

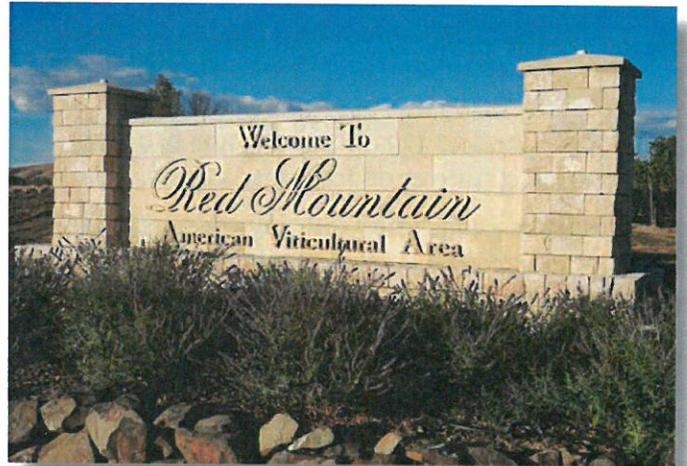
# I-PLANT

## (Industrial Waste Water Treatment Plant)

### CITY OF WEST RICHLAND

Even the sweetest wine has waste...

The City of West Richland, population of 14,340, is primarily a “bedroom community”, that is ideally located between the Tri-Cities and the world-renowned Red Mountain American Viticulture Area (AVA). In 2008, with the country in a recession, winery and tourism were two of only a few economic sectors with positive job growth and industry expansion. The City of West Richland wanting to take advantage of this unique economic development opportunity, retain the two existing large scale wine production facilities, Vinmotion Wines that produces 600,000 cases of wine per year and Red Mountain Wine Estates that produces 165,000 case of wine per year, and retain southeastern Washington’s first distillery, Black Heron Distillery, while attracting new ‘boutique’ style and large scale wine production facilities by constructing a sustainable, centrally located, environmentally friendly and cost effective solution to the treatment and disposal of the processed water from these types of industrial facilities.



### PLANNING

In 2008, the West Richland City Council and staff discussed the potential economic and job creation benefits of a cost effective, centrally located and operated industrial processed water treatment facility specifically designed to treat and dispose of winery processed water. The proposed facility was critical for the existing wineries to expand, attracting additional wineries and attracting other related industries. With the recent expansion of the City’s existing Biolac Wastewater Treatment Plant, while not ideal and/or sustainable for the long-term, there was interim capacity to handle pending winery production facilities processed water while a sustainable Industrial Waste Water Treatment Plant

(I-Plant) was designed, permitted, and constructed. Securing funding for the I-Plant became one of the top strategic focus areas for the City of West Richland.

In October 2009, technical and financial information received from the Infrastructure Assistance Coordinating Council’s Conference was instrumental in West Richland obtaining a \$40,000 grant for the US Department of Commerce Economic Development Administration to complete a formal study to confirm the potential economic and job creation benefits if an industrial wastewater treatment plant were to be constructed.

In March 2010, the completed study confirmed the construction of a dedicated industrial wastewater treatment plant specifically designed to treat and properly disposal of winery processed water from the annual production of up to 2.5 million cases of premium wine that is expandable in the future to handle 5 million cases of premium wine, the City of West Richland would be able to fully realize the following economic impact:

1. Generate capital investments of \$26.8 million to the region with business revenues estimated to be approximately \$289.5 million per year.
2. Create an estimated 75 direct jobs and 1,185 revenue-generated jobs with a payroll totaling \$35.3 million per year.
3. Fiscal impacts would include approximately \$2.2 million in a one-time sales tax (during construction) and \$7.4 million annually generated by anticipated direct worker spending and \$292,800 in annual property taxes to state and local jurisdictions.

The study also confirmed utilizing the City's existing Biolac Wastewater Treatment Plant that was just expanded in 2008/2009 would not be a sustainable solution for winery production effluent treatment and would reach capacity in less than 10 years rather than 20 years with the burgeoning Washington State wine industry production growth and strong residential development growth within the City. The City's existing Biolac Wastewater Treatment Plant is a patented wastewater treatment processed, aerated activated sludge

treatment system, that is an ideal for effectively and economically treating residential strength wastewater (BOD concentrations less than 200 mg/l), but was not designed to treat industrial wastewater or winery processed water with BOD concentrations of more than 7,000 mg/l and/or the large seasonal volume variations during crush and barrel racking operations.

In May 2010, West Richland applied for a \$2,000,000 **Public Works Trust Fund (PWTF) loan** to design, permit and construct an industrial wastewater treatment plant and associated industrial sewer collection system with an initial capacity to **specifically treat and properly dispose of the unique characteristics of winery processed/ wastewater water** from the annual production of up to 2.5 million cases of premium wine with the ability to be expanded in the future to handle 5 million cases of premium wine. The industrial wastewater treatment facility was planned to be centrally located on 20 acres of donated land which would be buffered within a master-planned mixed-use 325-acre wine production industrial and retail park known as the Red Mountain Center. Information gathered from the October 2009 IACC Conference was utilized to successfully secure a \$2,000,000 PWTF loan for the project.

In September 2011, the West Richland City Council authorized the execution of the \$2,000,000 PWTF Loan for the \$2,400,000 project. The project had gained a lot of momentum from the original vision back in 2008 and with funding secured staff was ready to hire an engineering consultant to complete the facility's design.

## CHALLENGES

The project was challenged with a major setback...

The project was going to be constructed on a parcel of property to be donated to the City, but the ownership of the property changed between the application and execution of the PWTF loan. After more than a year of negotiations with the new property owner for the acquisition of the property the City was not successful. In May 2013 the project

seemed to have new life, the City partnered with the Port of Kennewick to explore the idea of locating the proposed facility on the Port's 92-acre former Tri-City Raceway property. City and Port staff worked diligently together on the project for the next year, but in the end could not overcome the one fatal flaw with the site, the Port's property was not within the West Richland's urban growth

boundary and amending West Richland's urban growth boundary in a timely manner was too risky with a September 2016 PWTF loan deadline to design, permit and construct the project.

At this point it had been nearly two years since the PWTF loan had been executed and all the options for acquiring a 20 acre site for the I-Plant had been thoroughly exhausted. In January of 2014 the next step for the project seemed clear for many; the City needed to return the \$2,000,000 PWTF loan, but the City's Mayor, Council and staff still believed in the project and was not ready to throw in the towel.

During the previous two years, City staff had toured various facilities and technologies in northern California that treated effluent from winery production facilities. Many of the facilities in California were on small footprints, typically less than an acre, due to high land values and utilized a membrane bio-reactor (MBR) system for treatment or similar technology. Initially West Richland's project was going to use aerated lagoons and evaporation ponds for treatment because a 20-acre parcel was proposed to be donated. City staff began to review the potential of using a similar MBR treatment system and the ability to acquire a one acre site. Preliminary analysis showed the City could acquire a one acre site, design and construct a MBR treatment system within the original project budget of \$2,400,000 while still meeting the project's goal

of treating winery processed/wastewater water from the annual production of up to 2.5 million cases of premium wine with the ability to expand to handle 5 million cases.

The project once again gained momentum and in June 2014, staff was finally able to secure the acquisition of a privately owned piece of property for the facility at a below fair market rate. The 2-½ years' worth of delays and issues with securing a site for the facility nearly ended the project before it even got started, but in the end the newly acquired one-acre site was superior to the previous site and expanded the I-Plant's potential gravity service area from 325 acres to more than 500 acres of industrially zoned land.

Given the delays and issues with the site acquisition phase of the project and only 2-1/2 years to complete the project, a consultant was hired in June 2014. The consultant selection was based on prior experience, qualifications of employees and the ability to meet aggressive project milestones and the PWTF loan's deadline of completing construction by September 2016. Unfortunately, the selected consultant was not able to meet specific project milestones, hence their contract was terminated in January 2015 and a new consultant team, Wallace Group and J-U-B Engineers, were hired in April 2015.

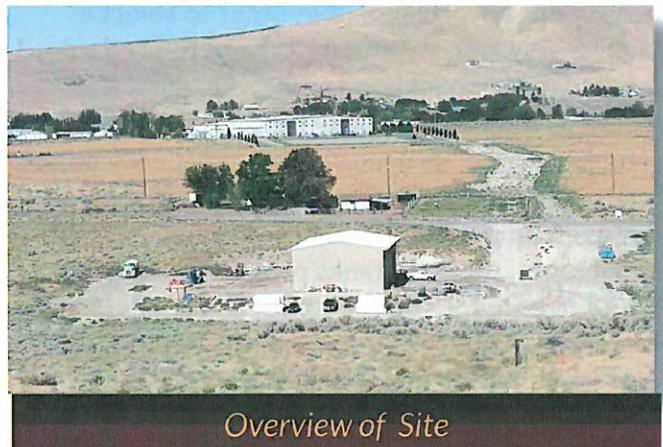
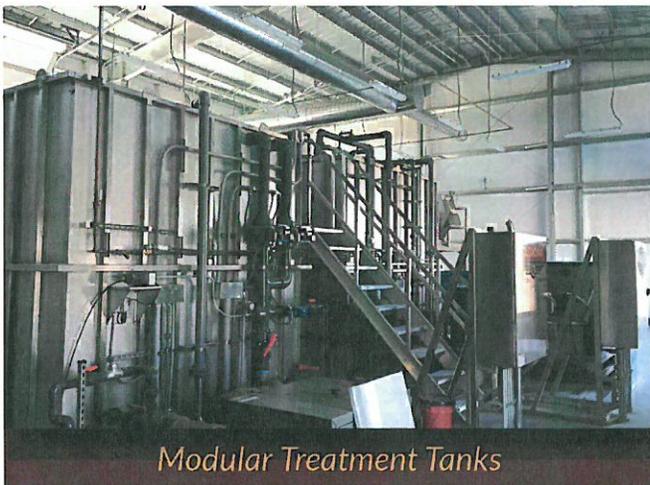
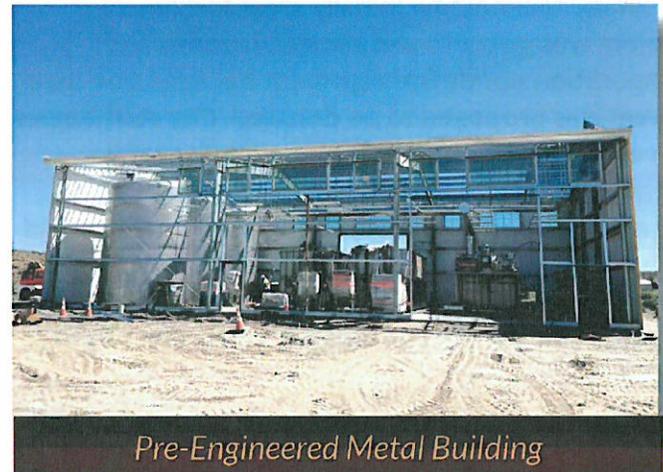
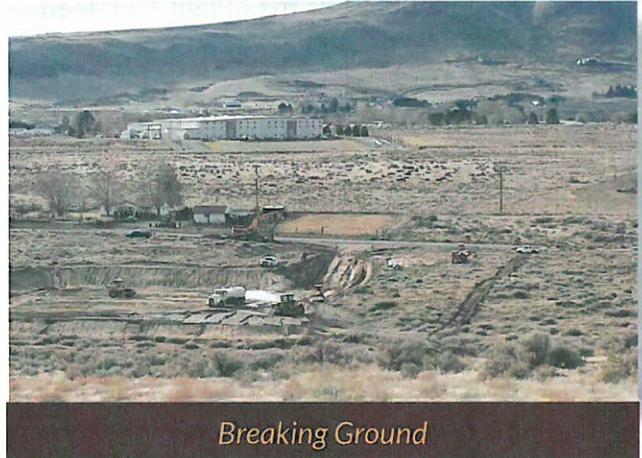
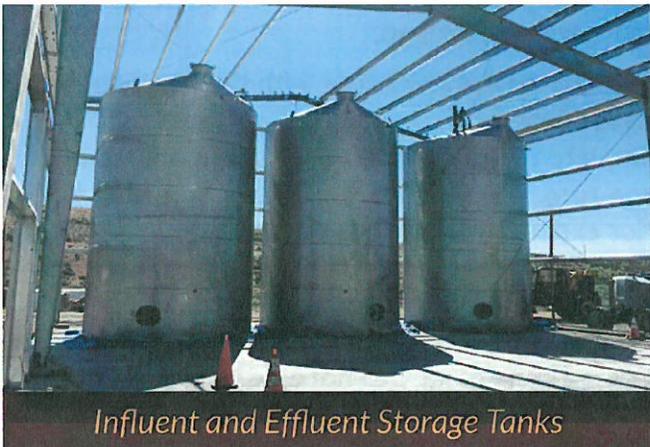
## DESIGN

The design process began with a vendor procurement advertisement in order to select a particular vendor equipment package to prepare a detailed design package around. Cloacina was selected as the vendor and the design team worked on completing construction plans and specifications around the Cloacina MBR package. The system includes an influent lift station, screening, influent storage tanks, modular tanks providing biological treatment, effluent storage tanks, and solids dewatering. All of the equipment fits neatly inside of a pre-engineered metal building which was designed to allow expansion of the plant in the

future. Influent and effluent storage tanks were incorporated into the design to offer maximum flexibility - the storage will allow operators to store flows and discharge them at night time during low demand periods in the sewer collection system and at the existing municipal Wastewater Treatment Plant. This creative solution minimizes the impact on the existing plant and maximizes utilization of an existing asset. Moreover, the effluent storage will provide flexibility to put the treated effluent to beneficial use – if the City decides to pursue that in the future.

# CONSTRUCTION

Wallace Group and J-U-B Engineers were able to hit the ground running and complete the facility design, procurement of a membrane bio-reactor (MBR) treatment system from Cloacina, and oversee the successful completion of construction of the Industrial Wastewater Treatment Plant by August 2016; just in time for the 2016 crush season.

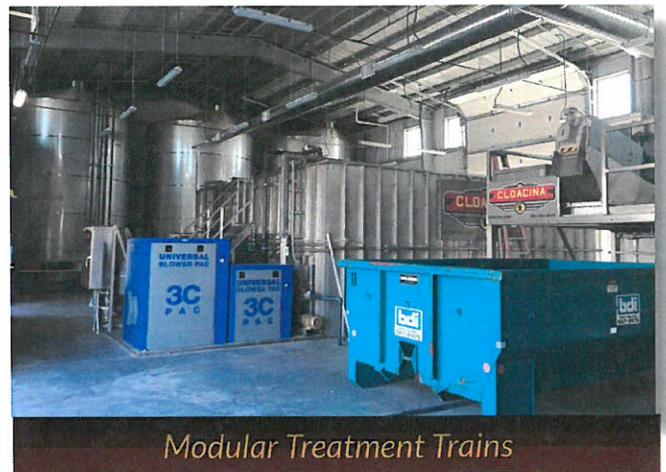


## COMPLETED FACILITY

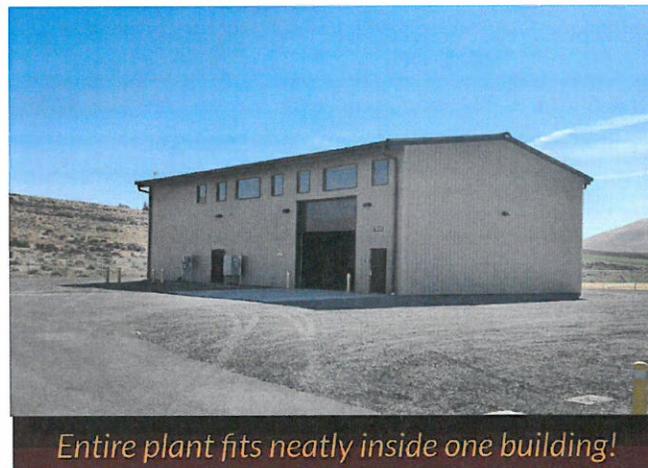
With the successful completion of the Industrial Wastewater Treatment Plant and the ability to treat process water/wastewater from not only winery production facilities, but also from breweries and creameries, the predictions from the 2010 Economic Development Study are becoming a reality. The City of West Richland just issued a building permit for the construction of a \$6 million winery production facility that will initially produce 40,000 cases that is expandable to over 100,000 case of wine with several pending land sales for the construction of additional winery production facilities near the I-Plant. West Richland also has regained 10 years of treatment capacity within the existing Biolac Wastewater Treatment Plant providing sewer capacity for residential and commercial development through 2029.



*Touch Screen Control Panel*



*Modular Treatment Trains*



*Entire plant fits neatly inside one building!*

The Infrastructure Assistance Coordinating Council's annual conference was very instrumental in advancing West Richland's Industrial Wastewater Treatment Plant from conception to securing the necessary funding to complete the project. The conference provided invaluable information and technical assistance in a one-stop forum with representatives from the Department of Commerce, Department of Ecology, Public Works Board, and peers from other local agencies to not only identify various funding programs, but how to be successful in obtaining funding for our project.

