

MODELING OF A PROTECTIVE STRUCTURE FOR THE CONSTRUCTION OF DEEP FOUNDATIONS IN RIVERBED

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Abstract: Possibilities of protection of a construction excavation during the construction of deep foundations for a bridge in riverbed are tested in this work. The main goal is to provide waterproof work space for the construction works in the excavation. For the chosen geotechnical problem, two different variants of the construction excavation protection are analyzed. For each variant, approximate calculations and calculations using the computer program Plaxis are performed. Taking into consideration the strength and geometrical and stiffness characteristics of the structure and soil, it is possible, by using modern computer programs, to include the influence of the structure on the distribution of stress and strain in the range of considered problem definition. One of the basic conditions that mentioned calculations have to satisfy is the compatibility of structure displacement and soil. Stability of the protective structure during the execution is proved for both variants. The stability is proved by approximate calculations and by calculations in Plaxis. Hence, it is clear that if the interaction between the structure and soil is taken into consideration, the more realistic picture of the state of stresses in soil and structure is obtained, which leads to realization of more rational geotechnical structures.

Key words: modeling of structure, construction excavation protection, Plaxis.



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