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Soft soil tunneling
Tunnels in soft soil are often constructed as bored tunnels, when the use of cut and cover method is not feasible or has undesirable consequences. Bored tunnels are more expensive than cut and cover tunnels, but they are often necessary in urban environments where the space available for above-ground structure is limited. Bored tunnels are also preferred when the ground conditions are not suitable for cut and cover construction, or when the ground water level is too high. When constructing tunnels in soft soil, attention must be paid to the deformation of the surrounding ground, as well as the groundwater flow. The use of appropriate construction methods and materials is crucial for minimizing the effects of these factors. The design and construction of bored tunnels must be carefully planned, taking into account the geological and hydrological conditions of the site. After the tunnel is constructed, it must be waterproofed and backfilled to prevent water from entering the tunnel and causing damage. The importance of geology in the planning of tunnels is stressed, as is the significance of the vast uncertainty and risk that exist in underground projects.