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FEATURES DRAINAGE SYSTEM ON CITY ROADS (ON THE EXAMPLE OF THE TASHKENT CITY)

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In accordance with ongoing economic development and urban development programs, transport and engineering infrastructure is linked to increased demand for water disposal systems on city roads and streets.

In last years, traffic movement on city roads and streets has been increasing in the Republic. In recent years, as a result of increased precipitation due to changes in air temperatures, rainfalls on city streets have a negative impact on road drainage systems and on the long-term operation of this system (Figure 1). As the city's water drainage ducts were designed nearly half a century ago, surface water in them increased and even increased to 0.6-0.7m. This will adversely affect the highway and reduce its longevity [1].

One of the main problems is the improvement of the system of water disposal and implementation of advanced international experience in this area, taking into account the reliable and long-term use of water disposal systems in the design and construction of urban roads.

Figure 1. Rainfall on the streets of Tashkent and Samarkand

Depending on the level of development and improvement of the city's engineering networks, the roads can be either closed or closed.

The open water drainage system consists of trays, drainage ditches (tubs, etc.), pipelines and bridges, natural ditches and other structures that cross the road at the

intersection. In most cities, the longest strip of the carriageway adjacent to the roadside is sometimes used for sewage trays with various cross sections and shapes.

An open water disposal system - sources [2,3] do not meet the modern requirements of urban amenities. In order to create a water disposal system at the intersection of roads, it is necessary to place crosswalks (Figure 2).

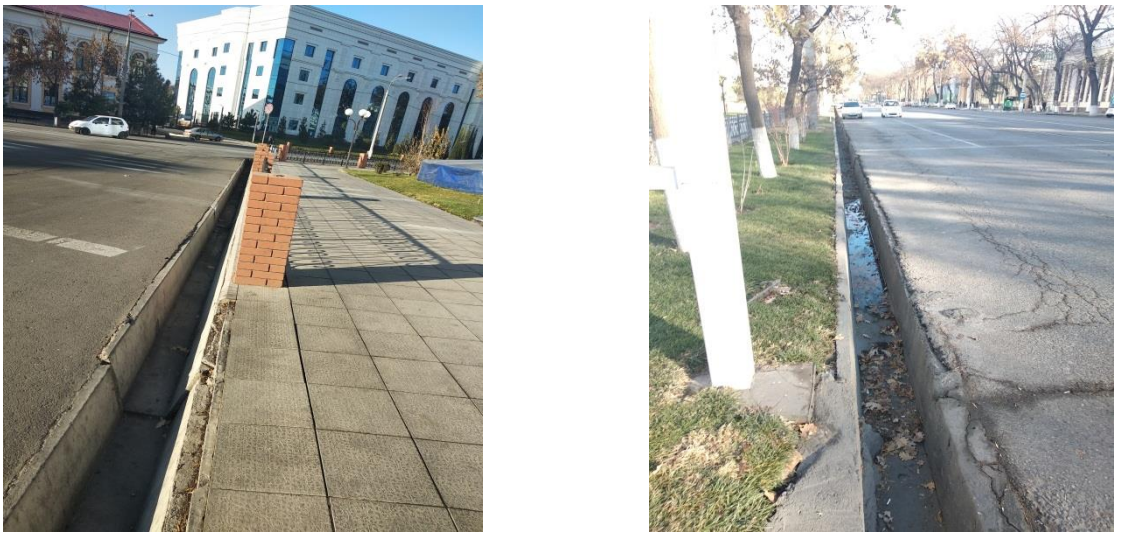

Figure 2. Open water drainage system on city roads

It quickly loses its profile to open ditches in cities. Therefore, they should be cleaned and rebuilt frequently. They occupy a large width of the street (4-5m), making it difficult for pedestrians and vehicles. In urban areas, open water drainage systems are allowed as temporary measures in small towns with a long slope of the street (no less than 5)), where watercourses are drained into natural ravines or pools, with no depth in the area.

A closed sewer system is a network of surface pipelines, rainwater wells, observation wells, and sometimes cameras and water outlets (Figure 3).

When the sewage system is closed and perfectly functioning, the upper part of the river enters the quarters and the surface water is collected into wells that receive rainwater that is in quartiles or microdistricts. As a result, the amount of water flowing into open loops decreases.

Wastewater network running through the upper reaches of the pond improves the sanitary condition of the city and improves its wellbeing. If sewage systems are closed and networked and the climatic conditions are favorable, it is necessary to connect the water from the roofs of the buildings to the open space without collecting them.

The main objective of a closed system drainage system is to reduce groundwater levels in quarters and streets, such as sewage, sewerage, and sewage systems, in addition to the rapid and complete disposal of surface water in urban areas.

Figure 3. Modern water intake (Germany)

The most modern surface water disposal system is a closed sewage disposal system that meets the highest standards of the city. The construction of multistoried buildings in microdistricts, especially in large cities, is unthinkable without the sewage disposal of surface water. In this case, it is unwise to exclude water from an open system as the anchors do not have access to rainwater from a large area. However, it is important to remember that even in a closed drainage system, some of the water is deposited on the surface.

To date, the system of water disposal in the urban areas of Tashkent has used an open system. This has shown its disadvantages in many places. In particular, as precipitation increases year by year, surface water enters the canals, which in turn causes them to rapidly overflow. In addition, in spring and autumn, trees are littered with leaves and light waste, which are not cleaned in a timely manner. This, in turn, prevents the timely discharge of water on rainy days.

In Tashkent, the largest part of annual precipitation (305 mm) falls on the coldest part of the year (October-March) and the smallest (119.4 mm) in the warmest part of the year (April-September). Over 41% of annual precipitation falls in the spring, with the remainder in winter (36%), fall (18%) and summer (5%) [4].

In Tashkent, the majority of atmospheric precipitation (66%) falls on rain, 11% on snow, and 23% on snow. In winter, the average snow cover is 14 cm, but it can sometimes reach 20-50 cm. The maximum snow cover height (54 cm) was observed on January 31, 1969 [4, 5]. As you can see, the open water drainage system on Tashkent's streets and roads creates a disadvantage.

To conclude, today's urban planning requires the creation of a safe movement for vehicles on urban roads and streets, the design of the pavement, taking into account the best methods for removing water from the roads. In addition, the long-term operation of the structure will result in the use of a closed water disposal system.

References

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