

Jutatip Khiewjam 2009: Improvement of Crush Rock and Sand by Bottom Ash. Master of Engineering (Civil Engineering), Major Field: Civil Engineering, Department of Civil Engineering. Thesis Advisor: Associate Professor Prateep Duangdeun, M.Eng. 68 pages.

This research utilized the bottom ash, a waste material from power plant, to improve highway embankment materials including crush rock and sand. The study focuses on the effect of particles size distribution, the quantity of bottom ash, the curing times and amount of bottom ash on the properties of crush rock and sand. The crush rock and sand samples were collected from Chonburi and Nakhonsawan provinces, respectively. The crush rocks were sieved to obtain grade B grain size distribution according to Department of Highway Standard, Thailand. The bottom ash used in this studied is the waste from the BLCP power plant located in Rayong province. The crush rock samples were mixed with the bottom ash in proportion of 20, 25 and 30 percents by dry weight of the rock. The sand samples were mixed with the bottom ash in proportion of 10, 20 and 30 percents by dry weight of the sand.

The experimental results indicate that plasticity index and the maximum dry density tend to decrease with increasing the quantity of bottom ash, while the optimum moisture content tends to increase as bottom ash increase. Unsoaked and soaked C.B.R. values increase directly to the quantity of bottom ash and curing time. The bottom ash in proportion of 25 percent by dry weight is the appropriate quantity for mixing with the crush rock. Bottom ash could be used instead of sand. Coefficient of permeability values increase directly to the quantity of bottom ash, but curing time has no effect on coefficient of permeability.

Bottom ash can be used to stabilize the Crush rock and sand if mixing with the appropriate portion.

---

Student's signature

---

Thesis Advisor's signature

\_\_\_\_ / \_\_\_\_ / \_\_\_\_