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September 8, 2016

Danielle Zembrzuski
Village of Wellington
12300 Forest Hill Boulevard
Wellington, FL 33414
Via: Email dzembrzuski@wellingtonfl.gov

RE: Bid # #097-12/ED Final Renewal for 2017
Request price increase for additional chemical costs to treat Limnophila

Dear Danielle,

Clarke has received and executed the one year contract renewal letter. At this time, we are requesting a 7.5% (existing 2016 contract) price increase to cover the additional costs associated with the chemical treatment of Limnophila in the Village of Wellington's lake and canal network. These costs have more than quadrupled since 2013 when this nuisance aquatic plant was discovered and subsequently treated. The specific chemical price in 2013 of \$9,898.87 has increased year over year in excess of \$49,838.00 in 2016.

We feel that our request is legitimate as this plant presents a challenge to control as detailed in the synopsis from Dr. Brett Bultmeier in Attachment A.

Thank you for the opportunity to renew and we look forward to providing our services to the Village of Wellington.

Sincerely,

John A. Greene

John A. Greene
Clarke
Florida Region - Sales Manager



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Attachment A

The Challenge of Limnophila

Limnophila sessiliflora is a popular aquarium plant that is highly desired among the aquarium industry. It is very problematic once it leaves the aquarium and settles into canals, ponds and lakes. It is classified as a noxious weed and is on the Florida prohibited species list specifically because it is so problematic. Once established control and eradication of this plant is possible but highly challenging.

Limnophila grows very aggressively and can tolerate much lower light requirements than many of Florida's native plants. This means it will often displace native plants and completely take over the habitat it grows into. This plant can exist both on the bank of the water body as an emergent plant, or submersed in the water, up to 15 feet (possibly deeper). As an emergent this plant is not as challenging to control, but as a submersed plant it is a much greater challenge and the options are limited. Spread of this plant is wide because it can survive as very small fragments and inhabit an area, but also due to very high seed production. Spencer and Bowes (1985)¹ reported that each flower can produce 200-300 seeds, with up to 96% germination. Due to this management strategies to keep this plant at bay must begin early, must be intense, and must be sustained.

Very few of the registered herbicides registered for aquatic plant control work well, if at all, on Limnophila. The most successful treatments to date are from combining diquat with flumioxazin. Diquat is

¹ Spencer W, Bowes G. 1985. *Limnophila* and *Hygrophila*: A Review and Physiological Assessment of Their Weed Potential in Florida. J. Aq. Pl. Manag. 23: 7-16.



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widely available, in generic form and relatively affordable, as aquatic herbicides go. Flumioxazin on the other hand is relatively new, still under patent and sold under the tradename Clipper. That there is only one provider of this product and it is so new the price is rather expensive, when compared to other products. However, it is very effective at managing Limnophila, and when it is submersed is the most cost effective. This is reflected in Clarke's yearly chemical budget for Wellington. Since the arrival of Limnophila in 2013 there has been a yearly increase in the overall chemical budget and that budget has increasingly been devoted to Limnophila treatments. In 2015 the diquat+clipper combination accounted for over 78% of the total chemical used. This is "good news" as it means once Limnophila is put back into check the chemical will reduce. However, this is not an overnight solution and to do it properly will require long term dedication and vigilance for this plant. The battle can be won, but only with the right tools and if sustained in the right way for the right amount of time.

Dr. Brett Wells Bultmeier, Water Resource Manger