INTISARI

Pada akhir tahun 2014 terjadi tanah longsor di Kecamatan Kebomas, Kabupaten Gresik, Jawa Timur. Lokasi longsor berada pada wilayah strategis, Untuk itu diperlukan suatu upaya penanganan longsor agar lokasi ini dapat dikembangan menjadi bangunan yang bermanfaat seperti Ruko (*Shopping Centre*). Penanganan longsor yang diajukan adalah (1) Penataan geometri lereng, (2) Penanganan dengan struktur *berm* menggunakan bronjong, (3) Penanganan dengan struktur *berm* yang diperkuat geotekstil.

Dalam penelitian ini, dilakukan investigasi lapangan pada tanggal 20 Maret 2015. Investigasi lapangan dilakukan untuk mempelajari kondisi lapangan, serta melakukan pengambilan sampel yang diuji di laboratorium. Analisis penanganan longsor dilakukan dengan metode *limit equlibrium* menggunakan program Slope/W, dan metode elemen hingga menggunakan program Plaxis.

Hasil penelitian menunjukkan bahwa longsoran yang terjadi di lokasi penelitian berupa longsoran translasi. Longsoran ini disebabkan oleh perubahan tata guna lahan yang mengakibatkan terganggunya alur-alur air alami pada lereng. Hasil analisis alternatif penanganan longsor (1) didapatkan nilai faktor aman akibat beban statis 1,445-1,530, beban dinamis 1,154-1,232, deformasi akibat beban dinamis sebesar 29,4 cm, serta biaya konstruksi sebesar Rp 1.021.331.563,99. Hasil analisis alternatif penanganan longsor (2) didapatkan nilai faktor aman akibat beban statis 1,455-1,575, beban dinamis 1,193-1,260, deformasi akibat beban dinamis sebesar 28 cm, serta biaya konstruksi sebesar Rp 1.585.047.093,32. Hasil analisis alternatif penanganan longsor (3) didapatkan nilai faktor aman akibat beban statis sebesar 1,344-1,624, beban dinamis 1,112-1,291, deformasi akibat beban dinamis 22,7 cm, serta biaya konstruksi sebesar Rp 3.425.521.116,80. Hasil analisis dari ketiga alternatif masih memenuhi syarat, dimana SF akibat beban statis >1,25, SF akibat beban dinamis > 1,1 dan deformasi akibat beban dinamis masih kurang dari 1 m.

Kata kunci: Longsoran, Penataan geometri lereng, Struktur *Berm*, Bronjong, Geotekstil,

ABSTRACT

At the end of 2014, there was a landslide on Kebomas district, Gresik, East Java. This landslide occured in strategic region which can be developed into shopping area to boost economic activities. Then it requires effort to landslide remedial. In this research, propose landslide remedial with (1) Slope regarding, (2) Reinforced berm with gabion structure, (3) Reinforced berm with geotextile.

Site investigation was done on 20 March 2015. Site investigation was conducted to study condition of the site research and to collect soil sample that for laboratory examination. Landslide remedial analyses are solved by Slope/W using limit equilibrium method and by finite element method using Plaxis.

Based on site investigation, it is known that landslide movement is a translational landslide. This landslide occurred by changes of land use that distrurb natural water way. Landslide remedial alternative (1) analysis shows that safety factor due to static load is 1,445-1,530, due to dynamic load is 1,154-1,232, deformation due to dynamic load is 29,4 cm, then construction cost is Rp 1.021.331.563,99. Landslide remedial alternative (2) analysis shows that safety factor due to static load is 1,455-1,575, due to dynamic load is 1,193-1,260, deformation due to dynamic load is 28 cm, then construction cost is Rp 1.585.047.093,32. Landslide remedial alternative (3) analysis shows that safety factor due to static load is 1,344-1,624, due to dynamic load is 1,112-1,291, deformation due to dynamic load is 22,8 cm, then construction cost is Rp 3.425.521.116,80. Results of analysis is still eligible, where SF due to static loads > 1.25, SF due to the dynamic load > 1.1 and deformation due to dynamic load is less than 1 m.

Keywords: Landslides, Slope regarding, Berm, Gabion, Geotextille.