

Abstraction

The north ring road in Semarang City – Central Java, is an important road since the function of products and services transportation which are passing this north trajectory of Central Java becoming more dense and commonly bring a very heavy load. Besides, this road often passing soil within a quite thick of sedimented alluvium; a clay ground within consistency from very soft until very hard slice, covered with underground coat, consists of compressible soft-slice land, and located in 5.00 until 20.00 metres depth. The load of vehicles, especially for the heavy loaded vehicles that passing through continuously, without recovering the soil before, the diminishing of consolidation about 2.5 metres will occur.

The soft-slice soil that we discussed before is the original soil, consisting some slices of soft until very soft soil consistence. From the analytical result, we found that those basic slices of soil are such a kind of clay slice, within a very high density and visually emerged as peat soil. There are two weaknesses of this soil; first it has relatively low strength which cannot support the high embankment of the road, second it has relatively high consolidation settlement that will shape the surface of the road become scraggly and waven.

The empowerment of basic soil system used in the early soft soil design for The Development Project of North Ring Road in Semarang City – Central Java, is using the combination of *Prefabricated Vertical Drain (PVD)* and *Geotextile Woven*. This combination has some advantages such as a large discharge capacity, a proper tensile strength of drains, a large permeability and permittivity filter, also the volatility in practice. Within the analysis, the writer also adding alternative methods through the combination of geotextile woven, bamboo pile, and anchored sheet pile which has almost the same advantage as the combination of PVD and Geotextile, but in more efficient ways in using materials.

Keyword : *Upper Embankment of Soft Soil, Prefabricated Vertical Drain (PVD), Loading, Tensile Strenght, Consolidation Settlement, Sheet Pile, Bamboo Pile*