ABSTRACT

PT Semen Indonesia continues to strengthen its market penetration. This can be evidenced by the project factory packaging (packing plants) in Balikpapan, East Kalimantan. Packing plant development concept is based on the premise on cement demand growth in Borneo are so high. In the planning of the location there is a bulk cement storage silos with a height dimension of 36.9 m and a diameter of 16.848 m. And bear in mind that the burden of bulk cement silo amounted to 6000 tons. So that the necessary planning to support the weight of the silo foundation that is able to withstand loads subgrade silos that are in it. In addition, there are also loading the packing plant is cement. At the loading plant, there is a dynamic load on the engine bucket elevators that can lead to vibration in the loading area of the plant. Dynamic load is done when the engine work occurs repeatedly in a relatively long time, so it can not be ignored and should be given special attention in order to avoid losses.

On soil data, the results showed that the land was on the scene is the type of land planning software (N-SPT <10). In these
conditions, it will be difficult to carry out the construction of the silo foundation because the soil bearing capacity tends to be low and the possibility of sizeable consolidation compression. To overcome these problems it is necessary to repair subgrade, acceleration time of consolidation, and planning the foundation for silos and loading plant according to soil characteristics on the basis of the location of the packing plant.

Final design of foundations in the foundation have been shallow and deep foundations, so that the soil is able to support the weight of the silo base and keep the silo remained stable. So the basic soil improvement is necessary for silo planning to do. In addition, in this final project is also planned for the foundation of dynamic load loading plant site on which there are machines that produce dynamic loads. In planning the foundation of dynamic load used method Lumped Parameter System.

In planning the foundation of the calculation of bulk cement silo obtained piling depth of 25 m with a stake totaling 70 piles. In shallow foundation design alternatives bulk cement silo, although improvements have been made just below the soil bulk cement silo, but it still happens settlement of 2.628 m. Selected so that alternative plans for the foundation in the bulk cement silo. At the foundation of the machine bucket elevators, transformers and compressors, it can be concluded that the vibration that occurs does not exceed the specified limits, the limit refers to the amplitude and velocity of vibration on the operation of the machine work.

Keywords: Balikpapan, Packing Plant, Shallow Foundations, Deep Foundation, Silo, Loading Plant, Load foundation, Lumped Parameter System.