

**PROPOSED DESIGN OF SUSPENSION BRIDGE CONNECTING
BANCOD AND MATAAS NA LUPA ACROSS
JORDAN RIVER IN INDANG, CAVITE**

Design Project

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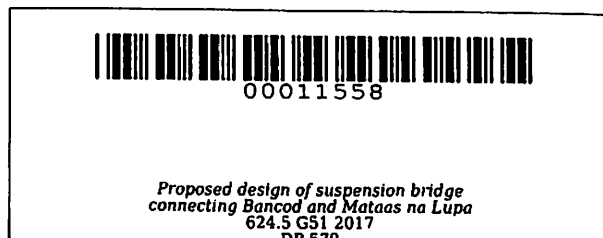
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**PROPOSED DESIGN OF SUSPENSION BRIDGE CONNECTING
BANCOD AND MATAAS NA LUPA ACROSS
JORDAN RIVER IN INDANG, CAVITE**

Undergraduate Design Project
Submitted to the Faculty of the
College of Engineering and Information Technology
Cavite State University
Indang, Cavite

In partial fulfillment
of the requirements for the degree
Bachelor of Science in Civil Engineering



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ABSTRACT

GLORIANI, ROXCELL J. and PULIDO, MARK ANTHONY V. Proposed Design of Suspension Bridge Connecting Bancod and Mataas na Lupa Across Jordan River in Indang, Cavite. Undergraduate Design Project. Bachelor of Science in Civil Engineering. Cavite State University. Indang, Cavite. May 2017. Adviser: Engr. Marcelino A. Dagasdas Jr.

The analysis and structural design of this Suspension Bridge was conducted from June 2016 to February 2017 at Cavite State University.

Indang has 36 barangays that are mostly separated by creek or river. One of these barangays where improvement of transportation system is needed is Bancod. It has limited bridges and road networks. Therefore, a need for construction of a bridge across Jordan River and a road network system for the residents of the Mataas na Lupa and Bancod.

The objective of the study was to conduct an analysis and design of suspension bridge across Jordan River in Indang, Cavite and road network system connecting Barangay Mataas na Lupa and Barangay Bancod using engineering procedures, as well as to prepare architectural and structural plans of the bridge, to provide the types of materials that will be used in the construction, and to provide a detailed cost estimate of the entire project.

The estimated total project cost of the suspension bridge is P 351,850,000.00.

The Engineering Software STAAD (Structural Aided Analysis and Design) was used in the analysis of tower. The guidelines set by the National Structural Code of the Philippines for Bridges (NSCP) 1997, Department of Public Works and Highways

(DPWH) and American Concrete Institute (ACI) were followed in the design computation. The maximum moment, shear and axial loads were the basis for the design.

All needed specifications were followed in the design process. Detailed analysis of the design was proven safe and economical after the manual computation of the design.

The suspension bridge was designed by applying the authors' knowledge and skills. Based on the conducted analysis and design, a suspension bridge is recommended with a minimum span of 300.00 meters with a center span of 210.00 meters.

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PROPOSED DESIGN OF SUSPENSION BRIDGE CONNECTING BANCOD AND MATAAS NA LUPA ACROSS JORDAN RIVER IN INDANG, CAVITE

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INTRODUCTION

Bridges are structures constructed to carry different forms of loads including pedestrians, vehicles, railways and canals. Bridges carry significant traffic and their upkeep is very important to maintain transportation mobility. They offer grace and functionality yet are extremely complex to construct and maintain (Alampali and Moreau). They are designed per economic value, functions and the availability of materials. These materials can either be timber, steel and concrete.

One of the types of bridges is suspension bridge. Suspension bridges are graceful, aesthetic and iconic structures. Due to their attractiveness and visibility, they are well-known symbols of major cities and countries in the world. They are also an essential form of transportation infrastructure built across large bodies of water (Alampali and Moreau).