

## Key Principles and Importance of Applied Geomorphological Maps for Engineering Structure Placement

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**Abstract :** Applied geomorphological maps are crucial tools in engineering, particularly for the placement of structures. These maps provide precise information about the terrain, including landforms, soil types, and geological features, which are essential for making informed decisions about construction sites. The importance of these maps is evident in risk assessment, as they help identify potential hazards such as landslides, erosion, and flooding, enabling better risk management. Additionally, these maps assist in selecting the most suitable locations for engineering projects. Cost efficiency is another significant benefit, as proper site selection and risk assessment can lead to substantial cost savings by avoiding unsuitable areas and minimizing the need for extensive ground modifications. Ensuring the maps are accurate and up-to-date is crucial for reliable decision-making. Detailed information about various geomorphological features is necessary to provide a comprehensive overview. Integrating geomorphological data with other environmental and engineering data to create a holistic view of the site is one of the most fundamental steps in engineering. In summary, the preparation of applied geomorphological maps is a vital step in the planning and execution of engineering projects, ensuring safety, efficiency, and sustainability. In the Geological Survey of Iran, the preparation of these applied maps has enabled the identification and recognition of areas prone to geological hazards such as landslides, subsidence, earthquakes, and more. Additionally, areas with problematic soils, potential groundwater zones, and safe construction sites are identified and made available to the public.

**Keywords :** geomorphological maps, geohazards, risk assessment, decision-making

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