Lalinee Tubtimtong 2010: Application of Constructed Wetland System for Treating Domestic Wastewater by *Nelumbo nucifera* Gaertn and *Cyperus Alternifolius* L. Master of Engineering (Enviromental Engineering), Major Field: Enviromental Engineering, Department of Enviromental Engineering. Thesis Advisor: Assistant Professor Monthon Thanuttamavong , Ph.D. 86 pages.

In this study,the performance of a pilot-scale HSF and FWS constructed wetland in treating domestic wastewater from domestic in Kasetsart University Sakonnakhon Campus for the construction and operation of a full-scale in the future.This reserch is a study of capacity of *Nelumbo nucifera* Gaertn and *Cyperus alternifolius* L for Organics matter, Total phosphorus (TP), Total Kjeldahn Nitrogen, Ammonia Nitrogen and Total suspended Solid. This pilot-scale Constructed wetlands system is combined with HFS unit and FWS unit .The flow rate of 400 liters/day which was equivalent to a hydraulic loading rate = 0.35 $m^3/d\text{-}m^2$. A control experimental systems is combined with plants and without plants. The flow rate of 200 liters/day which was equivalent to a hydraulic loading rate = 0.16 $m^3/d\text{-}m^2$.

The results showed that three experimental unit quite well .The percentage removal of BOD were 94.66, 95.40 and 94.49,respectively.For COD were 85.42, 86.26 and 83.72,respectively. For TKN were 77.12, 81.25 and 77.62,respectively. For Phosphorus were 64.24, 69 and 64 .95, respectively.

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