- بحث منشور بعنوان

Evaluation of Using the Crushed Concrete Aggregate as Unbound Pavement Layer

الملخص

Population increase and economic developments can lead to construction as well as demolition of infrastructures such as buildings, bridges, roads, etc and the used concrete is the main waste product of them. Recycling of waste concrete to obtain the recycled concrete aggregates (RCA) for base and/or sub-base materials in road construction is a foremost application to be promoted to gain economical and sustainable benefits. Recycled Concrete Aggregate was taken from the tested samples of concrete cubes in the consultant bureau. The samples belong to the same group in order to ensure that they have the same composition. This aggregate was used to produce three groups of samples: graded as subbase (type B) and base course according to Iraqi specifications for roads and bridges. Two groups graded as subbase but with difference in amount of materials passing sieve size 0.075 mm (0%, 5%). The other sample was graded as base course with (5%) the lowest limit of materials passing sieve size (0.075) mm. The experimental tests adopted are: Atterberg limits, Moisture-density relationship, and California Bearing Ratio. CBR test’s results obtained from the Recycled Concrete Aggregate are still showing the highest values as compared with the ordinary local subbase materials, they show an increment by 28% when the RCA without filler and 80% when the RCA with 5% filler, the values are also high for base course exceeds the requirements by 60% increment. In light of the Iraqi specifications for roads and bridges they can be used as base and/or subbase course layer. To increase the CBR value the RCA needs the lowest amount of materials that pass the sieve size (0.075) mm.