THE EFFECTS OF PARTICLE SIZE OF COARSE AGGREGATES ON THE COMPRESSIVE STRENGTH OF CONCRETE FROM SELECTED QUARRY SITES IN TABLAS ISLAND, ROMBLON

A Thesis Presented to the
Faculty of the College of Engineering and Technology
Romblon State University
Odiongan, Romblon

In Partial Fulfillment of the Requirements for the Degree
Bachelor of Science in Civil Engineering

By

Anin, Keith G.
Capillo, Sharmaine Joy T.
Fallaria, April G.
Fetalvero, Jan P.
Fruelda, Angelica F.

April 2018

THE EFFECTS OF PARTICLE SIZE OF COARSE AGGREGATES ON THE COMPRESSIVE STRENGTH OF CONCRETE FROM SELECTED QUARRY SITES IN TABLAS ISLAND, ROMBLON.

Anin, Keith G.
Capillo, Sharmaine Joy T.
Fallaria, April G.
Fetalvero, Jan P.
Fruelda, Angelica F.

ABSTRACT

This study was conducted in order to investigate the particle size of aggregates found in the different quarry sites in Tablas Island, Romblon, It sought to determine the compressive strength of sample using aggregates coming from Tuburan, Gabawan and Progreso Este and establish comparisons on the resulting data.

Preparation of samples for compressive strength followed the American Society for Testing and Materials (ASTM) and American Association of State Highway and Transportation Officials (AASHTO) standards before conducting the actual experiment. Cylindrical specimen had undergone wet curing for 14 and 21 days and were air dried for 2 to 3 hours before the test using the Universal Testing Machine (UTM).

The study was conducted from December 2017 to February 2018 at Romblon State University, College of Engineering and Technology.

Test findings after 14 and 21 days showed that concrete samples using aggregates hauled from Tuburan, Gabawan and Tuguis with sizes ½", ¾" and 1" respectively exhibit highest compressive strength of 5.64 MPa and 6.6 MPa, 7.32 MPa and 7.26 MPa, 5.06 MPa and 5.72 MPa respectively.

Also, F-Test revealed that there is no significant difference on replication of samples. There was also an interaction between location and size, location and curing as well as between location, size and curing. Among all the interactions location and size has high significant difference with each other. However, all results did not meet the 24 MPa (3500 psi) minimum strength requirements for Class A concrete.