

عنوان مقاله:

Treatment of weak clay by vacuum preloading and vertical drains without surcharge preloading

محل انتشار:

سومین کنفرانس بین المللی معماری، عمران، شهرسازی، محیط زیست و افق های هنر اسلامی در بیانیه گام دوم انقلاب (سال: 1402)

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نویسندگان:

Mohammad Mehdi Pardsouie – PhD candidate, Pars Geometry Consultants, Iran

Mahmood Salimi – M.Sc. Graduate, Kazerun Islamic Azad University, Kazerun, Iran

خلاصه مقاله:

With the increasing expansion of cities and industrial areas, the need for new land for construction has become inevitable. Most of these lands are usually located in areas where construction was not possible before due to the presence of loose soils. One of the usual methods to improve the soil in these areas, if there are soft clay layers, is to use an embankment with or without vertical drains and vacuum preloading. In this research, first, a summary of the preloading method using surcharge load and vacuum and vertical drains is mentioned, and then a case study that includes preloading by vacuum and without using surcharge load is numerically done by the FEM software. The obtained results show that if there be suitable geotechnical conditions, the use of vacuum preloading alone can also show favorable results. Using this method in areas where it is not possible to access suitable soil for the construction of an embankment, or because of the infrastructure structures and facilities in the vicinity of the area to be improved, where it is not possible to construct an embankment, it can be a very suitable option for improving the weak clay layer in that area. The results of this research can be used by companies and people active in the field of improving loose soils, especially in coastal areas.

کلمات کلیدی:

soil improvement, vertical drains, consolidation, vacuum preloading, clay

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