The Porto Protocol

More than just a commitment.

Case Study

Willamette Valley Vineyards - *Greywater System*

In 2017, our winery set out to improve our outdated wastewater management system. The original system was designed for our winery production back in 1995 and we produce approximately 77% more volume. In addition to the system being undersized, we wanted a plan that would better care for our land and set an example for winery improvements.

We partnered with Clear Blu to design a water management system that provided pre-treatment, was up-to-date to industry standards and technology, complies with state and federal regulations, and had a dispersal system to handle the volume and composition in a safe and effective manager. We built a fully automated pre-treatment system and building that has a fine wedge wire screen which is highly effective in removing organic materials as the first and most important stage to the treatment. Greywater when applied to land without adequate biochemical oxygen demand reducation can have downstream effects of glazing over the soil surface and preventing oxygen to permeate into the soils and preventing microbial breakdown starving the vegetation of O2 and combined with the low pH can be toxic in high concentrations. With our previous system we saw these effects in the form of vegetation die back and blackening or anoxic soil conditions. With our current highest discharge flows during harvest in order to properly discharge our waste water we would need to discharge evenly over 3 acres of land and that flow cannot exceed 1 foot of water over 60 days over an area of land. In addition, the land must have a grade of no more than 20% slopes for a disposal area and ideally less than 12% slopes. We selected to use 6 acres for water disperal and an area with less than 5% grade.

Since our greywater system has been installed it has been featured in an industry publication to help educate wineries and encourage them to adopt similar responsible land ownership and environmental practices. The project cost $150,000 USD and has a life expectancy of approximately 25 years. The system has low annual maintenance costs. If our state were to adopt the requirement for treatment ponds, we'd be set up for it.

We did learn some small lessons in the process like our original screen for solids was too tight to collect the lees, so we revised to a slightly less porous screen. Also, our initial pump was not rated for high temperature and with our winery using hot water, we had to install a hot water pump.