

EROSION CONTROL - MAINTENANCE

By

W. H. Root, Maintenance Engineer,
Iowa State Highway Commission

* * *

It is a fundamental fact that the highway maintenance problem varies inversely with the quality of planning and construction engineering. The better the job done by the planners and constructors, the easier it is for the maintenance department to make a showing. This fact is too often overlooked. Today one of the biggest jobs is trying to maintain to 1937 standards a road which was built twenty years ago to standards now obsolete.

Factors Involving

Water Erosion

Although highway erosion falls into two general classes --- wind and water erosion --- remarks are limited to factors involving damage from water:

1. The annual amount of rainfall.
2. The frequency and severity of heavy rainstorms.
3. Type of road soil.
4. Grades of various slopes, both longitudinal and lateral.
5. The concentration of drainage.
6. The amount and kind of roadside vegetation.

It is the duty of the maintenance department to change or improve these various factors so far as possible in order to reduce the damaging effects of surface water, though it is evident that nothing can be done about the first two factors.

If the roadside soil will not support vegetation, good soil should be hauled in from outside sources and spread over the poor soil to permit vegetative growth.

Use of Baffles

In many cases the grade of slopes can be changed by the maintenance department with a reasonable expenditure of money, so that old roads may be modernized and made more stable. This flattening of slopes also applies to ditch grades. Ditch slopes can be flattened readily by the construction of baffles. These must be carried far enough up the side slopes and must be made of sufficient capacity so that all ditch water will be carried through the baffle, which obviates cutting around the ends.

Backslopes

In many places in Iowa joint construction and maintenance projects have been drawn up for the flattening of backslopes. The right-of-way department has been persuaded to widen the road to 100 ft., and the adjacent land owner has been induced to move the fences back to the right-of-way lines. Backslopes have been flattened to from 2 to 1 to 4 to 1. In this way erosion is largely controlled and the slopes are put in shape to hold sod and to be mowed with conventional mowing machines.

Ditches

Concentration of drainage in a narrow "V" ditch invites erosion. Modern ditches are built with a flat bottom surface for the entire width so that water spreads out in a thin film and is thus prevented from cutting. Projects for flattening backslopes also include widening and flattening ditch bottoms.

Vegetation

The amount and kind of vegetation on the roadside is important. On slopes where grass will not grow satisfactorily it is recommended that low-growing shrubs be used which propagate themselves by new shoots from the root system or by roots from where the branches touch the ground. This type of vegetation forms a thick root mat which is effective in the prevention of erosion.

The maintenance department is best informed with reference to the need for erosion control. It must continually call to the attention of the powers-that-be the fact that such projects are necessary. In such a way roadside development projects will be undertaken as fast as funds are available.