



Evaluation of Feasibility of Berthing Facility at Ulee Lheue Ports, Aceh Province

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Abstract. 600H fenders with a distance of 9.56 between fenders and the number of fenders being 6 Ulee Lheue Harbor is located in Meuraxa District, Banda Aceh. The Ulee Lheue Ferry Port has water facilities in the form of fenders, bolders, breasting dolphins, mooring dolphins, and catwalks, however, the water facilities currently still have many deficiencies and weaknesses and are experiencing damage. In this research the author used observation methods, calculating tidal data, calculating ship impact energy and documentation.

Based on the results of the analysis obtained, the condition of the berthing facilities on the fenders and bolders at the Ulee Lheue ferry port is not yet in accordance with the characteristics of ships served at the Ulee Lheue Ferry Port and the current condition of the depth of the port pool is in accordance with the characteristics of ships served at the Ulee Lheue port, Aceh Province. Based on current conditions, it is necessary to replace the fenders in accordance with a conscious ship, namely type V fenders. It is necessary to improve the distance between bolders to 21.25 meters and evaluate the berthing facilities every year by painting the berthing facilities using anti-rust paint to maintain the condition of the berthing facilities to last longer and function well.

Keywords: fenders, bolders, ports, berthing facilities, evaluation

1. Introduction

Ulee Lheue Harbor is located in Meuraxa District, Banda Aceh. Ulee Lheue Port has a very important role in supporting economic activities and equitable development in Aceh Province because water transportation is one of the modes of transport that connects the Ulee Lheue-Balohan, Ulee Lheue-Lamteng and Ulee Lheue-Serapung crossing routes. In the current condition of the berthing facilities, the condition of the pier is less effective given the conditions of usefenderswhich is at the Ulee Lheue Ferry Port, wherefendersUlee Lheue port is currently not suitable for ships to dock which could result in damage to the ship when docked and in sizefendersnot yet in accordance with the condition of the ship and dock at Ulee Lheue Harbor. Also positionboldernot yet in accordance with ships anchored at Ulee Lheue port. Subsequent paragraphs, however, are indented.

2. Research Methodology

The type of research used in conducting this research is quantitative methods. According to Arikunto (2006), quantitative research is a research approach that uses a lot of numbers, starting from collecting data, interpreting the data obtained, and presenting the results. And according to other experts such as Sujarweni, W (2014) quantita-

tive research is a type of research that produces discoveries that can be achieved (obtained) using statistical procedures or other means of quantification (measurement). The research instrument is tools will be used for collecting data, this research instrument can be in the form of a questionnaire, observation form, other forms related to data recording and so on. In this research, the instrument that will be used is a survey form regarding ship data such as ship name, ship weight, ship length and width and ship speed.

3. Results and Discussion

The data presented in this research is ship speed survey data Ro-Ro When berthing data is used to determine the type of fender that suits the type of ship and the strength of the ship when it is about to dock, the way to survey the ship's speed is to determine the distance from the ship to the pier which is then calculated using a stopwatch. This is done on all ships operating at the port. Ulee Lheue crossing, Ship Characteristics data Ro-Roused to calculate the type of fender suitable for the ship, calculate the quantity bolder, wide bolder, and at length pier, Radius Around the Center of Weight of the ship is used to determine the weight of the ship and determine the type of fenders, as well as Capacity data fenders V type and KCEF cell type to determine the strength of the ship's impact on the pier based on the energy absorbed fenders.

Based on facility data analysis fenders above then fenders used is not appropriate fenders which is needed because when berthing the impact energy is greater than the strength of the fender which results in the ship experiencing damage or damage to parts of the ship's hull.



Figure 3.1 Current Condition of Fenders

The current fender is a KCEF 500 cell type fender. According to Triatmodjo,

Bambang (2009: 273) in the Port Planning book, it has characteristics of a height of 0.8 meters with a diameter of 0.5 meters with a frontal frame size of 3 meters long, 1.5 meters wide and strong. impac absorption 4.20 tons/meter.



Figure 3.2 Condition of the Ship's Body

The impact energy caused by the ship is 7.433 tons/m so the appropriate type of fender is type V 600H fender and the distance between fenders is 9.56 meters with a total of 6 fenders for the dock. So with a fender level that matches the calculations, the fender can last longer because the energy received by the pier can be properly withstood by the fender.

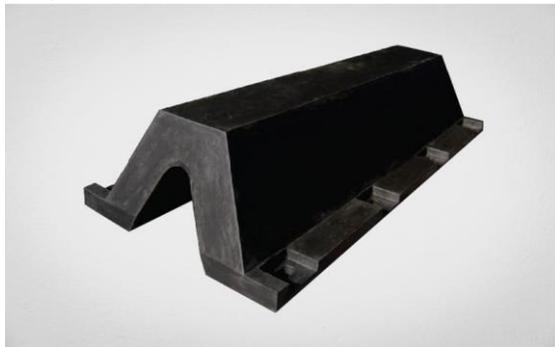


Figure 3.3 Fender type V 600H

Source: <https://www.niri-rubber.com/>

The results of the analysis show that the condition of the fenders and bolderos of Ulee Lheue port is not satisfactory because they have suffered damage such as fenders that have been torn and hanging and bolderos that are damaged.

It has rusted due to age and weather factors, and if you look at the Bambang Triadmojo port planning book, the length and width of the pier are adequate because the calculation results and conditions in the field are already close.

4. Conclusion

The current condition of the pier length is not suitable and the condition of the depth of the port pool is in accordance with the characteristics of ships served at the Ulee Lheue port, Aceh Province, namely a minimum depth of 3.8 meters and the current condition is that the average water level of the port pool is 3.9 meters. Based on the results of the analysis obtained, the condition of the berthing facilities atfenders And-bolderat the Ulee Lheue Ferry Port does not match the characteristics of the ships served at the Ulee Lheue Ferry Port.

Based on the results of data analysis and problems, suggestions can be given as input for improving the quality of service at water side facilities, namely berthing facilities at Ulee Lheue port such as: It is necessary to increase the length of the pier by 15 meters from the current pier condition of 68 meters to 83 meters and evaluate the berthing facilities every year by painting the berthing facilities using anti-rust paint to maintain the condition of the berthing facilities to last longer and function well. Need to replacefendersaccording to the ship at anchor, namelyfenders cell type V 600H with a distance of 9.56 betweenfendersand the number of fenders required is 6 piecesfendersand the need to improve the distance betweenbolder to 21.25 meters

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