# ON-SITE
# SEWAGE FACILITY
# APPLICATION AND DESIGN

**Prepared for:**

Mr. Joel Vickery
1777 Fox Lane
Lockhart, Texas 78644
Lot #8 - 2.10 Acre Tract - Elliouse Estates

**Prepared by:**

Clifford J. Conner
**Conner Wastewater Design, Inc.**
769 Boggy Creek Road
Lockhart, Texas 78644
(512) 376-2933

**Date:**

February 3, 2021

Clifford J. Conner
Clifford J. Conner
Registered Professional Sanitarian

Reg #1061
OS7431

Corner Wastewater Design, Inc.
Registered Sanitarian #1061
Site Evaluator #OS7431
769 Boggy Creek Road
Lockhart, Texas 78644
(512) 376-2933`

**OWNER:** Mr. Joel Vickery
1777 Fox Lane
Lockhart, Texas 78644
Lot #8 - 2.10 Acre Tract - Elliouse Estates

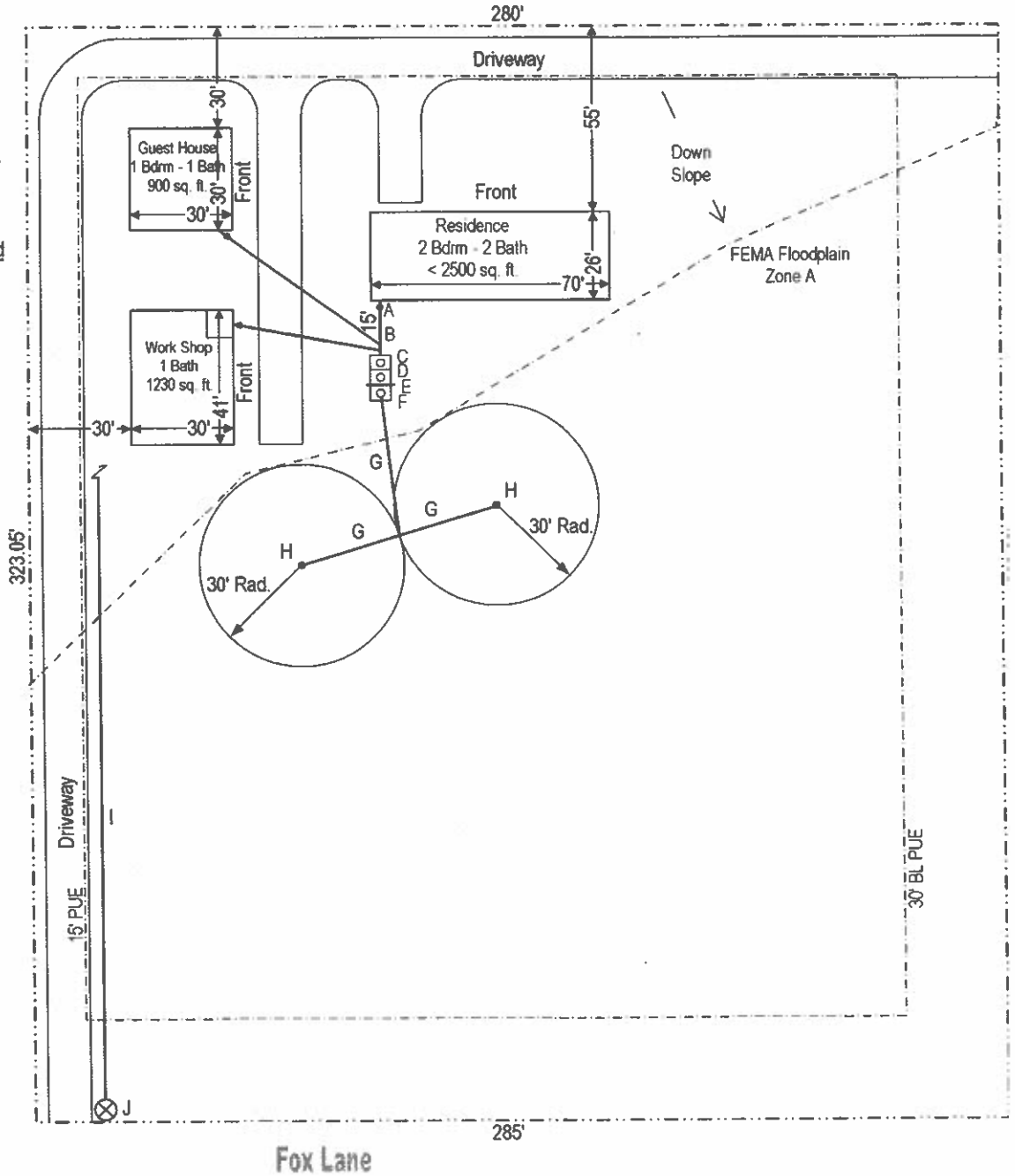
Aeris™ Aerobic Surface Spray OSSF

North

SCALE: 1 inch = 50 feet

**LEGEND**

A - Two-way Cleanouts
B - Tightlines from Stubouts to Trash Tank - Sch. 40 - 3 in. or 4 in.
Aeris™ Model D-840-M
C - Trash Tank - 552 gal.
D - Aerobic Tank - 840 gal.
E - Liquid Chlorinator - NSF approved
F - Pump Tank - 919 gal.
G - Supply Line to Sprinklers - Sch. 40 - 1 in.
H - Sprinkler Heads
I - Water Line
J - Water Meter




360 gpd / 0.064 = 5625 sq. ft. needed
Actual = 5652 sq. ft.

Installer must comply with all clearance requirements.

STATE OF TEXAS
CLIFFORD J. CONNER
1061
REGISTERED PROFESSIONAL SANITARIAN

Clifford J. Conner R. S. #1061
OS7431

Comal Wastewater Design, Inc.
Registered Sanitarian #1061
Site Evaluator #OS7431
769 Boggy Creek Road
Lockhart, Texas 78644
(512) 376-2933

# DESIGN REPORT for
# On-Site Sewage Facility
# Aerobic Wastewater Treatment System
# Utilizing Surface Spray Application

**Owner / Location:** Mr. Joel Vickery
1777 Fox Lane
Lockhart, Texas 78644
Lot #8 - 2.10 Acre Tract - Elliouse Estates

**Site Description & Evaluation:** The site is approximately 2.10 acres. A soil evaluation revealed Class IV. An aerobic treatment system utilizing surface irrigation is proposed. The surface irrigation area has a slope of < 3 %. No recharge features are located within 150 feet of the proposed system. There is not a public water well within 150 feet of the system. Water to the property is serviced by a Public water supply. Adequate area is available for a replacement disposal system.

**Wastewater Design Flow:** This system is for a 2 Bedroom Home, a 1 Bedroom Guest House, and a Work Shop with 1 Bathroom (total 360 gpd) utilizing water saving devices. The projected wastewater flow will be 360 gpd as per Texas Commission on Environmental Quality (TCEQ) On-Site Sewage Facilities (current regs).

**Aerobic Treatment System Description:** The residence will utilize a Aeris Aerobics, Inc. Model D-840 or equivalent. The 840 gpd aerobic treatment tank will be preceded by a 400 gallon pretreatment/trash tank. Effluent from the aeration tank will flow through a liquid chlorinator to a 900 gallon pump tank. The pump tank serves as a chlorine contact chamber and a storage tank prior to the treated/chlorinated effluent being discharged to sprinkler heads. The disposal area will consist of 2 - 30.0 ft. radius 360 deg. patterns. The system is considered a "package system" and will be installed according to manufacturer's instructions.

**Design Specifications & Application:**

**Residence, Guest House, Workshop:** < 4500 square feet

**Number of Bedrooms:** Residence 2 Bedroom, 1 Bedroom Guest House

**Average Daily Flow (Q):** 360 gpd

**Application Rate (Ra):** .064 gal. / sq. ft. / day

**Minimum Application Area Required** = Q/Ra = 360 / .064 = 5625 square feet

**Actual Application Area:** 5655 square feet

**Tank Capacities:**

**Pretreatment/Trash Tank (Single Compartment):** 400 gallon
**Aeration Tank:** Aeris Wastewater Systems, Model D-840 - 840 gallon
**Pump Tank:** 900 gallon (Reserve capacity is 364.1 gallons)

**Reserve Capacity:** Combined capacity of the pretreatment and aeration tanks is 1240 gallons. A 900 gallon single compartment pump tank allows for a one-day flow above the alarm-on level ( 17.34 gal. per inch with 53.0 inch Useable Depth yields 900 gallons Useable Volume).

**Pump Off** @ 8.0 in. above tank floor = 138.7 gallons
**Pump On** @ 29.0 in. above tank floor = 502.9 gallons
**Alarm On** @ 32.0 in. above tank floor = 554.9 gallons

**Reserve Capacity** = ( 900 - 554.9 ) = 364.1 gallons

Pump Tank sizing: Pump Tanks shall be sized to contain one-third of a day's flow between the alarm-on level and the inlet to the Pump Tank. The capacity above the alarm-on level may be reduced to four hours average daily flow if the Pump Tank is equipped with multiple pumps.

A Dual Pump system shall have the "alarm on" level below the "second pump on" level, and shall have a lock-on feature in the alarm circuit so that once it is activated it will not go off when the second pump draws the liquid level below the "alarm on" level. All audible and visible alarms shall have a manual "silence" switch. The pump switch-gear shall be set such that each pump operates as the first pump on an alternating basis. All pumps shall be rated by the manufacturer for pumping sewage or sewage effluent.

**Pump & Sprinkler Head Requirement:**

**Elevation Head** = 5.0 ft. **Pressure Head** = 40.0 psi x 2.30 = 92.0 ft.
**Friction Head** = 102 ft. of 1 in. Sch. 40 = 102 ft. x 0.0213 = 2.17 ft.
**Total Head (TDH)** = 5.0 + 92.0 + 2.17 = 99.17 ft. TDH (Within Pump performance curve)

**Dual Pump System Pumps:** Blaster 20EB05 1/2 hp 115v - 4" Submersible Pump

**Sprinkler Head:** K-Rain™ Mfg. Corp. Model ProPlus™ series with Low Angle (12 degrees) 11003-RCW Nozzle #3, operating at 40.0 psi, 30.0 ft. radius, and 3.0 gpm flow per sprinkler.

**Description of Proposed Aerobic Treatment System:**

The residence will utilize an Aeris™ Aerobics treatment system Model D-840, a proprietary treatment plant, approved by the TECQ for use in Texas. The Model D-840 is a three compartment concrete tank. The system will consist of a 400-gallon pretreatment / trash-tank compartment which will gravity flow into the 840 gpd aerobic treatment compartment. The effluent from the aeration tank will gravity flow into a 900-gallon pump tank compartment. An NSF approved liquid bleach chlorinator will be installed for disinfection. The pump tank compartment serves as a chlorine contact chamber and storage tank. Distribution is through Sch. 40 pvc pipe to low angle sprinkler heads. The system is considered a packaged system and will be installed according to the manufacturer's instructions.

**Dosing:** Disposal period for overnight disposal is between midnight and 5:00 A.M.

360 gpd / 2 doses per day = 180 gallons per dose.

2 sprinklers x 3.0 gallons per minute = 6.0 gallons per minute.

180 gallons per dose / 6.0 gallons per minute = approx. 30.0 minutes per dose.

Clifford J. Conner R. S. #1061
Clifford J. Conner OS7431

Corna Wastewater Design, Inc.
Registered Sanitarian #1061
Site Evaluator #OS7431
769 Boggy Creek Road
Lockhart, Texas 78644
(512) 376-2933

**Installation Specifications:**

1. All construction methods and materials shall conform to the requirements set forth in the Texas Administrative Code, Chapter 285 - On-Site Sewage Facilities.
2. The installer must have at least an Installer I (Installer II after July 31, 1998) certification.
3. The installer shall be responsible for notifying both the designer and Caldwell County Sanitation Department when work begins on the system. The installer shall be responsible for scheduling inspections. Inspections shall be scheduled in order that the designer and Caldwell County Sanitation Department officials verify that the system is installed in accordance with the approved plans and specifications.

   Inspections:

   One inspection by the designer will be made after completion of installation and before backfilling operations commence. The installer is responsible for scheduling the inspection a minimum of 48 hours in advance. Other inspections should be scheduled as required by Caldwell County Sanitation Department officials.
4. All drainage from structures shall be guttered away from all system components. All surface drainage shall be diverted to avoid the septic tanks and the disposal area. Storm water diversion berms shall be installed to direct all drainage away from system components.
5. The installer shall be responsible for maintaining minimum separations as required by Chapter 285.
6. The installer shall be responsible for contacting and notifying all utility providers of the plans to begin excavation on this property. Location of utilities, avoidance of utilities, and repair of damaged utilities shall be the responsibility of the installer.
7. The installer shall be responsible for protection of significant vegetation; however, the designer and installer shall not be responsible for loss of vegetation that results from installation of this system.
8. All tanks shall be set level on a minimum four (4) inch thick sand, sandy loam, clay loam, or pea gravel pad. All tanks shall be installed according to the manufacturer recommendations.
9. All buried standard, non-standard and proprietary treatment compartments and pump tanks shall be provided with at least one at-grade riser that can be accessed without digging. The installed riser shall be water tight.
10. On all installations after Sept. 1, 2012, risers and tank inspection ports will be required to have access safety provisions per 30 TAC 285.38 (9/1/2012). This will include access limitation (> 65 lb. lid or hardware secured lid) and secondary plug, net, or mesh in riser. Septic tanks without risers shallower than 12 inches below grade may be exempted.
11. Prior to excavating for the tanks, the installer shall confirm the house sewer(s) outlet location and its elevation. The tanks shall be set low enough to maintain a fall of 1/8 inch per foot from house to tank.
12. PVC piping from house to tank must be Sch. 40 or SDR 26.
13. Pipe Bedding - Pipes such as sewer pipes from the structure to the treatment facility and from the treatment facility to the disposal component, shall be bedded with four inches of Class Ib, Class II, or Class III soil with less than 30% gravel. The bedding soil shall be free of organic material and any rocks or grains larger than ½ inch.
14. Sprinkler line shall be 1 inch Sch. 40 PVC a minimum depth of 6 inches below grade. Sleeve pipe with Sch. 40 PVC under all roads and driveways.
15. A sampling port must be installed in pump tank at tank inspection port. The sampling port should not have a threaded spigot, and will serve as the treated effluent sampling port, and anti-siphoning device. A ball-valve will be installed to serve as discharge pressure adjustment.
16. The following requirement for septic tank effluent filters is imposed in addition to those set forth in Section 285.34(a): the outlet pipe from all standard treatment units shall be fitted with an effluent filter.
17. In accordance with the TCEQ regulation adopted on June 13, 2002, all new distribution piping, fittings, valve box covers, and sprinkler tops shall be permanently colored purple (manufactured purple).
18. Outside the Pump Tank, all electrical wiring will be enclosed in conduit or weatherproof boxes.
19. The high-water alarm must be audio and visual.
20. Landscaping can utilize existing vegetation, or seed with a mix of winter rye and Bermuda grasses.
21. Any additions to the site, including sidewalks, driveways, patios, swimming pools or other impervious cover shall be constructed outside of the disposal area.
22. All exposed rock in the disposal area must be covered with 4 to 6 inches of soil in order to establish vegetation.
23. Surface application systems may apply treated and disinfected effluent upon areas with existing vegetation. If any ground within the proposed surface application area does not have vegetation, that bare area shall be seeded or covered with sod before system start-up. The vegetation shall be capable of growth, before system start-up.

**Maintenance Requirements:**

Permit approval requires the applicant to furnish to the regulatory authority a valid maintenance contract with a certified maintenance company. The maintenance company will verify that the surface irrigation system is operating properly, and that they will provide on-going maintenance of the installation. The initial maintenance contract must be valid for a minimum of two years. A maintenance contract will authorize the maintenance company to maintain and repair the system as needed.

The owner shall continuously maintain a signed written contract with a valid maintenance company and shall submit a copy of the contract to the permitting authority at least 30 days prior to the date service will cease.

**Affidavit:**

Prior to issuance of a permit, a certified copy of an affidavit, which has been duly recorded at the Caldwell county clerk's office and filed in reference to the real property deed on which the surface application system is to be installed, must be submitted. Such an affidavit shall state that the property shall not be transferred to a new owner without:

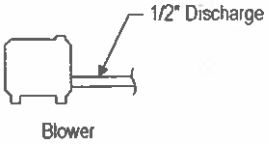
1. The new owner being advised that the property contains a surface application system for wastewater disposal;
2. The permit issued to the previous owner of the property being transferred to the new owner in accordance with §285.20(5) of the TCEQ OSSF Rules, i.e.; the permit will be issued in the name of the owner of the OSSF. Permits shall be transferred to the new owner automatically upon legal sale of the OSSF. The transfer of an OSSF permit under this section shall occur upon actual transfer of the property on which the OSSF is located unless the ownership of the OSSF had been severed from the property.
3. The new owner submitting a valid maintenance contract to the permitting authority.

**Maintenance and Management Practices:**

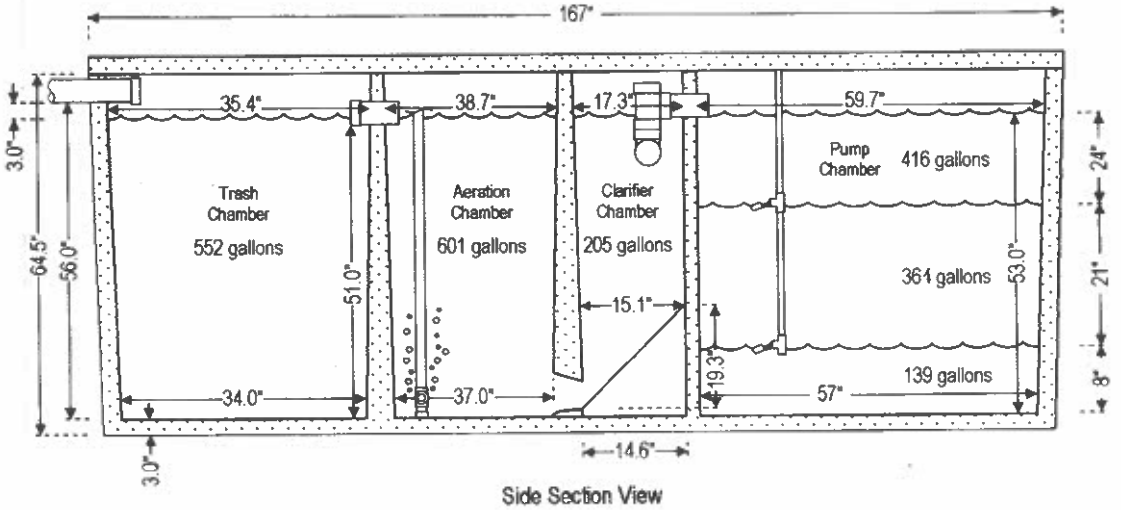
1. The owner shall perform all necessary maintenance to safeguard against running commodes, leaky faucets, etc., which may overload the disposal area.
2. The installer shall inform the owner of the proper operation and maintenance of the system.
3. Generally accepted water conservation practices should be used at all times.
4. Automatic sprinkler systems utilizing potable water shall not be installed over this system.
5. The owner shall be responsible for having the septic tank cleaned and pumped on a regular basis. It is recommended that this be accomplished every 3 years in order to prevent failure of disposal area.
6. It is recommended that garbage disposals and/or garbage grinders not be used in the facility serviced by this system.
7. Do not use the commode to dispose of cleaning tissues, cigarette butts, feminine hygiene products, or other trash.
8. Do not build driveways, storage buildings, or other structures over tank or disposal area.
9. Chemical additives or the so-called enzymes are not necessary for the operation of a septic tank. Some of these additives may even be harmful to the tank's operation.
10. Soaps, detergents, bleaches, drain cleaners, and other household cleaning materials will very seldom affect the operation of the system. However, moderation should be exercised in the use of such materials.
11. Owners shall not allow water softener and reverse osmosis back flush to enter into any portion of the OSSF.
12. The owner is responsible for keeping perennial grasses on the absorption area, so erosion of the soil will be kept to a minimum.
13. Unacceptable surface application areas. Land that is used for growing food, gardens, orchards, or crops that may be used for human consumption, as well as unseeded bare ground, shall not be used for surface application.

Conner Wastewater Design, Inc.
Registered Sanitarian #1061
Site Evaluator #OS7431
769 Boggy Creek Road
Lockhart, Texas 78644
(512) 376-2933

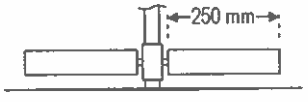
# AerisAerobics
## Model D-840
840 gallon per day Aerobic Treatment Unit
Night Time Pumping




Risers shall extend to within 6" of grade.
If tank lid depth exceeds 12",
risers shall extend to grade.

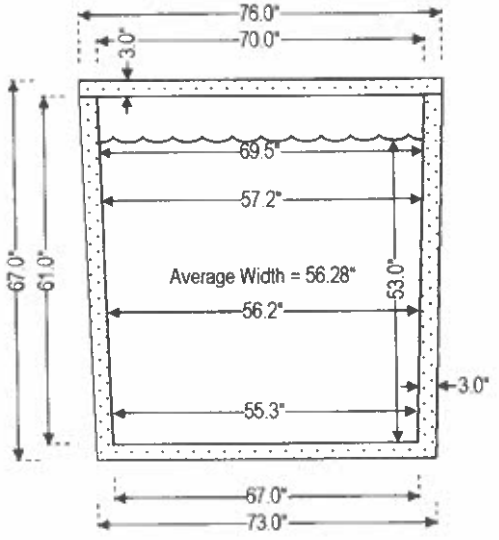



Side Section View




Diffuser Detail
2 - 250 mm
Max flow per diffuser
= 55 liters/minute

NO SCALE

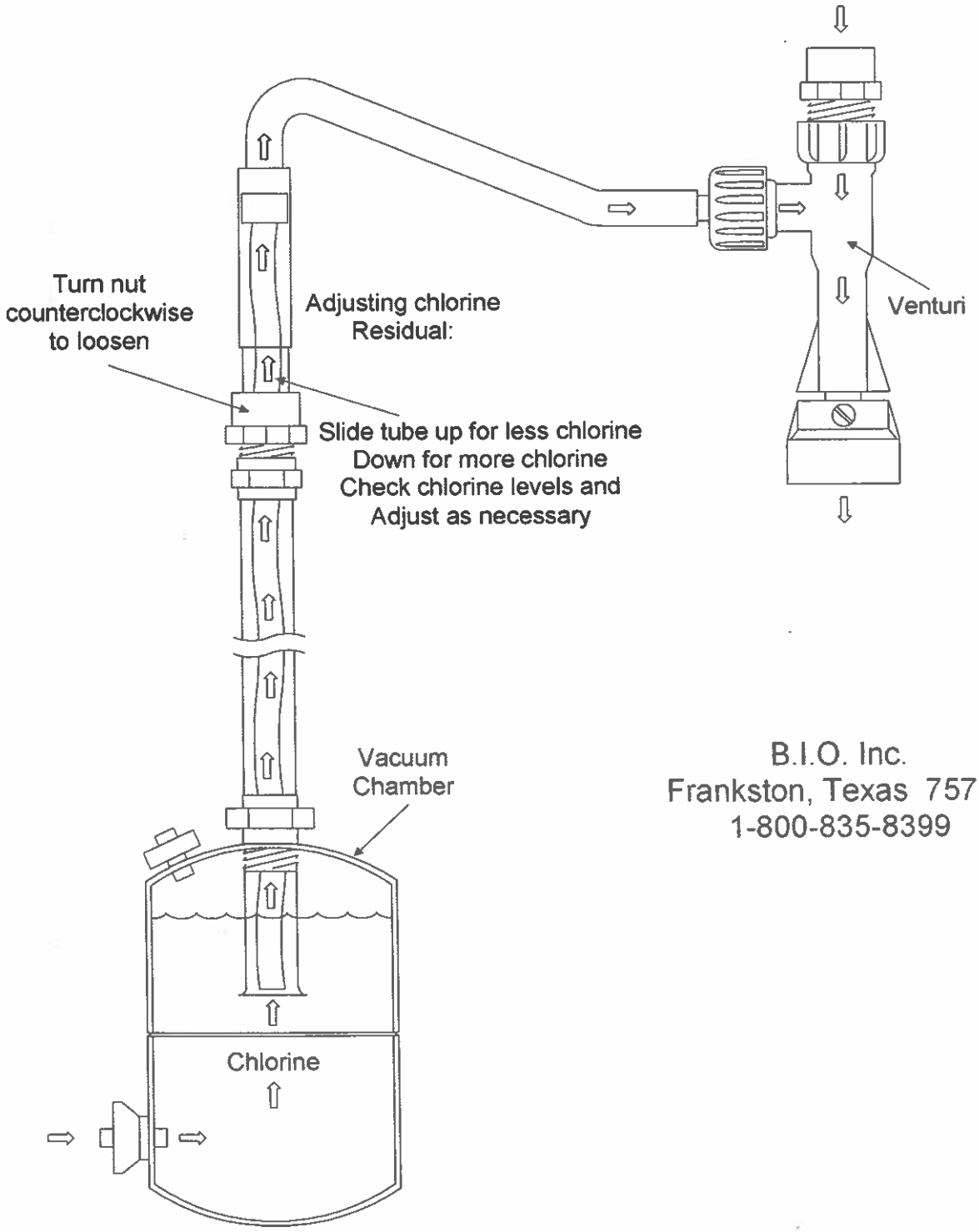



End Section View

Clifford J. Conner R. S. #1061
OS7431

Comet Wastewater Design, Inc.
Registered Sanitarian #1061
Site Evaluator #OS7431
769 Boggy Creek Road
Lockhart, Texas 78644
(512) 376-2933

# D.I.R (Do It Right)
## Liquid Bleach Chlorinator




B.I.O. Inc.
Frankston, Texas 75763
1-800-835-8399

Clifford J. Conner
Registered Sanitarian #1061
Site Evaluator #OS7431

Conner Wastewater Design, Inc.

769 Boggy Creek Road
Lockhart, Texas 78644
(512) 376-2933

# CALDWELL COUNTY SANITATION DEPARTMENT
# OSSF SOIL EVALUATION FORM

Owner's Name Mr. Joel Vickery

Physical Address 1777 Fox Lane, Lockhart, Texas 78644

Legal Description Lot #8 - 2.10 Acre Tract - Elliouse Estates

Name of Site Evaluator Clifford J. Conner R. S. 1061 / #OS 7431

Date Performed 1/27/2021 Proposed Excavation Depth (Surface Spray)

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 ft. below the proposed excavation depth. For surface disposal, the surface horizon must be evaluated.
- Please describe each soil horizon and identify any restrictive features in the space provided below. Draw lines at the appropriate depths.

HeC2 - Heiden Clay - < 3 % Slope

Soil Boring Number # 1

| Depth (ft) | Textural Class | Gravel Analysis | Drainage (Mottles / Water Table) | Restrictive Horizon | Observations |
|---|---|---|---|---|---|
| 0 – 61" | Class IV<br>Brown & Olive Brown Clay | Less than 30% | No | No | |

Soil Boring Number # 2

| Depth (ft) | Textural Class | Gravel Analysis | Drainage (Mottles / Water Table) | Restrictive Horizon | Observations |
|---|---|---|---|---|---|
| 0 – 61" | Class IV<br>Brown & Olive Brown Clay | Less than 30% | No | No | |

Features of Site Area:

| | | |
|---|---|---|
| Presence of 100 year flood zone | Yes ___ | No ✓ |
| Presence of adjacent ponds, streams, 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 ✓ |

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

Clifford J. Conner R. S. #1061 2/3/2021
Signature of Site Evaluator O. S. 7431 Date

STATE OF TEXAS
CLIFFORD J CONNER
1061
REGISTERED
PROFESSIONAL SANITARIAN

# BLASIER Filtered Effluent Pump

Xylem Applied Water Systems

## SPECIFICATIONS

| Model | Flow Range GPM | Horsepower Range | Best Eff. GPM | Discharge Connection | Maximum Solids Size | Rotation① |
|---|---|---|---|---|---|---|
| 8EB | 1.5 - 10 | ½ - 1 | 7 | 1¼ | 1/16" dia. | CCW |
| 12EB | 3 - 16 | ½ - 1½ | 10 | 1¼ | 1/16" dia. | CCW |
| 20EB | 6 - 28 | ½ - 1½ | 18 | 1¼ | 1/16" dia. | CCW |
| 33EB | 10 - 50 | ½ - 1½ | 33 | 1¼ | 1/16" dia. | CCW |
| 55EB | 20 - 80 | ½ - 1½ | 55 | 1¼ | 1/16" dia. | CCW |

①Rotation is counterclockwise when observed from pump discharge end.

## "EB" SERIES MATERIALS OF CONSTRUCTION

| Part Name | Material |
|---|---|
| Discharge Head | Glass Filled Eng. Composite |
| Bearing Spider - Upper | Noryl®/GFN2 |
| Bearing | Proprietary Eng. Polymer |
| Shaft Retaining Ring | AISI 301 SS |
| Diffuser | Lexan® |
| Impeller | Noryl®/GFN2 |
| Bowl | AISI 304 SS |
| Shim | AISI 304 SS |
| Inlet Strainer | Glass Filled Eng. Composite |
| Screws - Cable Guard | AISI 304 SS |
| Motor Adapter | Glass Filled Eng. Composite |
| Casing | AISI 304 SS |
| Shaft | |
| Coupling | AISI 304 SS, Powder Metal |
| Cable Guard | AISI 304 SS |

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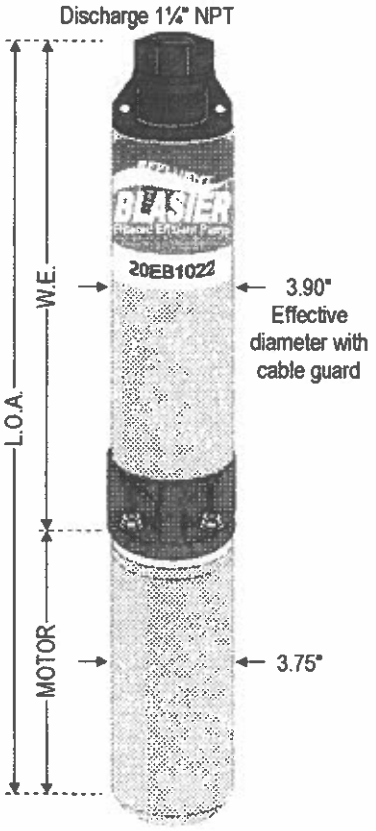
Delrin® is a trademark of Dupont




## DIMENSIONS AND WEIGHTS

| Order Number | HP | Phase | Stages | Length (inches) | | | Weight (lbs) | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | W.E.① | Motor | L.O.A.② | W.E. | Motor | Total |
| 20EB0522J, 20EB0521J | ½ | 1 | 5 | 9.6 | 11.0 | 20.6 | 3 | 19 | 22 |
| 20EB0722J | ¾ | 1 | 6 | 11.3 | 12.4 | 23.7 | 4 | 23 | 27 |
| 20EB1022J | 1 | 1 | 8 | 13.0 | 13.3 | 26.3 | 5 | 25 | 30 |
| 20EB1522J | 1½ | 1 | 11 | 15.5 | 14.9 | 30.4 | 6 | 29 | 35 |

① W.E. = water end or pump without motor.
② L.O.A. = length of assembly - complete pump - water end and CentriPro® motor.
③ Performance curves are based on running pumps without 1/8" discharge head weep hole. Actual performance will be slightly lower unless weep hole is plugged.

## ORDER NUMBER CODE

8EB 05 2 2 J

- EB Pump Series: 8EB 33EB 12EB 55EB 20EB
- Horsepower Code: 05 = ½ HP; 07 = ¾ HP; 10 = 1 HP; 15 = 1½ HP
- Phase: 2 = 1 Phase 2 Wire
- Voltage: 1 = 115 V; 2 = 230 V
- 120" jacketed lead

## FEATURES

☐ Designed for pumping filtered effluent from processed septic systems only.

☐ **Field Serviceable:** Pump can be rebuilt in the field to like new condition with common tools and readily available spare parts. **NOTE:** The pump has left hand casing threads.

☐ **Powered for Continuous Operation:** All ratings are within the working limits of the motor as recommended by the motor manufacturer. Pump can be operated continuously without damage to the motor.

☐ **Metal Parts are Stainless Steel:** AISI types 301 and 304 are corrosion resistant, non-toxic and non-leaching.

☐ **Non-Metallic Parts:** Impellers and diffusers are constructed of glass filled polycarbonate or Noryl, engineered composites. Both materials are corrosion and effluent resistant.

☐ **Discharge Head:** Engineered composite material for superior strength and corrosion resistance. Loops for safety line molded into head.

☐ **Motor Adapter:** Engineered composite material with high rigidity to provide accurate alignment of liquid end to motor. Generous space for removal of motor mounting nuts with regular open-end wrench.

☐ **Bowls:** Stainless steel for strength and abrasive resistance.

☐ 120" 3 wire jacketed motor lead standard.

☐ Warranted for one year against failure due to workmanship and materials. **Solids plugged pumps are not covered. Pumps used for liquids other than filtered effluent are not covered.**

☐ **Stainless Steel Casing:** Polished stainless steel is strong, attractive and corrosion resistant.

☐ **Hex Shaft Design:** Six sided shaft for positive impeller drive.

☐ **Inlet Strainer:** Molded suction strainer built into motor adapter.

☐ **Engineered Polymer Bearings:** The proprietary, engineered polymer bearing material is extremely strong and highly resistant to abrasion and wear. The enclosed design upper bearing is mounted in a durable Noryl bearing spider for excellent abrasion resistance.

☐ **NEMA Motor:**

- Corrosion resistant stainless steel construction.
- Built-in surge arrestor is provided on single phase motors.
- Stainless steel splined shaft.
- Hermetically sealed windings.
- Replaceable motor lead assembly.
- UL 778 recognized.
- NEMA mounting dimensions.

☐ **Agency Listings:** All complete pump/motor assemblies are UL778 and CSA listed. All 4" Motors are UL778 recognized.

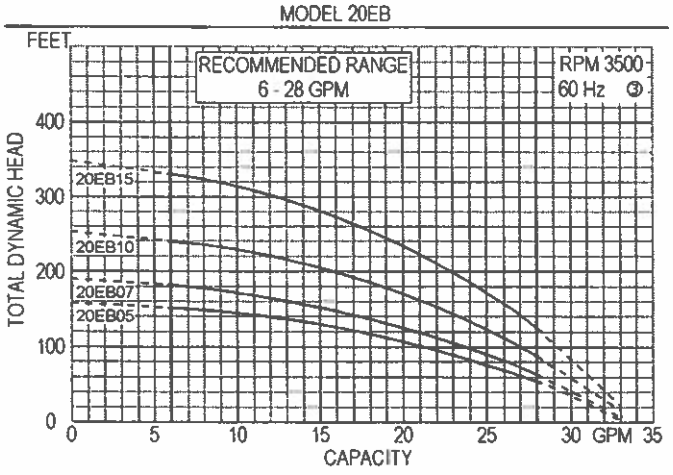
☐ All models have 1/8" diameter bypass in discharge head to ensure venting on start up.

③See curves and note.

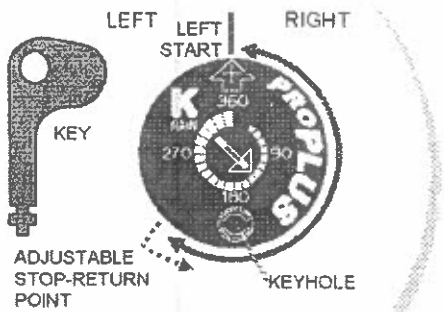
## AGENCY LISTINGS

Underwriters Laboratories File no. E174426

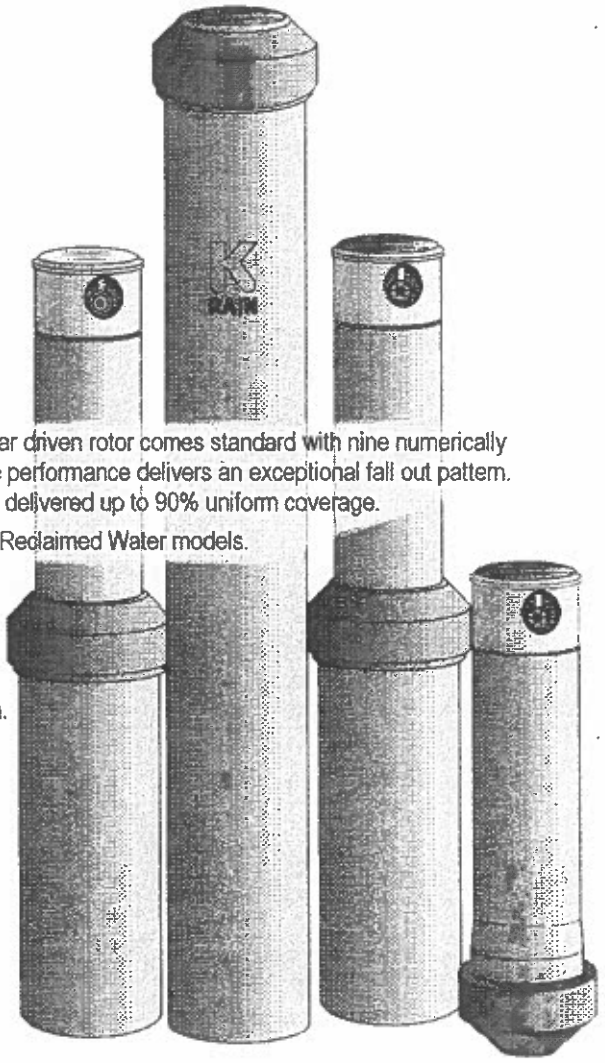
Canadian Standards Association File no. 38549



# PROPLUS™ SPRINKLERS




**EASY ARC SETTING**
**Arc Selection 40° to Continuous 360°**
Adjust From Left Start



The **PROPLUS**™ adjustable arc and full-circle gear driven rotor comes standard with nine numerically coded interchangeable nozzles. Excellent nozzle performance delivers an exceptional fall out pattern. In independent testing by C.I.T., the **PROPLUS**™ delivered up to 90% uniform coverage.

**Also Available:** 12" High Pop, Shrub Head and Reclaimed Water models.

> **Revolutionary Patented Easy Arc Set** – Simplified arc set allows for wet or dry adjustment in seconds.

> **5" Riser** – Perfect for grasses with thick thatch.

> **3/4" Inlet** – Replaces all standard rotors.

> **2N1 Adjustable or Continuous Rotation** – Provides a full range adjustment from 40° to a continuous full circle.

> **Patented Arc Set Degree Markings** – Clearly indicates the current watering pattern and simplifies arc set adjustment.

> **Arc Memory Clutch** – Prevents internal gear damage and returns rotor to its prior setting automatically if nozzle turret is forced past its stop.

> **Time Proven Patented Reversing Mechanism** – Assures continuous reverse and return ... over a 20 year history.

> **Ratcheting Riser** – Allows for easy adjustment of your left starting position with a simple turn of the riser.

> **Rubber Cover** – Seals out dirt and increases product reliability.

> **Wide Selection of Nozzles** – Including standard and low angle, provides flexibility in system design.

> **Optional Check Valve** – Prevents low head drainage.

## SPECIFICATIONS

> Inlet: 3/4" Threaded NPT
> Arc Adjustment Range: 40° to Continuous 360°
> Flow Range: .5 - 10.0 GPM
> Pressure Rating: 20 - 70 PSI
> Precipitation Rate: .06 to .50 Inches per Hour (Depending on Spacing and Nozzle Used)
> Overall Height (Popped Down): 7 1/2" / 17" for High Pop
> Recommended Spacing: 28' to 44'
> Radius: 22' to 50'
> Nozzle Trajectory: 26°
> Low Angle Nozzle Trajectory: 12°
> Standard and Low Angle Nozzle: Included
> Riser Height: 5"

## PERFORMANCE

| NOZZLES | PRESSURE PSI | RADIUS FT. | FLOW GPM |
|---|---|---|---|
| #0.5 | 30 | 28' | 5 |
| | 40 | 29' | 6 |
| | 50 | 29' | 7 |
| | 60 | 30' | 8 |
| #0.75 | 30 | 29' | 7 |
| | 40 | 30' | 8 |
| | 50 | 31' | 9 |
| | 60 | 32' | 10 |
| #1 | 30 | 32' | 13 |
| | 40 | 33' | 15 |
| | 50 | 34' | 16 |
| | 60 | 35' | 18 |
| #2 | 30 | 37' | 24 |
| | 40 | 40' | 25 |
| | 50 | 42' | 30 |
| | 60 | 43' | 33 |
| #2.5 PRE-INSTALLED | 30 | 38' | 25 |
| | 40 | 39' | 28 |
| | 50 | 40' | 32 |
| | 60 | 41' | 35 |
| #3 | 30 | 38' | 36 |
| | 40 | 39' | 42 |
| | 50 | 41' | 46 |
| | 60 | 42' | 50 |
| #4 | 40 | 43' | 44 |
| | 50 | 44' | 51 |
| | 60 | 46' | 56 |
| | 70 | 49' | 59 |
| #6 | 40 | 45' | 59 |
| | 50 | 46' | 60 |
| | 60 | 48' | 63 |
| | 70 | 49' | 67 |
| #8 | 40 | 42' | 80 |
| | 50 | 45' | 85 |
| | 60 | 49' | 95 |
| | 70 | 50' | 10.0 |

## LOW ANGLE DATA

| NOZZLES | PRESSURE PSI | RADIUS FT. | FLOW GPM |
|---|---|---|---|
| #1 | 30 | 22' | 12 |
| | 40 | 24' | 17 |
| | 50 | 26' | 18 |
| | 60 | 28' | 20 |
| #3 | 30 | 29' | 30 |
| | 40 | 32' | 31 |
| | 50 | 35' | 35 |
| | 60 | 37' | 38 |
| #4 | 30 | 31' | 34 |
| | 40 | 34' | 39 |
| | 50 | 37' | 44 |
| | 60 | 38' | 47 |
| #6 | 40 | 38' | 65 |
| | 50 | 40' | 73 |
| | 60 | 42' | 80 |
| | 70 | 44' | 86 |

Data represents test results in zero wind. Adjust for local conditi
Radius may be reduced with nozzle retention screw.

## MODELS

| | |
|---|---|
| **11003** | ProPlus |
| **11003-HP** | ProPlus 12" High Pop |
| **11003-SH** | ProPlus Shrub Head |

**OTHER OPTIONS: ADD TO PART NUMBER**

| | |
|---|---|
| **-CV** | Check Valve |
| **-LA** | Low Angle Nozzle |
| **-NN** | No Nozzle |
| **-RCW** | ProPlus for Reclaimed Water w/Low Angle Nozzle |

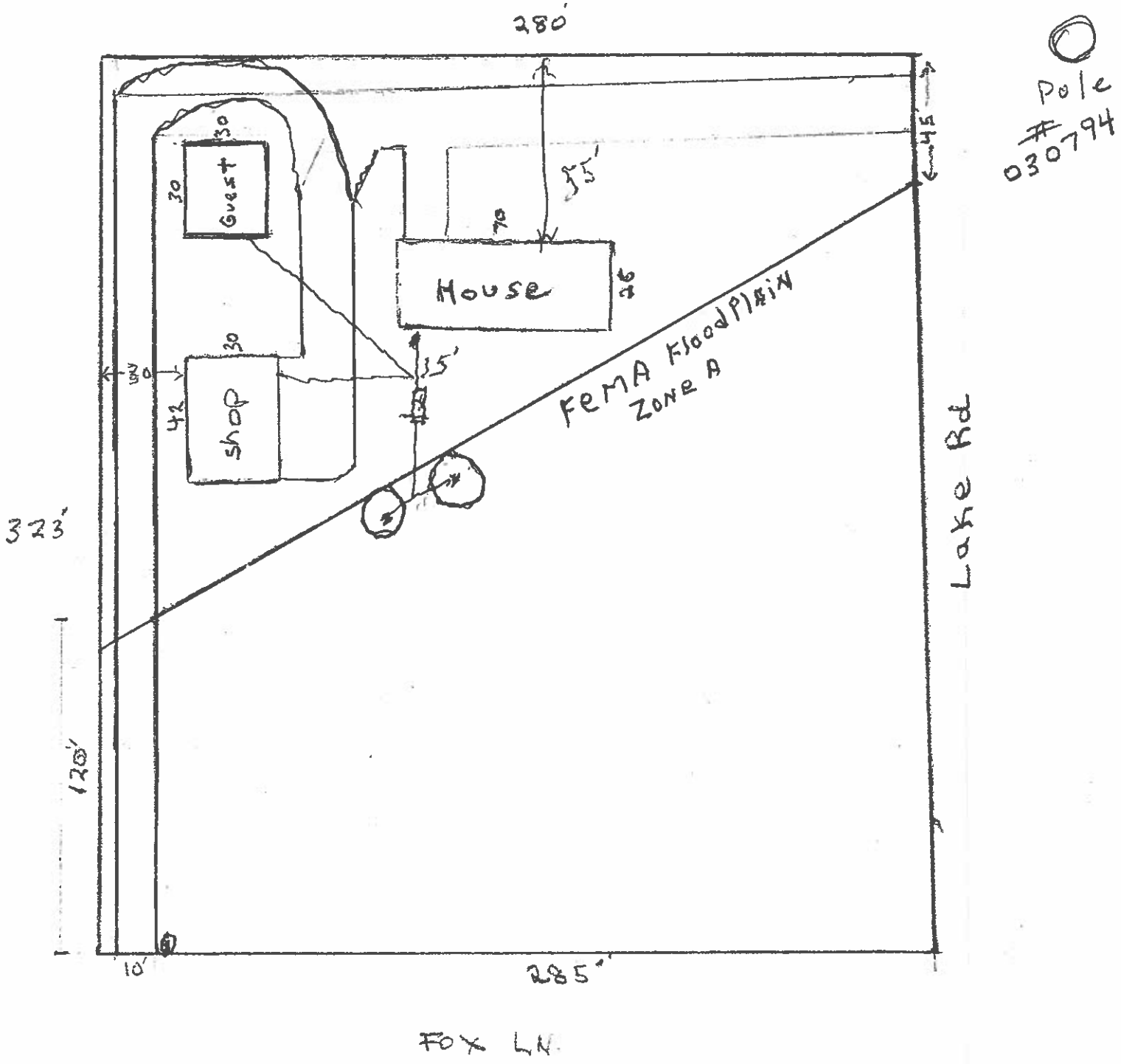
## HOW TO SPECIFY

**11003** **-RCW**
Model Number — Descriptio

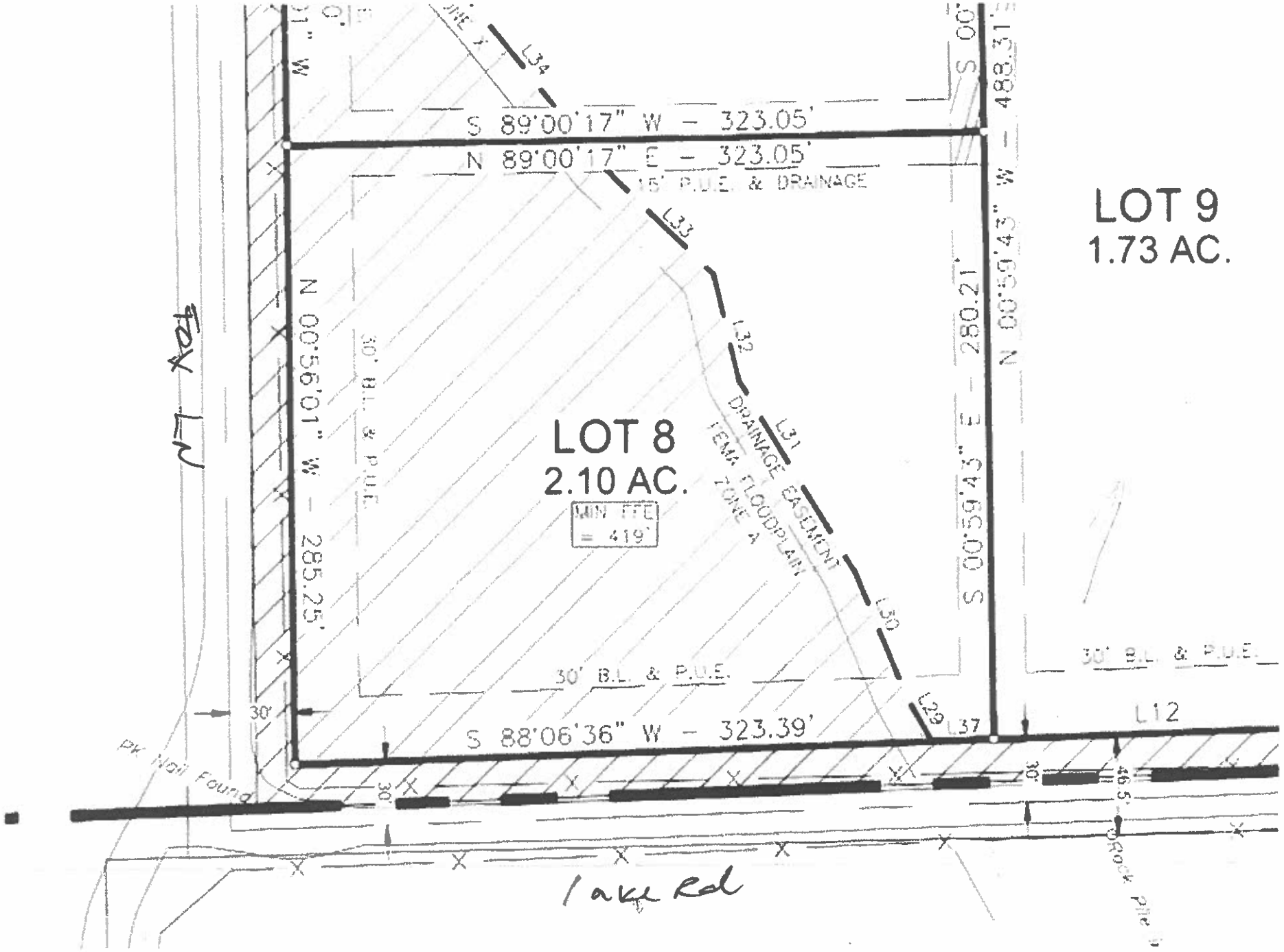

**K-Rain Manufacturing Corp.**
1640 Australian Avenue
Riviera Beach, FL 33404 USA
+1 561 844-1002
FAX: +1 561 842-9493
**1.800.735.7246 | www.krain.com**

Joel Vickery
1777 Fox Ln.
512 658 3141

1 cm = 20'




MR Jose B. JAimes Const.


LOT 8
2.10 AC.
MIN FFE = 419'
LOT 9
1.73 AC.
S 89°00'17" W - 323.05'
N 89°00'17" E - 323.05'
15' P.U.E. & DRAINAGE
N 00°56'01" W - 285.25'
S 00°59'43" E - 280.21'
N 00°59'43" W - 488.31'
S 88°06'36" W - 323.39'
30' B.L. & P.U.E.
DRAINAGE EASEMENT
FEMA FLOODPLAIN ZONE A
L31
L32
L33
L34
L50
L29
L37
L12
30'
PK Nail Found
Lake Rd