USE AND EFFICIENCY OF GEOTEXTILE MATERIALS IN ROAD CONSTRUCTION

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ABSTRACT

In this article, the use of geotextile materials in the construction and repair of roads is growing. The strength of the geotextile material is high, the air is full, and the water is easily permeable. Geotextiles are widely used in road and hydraulic structures, transport and engineering communications.

Keywords: highways, geotextile, paving, pavement, asphalt, concrete.

Waterproof non-woven, woven and composite materials intended for use in building structures are called geotextile materials. The use of geosynthetic materials in road construction is growing, and the use of geosynthetic materials in road construction is expanding.

The road surface (asphalt, concrete) can be thought of as a unique multi-layered structure. It is known that the strongest material is selected as a basis for this construction. In the modern method of road construction, the function of such material is performed by geotextile. Geotextiles have been used in road construction to increase the abrasion resistance of road surfaces.

The strength of the geotextile material is high, the air is full, and the water is easily permeable. Geotextiles are widely used in road and hydraulic structures, transport and engineering communications. [1] The use of geotextile material not only eliminates the need for the use of crushed stone and drainage pipes, but also allows to increase the speed and service life of the construction of drainage structures, the operational reliability of the entire road structure. Due to its structure, filtration and strength properties are excellent. When cracked at the expense of a large amount of elongation, high-level distortions do not cause complete collapse of the material. Even due to the special structure, the filtering property prevents soil particles from entering the pores of the material. This ensures good stability even under strong impacts. Prevents scattering materials from being trapped by soil particles. As a result, the scattering material retains its function of load distribution. During construction, geotextile prevents uneven penetration of the woven material into the soil. This reduces the consumption of building materials. [1] Geotextile canvas forms a reinforcing layer on round soils, the surface of which is not load-bearing. The material resists deformation of the road surface and erosion of the slopes.

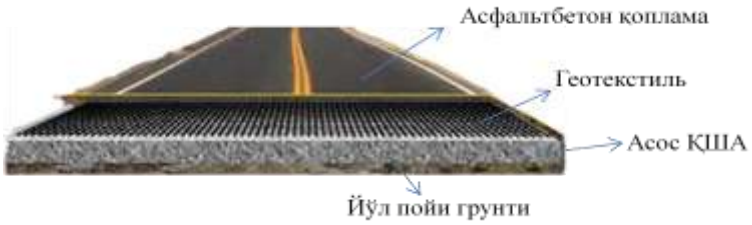

Figure 1: Location of geotextile material.

The main functions of geotextiles in the construction of roads and railways are:

-Reinforcement and strengthening of lifts and slopes;

-Protection from erosion and preventing the outer layers of the pavement from crossing each other;

-Soil filtration to prevent soil particles from entering the drain slow down;

-Soil drainage and accelerating the flow of water;

- Waterproofing

- prevention of water ingress into the working layer of the soil;

Geotextiles perform these functions at an excellent level due to the following features:

-Due to the high modulus of elasticity, the material can accept large loads and perform the function of reinforcement in relatively small deformations.

-Large elongation at the appearance of cracks (of the material up to 45% in strength), i.e. local injuries does not cause the material to decompose and it continues to perform its function.

High resistance to cracking and abrasion, which is especially important when laying the coating. [2]

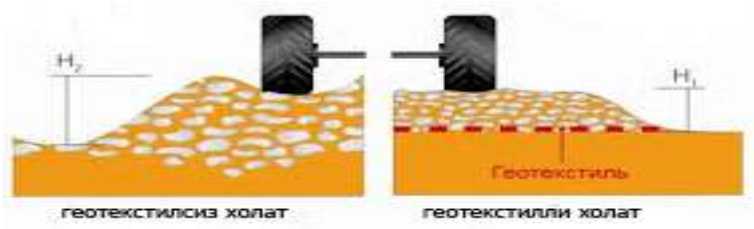

Figure 2: Application of geotextile material.

Advantages of using geotextiles:

- Reliability of road structures and increase their service life,

-Reduction of time between road repairs,

-The thickness of the pavement, as well as the reduction of construction costs for road structures,

-High construction efficiency in difficult conditions

- Long-term guarantee of the quality of the road surface.

Geotextile material has the following physical and mechanical properties:

Reinforcement - strengthening, strengthening of road structures to increase their mechanical resistance to large loads.

Protection and separation - protection of adjacent layers of the road surface from the passage of different fractional particles and separation of the lifting material from the base material. This is one of the main functions performed by geotextiles.

Filtration is the provision of stable filtration of soil particles from groundwater, sediment and snow and ice to protect the soil from leaching and to keep the drainage system running smoothly.

The organization of drainage and drainage system is an important task of geotextiles. Removal of excess water from road structures is carried out due to the smooth passage of moisture through the filter layer of geotextile.

Erosion protection is the stabilization of naturally degraded soils, which ensures the use of geotextiles in the reinforcement of loose soils as well as scattered uplift of shores and slopes. [3]

CONCLUSION

The material retains the top layer of surface soils and prevents deformation of the local landscape as well as subsidence of the foundation for construction. Cost-effectiveness can be achieved from the use of geosynthetic materials by reducing construction costs, increasing the service life of structures and ensuring a short-term increase in the maximum allowable loads on structural layers made of geosynthetic materials.

REFERENCES

1. Ушакова В.В., Ольховикова В.М. Строительство автомобильных дорог. М: Кнорус.2013. - 576 с.
2. МҚН 40-2009 автомобил йўлларида геосинтетик материалларни қўллаш бўйича йўриқнома.
3. ИҚН 68-11 автомобил йўллари курилишида георешетка материалларини қўллаш бўйича йўриқнома.
4. www.doroga.ru
5. www.road.ru