



800 E. Lancaster Avenue
Villanova, PA 19085
(610) 519-4500

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Dear Mr. Franklin Evert & Water Without Borders,

I am a Junior Civil Engineering major at Villanova University and am currently involved in a service project with the Villanova University College of Engineering where 16 students will be designing and implementing a water purification system for an orphanage community in Honduras called the Amigos de Jesus. The Villanova Community has had a long-standing relationship with the Amigos and has completed a number of different projects in the 11 years that we have been volunteering there. This year's goal is to implement our water purification system design for their existing distribution system over our spring break at the end of February. Currently, the Amigos water supply includes a 100' deep well from which groundwater is pumped into four storage tanks. The cumulative capacity of the four tanks is 2400 gallons fulfilling a current service demand of approximately 1200 gal/day (services on the average 50 boys, 20 adults, and 10 volunteers). No means of disinfection or filtration are being used and it is not uncommon for some of the boys to get sick. All non-native individuals living or working there are unable to drink the water. Our design efforts are complicated by the fact that we have very little information relative to the existing water quality; physical and financial resources at the orphanage are limited; and we have only now one week to secure our materials and one week to accomplish the installation. It sounds a bit daunting, but the potential benefits to the orphanage keep us motivated. With the challenges outlined above in mind, we are planning to keep our initial design as simple as possible with potential for implementing certain aspects in phases if necessary.

We recently decided that our best hope for constructing an effective system would be to utilize cartridge filtration and possibly incorporate disinfection via chlorination. Our current plan is to install a 5 micron roughing filter and a 1 micron absolute finishing filter in series. This arrangement should reduce potential contamination from Giardia, Cryptosporidium, and other surface water influence that may be present. Right now we are looking into purchasing "Big Bubba" cartridge housings and disposable filters for our system. These units will accommodate flows in the range of approximately 30 gpm.

So, why am I writing you to tell you all of this? As I mentioned earlier, the Amigos have an extremely limited budget, which inherently restricts what we can do for them. For instance, the filters that we looked into are somewhat expensive (approximately \$150 each), so the Amigos may not be able to afford to replace them on a regular basis. So we are also looking into re-usable filters. And these issues go on. I am sure that your organization has dealt with these exact types of situations over and over again, and you are most likely all too familiar with what I am talking about. So, I am asking you for your help in whatever shape or form that you can provide. Whether it is a donation of supplies, ideas, or advice, any assistance that you may be able to provide to our project would be greatly appreciated. Also, any help you are able to give will be recognized by the University and posted on our web page.

Please do not hesitate to contact me if you have any questions concerning the trip or if you would like to contact either of the Professors overseeing this project. I have included their contact information below. Also, feel free to take a look at our website [Amigos de Jesus](#), which is still under construction but available to view. Thank you for taking the time to learn a little about what we are trying to do, and I look forward to hearing back from you soon.

Warmest Regards,

Christian Ryan Paggi

Andrea L. Welker, PhD, PE

Associate Professor

Department of Civil and Environmental
Engineering

Villanova University

andrea.welker@villanova.edu

610-519-4959 (phone)

Bridget Wadzuk, PhD

Assistant Professor

Civil and Environmental Engineering

Villanova University

bridget.wadzuk@villanova.edu

610-519-5365 (phone)