THE PLANNING OF COLD MIXED RECYCLING ON THE OLD PAVEMENT AS ALTERNATIVE FOUNDATION TO LAYER STRUCTURE (CASE STUDY NATIONAL NORTH ROAD)

Name of Student : Mokhammad Asep Wildan
NRP : 3111 040 501
Department : Civil Engineering, FTSP – ITS
Advisor Lecturers : Ir. Rachmad Basuki, MS

Abstract

Lane road north coast of Java island (northern coast) is a strategic and economical transportation routes with heavy traffic volumes and high vehicle loads. Existing road surface is thick enough layer of asphalt coating results (overlay) a few times and existing road foundation layers is estimated to have decreased the power to require improvement. One effort to improve the road is the development of recycling technologies or recycling. Cement Treated Recycling Base (CTRB) and Cold Mix Recycling by Bitumen Foam (CMRFB) stabilization technology is the foundation of the road with cold mix recycling system on the pavement. The principle of this process is to utilize the existing road material that had not had the structure to be processed and value added additive materials that can be reused with a higher value of the structure.

Material used for research material taken from this dredging roads Batang – Pekalongan (Pantura Roads). In this study a two-stage process is the process of Cement Treated Base Recycling (CTRB) and the Cold Mix Recycling by Bitumen Foam (CMRFB). Quality requirements of the test object Cement Treated Recycling Base (CTRB) is appropriate Special
Specifications Division VI B CTR/08/01 with a minimum compressive strength of the free / unconfined Compressive Strength (UCS) 30 kg/cm². While the quality requirements of the test object Cold Mix Recycling by Foam Bitumen (CMRFB) is appropriate Special Specifications Cold Recycled Mix Paved with Foam Bitumen Lapis Foundation (Cold Mix Recycling Base by Foam Bitumen, CMRFB-Base) with value of ITS at least 300 kPa, the TSR minimum of 80% and the value of UCS at least 700 kPa.

The results for the Cement Treated Recycling Base (CTRB) obtained with the optimal composition of the cement content of 3.6%. While on the job Cold Mix Recycling by Foam Bitumen (CMRFB) obtained optimal composition of the RAP (68.5%) + Aggregate 10-15 (15%) + Aggregate 5-10 (15%) + Cement (1.5%) . The composition of the foam bitumen produce optimal levels of 2.55% with a value of 555 kPa Dry ITS and ITS Soaked value of 460 kPa. In terms of the cost of the work the foundation layers of recycled cold mix / Cold Mix Recycling by Bitumen Foam (CMRFB) is more efficient when compared to the foundation layer of Asphalt Treated Base (ATB) of 43,25%.

Keywords: Cold Mixed Recycling, Recycling Cement Treated Base (CTRB), Cold Mix Recycling by Bitumen Foam (CMRFB), Foam Bitumen