

**APPENDIX J**  
**WATER AND SEWER DEMAND ANALYSIS**



# WATER AND SEWER DEMAND ANALYSIS

APRIL 8, 2022

**AVELLANA**

**Senior Wellness**

**APN: 0435-015-13 & 35**

**San Bernardino County,  
California**



## PROFESSIONAL ENGINEER'S AFFIRMATIVE STATEMENT

I have examined and am familiar with the information in this document and all appendices, and based on my inquiries of individuals immediately responsible for obtaining the information in this document, I believe that the information is true, accurate, and complete

Prepared by

**REDBRICK SOLUTION, LLC**

Consulting Engineers & Architects

[www.redbricksolution.com](http://www.redbricksolution.com)

### Salt Lake City Office

331 South Rio Grande Street | Suite 203  
Salt Lake City, Utah 84101  
T: 801.244.5335

### Apple Valley Office

19153 Town Center Dr. | Suite 101-A  
Apple Valley, CA 92308  
T: 661.816.5179

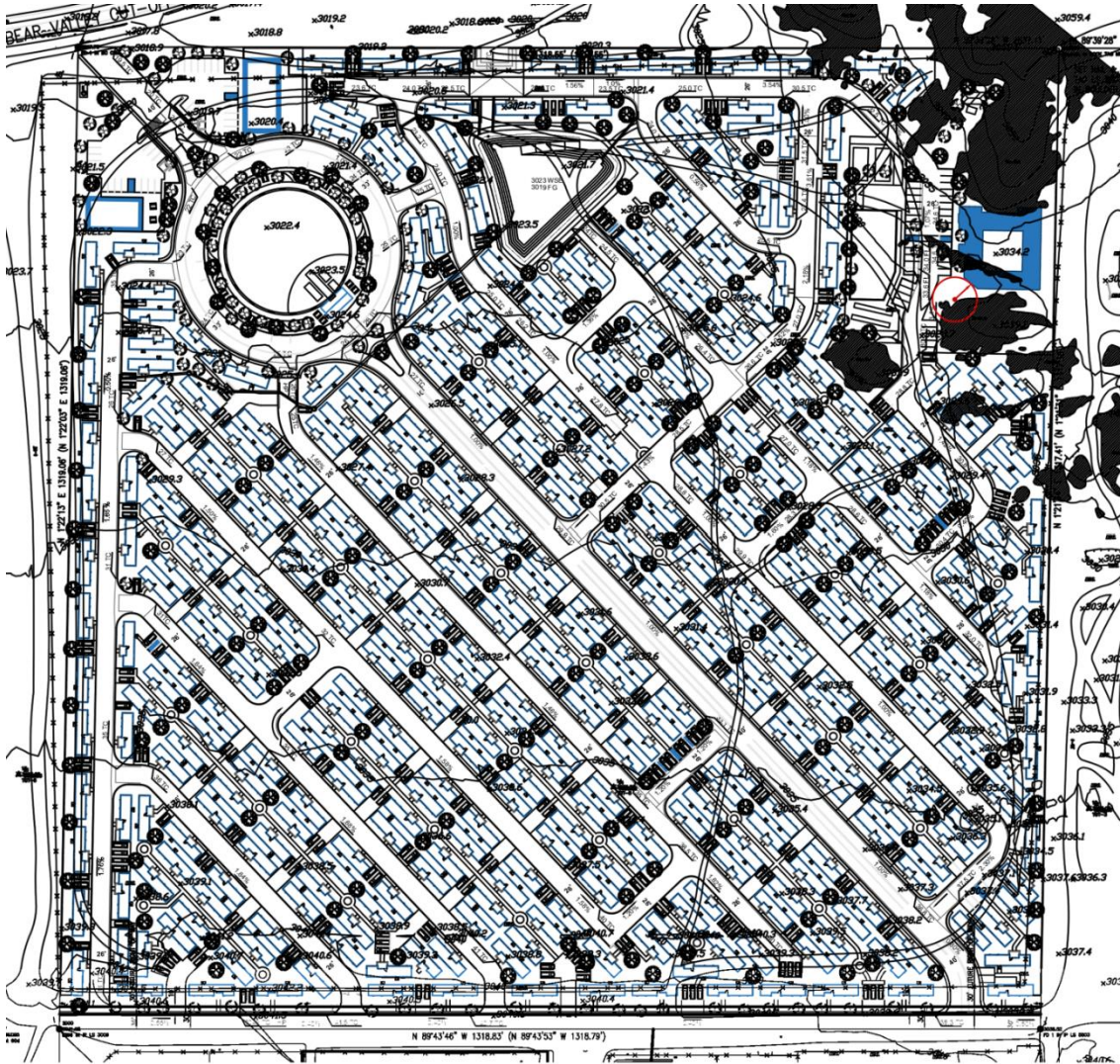
## Table of Contents

I. Introduction	
A. Location of Property	1
B. Purpose and Scope	1
C. Project Description	2
D. Water and Sewer Servicing Project	2
II. Estimated Water Consumption	4
A. Domestic Demand	4
B. Fire Flow Protection System Demand	4
C. Evapotranspiration Demand:	4
Landscape Water Demand	
Pond Evaporation Demand	
D. Mitigation Measures	5
E. Water Findings and Recommendations	6
Estimated Well Flow Rate	
Tank Storage Capacity	
Pond/Fire Flow Storage Capacity	
Water Demand Net Effect	
F. Environmental Impacts:	7
III. Estimated Solid Waste Generated by The Project	8
G. Current Providers	8
H. Environmental Impacts:	9

## I. INTRODUCTION

### A. LOCATION OF PROPERTY

The 40.2-acre project is a Planned Residential Development for a Senior Community that is located 1,425 feet west of the intersection of Bear Valley Road and Highway 18, east of the Town of Apple Valley, CA APN 0435-015-13. An additional 4.72-acres (APN 0435-015-35) just south of the site will be developed as a solar farm and domestic water supply and storage facility to support the site to the



north.

### B. PURPOSE AND SCOPE

The purpose of this study is to analyze the project's anticipated water and sewer demands use during construction and operations to determine if the Project would:

1. Require or result in the relocation or construction of new or expanded water, wastewater treatment or storm water drainage, electric power, natural gas, or telecommunications facilities the construction or relocation of which could cause significant environmental effects?

2. Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years?
3. Result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?
4. Generate solid waste in excess of State or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals?
5. Comply with federal, state and local management and reduction statutes and regulations related to solid waste?

### **C. PROJECT DESCRIPTION**

The Project Development Plan is designed as a "Self-Sustainable living Community". Avellana has been designed to create a micro-living-environment that caters to almost all the needs of its future population without placing additional burdens on the neighboring resources as it embraces a minimal-carbon footprint lifestyle that can be described in the following terms:

1. Construction Operations
2. 399 custom designed "senior-optimized" mobile homes
3. A First Aid Center focused on geriatric care
4. A Community Center with pool and serving kitchen.
5. A Wellness Convenience Shop
6. A Pond, used for fire suppression storage, requiring pumps for aeration.
7. A Detention Basin/Park

As there are no sewer, water, or natural gas services currently serving the subject property Avellana will generate and provide its own utilities from entirely within the community property boundaries, with the exception of SB County Police and Fire services. As such Avellana will meet 2040 water and sewer allowances by providing its own reclaimed system that recharges its own aquifer.

### **D. WATER AND SEWER SERVING THE PROJECT**

The Project Site is currently vacant and is consistent with the County General Plan and Zoning District with a Conditional Use Permit for the Senior Mobile Home Park and Community Center, and includes a request for a Planned Development Permit to allow for a Planned Residential Development of a senior residential community with incidental service uses of the Community Center, pool, First Aid Center and Wellness Convenience Shop.

Currently the neighbors are receiving electricity from Edison, and phone service from Verizon. The Project is not located near water services from the County of San Bernardino (CSA 64), Golden State Water Company, nor natural gas service from SoCal Gas.

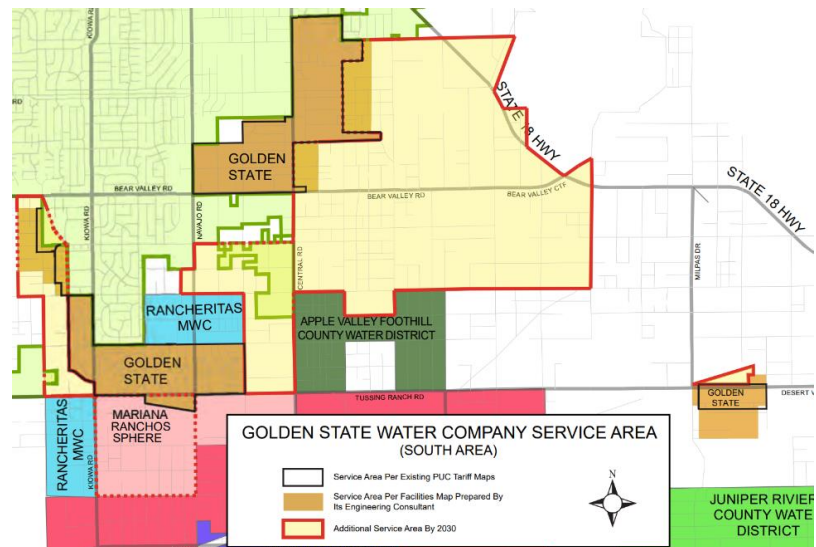
Power, water, and sewer utility services for Avellana will be provided by forming a special purpose California Mutual Corporation, Avellana Power Limited to deploy water, water treatment, and electricity services within the property boundaries. This entity has already been formed and



designated by the IRS as a 501(c)(12) public benefit non-profit corporation and will provide comprehensive utility services to all Avellana residents.

As the valley continues to grow future demands would be serviced by Golden State Water Company Apple Valley South by year 2030. Water delivered to customers in the Apple Valley South System is groundwater pumped from the Mojave River Basin-Alto Sub-Basin, which is the upper portion of the Mojave River, and water purchased from Liberty Utilities Company. Golden State Water Company conducted a source water assessment in September 2000 for each groundwater well serving the customers of its Apple Valley South System. Three of the groundwater wells are considered most vulnerable to the following activities associated with contaminants detected in the water supply:

- High- and low-density septic systems
- High density housing
- Other water supply wells



Based on current demands, future water requirements in 2040 would be higher than 50 percent utilization that well pump capacity could deliver, if well pumps operated at 100 percent, water requirement would be achieved. Depending on yearly precipitation rates, future water demands could exceed supply. To fulfill future water supplies, other water options may include desalinated water, water transfers, reduction analysis and recycled water to replenish future groundwater aquifer levels if pumping surpasses the Free Production Allowance.

With regards to source water production, the State Water Resources Control Board (Division of Drinking Water) performed a Sanitary Survey for the area with results provided in a letter dated May 14, 2020. The letter identified the historic Maximum Day Water Demand (MDD) (year 2010) exceeds the current source capacity (with the highest source off-line). A MDD of 5.92 MGD is compared with a source capacity of 5.06 MGD resulting in an apparent existing deficiency of 0.86 MGD. However, given the significant MDD reduction trend (since 2010) when compared to years 2011-2018, a more appropriate computation could be made by averaging the current trend values. In doing so (and excluding year 2017 as an anomaly), the MDD would adjust to 4.48 MGD and thus an apparent surplus of 0.58 MGD would result. As such, the true availability of source waters should be confirmed and, should an actual deficiency caused (or exacerbated) by the Project be identified, the Project should be required to pay its proportional share for necessary source water facility improvements.

If an overall usage of water within Golden State was to be used, Golden State Water would be assessed a replenishment charge to buy resources for aquifer replenishment. Therefore, no significant adverse impacts are identified or anticipated, and no mitigation measures are required.

## **II. ESTIMATED WATER CONSUMPTION GENERATED BY THE PROJECT**

### **A. DOMESTIC DEMAND:**

Per California Assembly Bill 1668 dated May 31, 2018, the per capita limit for water is 55 gpd. Figuring that the senior residences would average 1.8 persons per dwelling unit (DU), that translates to 99 gallons per unit per day. With 399 DUs, that equals 39,501 gallons per day for the residential use water demand. In addition, there will be a Community Center & Pool, a Wellness Convenience Shop, and First Aid Center that will require approximately 5000 gpd based on the number and kind of fixtures in These incidental service uses.

For the purposes of this Study, the project will have a demand of 45,000 gpd which is 50.4 afy (acre feet per year).

### **B. FIRE FLOW PROTECTION SYSTEM DEMAND:**

In order to ensure the Fire Protection System and infrastructure will meet the requirement set forth by the Apple Valley Fire Protection District. The infrastructure will need to include the following:

- All permanent structures will have internal sprinkler systems per California sprinkler system codes
- Hydrants will be located per the requirements of the Apple Valley Fire Protection district.
- Supply piping will be sized to adequately handle the water flow requirements (volume and pressure) to every hydrant.

The flow rate requirement established by Apple Valley Fire Protection district is to provide a flow rate of 2,250 gpm. for a two (2) hour duration. This combination of flow rate and duration consumes a water volume of 270,000 gallons.

### **C. EVAPOTRANSPIRATION DEMAND:**

Evapotranspiration is the process by which water is transferred from the land to the atmosphere by evaporation from the soil and other surfaces and by transpiration from plants.

The project is in the area known as the California High Desert Valleys and is classified by the California Irrigation Management Information System (CIMIS) as ETo Zone 17 which has the second highest evapotranspiration rates in the State. Monthly average rates range from 1.86 to 9.92 inches/month for a yearly rate of 66.5 inches.

**Landscape water demands:**

Given the following:

Average waterwise landscape area of each DU =	54 square-feet
Maximum Applied Water Allowance Plant Factor =	0.20
Eto =	66.5 in/yr
Irrigation Efficiency =	0.81

Then the Estimated Water Used (Gallons per Year) is:

$$(Eto/12) \times (PLANT FACTOR) \times (HYDROZONE SQ. FT.) \times (.62)/ IRRIGATION EFFICIENCY =$$
$$(66.5/12) \times 0.20 \times 54 \times 0.62/0.81 = 45.81 CF \times 7.481 gal/cf = 342.71 gpy$$

Considering that there are 399 units the total demand would be  $(45.81 cf/43560 \times 399) = 0.42 afy$ .

**Pond Evaporation Rate Demand:** The Nearest Pond to the project is Spring Valley Lake in Victorville. The University of California at Riverside has determined that the loss from evaporation is ninety inches of water a year, sixteen inches per month during the months of June and July. (The history of Spring Valley Pond by Archie Lauchlan 1983 by spring valley Pond association). This is greater than the 66.5 inches per year for this hydrozone. Considering wave action and personal watercraft use on the Pond will add to the evaporation rate. This study will continue to base evaporation on the USGS Eto of 66.5 inches per year. Thus, if the proposed onsite Pond has a surface area of 21,642 square feet then the yearly losses would equate to  $(21,642 \times 66.5/12/43560) = 2.75 afy$ .

**D. MITIGATION MEASURES:**

The project's water demand requirements can be reduced by the following innovative design features:

1. Xeriscape (waterwise landscaping): the process of landscaping, or gardening, that reduces or eliminates the need for irrigation. It is promoted in regions that do not have accessible, plentiful, or reliable supplies of fresh water. Xeriscapes can reduce water consumption by 60% or more compared to regular lawn landscapes.
2. Infusing Aquifer Through Hydromodification/Infiltration: The Mojave River Watershed Water Quality Management Plan, has become standard practice for all development in the area known as the High Desert Valleys in San Bernardino County, California.
3. Water Efficient Toilets and Faucets.
4. Reclaimed Water from the proposed Packaged Wastewater Treatment Plant.: Use of recycled water in lieu of potable water is encouraged by the State Water Board as described below:
  - a. The State Water Board's Strategic Plan Update 2008-2012 includes a priority to increase sustainable local water supplies available for meeting existing and future beneficial uses by 1,725,000 acre-feet per year (afy) in excess of 2002 levels by 2015.

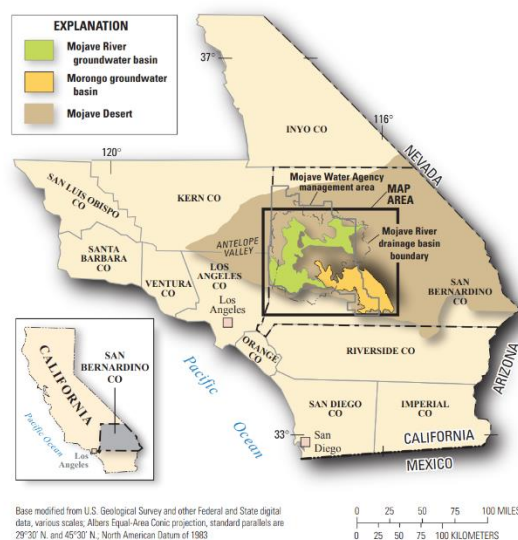


- b. The State Water Board's Policy for Water Quality Control for Recycled Water states the following goals (in part): 1) Increase the use of recycled water over the 2002 level by at least 1 million afy by 2020 and by at least 2 million afy by 2030. 2) Increase the amount of water conserved in urban and industrial uses by 20 percent compared to 2007. 3) Substitute as much recycled water for potable water as possible by 2030
5. Storm Water Capture: The project is designed to use infiltrating blocks in lieu of asphalt pavement which allows infiltration to occur as storm flows are conveyed to an infiltration/retarding basin. Per the Water Quality Management Plan the project will capture 23,521 cubic feet which is 0.54 acre-feet per storm even. Considering the average yearly rainfall is 14-inches per year over a 33-days period. Then the average wet day rainfall would be  $(40\text{-acres} \times 14/12/33 =) 1.42\text{-acre feet}$ . Thus, the project will infiltrate at a minimum 0.54 acre-feet each of the daily wet events or  $(33 \times 0.54 =) 17.8$  afy.

## E. WATER FINDINGS AND RECOMMENDATIONS

**Estimated Well Flow Rate:** Per the USGS Regional Water Table Map for the Mojave River Groundwater Basin, the groundwater elevation below this project is 2825. Considering the proposed well site is at an elevation of 3045 then the ground water would be 210 feet down from natural grade. Information obtained by local well driller (lic # 77235) suggests that substantial water is around 300-feet and can produce 25-125 gpm depending on well and pump size.

To meet the demand of 45,000 gpd a pump would be required to run at  $(45000/24/60) 31.25$  gpm constantly which falls in the range listed above.



**Tank Storage Capacity:** To meet the required 3-day domestic use storage capacity  $(45,000 \times 3 = 135,000$  gallons). Translating this to cubic feet, we would need 18,045 cubic feet of storage. This could be achieved by using 2 tanks 30ft in dia., and 13 ft in height to achieve a total storage volume of 18,378 cubic feet.

**Pond/Fire Flow Storage Capacity:** A 750,000-gallon man-made pond will serve as the reservoir for the water used in the Fire Protection System. This is continuously fed by recycled water from our water treatment plant that is designed to process up to 60,000 gpd. This will be accompanied by appropriate pumps and filters necessary to maintain the proper water volume and pressure.

**Water Demand Net Effect:** As an IRS 501(c)(12) public benefit corporation managing its own water supply and acting as a water company, the net effect this project will have on the existing water supply

can be attributed by the overall losses in the system. Considering that In the U.S., we use only 10% of our overall water consumption for drinking and cooking (Columbia Climate School “From Wastewater to Drinking Water” by Renee Cho April 4,2011), the rest is flush down the toilet or drain.

This project will then take the remaining 90% or (45,000 gpd\*0.9) 40,500 gpd and put back into the underground aquifer by means of infiltration through irrigation or an infiltration basin. Thus, the net water loses in the system will be the consumption for drinking and cooking along with the evaporation and evapotranspiration losses while infiltrating the water back into the aquifer. The net water consumption would then be as follows:

Drinking and cooking (45,000-40,000 gpd=)	-5.04 afy
Evaporation on the Pond=	-2.75 afy
<u>Landscape Evapotranspiration =</u>	<u>-0.42 afy</u>
Total Demand on the Aquifer=	-8.21 afy < 10 afy

<u>Infiltration from Storm Water Capture =</u>	<u>17.8 afy</u>
Net Effect of the proposed project =	9.59 afy added each year to the aquifer.

**Sewer Demand:** Per the State Water Resources Board Order WQ 2014-0153-DWQ The project is considered a Small Domestic System since it will operate at under 100,000 gallons per day (gpd)

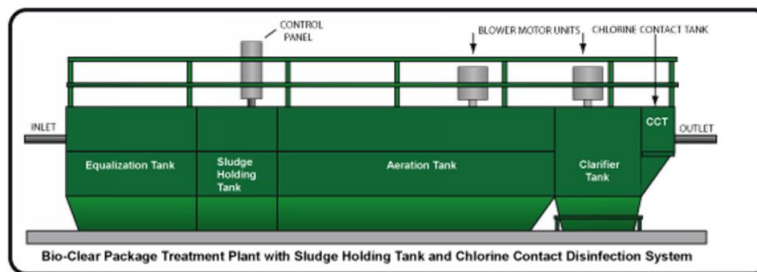


Illustration Only; Not All Components Shown

This system is design to reduce BOD and TSS levels of common household sewage from 300 mg/L and 30 mg/L respectively. With the addition of the a Tertiary Filter, BOD and TSS levels can be reduced to below 10(mg /L)0.5bod ecologic Orin gruber

**Summary of Specification: Expected Flow Rate – 40,000 - 60,000 GPD**

**Approximate Volumes and Dimensions**

<b>Aeration Tank Volume:</b>	60,000 gallons	36'-0"L
<b>Equalization Tank Volume:</b>	20,000 gallons	12'-0"L
<b>Clarifier Tank Volume:</b>	10,000 gallons	12'-0"L
<b>Sludge Holding Tank:</b>	9,000 gallons	5'-6"L
<b>Chlorine Contact Tank:</b>	1,250 gallons	2'-0"L

**Bio-Clear System Overall Length/Width/Height**      67'-6"L x 24'W x 11'H

Based on the 40,500-gpd non-used domestic water reported above becoming wastewater, the small domestic system shown above can treat the effluent and meet the requirements for use in irrigation and in the pond for fire water demand. The effluent from this plant will be used as make up water to counter pond evaporation loses (2.75 afy) and the irrigation demands of (0.42 afy) for a total of 3.17

afy, The 40,500 gpd equates to 45.4 afy minus the 3.17 afy evaporation leaves 42.2 afy of effluent required to be infiltrated through a system of leach fields and seepage pits.

Solid waste generated by the plant will also be collected by the treatment plant providers and sold as fertilizer to various farmers.

## **F. ENVIRONMENTAL IMPACTS:**

When analyzing the 8.21 afy actual losses due to water consumption on the aquifer and the infiltration gains by employing Water Quality Management Plan Best Management Practices on site of 17.8 afy, it is evident that the project as designed will have a net increase to the aquifer of 9.59 acre-feet per year.

In addition, in a letter from Mojave Water Agency dated October 28, 2021, it was stated that “Any production in excess of 10-acre feet per year requires stipulation and adherence to the Mojave Basin Area Judgment to pay for water to mitigate the new pumping.” Considering that the intent of this statement is toward water consumption for each parcel then the projects 8.21 afy consumption is less than the 20 afy allotment for the two parcels.

Thus, the project will not result in the relocation or construction of new or expanded water, wastewater treatment or storm water drainage facilities. Sufficient water supplies are available to serve the project now and in the future during normal, dry and multiple dry years; and the wastewater treatment will be provided on-site such that the regional wastewater authority will not require additional capacity to serve the project’s projected demand in addition to the provider’s existing commitments. Therefore, there is no significant impact.

## **III. ESTIMATED SOLID WASTE GENERATED BY THE PROJECT**

### **A. CURRENT PROVIDERS**

Solid Waste: The Project Site is currently within the refuse collection area of Burrtec Waste Industries. Solid Sanitary Landfill (36-AA-0045), or other active landfills as necessary. Burrtec’s operators determine the final disposal location on a case-by-case basis. The project’s Planned Residential Development Site refuse will be disposed of at either the San Bernardino County Victorville Sanitary Landfills that has a maximum throughput waste generation capacity of 3,000 tons per day, an expected operational life through 2047, and a remaining capacity of 81,510,000 cubic yards, or it would be served by a landfill with sufficient permitted capacity to accommodate its solid waste disposal needs.

California Assembly Bill 341 has been enacted to reduce greenhouse gas emissions by diverting commercial solid waste from landfills by recycling. It mandates businesses and public entities generating 4-cubic yards or more of trash to establish and maintain recycling services. The County of San Bernardino Solid Waste Management Division reviews and approves all new construction projects that require a Construction and Demolition Solid Waste Management Plan.

The County of San Bernardino Planning and Building & Safety division’s standard Conditions of Approval (COA’s) now require each project to have a waste management plan that consists of two

parts, 1) proposed projects are required to estimate the amount of tonnage to be disposed and diverted during construction. 2) Disposal/diversion receipts or certifications are required as a part of that summary. The mandatory requirement to prepare a Construction and Demolition Solid Waste Management Plan would ensure that impacts related to construction waste would be less than significant. The Proposed Project would comply with all federal, State, and local statutes and regulations related to solid waste. Solid waste produced during the construction phase or operational phase of the Proposed Project would be disposed of in accordance with all applicable statutes and regulations.

---

**B. ENVIRONMENTAL IMPACTS:**

The project will not generate solid waste more than State or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals, and it will comply with federal, state and local management and reduction statutes and regulations related to solid waste.

---



**Proposal: 44013**

**BC-60-ES-MM-CCT Wastewater Treatment System**

**The Avellana**

**Presented on December 9, 2021**

Presented to: The Avellana

Project Name: 60,000 GPD Extended Aeration Treatment Plant

Contact Name: Dave Weisman

Phone No: (310) 626-9699

Email: [daveweisman@theavellana.com](mailto:daveweisman@theavellana.com)

Prepared by: Oren Gruber



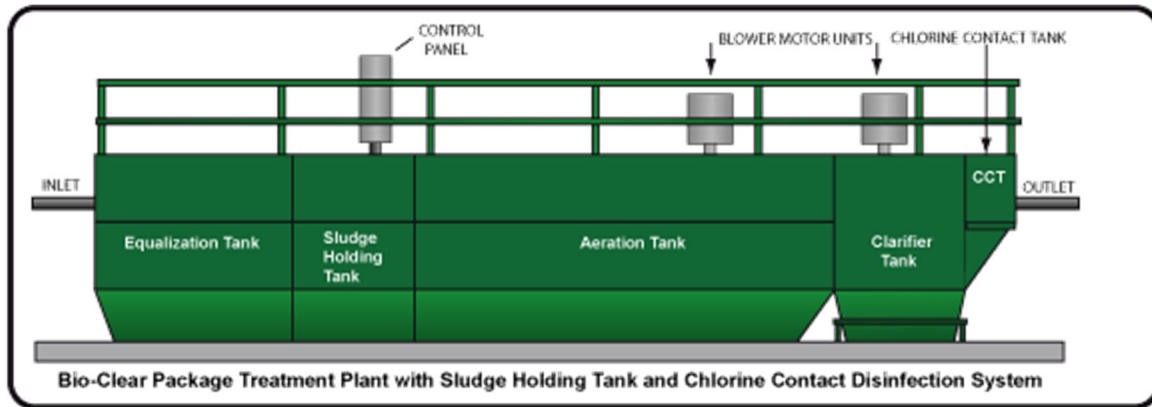


Illustration Only; Not All Components Shown

**Summary of Specification: Expected Flow Rate – 40,000 - 60,000 GPD**

**Approximate Volumes and Dimensions**

<b>Aeration Tank Volume:</b>	60,000 gallons	36'-0"L
<b>Equalization Tank Volume:</b>	20,000 gallons	12'-0"L
<b>Clarifier Tank Volume:</b>	10,000 gallons	12'-0"L
<b>Sludge Holding Tank:</b>	9,000 gallons	5'-6"L
<b>Chlorine Contact Tank:</b>	1,250 gallons	2'-0"L

**Bio-Clear System Overall Length/Width/Height**      67'-6"L x 24'W x 11'H

\*\*\* This system is designed to reduce BOD and TSS levels of common household sewage from 300mg/L BOD and 300mg/L TSS to below 30/30mg/L respectively. With the addition of the Tertiary Filter, BOD and TSS levels will be reduced to below 10/10mg/L.

Ecologix is pleased to quote the following package wastewater treatment plant:

- One Model BC-60-ES-CCT 60,000 GPD rectangular Wastewater Treatment System(s) and shall include the following for each unit:

**Equalization Tank**

- One 20,000 gallon equalization chamber (30 percent)
- One Barscreen with 1" bar spacing to capture large solids.
- Two Equalization pumps will be furnished and installed within the chamber. The pumps will be rated at 110 GPM @ 14 feet TDH, 460 volt, 3 phase, and 60 cycle. An emergency overflow will be provided between the equalization and aeration chamber.
- Two Equalization regenerative blower/motor unit will be supplied for the equalization chamber air requirements of **66 CFM**. The blowers will be capable of delivering 113 CFM when operating at 4400 RPM and 5 PSI. The motors will be 5 HP each, for operating on 230/460 volt, 3 phase, and 60 cycle.
- Four Liquid level sensors will regulate the pumps and blower/motor unit. Controls will be provided in the plant control panel.

**Aeration Chamber**

- One 60,000 gallon aeration chambers (24 hours retention)
- Two Positive displacement blower/motor units will be supplied for the aeration chamber air requirements of **415 CFM**. Each blower will be capable of delivering 750 CFM when operating at 5 PSI. The motors shall be 30 HP each for operating on 230/460 volts, 3 phase, 60-cycle service. The blower shall be in a soundproof enclosure to produce just 75 dBA noise level.
- One All required internal piping, valves and required reinforcements

**Clarifier**

- One 10,000 gallon hoppers bottom clarifier chambers (4 hours retention)

**Sludge Holding Chamber**

- One 9,000 gallon integral sludge holding chamber (15 percent)

**Service Walkway**

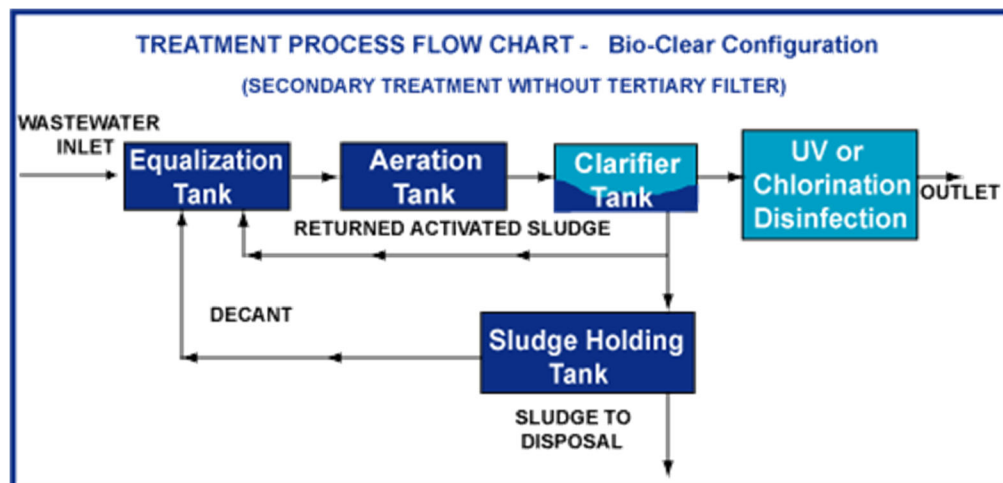
- One Walkway system to allow access to all mechanical equipment on the wastewater treatment plant with galvanized grating walkway

### General

- One Allen Bradley MicroLogix PLC control center including PanelView 1000, 10" color touch screen (or approved equal). Automatic and manual controls, timer controls of all blower units, and liquid level sensor control of all pumps. Includes remote access and monitoring capabilities via Ethernet connection. Control center mounted in a NEMA 4X stainless steel enclosure.
- One 1½ inch galvanize handrails along each side of all walkways
- One All diffuser header pipes to be constructed of 1¼ inch schedule 40 galvanized pipe
- One All walls in the wastewater treatment system shall be hydrostatic walls
- One All diffusers required in each aerated chamber
- One All tank surfaces shall be cleaned by sand blasting to a near white finish (SSPC-SP10) or better to obtain a 20-30 blast profile. Immediately after tank cleaning, all surfaces inside and out shall be coated with a two part coal tar epoxy paint as manufactured by Tnemec Series 80 series industrial epoxy. Coverage shall be in accordance with the paint manufacturer's guidelines. Color will be black.
- One Gallons of touch-up paint shall be provided for field touch-up after completion of installation
- Twelve 17-pound Magnesium Anode Packs
- Three Operation and Maintenance Manual

### Chlorine Contact Chamber

- One 1,250 gallon chlorine contact chamber (30 minutes)
- One Chlorine tablet feed unit



**PROJECT SCHEDULE:**

1. Submittals two weeks after signed sales agreement.
2. Fabrication of equipment and delivery within 12 - 16 weeks after receipt of approved submittals.

**ITEMS NOT INCLUDED:**

1. Site prep including excavation
2. Concrete foundation pads as required
3. De-watering of site as may be required
4. Electrical work as required power to control panels. Wiring from the control panels to the equipment supplied by Ecologix.
5. Installation of tankage quoted above
6. Crane to off-load quoted equipment and set on the foundation pad(s)
7. Field welding of tankage as required.
8. Filling tanks with water (This should be a priority if tanks are set below grade)
9. No pipes external to tank(s) are provided nor installed
10. Hookup of inlet sewer and discharge connections to the wastewater treatment plant and tertiary filter
11. Proper access to jobsite for trucks to reach site under their own power to within 15 feet of foundation pad. These trucks have a very low clearance between the road bed and the bottom of the trailer(s)
12. Backfilling around tank(s), final grading, and seeding as required
13. Field touch up painting as may be required. The paint for touch up shall be provided.
14. Fencing as may be required.
15. Delay during installation
16. Any back charges without prior approval and authorization to proceed.
17. Any item not listed above pertaining to the installation of equipment supplied by Ecologix.

**Unit Price FOB factory:**

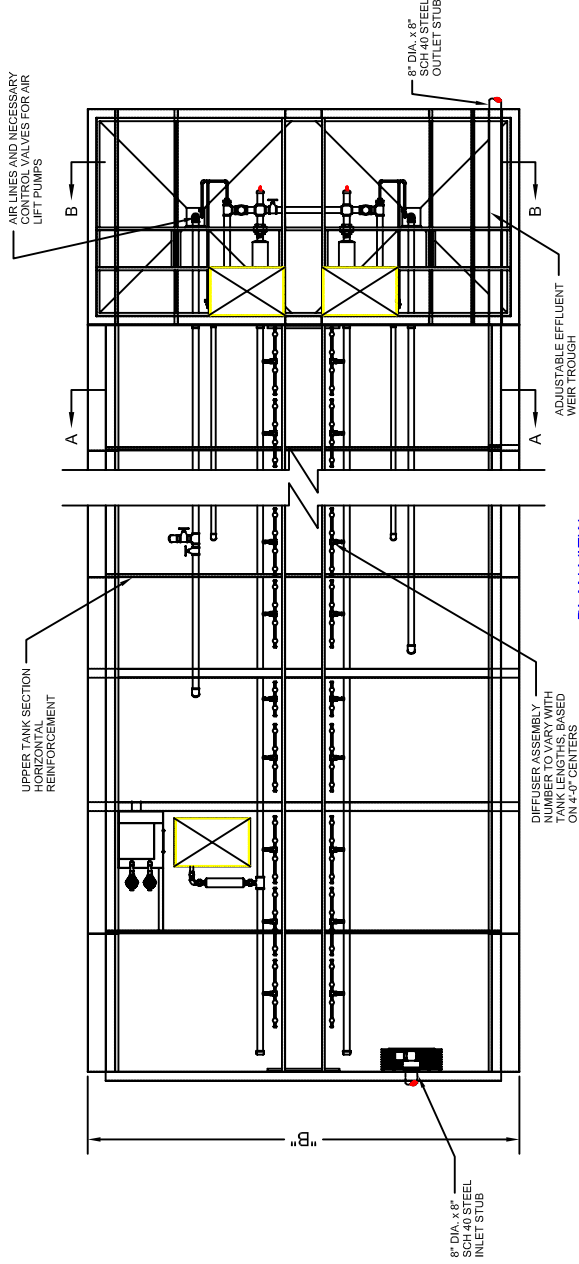
**Secondary Treatment - Model BC-60-ES-CCT**

**Optional:**

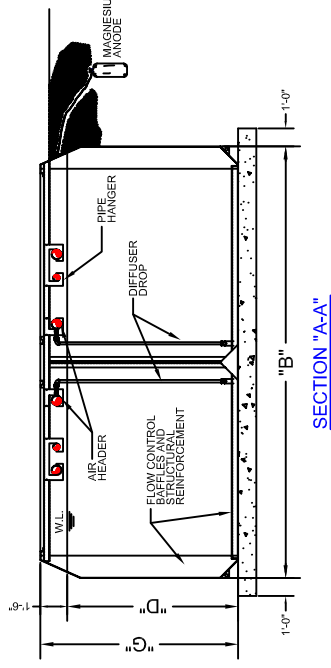
**Start-Up Services – \$1,800.00** per man-day plus travel expenses

**General Terms and Conditions**

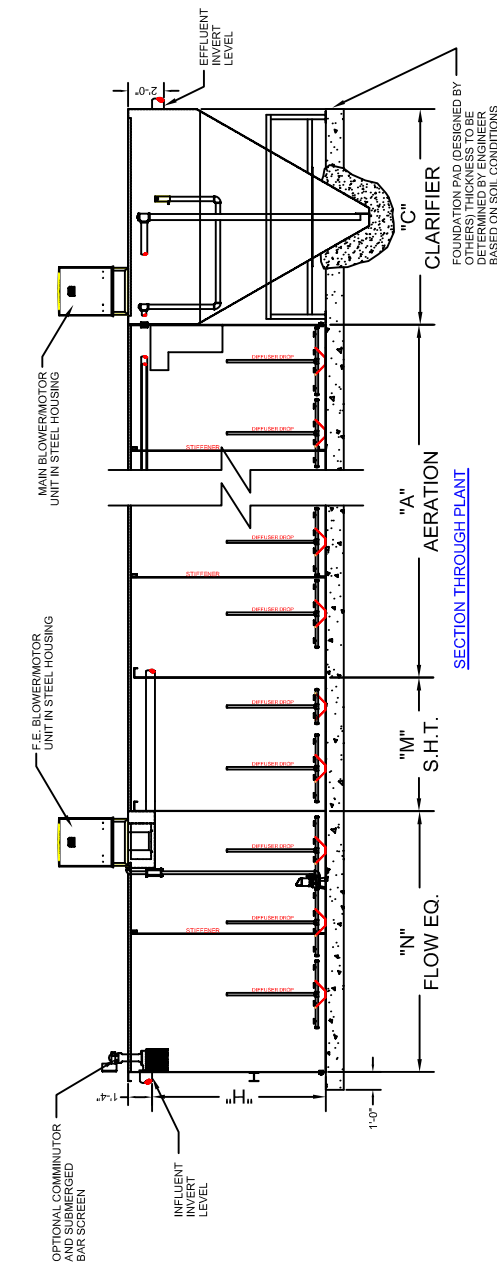
- Payment Terms: 50% with PO, 40% prior to shipping, 10% Net 30 from date of shipping
- All taxes are the responsibility of the purchaser.
- Installation of all tanks, media, field piping, and wiring are the responsibility of the purchaser.
- Customer's Purchase Orders will be subject to the included Payment Terms and Conditions and the approval of an officer of Ecologix.
- Cost increases, if any, will be based on cost increases incurred by Ecologix.
- Ecologix takes exception and excludes any equipment and / or services that are not stated on this document.
- This document is valid for 30 days.
- This document includes attached Terms and Conditions of Sale.



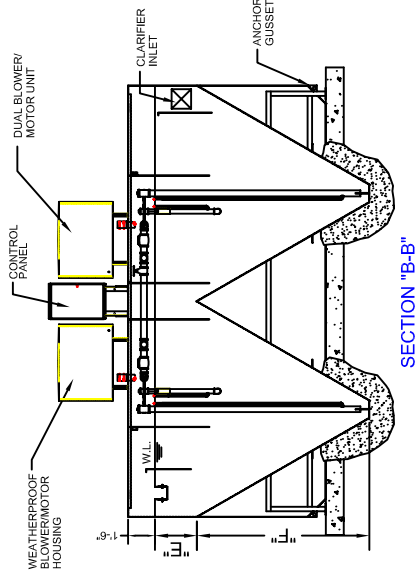
PLAN VIEW



SECTION "A-A"



SECTION THROUGH PLANT



SECTION "B-B"

DIMENSIONS

A	B	C	D	E	F	G	H	K	L	M	N
36'-0"	24'-0"	12'-0"	9'-6"	2'-6"	9'-5"	11'-0"	9'-8"	-	-	5'-6"	12'-0"

DESIGN DATA

MODEL NUMBER	DESIGN FLOW G.P.D.	AERATION TANK VOLUME GALLON	CLARIFIER VOLUME GALLON	F.E. VOLUME GALLON	S.H.T. VOLUME GALLON	C.C.T. VOLUME GALLON	C.C.T. RETENTION (MINS)	MAIN BLOWER C.F.M. / H.P.	F.E. BLOWER C.F.M. / H.P.		
BC-60-ES	60,000	60,000	10,000	20,000	9,000	-	-	300	10	54	3

Ecologix Environmental Systems, LLC  
(770) 993-8292 / (888) 326-2020

EXTENDED AERATION  
SEWAGE TREATMENT PLANT

GENERAL DETAILS BC-60-ES

SCALE	NONE
DATE	05/22/06
DRAWN BY	J.G.B.
APPROVED BY	R.F.K.
REVISION	DATE





## TERMS AND CONDITIONS OF SALE

### WARRANTY DISCLAIMER.

Ecologix Environmental Systems, LLC (Ecologix) makes no express or implied warranties, including without limitation those of merchantability or fitness for a particular purpose or related to design, workmanship, materials, or otherwise, with regard to goods and products sold by, but not manufactured by, Ecologix. With regard to goods and products manufactured by Ecologix, see paragraph 8 below. Ecologix makes no other express or implied warranties with respect to such goods.

Any description of goods on the face of this document is for the sole purpose of identifying them and does not constitute a warranty of any kind.

1. **Acceptance of Terms.** This agreement consists of the following Terms and Conditions as well as the information set forth on the face of this document. By accepting delivery of the goods shown on this document, purchaser acknowledges that he has read and agrees to all Terms and Conditions of this agreement (hereafter the "Ecologix Terms and Conditions"). If the purchaser has submitted to Ecologix a credit application, the terms and conditions contained therein are incorporated as if fully set forth herein. No Terms or Conditions herein or in the Ecologix Credit Application may be changed except by written consent of either an Officer or the Manager of Credit Services of Ecologix. Any counter offers with terms and/or conditions different from the Ecologix Terms and Conditions, and the terms and conditions accompanying or incorporated into any purchase order submitted by purchaser, are expressly rejected.
2. **Terms of Payment.** Unless otherwise indicated by Ecologix on the face of this document, the total purchase price reflected by this document is due and payable within 30 days. All payments hereunder must be in US dollars and made in cash or by check or money order. All invoices which are not paid within 30 days, and credit accounts which are delinquent, shall be assessed a 1-1/2% service charge (or the highest legal rate under applicable state law) for each month the invoice is not paid or the account is delinquent. No contractor or other discounts apply unless expressly set forth on the face of this document. No credit terms apply unless expressly set forth on the face of this document. Purchaser shall have no right to set-off against payment hereunder any amount which Ecologix may owe purchaser. Any sales taxes will be reflected on the face of this document and added to the total purchase price.
3. **Terms of Delivery.** Unless the purchaser and Ecologix agree in writing otherwise, all shipments are F.O.B. point of original shipment. The risk of loss of goods, in the event of a breach or otherwise, passes to the purchaser upon Ecologix's delivery of the goods to the carrier for shipment. The purchaser shall provide Ecologix with the exact address of the place of delivery. Transportation charges when made freight prepaid by Ecologix will be charged on the invoice as freight and handling. Transportation charges in all other cases will be paid by the purchaser directly to the carrier.
4. **Shortages.** Shortage claims will not be considered unless made in writing within 10 days of the purchaser's receipt of the goods. Freight shortage or damage claims must be filed with the carrier.
5. **Returns.** Ecologix will accept returned goods only if Ecologix shipped them from its warehouse in error, under special circumstances expressly acknowledged by Ecologix in writing, or pursuant to Paragraph 9 below. All return requests, other than requests pursuant to the Limited Warranty (see paragraph 8 below) must be made within 10 days of receipt of shipment and must be approved by Ecologix in writing. All written approvals will include the issuance of a Returned Goods Authorization Number. This number must be clearly marked on the outside of all cartons containing returned goods. All approved returns not caused by Ecologix's shipping error will be subject to handling and restocking charges and must be in new, clean, resalable condition with freight prepaid. Ecologix will deduct the amount of all proper approved returns from the invoice or account of purchaser, less any transportation, restocking and/or handling charges. Ecologix will refuse and return to the purchaser any goods returned to Ecologix without prior written approval and a valid return authorization number clearly marked on each carton. Goods returned to the purchaser for failure to observe this policy shall remain the purchaser's responsibility.
6. **Non-Standard Products.** Non-standard, special order or custom-made products are not subject to cancellation or return once the order has been placed by the purchaser. The purchaser shall be responsible for all costs Ecologix has incurred on any non-standard, special order, or custom order that is cancelled.
7. **Products not Manufactured by Ecologix.** All products not manufactured by Ecologix carry the original manufacturer's warranty (copies on request). Ecologix makes no express or implied warranties, including any warranties of merchantability or fitness for particular purpose or related to design, workmanship, materials, or otherwise, with respect to products not manufactured by Ecologix. Synergy Backwash Controller includes an 18 month warranty from shipment date.
8. **Limited Warranty for Products Manufactured by Ecologix.** Ecologix warrants that all products manufactured by Ecologix will be free of defects in material and workmanship, excluding paint and coatings, for a period of one (1) year from shipment date (the "Limited Warranty"). The Limited Warranty does not cover the effects of

- normal wear and tear, abuse, abrasion, corrosion, extreme temperatures and/or improper storage, installation, or use, or force majeure. The Limited Warranty is in lieu of all other warranties, express or implied, and Ecologix makes no other express or implied warranties, including any warranty of merchantability or fitness for a particular purpose, with respect to such products. The purchaser acknowledges that the Limited Warranty is Ecologix's only warranty. No verbal agreement(s) or representations by Ecologix's agents or employees constitute a warranty of any kind. The purchaser acknowledges that all non-standard, special order or custom-made products have been produced by Ecologix in reliance on specifications and information provided by purchaser. The Limited Warranty is for the benefit of only the original purchaser, and may not be transferred or assigned.
9. Purchaser's Remedy under One-Year Warranty. If it becomes apparent within the one-year warranty period of the Limited Warranty that a product manufactured by Ecologix is in breach of the Limited Warranty, the purchaser must notify Ecologix promptly in writing and request return of the goods and a Returned Goods Authorization Number pursuant to paragraph 5 above. After receiving Ecologix's approval described in paragraph 5 above, the purchaser may return such product directly to the place of shipment. Ecologix shall inspect properly returned products. If the returned products are determined by Ecologix to be in breach of the Limited Warranty, Ecologix at its own discretion shall replace or repair the returned products, free of all charges except transportation costs. The correction of any defects by repair or replacement shall fulfill all of Ecologix's obligations and Purchaser's responsibility, including transportation costs.
10. Events Which Void Limited Warranty. The following events or occurrences shall terminate the Limited Warranty, and shall relieve Ecologix from any further responsibility thereunder: (a) purchaser's failure to promptly notify Ecologix of unsatisfactory operation, defects or any improper or unauthorized installation, maintenance, use, repair or adjustments; (b) the alteration or modification by any person other than Ecologix of products manufactured or supplied by Ecologix, and (c) operation of products manufactured or supplied by Ecologix in a manner other than as specified in written instructions supplied with such products by Ecologix.
11. Force Majeure. Ecologix shall not be liable for any expense, loss, or damage resulting from force majeure, including without limitation delay or prevention of performance caused by fires; floods; Acts of God; strikes; labor disputes; labor shortages; lack of or reasonable inability to obtain materials, fuel, supplies, or equipment; riots; thefts; accidents; transportation delays; an act or failure to act by the Government; a major equipment breakdown; variations in water quality or temperature; or any other cause beyond the reasonable control of Ecologix.
12. Disclaimer of Damages for Improper Use. Ecologix shall not be responsible for damage to its products, or damage caused by its products, resulting from improper installation and use, maintenance, unintended use or attempts to operate such products beyond their mechanical or electrical capacity, intentionally or otherwise, or any unauthorized repair or modification of its products.
13. Disclaimer for Incidental, Special and Consequential Damages. In no event will Ecologix be liable, whether arising under contract, tort, strict liability, any statutory remedy, or any other cause of action whatsoever, for labor costs, loss of anticipated profits or goodwill, loss by reason of plant shutdown, non-operation or increased expense of operation, service interruption, cost of purchase or replacement power, claims of customers, cost of money, loss of use of capital or revenue, fines or penalties assessed or levied against purchaser based on the operation, non-operation, or use of the goods, or for any special, incidental, or consequential loss or damage of any nature, arising at any time from any cause whatsoever.
14. Field Repairs. Any in-field repairs of products claimed by purchaser to be in breach of the Limited Warranty must be approved by Ecologix prior to repairs being performed. Any in-field repairs performed for any other cause, or not approved in advance by Ecologix, will void the Limited Warranty in full.
15. Alterations to Products. Any alterations to products performed during while the Limited Warranty is in effect will void the Limited Warranty and relieve Ecologix from all liability under the Limited Warranty.
16. Limitation of Liability. Notwithstanding any other provision of this agreement, Ecologix's cumulative maximum liability under this agreement arising from any cause whatsoever, including but not limited to breach of contract, quasi-contract, tort (including negligence), strict liability, any other statutory remedy, breach of warranty, or any other cause or form of action whatsoever will not exceed the purchase price.
17. Catalog. All information, recommendations and suggestions appearing in Ecologix's catalog and web page are based upon tests and data believed to be reliable. However, it is the purchaser's responsibility to determine the suitability of Ecologix's products for each application. Ecologix reserves the right to change the prices set forth in its catalog at any time and without notice to the purchaser or other customers. The catalog is not a part of this agreement.
18. Breach and Remedies. Any failure by the purchaser to tender full payment when due, or any wrongful rejection or repudiation of the Ecologix Terms and Conditions shall constitute a material breach, and shall entitle Ecologix to pursue any or all of its remedies under the Uniform Commercial Code and applicable state law. Ecologix's remedies are cumulative and shall include without limitation:
- Withholding delivery of products;
  - (b) Stopping delivery by the carrier; (c) Reselling the products and recovering damages; (d) Recovering damages for non-acceptance and/or nonpayment; (e) Canceling this agreement; and, (f) Reclaiming delivered products.

19. No Waiver. Any delay or failure by Ecologix to enforce or pursue any or all of its remedies upon a breach by purchaser shall not be construed as a waiver of Ecologix's rights under this agreement or applicable state law. Any waiver of Ecologix's rights or claims under this agreement must be in writing signed by Ecologix and given in exchange for valuable consideration.
20. Assignment and Delegation. No right or interest under this agreement may be assigned by either party without the written consent of the other party. No duty or obligation under this agreement may be delegated by either party without the written consent of the other party. Any assignment or delegation not consented to in writing is void.
21. Entire Agreement. The Ecologix Terms and Conditions set forth herein and the Ecologix Credit Application, if applicable, constitute the entire agreement between purchaser and Ecologix and supersede any prior or contemporaneous representations or agreements, written or oral. No additional oral or written terms, including any attempts by purchaser to modify the Ecologix Terms and Conditions or any other document relating to this sale, shall become a part of this agreement without the express written consent of Ecologix.
22. Severability. If any part of this agreement is deemed unenforceable for any reason, the remainder of the agreement and the Ecologix Terms and Conditions shall remain in full force and effect.
23. Governing Law. This agreement shall be construed under and controlled in all respects by the law of the state of Georgia without regard to conflict of law provisions. The United Nations Convention on Contracts for the International Sale of Goods shall not be applicable to this agreement.
24. Disputes. If there is any dispute about or involving this agreement, purchaser agrees that the dispute shall be governed by the laws of the State of Georgia, USA, without regard to conflict of law provisions and purchaser agrees to exclusive personal jurisdiction and venue in the state and federal courts of the United States located in the State of Georgia.
25. Headings. All headings are organizational devices only. They are not intended by the parties to have any legal import.
26. Attorney's Fees. In the event that Ecologix is the prevailing party in any action or proceeding to enforce its rights under or arising from this agreement, Ecologix shall be entitled to its actual attorney's fees and court costs, unless the law of the forum state requires that the prevailing party or either party be entitled to attorneys' fees, in which event the Ecologix Terms and Conditions are modified to incorporate the forum state's requirements.
27. Inspection and Rejection of Non-Conforming Goods. Purchaser has the right to inspect the products delivered pursuant to paragraph 3 promptly upon receipt, but not later than two (2) days following receipt. Purchaser, at its sole option, may inspect all or a sample of such products and may reject all or any portion of the products if it determines the products are nonconforming or it is apparent that the products are in violation of the Limited Warranty. If purchaser rejects any portion of such products for such reasons, purchaser has the right, effective upon written notice to Ecologix, to:
  - (a) rescind its order in its entirety;
  - (b) accept such products at a reasonably reduced price mutually agreeable to purchaser and Ecologix; or
  - (c) reject such products and require replacement of the rejected products. If purchaser requires replacement of such products, Ecologix shall, at its expense, within the original lead time and dependent upon Ecologix production work load replace the nonconforming products and pay for all transportation charges for the return of the same and the delivery of replacement products. If Ecologix fails to timely deliver replacement products, purchaser's sole remedy shall be to terminate its order. Any inspection by purchaser under this paragraph shall not prejudice the right of purchaser to conduct further inspections after Seller has carried out its remedial actions.
28. Intellectual Property. Ecologix does not grant to purchaser any license or other right to any non-public, confidential or proprietary information of Ecologix, nor to any other intellectual property of Ecologix including, but not limited to, specifications, samples, patterns, designs, plans, drawings, documents, data, trade dress, trademarks, service marks, or other intellectual property. Title to, ownership of, and all applicable rights in, non-public, confidential or proprietary information of Ecologix and intellectual property of Ecologix shall at all times remain in Ecologix and shall not at any time be transferred or assigned to purchaser. Purchaser covenants not to reverse engineer or reproduce Ecologix's products, combine Ecologix's products with other goods for sale or distribution, or produce, sell, distribute, or market goods competitive with Ecologix's products. Purchaser shall indemnify and hold harmless Ecologix for all losses or damages, including attorneys' fees, incurred by Ecologix as a result of violation of this paragraph.
29. Acceptance of Terms and Conditions of Sale. Ecologix's performance is conditioned upon purchaser's assent to the Ecologix Terms and Conditions. Ecologix hereby gives notice of its objection to any additional or different terms or conditions contained in any purchaser acceptance, purchase order, acknowledgment, or other document.

## LIMITED MANUFACTURER'S WARRANTY

Ecologix Environmental Systems, LLC. ("Ecologix") warrants that its "Product" shall be free from defects in materials and workmanship for a period of 12 months from date of purchase. Ecologix's obligation under this warranty shall extend only to the original purchaser and shall be limited solely to the cost of repair or replacement (at Ecologix's option) of any Product that upon examination by Ecologix proves to be defective in manufacture. This warranty is expressly conditioned upon correct installation and application of the Product in the manner recommended by Ecologix, which installation and application is the responsibility of the purchaser.

ECOLOGIX'S LIABILITY IS LIMITED EXCLUSIVELY TO THE REMEDY PROVIDED BY THIS WARRANTY, WHICH SHALL BE IN LIEU OF ANY OTHER REMEDY AVAILABLE UNDER APPLICABLE LAW. or resulting nonuse, property damage, lost Written notification of a claim under this warranty must be received by Ecologix's Customer Service Department at **11800 Wills Road, Suite 110, Alpharetta, Georgia 30009**, within 30 days after the appearance of the claimed defect. Such notification must provide all pertinent information regarding the claim. Ecologix thereafter will inform the purchaser of the service location to which the Product must be sent, shipping prepaid, for repair or replacement.

This warranty shall not apply to: (a) damage to product due to accident, normal wear and tear, misuse, abuse, neglect, abrasion, improper use or application (including chemical attack and / or corrosion), or improper maintenance; (b) paints, coatings, finishes, rubber parts or screen mesh; (c) products altered or repaired by other than Ecologix's Customer Service Department or an authorized service representative; or (d) component parts or subsystems separately warranted by their respective manufacturers. All electrical components manufactured by others are covered by the warranties of the respective manufacturers. Ecologix shall not be responsible for any consequential or incidental damages of any nature whatsoever including but not limited to: vegetation loss, cost of substitute equipment or services during periods of malfunction production time or personal injury resulting from installers negligence or misapplication.

ECOLOGIX MAKES NO OTHER WARRANTIES OTHER THAN THE FOREGOING, WHICH IS IN LIEU OF ALL WARRANTIES, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO ANY WARRANTY OR MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. No cause of action or claim may be asserted unless it is covered by the Limited Manufacturer's Warranty described herein and an action is commenced within one month after the defect in the product at issue is, or with the exercise of reasonable care could have been known.

## WARRANTY PROCEDURE

The Ecologix Limited Warranty Procedure is designed to reduce administrative hassles while continuing to stress Ecologix's commitment to producing quality products. Our warranty is also designed to ensure customers that Ecologix stands behind its products.

### RETURNED MERCHANDISE:

In order to properly implement this limited warranty procedure, we require that all returned merchandise have a Return Authorization (RA) Number to ensure proper tracking of the merchandise. To receive a RA number the authorized Ecologix dealer/distributor must call our Customer Service Department for issuance.

Next, return the merchandise to Ecologix— freight prepaid—and Ecologix will determine further action. Ecologix will repair or replace— without charge—all parts that are found to have original manufacturing defects. Please write the RA number on each box that is shipped back to Ecologix.

### GENERAL LIMITED WARRANTY GUIDELINES:

- Product repairs by other than Ecologix
- Chemical attack and/or corrosion

The Ecologix limited warranty, as printed in Ecologix's product literature is the only customer warranty that is extended to its trade customers. It is the only limited warranty made to its customers and no employee or agent of the company is authorized to modify said limited warranty in any way. Please review the Ecologix Systems Limited Manufacturer's Warranty for specific limited warranty details

As with all of our limited warranties, defects include only original manufacturing defects and do not include accidental damage in transit, distributor warehousing, or by the installer or end-user. It does not include abuse or vandalism.

Ecologix will repair or replace defective product, which means:

1. The returned merchandise may be repaired to an operational state and returned to the dealer/distributor for return to the end-user.
2. That a replacement may be new or refurbished.
3. That Ecologix determines the appropriate resolution.

As a matter of guidance, the following are some examples and situations where the product is not covered by Ecologix's limited warranty:

- Improper application
- Improper installation
- Abuse or mishandling of products
- Product alteration
- Accident





# Fast Facts on the Water Conservation Legislation

In 2018, two laws were passed that built on California's ongoing efforts to make water conservation a way of life. They emphasized efficiency and stretching water supplies in cities and farms. Here are some fast facts about the 2018 Making Water Conservation A Way of Life laws:

**Do the 2018 water conservation laws set limits on personal water use?**

No. These laws establish mandates for water budget planning and efficiency objectives for water suppliers, not individuals, homeowners, or businesses.

**Will residents be fined \$1,000 for using more than 55 gallons of water per person, per day?**

No. The laws do not establish any water use fines on customers, nor do they impose fines on individuals.

**Do I have to choose between showering or doing laundry on the same day?**

No. You are still encouraged to shower and wash your clothes in the Golden State, and even to wash children, pets and dishes. Though there are some easy ways you can take part in making conservation a way of life when using water at home – check out some water saving tips and tricks at: [saveourwater.com](https://www.saveourwater.com)

---

**Senate Bill 606** (Hertzberg) and **Assembly Bill 1668** (Friedman) serve as a roadmap for Californians to plan for dry conditions, and to work together for clean, reliable water supplies now and in the future.

In addition to water conservation targets, the bills outline certain roles and actions to be carried out by the California Department of Water Resources, the **State Water Resources Control Board** (State Water Board), and water suppliers. Future milestones include:

- Beginning in November 2023, urban water suppliers will annually calculate a water efficiency standard based on the indoor and outdoor water needs of its service area.
- The indoor water use standard is one of several metrics used to calculate the overall efficiency standard for a service area. The laws establish a standard of 55 gallons per person per day until January 2025, and then to 50 gallons per person per day in 2030. However, those targets are aggregated across the population in a service area and are not intended as enforceable standards for individuals.
- The State Water Board may initiate enforcement actions in 2025 against urban water suppliers if they fail to meet the standards. The standards are scheduled to go into effect in 2023.

More information on these laws and making water conservation a way of life can be found at:  
[water.ca.gov/Programs/Water-Use-And-Efficiency](https://water.ca.gov/Programs/Water-Use-And-Efficiency)