

ABSTRAK

Dalam pembangunan jalur kereta api lintas medan binjai menggunakan pondasi borpile yang digunakan sebanyak 8 buah kemudian disatukan dengan (*pile group*) ukuran lebar 11 m dan Panjang 5 meter diameter borpile Ø1200 mm,.hasil penyelidikan tanah yang dilakukan dengan pengeboran tanah (*borelog test*) sedalam 40 m, rekomendasi kedalaman tiang 35 meter berdasar hasil soil investigation Tujuan dari studi ini untuk menghitung daya dukung pondasi bore pile, dimana kapasitas daya dukung berdasarkan data *Standart Penetration Test* (SPT) dengan menggunakan 3 Metode yaitu ; Metode *Mayerhoff*, Metode *Reese & Wright* Dan Metode *Luciano Decourt*. Dari hasil analisa dan perhitungan daya dukung tiang hasil SPT dengan kedalaman 35 m diameter tiang 120 cm, Berdasarkan Metode *Mayerhoff* daya dukung tiang tunggal (Qult) sebesar 9255.64 kN, Metode *Reese* daya dukung tiang tunggal (Qult) sebesar 11832.90 kN, Metode *Luciano* daya dukung tiang tunggal (Qult) sebesar 9324.54 kN, Kemudian hasil analisa akan dibandingkan dengan data analisa PDA (*Pile Driving Analyzer*), diperoleh hasil pengujian PDA sebesar 8650.00 kN, Dari hasil analasi menggunakan metode diatas dapat disimpulkan bahwa menggunakan metode *mayerhoff* lebih mendekati hasil dari penujian PDA dengan selisih 605.64 kN, Kemudian dari hasil Analisa daya dukung tiang tunggal dihitung efisiensi kelompok tiang Q (gabungan) menggunakan Metode *Converse – Laberre* didapat Q gabungan (8 tiang dilapangan), Maka total beban yang dapat dipikul pondasi pada pier 38 yaitu, hasil metode analisa *Mayerhoff* sebesar 17030,359 kN.

Kata Kunci : Pondasi Bored Pile, Daya Dukung Tiang tunggal Dan Pile Group

ABSTRACT

In the construction of the Binjai cross-field railway line, 8 bored pile foundations were used, then combined with (pile group) with a width of 11 m and a length of 5 meters, a diameter of Ø1200 mm, the results of soil investigations carried out by drilling the soil (borelog test) as deep as 40 m, the recommended pile depth is 35 meters based on the results of the soil investigation. The purpose of this study is to calculate the bearing capacity of the bored pile foundation, where the bearing capacity is based on Standard Penetration Test (SPT) data using 3 methods, namely; Mayerhoff Method, Reese & Wright Method and Luciano Decourt Method. From the results of the analysis and calculation of the bearing capacity of the SPT pile with a depth of 35 m and a pile diameter of 120 cm, Based on the Mayerhoff Method, the bearing capacity of a single pile (Q_{ult}) is 9255.64 kN, the Reese Method, the bearing capacity of a single pile (Q_{ult}) is 11832.90 kN, the Luciano Method, the bearing capacity of a single pile (Q_{ult}) is 9324.54 kN, Then the results of the analysis will be compared with the PDA (Pile Driving Analyzer) analysis data, the PDA test results are 8650.00 kN, From the results of the analysis using the above method, it can be concluded that using the Mayerhoff method is closer to the results of the PDA test with a difference of 605.64 kN, Then from the results of the analysis of the bearing capacity of a single pile, the efficiency of the Q pile group (combined) is calculated using the Converse - Laberre Method in the combined Q data (8 piles in the field), So the total load that can be carried by the foundation on pier 38 is, the results of the analysis method Mayerhoff of 17030.359 kN

Keywords: Bored Pile Foundation, Single Pile Bearing Capacity and Pile Group