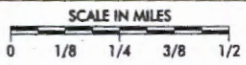


CONTINUED ON MAP 355



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US Army Corps
Of Engineers Office





PM

PROVIDENCE TITLE COMPANY
GF NO. 125000270

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GENERAL WARRANTY DEED

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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.

Date: October 30, 2014

Grantor: Jack W. Blessingame and wife, Mary Dolores Blessingame A/K/A Mary Dolores Blessingame

Grantor's Address (including County):

3717 Karen Lane
Pasadena, TX 77503
Fort Bend County

Grantee: Laura L. Graef and Glenn E. Graef, wife and husband

Grantee's Address (including County):

13919 Charterhouse Way
Sugar Land, TX 77498
Fort Bend County

Consideration: TEN AND NO/100-----(\$10.00)-----DOLLARS;
and other good and valuable considerations in hand paid by the GRANTEE herein named, the receipt of which is hereby acknowledged;

Property (including any improvements):

TRACT 1:

Lot A-3, CANYON LAKE VILLAGE, UNIT II, an addition to Comal County, Texas, according to the plat recorded in Volume 1, Page 87, Map and Plat Records, Comal County, Texas.

TRACT 2:

Lot D-3, CANYON LAKE VILLAGE, UNIT II, an addition to Comal County, Texas, according to the plat recorded in Volume 1, Page 87, Map and Plat Records, Comal County, Texas.

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Reservations from Conveyance:

None.

Exceptions to Conveyance and Warranty:

Liens described as part of the Consideration and any other liens described in this deed as being either assumed or subject to which title is taken; 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 current year, which Grantee assumes and agrees to pay.

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.

Current ad valorem taxes on said property having been prorated, the payment thereof is assumed by Grantee.

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

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MADE EFFECTIVE THE DATE FIRST HEREINABOVE SPECIFIED.

COUNTY ENGINEER

Jack W. Blassingame
Jack W. Blassingame

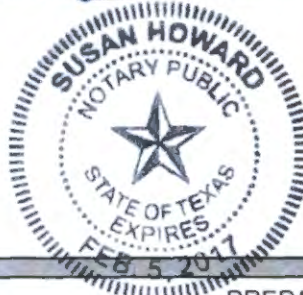
Mary Dolores Blassingame
Mary Dolores Blassingame A/K/A Mary D. Blassingame

ACKNOWLEDGMENT

State of Texas
County of Harris

Before me, the undersigned, on this day personally appeared Jack W. Blassingame and Mary Dolores Blassingame A/K/A Mary D. Blassingame known to me (or proved to me on the oath of PERSON or through DL to be the person whose name is subscribed to the foregoing instrument and acknowledged to me that he executed the same for the purposes and consideration therein expressed.

Given under my hand and seal of office this 30 day of October, 2014.



[Signature]
Notary Public, State of Texas

~~AFTER RECORDING RETURN TO:
Laura L. Graef and Glenn E. Graef
13919 Charterhouse Way
Sugar Land, TX 77498~~

PREPARED IN THE LAW OFFICE OF:
Ramsey & Foster, PC
5001 Hwy 287 S. #105
Arlington, TX 76017

Filed and Recorded
Official Public Records
Joy Streater, County Clerk
Comal County, Texas
11/17/2014 01:42:26 PM
KELLI 3 Page(s)
201406040469

Return to:

→ PROVIDENCE TITLE COMPANY
4008 Vista Road, Suite 100A
Pasadena, Texas 77504



Joy Streater

Comal County OSSF Inspection Sheet

Permit#: 103033 Location: C.L. Village / 510 Rhodes Dr.

Installer Name: _____ License # _____

1st Inspection: _____ 2nd Inspection: _____ Final Inspection: _____
(inspector initials & date) (inspector initials & date) (inspector initials & date)

Are additional inspections required: Preli. - 4/17/15 - Good & OK

Re-inspection fee owed: _____ Re-inspection fee paid: _____

Existing soil conditions:

Site/soil conditions match soil evaluation: _____ Notes: _____

System Description:

Aerobic with spray: _____ Aerobic with drip emitters: _____ Low Pressure Dosing: _____ Absorptive drainfield: _____
Evapotranspirative (ET) system: _____ Gravel-less drainfield piping: _____ Leaching chambers: _____
Soil substitution drainfield: _____ other: _____

Tank Inspection:

Tank set level & watertight: _____ Inlet/Outlet: _____ Tank Size or GPD: _____ Manuf./Brand: _____
Model#: _____ Pump Tank Size: _____ Alarms/Audible & Visual: _____ Operational: _____
Is timer required/provided?: _____ Chlorination required/provided? _____

Notes:

Maintenance Tag for Aerobic: () _____

System installation:

Pipe check/house to tank: _____ Clean-out at structure/every 50 ft./@90's _____ Pipe check/tank to drainfield: _____
(1/8"-ft., SDR 26 or Sch. 40)
Trenches/Excavations: Width/Depth: _____ Trenches/Excavations Level: _____ Pipe & Gravel: _____
Slope within drainfield/spray area: _____ Leaching Chambers: _____ GeoTex: _____
Spray irrigation purple pipe: _____ Spray irrigation area checked: _____

Notes:

Separation Distances

Prop. Lines: _____ Water lines: _____ Water Wells: _____ Bldgs/Driveway/Improvements: _____ Creeks/Rivers/Ponds: _____
Drainage Easements/Sharp Slopes: _____ If over Recharge Zone check for recharge features: _____ Are there water
lines crossing tightlines/or within 10 feet of system?: _____ Have they been properly sleeved: _____ Are there sewer
lines crossing under driveways, sidewalks, or within 5 ft. of surface improvements: _____ Have the sewer lines been
properly sleeved?: _____

Notes:

Final Inspection:

Tank(s) Backfilled: _____
System Backfilled: _____ ET Systems Class II backfill & vegetative cover for transpiration in place: _____
Surface application area properly landscaped/vegetation acceptable: _____

Notes:

Size of Installed Drainfield/Spray Area: _____

____ Check here to confirm that service agreement has been received, entered and activated in CASST.