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Exploring the Use of Iron Ore Tailings in Concrete by Partial Replacement of Fine Aggregates

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Abstract: *Concrete is the most durable, resilient, available and affordable material in the built environment. The manufacture of large quantities of iron ore has created difficulties for the environment and disposal. The utilization of IOT as fine aggregate in building material production is relatively feasible. Experiments were conducted to determine the suitability of iron ore tailings as replacement of fine aggregates for concrete. The iron ore waste was collected from Gua Iron Mines, Singhbum. Mix Design was carried out for concrete of grade M35 using standard practice for selecting proportions for normal weight. Iron ore waste replaced with fine aggregates in mixes by 30% and 35% respectively. The materials used for M35 grade of concrete is coarse aggregate 10-20mm, fine aggregate is of Zone 2, cement of 53 grade. Tests were performed on materials, for cement and fine Aggregate Fineness test, Specific Gravity were performed. Water absorption test, specific gravity, Impact value these were performed for Coarse aggregate. It was observed that compression values of concrete for 30% for 3 days its 13.703 Mpa, For 7 days its 16.503 Mpa, and for 28 it was 28.033 Mpa*

Keywords: IOT (Iron Ore Tailings), Fine aggregate of Zone 2, Impact value test.