

ABSTRACT

Rapid urban growth has caused an increase of infrastructure and building construction projects in recent years in terms of project scale and number. Many of which certainly involve the construction of deep foundation, including pile foundation. In particularly densely populated urban areas, the need for more environmentally friendly pile driving equipment, such as hydraulic static pile driver (HSPD), is therefore inevitable. The aim of this study is to study HSPD productivity in construction project. The objective is to produce charts model of HSPD productivity.

Data were collected through site observation from five building projects in Semarang, Surakarta, Pati, and Cepu. Modeling uses analytic, Cyclone simulation, ANN, and regression method. The model has been designed utilizing 150 data of point piling from the five projects and simulation, i.e. size of driven piles, piling depth, and cycle time. Validity, sensitivity, and statistic test been done to derive the best model of HSPD productivity.

The all models are good models. Value all of them is almost same. Average value all of them is used for constructing of ProHSPD. The results show that the productivity of HSPD for driving equilateral triangle 32 cm and square 25 cm, two piling depth kind that is 6 m and 12 m. Validation model shows valid result with average validity value more than 90% and standard deviation less than 4.46%. Sensitivity analysis shows a consistence model. This research demonstrates the application of four modeling for HSPD productivity assessment and it has produced a chart of HSPD productivity. This chart is valuable for practitioners to plan and to estimate time related to the use of HSPD for a construction project

Keywords: productivity, driven pile foundation, modeling, HSPD, chart