

UNIVERSITI TEKNOLOGI MARA

ECS 316 CIVIL ENGINEERING DESIGN PROJECT

DOUBLE-STOREY BUNGALOW SHAH ALAM

DELIMA CONSULT SDN. BHD.

DIPLOMA

SEPTEMBER 2016

## **1.0 ACKNOWLEDGEMENT**

I am using this opportunity to express my gratitude to everyone who supported me throughout the course of this final year project. I am thankful for their aspiring guidance, invaluable constructive criticism and friendly advice during the project work.

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I would also like to thank my project external guide En. Khatif and Miss Izzyanti and all the people who provided me with the facilities being required and conducive conditions for my final project.

Thank you.

## **2.0 PROJECT DETAILS**

Delima Consult is managing two projects which are Reinforced Concrete Double-Storey House Project and Elevated Steel Water Tank Project.

### **1. Reinforced Concrete Double-Storey House**

Reinforced Concrete Double-Storey House Project is a project of constructing a double-storey bungalow at Lot 547, No. 21 Jalan Mendapan 8/21, Seksyen 8, 40000 Shah Alam, Selangor. The clients for this project are Tetuan Siti Khadijah binti Ahmad and Umami Kalsom binti Ahmad. The project was designed by a nominated architecture, Ar. Mohd Ali Salikin from Lembaga Arkitek Malaysia. Delima Consult is in charge in proposing the detailed design of the project including the structural drawing of the project and the checking of the specified data such as the sizes of structures, the types of structures, the materials used, etc are satisfactory for a solid construction and building.

The project is designed using Esteem Software where the detailed design of the project is produced. The detailed design includes the structural drawing, the report of the project and the detailing of structural members such as beams, slabs, column and foundation. Before using the software, the manual calculation is done first. The manual calculation is a manual design of each structural members to calculate the load cater by each structural members. Since the load is transfer from top to the bottom structure, the calculation is begin with beam structure. Then proceed with slab, column and foundation. For this project, calculation of staircase is included given the project is a double-storey house. The adequacy of soil for this project is also calculated as it is important in order to construct a solid and stable house.

## 2. Elevated Steel Water Tank

For this project, Delima Consult is required to design water tank for the Marine Fish and Shrimp Hatchery Centre located at Merchong, Pahang. The water tank is the elevated type and made of steel. The elevated steel water tank was designed by a nominated architecture from Lembaga Arkitek Malaysia. Delima Consult is in charge in proposing the detailed design of the project including the structural drawing of the project and the checking of the specified data such as the sizes of structures, the types of structures, the materials used, etc are satisfactory for a solid elevated water tank.

The design consist of four level where the water tank is placed on the highest floor which is level four. There are two tanks of water at the fourth floor and each tank is estimated to hold 3,000 gallons of water. The calculation of the primary beam, secondary beam, column, connection and tension member of the elevated water tank is done manually. All the structure members must be adequate to cater the load from water tank.

### **3.0 COMPANY BACKGROUND**



### **3.1 COMPANY PROFILE**

DELIMA CONSULTANT SDN. BHD. was founded in 2016 with the express purpose of providing specialised services in the Structural and Civil Engineering fields. Delima Consult specialises in providing Structural and Civil engineering services to mainly private sector clients, and as such economy of design is at the forefront of our work ethic. Large numbers of projects ranging in commercial, retail, industrial and special structures have been successfully completed, on time and within budget.

Our objectives are to combine all applicable problem solving skills in providing solutions that are functionally sound, economically feasible and practical, while maintaining a commensurate standard of technical excellence. We offer a hands-on approach and a strong commitment to creating projects that are economical, constructible and functionally sound. We believe in combining the latest technology in analysis and AutoCAD systems with a practical approach based on our experience and knowledge of the construction industry.