Abstract

The purpose of the work described in the article was to find the optimal location of the pumping station for the mining area Krzyżowice III Hard Coal Mine “Pniówek”. Mining exploitation causes lowering of the area and changes in water relations. Hence, it is necessary to perform a gravitational, and if it is impossible, forced outflow of water. Localization of the pumping station should assure removal of excess water and prevent flooding. Not only was the present relief taken into account, but also the entire period of the mine’s existence. On the basis of the results of airborne laser scanning a digital terrain model (DTM) was generated. Then a catchment division was made for the entire analyzed area. The article presents the workflow of performing the simulation as the area will be changed due to forecasted mining operations. A practical way to solve the problem of simplifying large amounts of data was also shown. The obtained source materials were developed with the use of the Geolisp software. The system operates in a CAD graphic environment and allows for automation of the most frequently performed works in the field of mining map preparation. The Geolisp cooperates with EDN-OPN program. Thanks to this fact it is possible to combine the obtained results of calculations of predicted deformations of the mining area and the rock mass with the digital map.

Key words: AutoCAD Civil, Digital Terrain Model, laser scanning, mining surface deformation