

**Analisis Pengaruh Batu Kapur Puger, Jember Sebagai Substitusi Agregat
Kelas B Berdasarkan Uji CBR**

***Analysis of the Effect of Puger Limestone from Jember as a Substitute for Class
B Aggregate Based on Cbr Testing***

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ABSTRAK

Pemanfaatan material lokal sebagai alternatif agregat perkerasan jalan dapat meningkatkan efisiensi penggunaan sumber daya. Penelitian ini bertujuan menganalisis pengaruh substitusi batu kapur terhadap karakteristik fisik, pemadatan, dan daya dukung agregat kelas B berdasarkan nilai *California Bearing Ratio* (CBR). Penelitian dilakukan secara eksperimen di laboratorium menggunakan variasi substitusi batu kapur sebesar 0%, 5%, 10%, dan 20%. Pengujian meliputi analisis saringan, berat jenis, penyerapan air, abrasi Los Angeles, batas Atterberg, *Modified Proctor*, dan CBR rendaman sesuai SNI serta Spesifikasi Umum Bina Marga 2025. Hasil penelitian menunjukkan bahwa agregat kelas B dan batu kapur memenuhi persyaratan karakteristik fisik dan gradasi. Peningkatan substitusi batu kapur meningkatkan kadar air optimum dari 7,27% menjadi 7,57% serta menurunkan berat volume kering maksimum dari 2,01 g/cm³ menjadi 1,88 g/cm³. Nilai CBR juga menurun dari 63,95% menjadi 55,91%. Substitusi batu kapur hingga 10% masih memenuhi persyaratan minimum CBR sebesar 60%, sehingga direkomendasikan sebagai batas optimum penggunaan batu kapur pada agregat kelas B.

Kata Kunci: Agregat Kelas B; Batu Kapur Puger; *California Bearing Ratio* (CBR); Proctor Modifikasi; Lapis Pondasi Jalan

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ABSTRACT

The utilization of local materials as an alternative for pavement aggregates can improve the efficient use of natural resources. This study aims to evaluate the effect of limestone substitution on the physical properties, compaction characteristics, and bearing capacity of Class B aggregate based on the California Bearing Ratio (CBR). Laboratory experiments were conducted using limestone substitution levels of 0%, 5%, 10%, and 20%. The tests included sieve analysis, specific gravity, water absorption, Los Angeles abrasion, Atterberg limits, Modified Proctor, and soaked CBR in accordance with SNI and the 2025 Bina Marga General Specifications. The results showed that both Class B aggregate and limestone satisfied the required physical property and gradation standards. Increasing limestone substitution raised the optimum moisture content from 7.27% to 7.57% and reduced the maximum dry density from 2.01 g/cm³ to 1.88 g/cm³. The CBR value also decreased from 63.95% to 55.91%. Limestone substitution of up to 10% still met the minimum CBR requirement of 60%, making it the recommended optimum substitution level for Class B aggregate.

Keywords: *Class B aggregate, limestone, California Bearing Ratio (CBR), Modified Proctor, pavement base course.*