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Lattice Slope Foundation-Cantilever Structure Complex Road for the Roadway Widening in Steep-Sloped Mountainous Areas

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Authors [Liang Fan](#), [Zhi Xiang Zhou](#)

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Abstract In view of good geological condition non-cliff side slope road widening or new road construction, after contrasting and analyzing the characteristics of widening pattern of roads that have been built, lattice slope foundation cantilever structure complex road is proposed. Using slope foundation column which is casted depending on hillside, its top connect with deck of bridge supporting on the cantilever beam ,thus forms the flank roadway structure. This complex road can avoid deep-digging and high filling, lower construction cost.The construction method is simple, slope is also stable. Moreover, in the course of road widening, vehicle traffic will basically not be affected. In this paper, the method of construction technology, working principles, engineering application and economic, technical efficiency and environmental effectiveness have been analyzed, it shows that in road widening under appropriate condition, this method is safe and reliable, can significantly simplify the process, lower cost, and also maximize the protection of natural ecological environment.

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First page example



Lattice Slope Foundation-Cantilever Structure Complex Road for the Roadway Widening in Steep-Sloped Mountainous Areas

FAN Liang^a, ZHOU Zhixiang^b

Chongqing Jiaotong University, Chongqing 400074, China

^afanliang2001@gmail.com , ^bzhixiangzhou@cquc.edu.cn

Key word: highway, mountain road, road widening, lattice, cantilevered road, environmental protection

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Introduction

With the rapid development of world economy and increasing traffic, the demanding of highway grade aims higher and higher. The original low-grade roads generally faced with the issue of widening alteration, especially mountain road built in early times are mostly constructed in mountainous hills. The road-grade is significantly much lower limited by terrain, has become a bottleneck restricting economic development of mountainous areas.

Most mountain roads are built along river valleys, some tunneling, some large excavating, high filling embankment, some half-dug half-filled with large earthwork excavation. Due to inconvenient transportation, some of the spoil is discarded into the wilderness nearby or somewhere along the valley. Consequently, a lot of new problems, such as the river bed elevation, side compression, flood disruption will turn up. In addition, subgrade slope area takes a larger proportion, due to blasting, mountain natural weathering, peeling, handling and other influence factors, road rutting slope of half-dug or all dug easily lead to the hillside, cliff slope out of balance, causing erosion, and even induce landslides^[1-5].

To solve the above problem, the author has proposed a construction method of integral cantilever structure complex road, which is suitable for steep mountain area. It uses a combination structure of cantilever beam and column, avoids defects of deep-digging high-filling in existing technology, maintains the natural ecological environment, ensures the road structure safe, reliable and durable. And it makes disturbance to the original slope minimum, slope stable, the requirements for the number of nature conservation project on the structural basis relatively small. There are obvious advantages to build roads in condition of cliff slope road widening and high and steep slope.

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