Study of Using the Crushed Clay Bricks with Natural Aggregate as Unbound Subbase Pavement Layer in Segregated Form

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Construction and demolition of buildings and structures are producing excess or waste material which is including concrete, brick, steel, etc. Conservation and reuse of resources is a necessity in achieving sustainability across the globe, crushed brick could be safely added to recycled concrete aggregate and crushed rock blends in pavement sub-base applications with percent up to 25%. The experimental work was consisted of blending in four different patterns of Crushed Bricks Sand (CBS) with Natural Aggregate (NA), two of them were spread them in layers in alternated sequence form and the others two were collect one material at middle, in addition to the two control samples and then experimentally tested to compare with the requirements of Iraqi specification for roads and bridges. The experimental work was consisted of Atterberg limits, sieve analysis, moisture-density relationship and California Bearing Ratio (CBR) tests. The results show that using of the crushed bricks as sand with natural aggregate as unbound subbase in segregated form is feasible and agreed with the Iraqi specification requirements because the CBR of CBS was improved when blended with the NA at all the patterns, the best pattern is that which containing three layers NA and two CBS (60% NA and 40% CBS by volume) and the NA was at the top, then CBS in alternated sequence that improves the CBR value to 1.6 times compared with NA control or 8 times of CBS control because the sporadic distribution reduces the effect of the low bearing material, in another words; the collect the layers of the same material doesn't give best improvement.