NEW DEVELOPMENT FOR SEPTIC TANK TO IMPROVE EFFLUENT QUALITY

A Thesis
Submitted to the Faculty of Engineering
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of the Requirement of Ph.D. Degree
In Civil Engineering

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(SANITARY ENGINEERING)

By

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DEDICATION

I wish to dedicate this work to who suffered to educate, support and encourage me during the thesis work

TO MY PARENTS, MY SISTER

MY BROTHER

Also, I wish to dedicate my thesis to my professors

PROF. DR. MOHAMED EL HOSSEINY EL NADI
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For the encouragement and support to complete this work.

STATEMENT

This dissertation is submitted to Ain Shams University, Faculty of Engineering for the degree of Ph.D. in Civil Engineering.

The work included in this thesis was carried out by the author in the department of Public Works, Faculty of Engineering, Ain Shams University, from January 2014 to February 2018.

No part of the thesis has been submitted for a degree or a qualification at any other University or Institution.

The candidate confirms that the work submitted is his own and that appropriate credit has been given where reference has been made to the work of others

Date: - ---/-- /2018

Signature: - ----------------

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ABSTRACT
OF Ph.D THESIS

NAME*: -* *MOHAMMED HELMY AHMED ABBAS*

Title*: -* “ *NEW DEVELOPMENT FOR SEPTIC TANK TO IMPROVE EFFLUENT QUALITY* ”

Faculty : - Faculty of Engineering, Ain Shams University.
Specialty: - Civil Eng., Public Works, Sanitary Eng.

Abstract:-

Despite the difference in sanitation coverage between urban and rural areas, there is a challenge to meet the maximum coverage for the sanitation all over the world. In small communities, a rural home has its own sewer system which is a septic tank. According to the high construction, operation and maintenance costs for conventional wastewater collection and treatment system there is a need to improve the on-site treatment units.

This study conducted to check the success of applying the using different types of fabric textile to improve septic tank effluent. The study divided to two stages, first stage made on bench scale model located in El Shorouk academy sanitation laboratory and the second stage made on pilot plant erected in Ezbt Sharf, Belbis, El Sharkia governorate. The study analyzed several wastewater samples from several locations from the pilot to obtain the efficiency of the unit. The measured data had been analyzed and discussed.

Using textile fabrics improve septic tank effluent quality in bench scale model, where cotton and non woven polypropylene geo – textile 800 gm achieve high removal efficiencies of TSS, BOD and COD. But this study mentioned that using non woven polypropylene geo – textile 800 gm is more effective and economically and obtain the equation that can be used to calculate the efficiency at anytime.

Key words: wastewater treatment, Septic tank, textile fabrics, filtration and capillarity.

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