COMPREHENSIVE SEMESTRAL REPORT AT PANGASINAN IRRIGATION MANAGEMENT OFFICE OF NATIONAL IRRIGATION ADMINISTRATION REGION I

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An Undergraduate Field Practice Manuscript Submitted to the Faculty of the Department of Agricultural and Biosystems Engineering, College of Engineering, Central Luzon State University, Science City of Muñoz, Nueva Ecija, Philippines
in Partial Fulfillment of the Requirements
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BACHELOR OF SCIENCE IN AGRICULTURAL ENGINEERING
(Soil and Water Conservation Engineering)

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ACCEPTANCE SHEET

This field practice manuscript entitled **"COMPREHENSIVE SEMESTRAL REPORT AT PANGASINAN IRRIGATION MANAGEMENT OFFICE OF NATIONAL IRRIGATION ADMINISTRATION REGION I,"** prepared and submitted by **ROCHELLE ANN S. MILAR**, in partial fulfillment of the requirements for the degree of **BACHELOR OF SCIENCE IN AGRICULTURAL ENGINEERING (SOIL AND CONSERVATION ENGINEERING),** is hereby accepted:

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BIOGRAPHICAL SKETCH

Rochelle Ann S. Milar was born on October 27, 1997 at Laoac, Pangasinan. She is the youngest among the four (4) children of Mr. Reynaldo C. Milar and Mrs. Myra S. Milar. She has one (1) sister namely Krizza S. Milar-Morondoz, and two (2) brothers namely Glenn S. Milar and Raymark S. Milar.

She completed her elementary at Lyceum Northern Luzon (LNL), Inc. at Urdaneta City, Pangasinan on the year 2009 and continued her secondary education at the same institution on the year 2013. On those years, she learned to focus on some important matter like her studies, she learned to participate in some curricular activities that help her boost her confidence and help her built her character. She pursued her Bachelor's Degree in Central Luzon State University and took up Bachelor of Science in Agricultural Engineering.

Her college life was well spent and full of challenging lessons that molded her to become an educated person. They were well spent years in building a strong friendship to every the individuals who became her inspiration and who supports her during ups and downs. Her college life was one of her best stepping stones for making her dreams possible.

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ABSTRACT

MILAR, ROCHELLE ANN S., Department of Agricultural and Biosystems Engineering, Central Luzon State University, Science City of Muñoz, Nueva Ecija, **June 2019, COMPREHENSIVE SEMESTRAL REPORT AT PANGASINAN IRRIGATION MANAGEMENT OFFICE OF NATIONAL IRRIGATION ADMINISTRATION REGION I**

Adviser: MARLON T. DELOS SANTOS, M. Sc.

Field practice is the work that has been done to gain knowledge and to have practical experiences through direct observation. The field practice programs provide an opportunity to apply previous knowledge, view real examples set in a worldly framework, and opportunity to be involved, physically, with real situations in the field. All of this promotes a deeper understanding of the subject being studied and an improved ability to recall the information and experiences, later, as needed.

The activity that was performed was Detailed Engineering Design for the Irrigation Project. The preparation of detailed engineering design of check structure includes the validation of the proposed site for the irrigation project, topographic surveying and generating a topographic map, preparation of detailed engineering design and preparation of the program of works (POW) or cost estimates for the proposed check structure.

The activity was performed using a total station and a leveling staff to gather the elevations and coordinates that are needed for the generation of the topographic map. Data gathered was saved and imported in the CAD software to generate the topographic map. List of materials and works was then prepared for the program of works (POW).

The site validated was Barangay Bolo, San Jacinto, Pangasinan. It has an irrigable area of 20 hectares and a catchment area of 90 hectares. The selected design flood discharge, Q, was 45 cubic meters per second (m^3/s). Upstream apron elevation was 37.0 m. Downstream apron elevation was 36.5 m. Length of crest was 3.0 m. The total direct cost estimated for the construction of the check structure in Barangay Bolo, San Jacinto, Pangasinan is Php 15,300,000.00 and meets the Php 200,000.00 development cost per hectare set by BSWM for the improvement construction of check structure.

LITERATURE CITED

ARISP. 2010. Notes on Detailed Design of Irrigation Component for ARISP. Workshop for NIA Design Engineers.

BUREAU OF SOIL AND WATER MANAGEMNT. 2008. Small Water Impounding Project (SWIP). Diliman, Quezon City. Assessed March 24, 2019 from http://www.bswm.da.gov.ph/download/00123/small-water-impounding-pr oject-swip-pdf.

CLAYDON, J. 2014. Broad Crested Weir. Broad Crested Weir. Retrieved on March 25, 2019 from http://www.jfccivilengineer.com/broad_crested_weir.html.

CRUISE, J. AND M, SHERIF. 2007. Elementary Hydraulics. Toronto, Ont.: Thomson/Nelson, 2007. Print.

DEPARTMENT OF PUBLICWORKS AND HIGHWAYS JAPAN INTERNATIONAL COOPERATION AGENCY. 2010. Technical Standards and Guidelines for Design of Flood Control Structures. Project for the Strengthening of Flood Management Function of the DPWH.

ICID, 2000. Role of Dams for Irrigation, Drainage and Flood Control. ICID Position Paper.

KAVANAGH, B. and S.J, GLENN BIRD. 1996. Surveying principles and applications (4 ed.). Prentice Hall. pp. 257–264. ISBN 0-13-438300-1.

KAY, M. 2007. Hydraulic Structures for Channels. Practical Hydraulics. CRC, 2007. Print.

MINCHIN, M. 2003. Introduction to Surveying. Second Edition. ISBN 0 7307 9218 8.

OPENMAPS 2017. Survey Total Station. Assessed on March 21, 2019 from https://www.slideshare.net/OpenMapsLimited/survey-total-station-iv.

ORBITAL AFRICA. 2018. Topographic and Bathymetric Surveying. Assessed on March 20, 2019 fromhttps://www.env.go.jp/earth/report/h1608/eng/PDF/018.p/df.

SCHOFIELD, W. AND M. BREACH. 2007. Engineering surveying. Sixth Edition. Published by Elsevier Ltd.All rights reserved.

SMOUT, I. AND R. SHAW. 2012. Small-Scale Irrigation Design. Retrieved on March 23, 2019 from www.lboro.ac.uk>well>technical-briefs.

SUTHERLAND, E AND T. TAYLOR. 2014. CIVE 401 – Hydraulic Engineering. Weir. Retrieved on March 25, 2019 from www.engr.colostate.edu.

TOPOGRAPHIC SURVEY. Chapter 14 Direct Leveling and Basic Engineering surveys. Integrated Publishing. Retrieved on March 10, 2019 on www.emgineering training.tpub.com.

USACE. 2004. General Design and Construction Considerations for Earth and Rock-Fill Dams. Engineering Manual. Engineering and Design. Retrieved on March 22, 2019 from www.publications.usace.army.mil.

WILSON, J. 2011. Importance of Field Study Programs. Journal of the Sierra College Natural History Museum. Vol. 4 no. 1.